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

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





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 Political Science (p. 293)  
 Psychological Science (p. 295)  
 Public Communication (p. 225)  
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 Vermont Studies (p. 279)  
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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

Beginning with the class entering during the fall 2008 semester, all undergraduates must successfully complete the University Approved Diversity courses: one three-credit course from Category One (Race and Racism in the U.S.) and a second three-credit course from either Category One or Category Two (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 diversity courses have been approved for academic year 2016-17.

ANTH 160	D1: North American Indians	3
ANTH 169	D1: Latinos in the US	3
ANTH 187	D1: Race and Ethnicity	3
CDAE 004	D1:US Food, Social Equity &Dev	3
CRES 051	D1:Intr Crit Race & Ethnic Std	3
CRES 061	D1: Asian-American Experiences	3
CRES 276	D1:Cross-Cultrl Psyc:Clin Pers	3
DNCE 150	D1:Jazz in American Dance	3
EC 053	D1:Political Economy of Race	3
EC 153	D1:African Amer in the US Econ	3
EDFS 001	D1:Race and Racism in the U.S.	3
EDFS 322	D1:Chall Multicult/Ed&Soc Inst	3
EDTE 056	D1:Lang Policy Issues,Race&Sch	3
ENGR 010	D1:Dvrsty Issues:Math/Sci/Egr	3
ENGS 031	D1:Topics in Afr-Am Lit & Cult	3
ENGS 057	D1:Race&Ethnic Lit Stds:Intro	3
ENGS 111	D1:Race & Ethnic in Lit Stdies	0,3
ENGS 159	D1: Afr Am Lit to Harlem Ren	3
ENGS 160	D1:Afr Am Lit &Cul Before 1900	3
ENGS 176	D1:Afr Am Lit since Harlem Ren	3
ENGS 177	D1:Topics 20C Afr Am Lit & Cul	3
ENVS 181	D1: Race, Class and Garbage	3
FTS 135	D1:Race & Ethnicity in Film/TV	3
GEOG 060	D1:Geography/Race&Ethnic in US	3
GEOG 163	D1: Race Geographies	3
GSWS 041	D1: Afr American Women Writers	3

GSWS 141	D1: Afr Amer Women's Writing	3
HDFS 141	D1: Interrogating White Identity	3
HLTH 155	D1: Racism & Health Disparities	3
HST 068	D1: Race & Nation in the U.S.	3
HST 187	D1: Afr Amer Hst: 1619-Civil War	3
HST 188	D1: Afr Amer Hst: Civil War-pres	3
LING 135	D1: Language & Ethnicity	3
LING 176	D1: African American English	3
MU 005	D1: Intro to Jazz History	3
MU 010	D1: Blues & Related Traditions	3
MU 011	D1: Chasing the Blues	3
MU 012	D1: Music & Culture: New Orleans	3
MU 019	D1: Latin Jazz Immersion	3
NR 006	D1: Race & Culture in NR	0,2
NR 207	D1: Power, Privilege & Envrnmt	1
POLS 028	D1: Race & Ethnicity in the US	3
POLS 029	D1: Amer Civil Rights Movemnts	3
POLS 129	D1: Const Law: Civil Rights Amer	3
PSYS 276	D1: Cross-Cultrl Psyc: Clin Pers	3
REL 123	D1: Rel, Race & Ethnicity in US	3
REL 127	D1: Caribbean Religion & Beyond	3
SOC 019	D1: Race Relations in the US	3
SOC 117	D1: Multiracial People & Identity	3
SOC 119	D1: Race & Ethnicity	3
SOC 219	D1: Race Relations	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
THE 076	D1: Contemp US Latina/o Theatre	3
VS 064	D1: Native Americans of Vermont	3
WLIT 116	D1: Latino Writers US: Cont Pers	3

ANTH 021	D2: SU: Cultural Anthropology	3
ANTH 023	D2: Anthro Global Development	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 088	D2: Sex, Gender, Health & Culture	3
ANTH 104	D2: Archaeology of the Americas	2-3
ANTH 152	D2: Chinese Culture	3
ANTH 161	D2: Cultures of South America	3
ANTH 162	D2: Cultures of Africa	3
ANTH 165	D2: Peoples of South Asia	3
ANTH 166	D2: Peoples of the Middle East	3
ANTH 172	D2: Gender, Sex and Culture	3
ANTH 174	D2: Culture, Health and Healing	3
ANTH 179	D2: Environmental Anthropology	3
ANTH 180	D2: Psychological Anthropology	3
ANTH 185	D2: Food and Culture	3
ANTH 189	D2: Aging in Cross-Cultrl Persp	3
ANTH 209	D2: Caribbean Archaeology	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 189	D2: Topics in Non-Western Art	3
ARTH 192	D2: Inter Spec Topics Asian Art	3
ARTH 285	D2: Seminar in Asian Art	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
CLAS 149	D2: Hist of Ancient Near East	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 031	D2: African Forms	3

DNCE 033	D2: Brazilian Dance	3
DNCE 035	D2: Argentine Tango	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:Introduction to EI/ECSE	3
EDFS 206	D2:Comparative Education	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 061	D2:Intro to African Literature	3
ENGS 179	D2: Topics in African Lit	3
ENGS 182	D2:Colonial/Post-Col World Lit	3
ENVS 002	D2:SU:International Env Stdies	0,4
ENVS 153	D2: Ethnobotany	3
ENVS 154	D2:Trad Ecological Knowledge	3
ENVS 167	D2: Global Env History	3
ENVS 179	D2: Ecofeminism	3
ENVS 182	D2:Religion and Ecology	3
FREN 282	D2:MultiethnicFrance:20-21C Lt	3
GEOG 050	D2:SU:World Regional Geog	3
GEOG 150	D2:Geography of Africa	3
GEOG 151	D2: Geography of India	3
GEOG 154	D2:SU:Geography of Development	3
GEOG 156	D2:Latin America	3
GRS 001	D2:SU:Intro to Global Studies	3
GRS 200	D2:Seminar in Global Studies	3
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 113	D2:Women & Religion in Africa	3
GSWS 131	D2: Sex in Modern History	3
GSWS 150	D2:Women and Gender in Society	3
GSWS 165	D2: Gender, Sex, and Culture	3

GSWS 179	D2: Ecofeminism	3
GSWS 280	D2: Queer Lives: LGBT History	3
HDFS 031	D2: Undoing Identity	3
HDFS 167	D2:Sexual & Gender Identities	3
HDFS 242	D2: Development of Prejudice	3
HDFS 243	D2: Cross Cultural Human Dev	3
HDFS 267	D2:Adv Gender & Sexual Iden	3
HLTH 103	D2: Intro to Global Health	3
HLTH 105	D2:Cultural Health Care	3
HLTH 106	D2:Bali:Conscious,Culture,Comm	3
HLTH 145	D2:Women's Hlth & Spirituality	3
HLTH 210	D2: Health and Culture: Oaxaca	3
HLTH 211	D2: Sustainable Dev Pub Hlth	3
HS 112	D2: History of Zionism to 1948	3
HS 119	D2: Modern Jewish History	3
HST 009	D2: Global History to 1500	0,3
HST 010	D2: Global History Since 1500	3
HST 035	D2: History of India to 1750	3
HST 036	D2:History of India since 1750	3
HST 040	D2: African History to C-1870	3
HST 041	D2: Africa C-1870 to Present	3
HST 045	D2: Hst Islam&Middle E to 1258	3
HST 046	D2: Hst Islam&Mid E Since 1258	3
HST 055	D2:History of China and Japan	3
HST 062	D2: Colonial Latin Amer Hist	3
HST 063	D2: Modern Latin Amer History	3
HST 067	D2: Global Env History	3
HST 106	D2: Himalayas:1750 to Present	3
HST 107	D2: Visual Cultures of India	3
HST 112	D2: History of Zionism to 1948	3
HST 119	D2: Modern Jewish History	3
HST 140	D2: W Africa:Holy War-Colonial	3
HST 141	D2:History of Southern Africa	3
HST 146	D2:Hist of Modern Middle East	3
HST 148	D2: Ancient Egypt Thru the Ages	3
HST 149	D2:Hist of Ancient Near East	3



HST 150	D2: Modern China	3
HST 151	D2: Modern Japan	3
HST 160	D2:Sex in Modern History	3
HST 211	D2: Cultrs of Colonialism:India	3
HST 240	D2: Compar Slavery:Hst Persp	3
HST 250	D2: Seminar in East Asian Hst	3
HST 252	D2: Seminar on China	3
HST 280	D2:Queer Lives: LGBT History	3
MMG 230	D2:SU:Adv St Emerg Infec Dis	3
MU 007	D2: Intro World Music Cultures	3
MU 014	D2: Music of Latin Am & Carib	3
MU 107	D2: World Music Cultures	3
NFS 050	D2:Cheese and Culture	3
NFS 073	D2:SU:Farm to Table: Food Sys	3
NFS 185	D2:Food and Culture	3
NH 202	D2: Social Justice and Health	3
PHIL 121	D2: Chinese Philosophy I	3
PHIL 221	D2: Topics in Chinese Phil	3
POLS 119	D2: LGBT Politics and History	3
POLS 157	D2:Int'l Politics Middle East	3
POLS 168	D2: Middle East Politics	3
POLS 174	D2: Latin American Politics	3
POLS 175	D2: Govt & Politics of China	3
POLS 176	D2:Govt & Politics of Japan	3
POLS 177	D2: Pol Systs of Trop Africa	3
POLS 266	D2:Politics of Persian Gulf	3
POLS 270	D2: Mexican Politics	3
POLS 280	D2: Central Asian Politics	3
POLS 290	D2:Post-Soviet Ethnic Conflict	3
PSS 003	D2:SU:Coffee Ecol & Livelihood	3
REL 020	D2: Comparing Religions	3
REL 021	D2: Religions in Asia	3
REL 023	D2: What is the Bible?	3
REL 026	D2:Religions in Africa	3
REL 029	D2:Religion and Globalization	3
REL 030	D2: Introducing Islam	3

REL 130	D2: Islam	3
REL 131	D2:Studies in Hindu Traditions	3
REL 132	D2: Buddhist Traditions	3
REL 141	D2: Religion in Japan	3
REL 145	D2: Religion in China	3
REL 163	D2:Women & Religion in Africa	3
REL 167	D2:Christianity in Africa	3
REL 234	D2:Buddhism in Sri Lanka	3
RMS 188	D2:Org&Ldrship in AthTrn&Ex Sc	3
SOC 122	D2:Women & Gender in Society	3
SOC 171	D2:Soc Chng&Dev Persp 3rd Wrld	3
SOC 212	D2: Int'l Migration & U.S. Soc	3
SOC 218	D2:Disability as Deviance	3
SOC 272	D2: Soc of African Societies	3
SWSS 047	D2: Theories in Social Work I	3
SWSS 048	D2: Theories in Social Work II	3
SWSS 147	D2: Theories in Social Work I	3
SWSS 148	D2: Theories in Social Work II	3
SWSS 229	D2:Soc Work&Disability Rights	3
WLIT 020	D2: Literatures of Globalizatn	3
WLIT 109	D2:Japanese Lit-Premodern	3
WLIT 110	D2:Clsscl Chinese Lit in Trans	3
WLIT 119	D2:Japanese Literature-Modern	3
WLIT 129	D2: Japanese Contemp Fiction	3
WLIT 145	D2: Comparative Epic	3

## SUSTAINABILITY COURSES

Beginning with the entering first-year class in fall 2015, all undergraduates 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 sustainability special topics courses and permanent courses have been approved for academic year 2016-17.

## SPECIAL TOPICS COURSES

CHEM 095 - when the topic is Environmental Risk

ENVS 095 - when the topic is Eco-Reps: Env Resp Behavior

ENVS 150/PRT 188/NR 185 - when the topic is Sustainable Development & Ecotourism in Cost Rica

ENVS 195 - when the topic is Energy Action Seminar; Env Entrepreneurship; or Climate Justice & Advocacy

ENVS 204 - when the topic is Creating EnvSusCommunities

ENVS 295 - when the topic is Circumpolar World; Adaptation to Climate Change; Community-based Nat Res Mgt; or Sustainability Education

GEOG 190 - when the topic is Politics of Land Use: Ecuador

GEOL 095 - when the topic is How the Earth Works

HCOL 185 - when the topic is Political Economy for a Finite Planet; Ecological Design in an Urban Watershed; or Climate Change, Complexity and Society

HCOL 186 - when the topic is Ecology for Sustainability

NFS 295 - when the topic is Sustain Food Purch Lg Scle Op

PBIO 095 - when the topic is Plants on the Move

PHIL 010 - when the topic is Ethics of Eating

POLS 196 - when the topic is Cyber Policy and Conflict

**PERMANENT COURSES**

ANTH 021	D2:SU: Cultural Anthropology	3
ANTH 024	D2:SU: Prehistoric Archaeology	3
ANTH 059	D2:SU: Culture and Environment	3
BSAD 263	SU:Environmntl & Social Rprtng	3
CDAE 002	D2:SU:World Food,Pop & Develop	3
CDAE 102	SU:Sustainable Community Dev	3
CDAE 237	SU:Economics of Sustainability	3
CDAE 251	SU:Contemp Policy Iss:Comm Dev	3
CE 003	SU:Intro to Civil & Envir Engr	0,2
CE 132	SU: Environmental Systems	3
CE 151	SU: Water & Wastewater Engr	3
CE 185	SU: Capstone Design I	3
EC 040	D2:SU:Econ of Globalization	3
EC 133	SU:Economics Environmntl Policy	3
EDTE 074	SU: Science of Sustainability	3
EE 113	SU: Electric Energy Systems	0-4
ENSC 001	SU: Intro Environmental Sci	3
ENVS 001	SU:Intro to Environmntl Studies	0,4
ENVS 002	D2:SU:International Env Stdies	0,4

ENVS 107	SU: Human Health & Envirmt	3
ENVS 184	SU: Sust Transpo Planning	3
ENVS 187	SU: Campus Sustainability	3
ENVS 188	SU:Sustainability Science	3
ENVS 189	SU: Intro to Systems Thinking	3
FOR 272	SU:Sustain Mgmt Forest Ecosys	0,4
FS 345	SU:Food Systems, Soc & Policy	3
GEOG 050	D2:SU:World Regional Geog	3
GEOG 145	SU: Geography of Water	3
GEOG 154	D2:SU:Geography of Development	3
GEOL 007	SU: Earth Hazards	0,3
GEOL 110	SU: Earth Materials	0,4
GEOL 161	SU:Field Methods in Geophysics	0-4
GRS 001	D2:SU:Intro to Global Studies	3
HLTH 107	SU:Human Health & the Envirmt	3
MMG 230	D2:SU:Adv St Emerg Infec Dis	3
NFS 073	D2:SU:Farm to Table: Food Sys	3
NR 107	SU:Human Health & the Envirmt	3
PBIO 006	SU: The Green World	3
PH 312	SU:Food Systems & Public Hlth	3
POLS 130	SU: U.S.Environmental Politics	3
PRT 230	SU: Ecotourism	3
PSS 003	D2:SU:Coffee Ecol & Livelihood	3
PSS 021	SU: Intro to Ecological Agr	3
PSS 156	SU: Permaculture	3
PSS 161	SU:Fundmntls of Soil Science	0,4
PSS 212	SU: Advanced Agroecology	0,4
SOC 001	SU: Introduction to Sociology	3

**COURSE LIST**

**A&S INTERDISCIPLINARY (AS)**

**Courses**

**AS 010. Interdisc 1st-Year TAP Seminar. 1-6 Credits.**

Interdisciplinary seminar offered as part of the Teacher Advisor Program (TAP) in the College of Arts and Sciences.

**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 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 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.

**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 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.**

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

**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. 3 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. 3 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.**

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.

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

**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 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.

**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.**

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.

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

See schedule of courses for specific titles.

**ANNB 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.

**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 201. Human Gross Anatomy. 6 Credits.**

Lectures and detailed regional cadaver dissections emphasize functional anatomy of major systems (e.g. musculoskeletal, cardiovascular, nervous). Required of Physical Therapy students; others with Department permission.

**ANNB 261. Neurobiology. 3 Credits.**

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

**ANNB 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.

**ANNB 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.

**ANNB 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.

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

See Schedule of Courses for specific titles. Undergraduate only.

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

See Schedule of Courses for specific titles. Undergraduate only.

**ANNB 298. 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.**

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.

**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.**

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.

**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.**

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.

**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 SCIENCE (ASCI)****Courses****ASCI 001. Introductory Animal Sciences. 0 or 4 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 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 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 097. Introductory Special Topics. 0.5-15 Credits.**

See Schedule of Courses for specific titles.

**ASCI 098. Introductory Special Topics. 0.5-15 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.

**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: Sophomore standing or above.

**ASCI 115. Introduction to Equine Studies. 4 Credits.**

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

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

Discusses the basic anatomy and physiology of the horse, common equine diseases and problems, their diagnoses, prevention, and treatment.

**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 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: Sophomore standing; Instructor permission.

**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 Instructor permission.

**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.**

Principles and practices of growing and utilizing forage plants for hay, silage and pasture; introduction to management intensive grazing; understanding forage quality. Pre/co-requisite: PSS 010 or one semester Biology or one semester Plant Biology or Instructor permission. Cross-listed with: PSS 143.

**ASCI 154. Dog Training and Behavior. 3 Credits.**

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

**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: Junior/Senior standing or with Instructor permission any student interested in dairy industry.

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

The discussion of genetic principles and their application in the improvement of farm animals. Student teams develop a breeding plan in a semester project. Prerequisite: Animal Science major or Instructor permission.

**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 185. Biochem for Life & Health Sci. 3 Credits.**

Exploring biological processes at the molecular level and how they are controlled. Topics include enzymes, gene expression, and metabolism of proteins, carbohydrates, and lipids. Prerequisite: CHEM 042 or acceptable coursework in organic chemistry. Cross-listed with: BIOC 185, NFS 183, P BIO 185.

**ASCI 187. BiochemLab for Life&Health Sci. 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: P BIO 185, BIOC 185, ASCI 185, or NFS 183. Cross-listed with: BIOC 187, NFS 187, P BIO 187.

**ASCI 191. Intermediate Special Topics. 0-15 Credits.**

See Schedule of Courses for specific titles.

**ASCI 192. Intermediate Special Topics. 0.5-15 Credits.**

See Schedule of Courses for specific titles.

**ASCI 195. Field Experience. 0.5-15 Credits.**

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

**ASCI 196. Field Experience. 0.5-15 Credits.**

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

**ASCI 197. Undergraduate Research. 0.5-15 Credits.**

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

**ASCI 198. Undergraduate Research. 0.5-15 Credits.**

Research activity under direction of qualified staff member. Must have faculty member approval. Written proposal and report required. 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 115, ASCI 117 or Instructor permission.

**ASCI 211. Summer Farm Management. 4 Credits.**

A work-study program on the modern practices associated with farm management. Taught at Miner Institute, Chazy, NY. For students with a strong interest in farm management. Prerequisite: Junior/Senior/ Graduate standing.

**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: Course in both Biology and Prerequisites: Course in both Biology and physiology; one course in Anatomy desirable.

**ASCI 217. Physiology of Reproduction Lab. 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 115, ASCI 117, or Instructor permission.

**ASCI 230. Agricultural Policy & Ethics. 3 Credits.**

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

**ASCI 233. Dairy Cattle Breeding. 2 Credits.**

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

**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 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 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 297. Advanced Special Topics. 0.5-15 Credits.**

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

**ASCI 298. Advanced Special Topics. 0.5-15 Credits.**

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



## ANTHROPOLOGY (ANTH)

### Courses

#### **ANTH 010. Careers with Anthropology. 1 Credit.**

Explores careers for students with an Anthropology background. Students research careers, job listings, and internships, and prepare materials that highlight skills learned in Anthropology courses.

#### **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 023. D2: Anthro Global Development. 3 Credits.**

Introduction to the critical anthropological analysis of efforts to explain and alleviate global poverty through development interventions.

#### **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 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 055. Business Anthropology. 3 Credits.**

Combines practical and academic perspectives in the cross-cultural study of business values and practices. Comparative studies include business cultures, cross-cultural marketing, management issues, and globalization. Online, Summer session only.

#### **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 088. D2:Sex,Gender,Health & Culture. 3 Credits.**

Introduction to cultural variation in human views and practices related to sex, gender, and health in contemporary societies. Through anthropological concepts and social science findings, examines global diversity in cultural ways of approaching sex, gender, and health.

#### **ANTH 093. 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.

#### **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 102. Anthropology of Sports. 3 Credits.**

This course examines the cultural significance of sports from around the world. Prerequisite: ANTH 021.

#### **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 123. Anthropology of Crisis. 3 Credits.**

Examination of the cultural responses to events and situations defined as crises or catastrophic at both the individual and collective levels. Prerequisite: ANTH 021.

#### **ANTH 125. History of Anthropology. 3 Credits.**

Examination of the major theories, theorists, and socio-political contexts central to historical development of the discipline of Anthropology. Prerequisite: ANTH 021, ANTH 024, ANTH 026, or ANTH 028.

#### **ANTH 127. Modernity & Material Culture. 3 Credits.**

Covers anthropological theories and case studies of modernity and consumption including circulation and reproduction of objects, consumer culture, globalization, and material aspects of cultural change. Prerequisite: ANTH 021.

#### **ANTH 134. Prehistory of North America. 3 Credits.**

Archaeological overview of North America from the peopling of the New World to European contact in the sixteenth century. Prerequisite: ANTH 024.

#### **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 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 142. Introduction to Syntax. 3 Credits.**

This course serves as an introduction to the syntax of natural languages and a rigorous approach to the analysis of sentence structure. Prerequisite: ANTH 028 or LING 080. Cross-listed with: CSD 166, LING 166.

**ANTH 151. Anth of East Europe. 3 Credits.**

Survey of cultures of Central and Eastern Europe during the socialist and post-socialist periods with an emphasis on social, cultural and economic transformation since 1985. Prerequisite: ANTH 021 or a 100-level Russia/East European Studies course.

**ANTH 152. D2: Chinese Culture. 3 Credits.**

Introduction to Chinese culture and society, examining core cultural values and practices, gender and the lifecycle, sociocultural diversity, impacts of economic development and social change.

**ANTH 153. Gender in the Middle East. 3 Credits.**

Exploring gendered aspects of religion, colonialism, anti-colonial struggles, feminism, revolution, family law, citizenship, expressive culture, and conflict through ethnography of the Middle East. Prerequisite: ANTH 021.

**ANTH 155. Anthropology of Islam. 3 Credits.**

Ethnographic study of religious practice and social life of contemporary Muslim communities worldwide, including shared tradition, cultural diversity, community and personhood, gender, politics, and Islamic revitalization. Prerequisite: ANTH 021 or ANTH 028.

**ANTH 157. Doing Anthropology. 3 Credits.**

Examines how anthropology is socially and politically organized as a discipline, relations between subfields, and conditions under which anthropologists do research and communicate about it. Focuses on developing practical skills involved in the actual doing of anthropology. Prerequisite: ANTH 021, ANTH 024, ANTH 026 or ANTH 028.

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

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

**ANTH 161. D2: Cultures of South America. 3 Credits.**

Ethnographic survey of major native American cultures south of Mesoamerica against background of aboriginal culture history, and their relation to present day culture spheres. Prerequisite: ANTH 021. Alternate years.

**ANTH 162. D2: Cultures of Africa. 3 Credits.**

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

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

Vermont's native peoples from their earliest appearance in the region until today. Archaeological and ethnographic data reviewed in the broader perspective of aboriginal Northeastern cultural history. Prerequisite: ANTH 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 166. D2: Peoples of the Middle East. 3 Credits.**

Culture and social organization of peoples living in lands from Morocco to Afghanistan, including a consideration of Islam. 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 and Culture. 3 Credits.**

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

**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 three credits of Sociology.

**ANTH 176. Topics in Linguistic Anthro. 3 Credits.**

Intermediate level special topics in linguistic anthropology. Prerequisite: ANTH 028 or LING 080.

**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 180. D2: Psychological Anthropology. 3 Credits.**

Examines the role of culture in shaping personhood, identity, experience, cognition, emotion, mental illness, interpersonal relations, socialization processes, and human development across the lifecycle. Prerequisite: ANTH 021.

**ANTH 181. Law, War and Disorder. 3 Credits.**

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

**ANTH 183. The Anthropology of Genocide. 3 Credits.**

Examines large-scale killing from an anthropological perspective using the comparative method, social-structural, cultural and political-economy models. Proposed solutions are also critically assessed. Prerequisite: ANTH 021.

**ANTH 184. Street Children. 3 Credits.**

Explores elements that both connect and distinguish populations of street children worldwide from an anthropological perspective. Prerequisite: ANTH 021.

**ANTH 185. D2: Food and Culture. 3 Credits.**

This course examines how the cultivation, preparation, and consumption of food are rich symbolic processes through which humans interact with our natural and social environments.

Prerequisite: ANTH 021. Cross-listed with: NFS 185.

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

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

**ANTH 188. Historical Archaeology. 3 Credits.**

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

**ANTH 189. D2: Aging in Cross-Cultrl Persp. 3 Credits.**

Aging from an anthropological perspective. Topics include exploration of biological and cultural aspects of human aging across the adult lifecycle in a variety of cultural groups. Prerequisite: ANTH 021 or SOC 020.

**ANTH 190. ISSP Thesis. 3 Credits.**

Independent study for students enrolled in Integrated Social Sciences Program; final product is thesis. Prerequisite: Enrollment in ISSP courses.

**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.

**ANTH 193. 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.

**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 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.

**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.

**ANTH 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. Offered at department discretion.

**ANTH 200. Field Work in Archaeology. 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 202. Anthropology of Media. 3 Credits.**

Examines the major analytical frameworks, theoretical debates, and methodological tools for studying contemporary media technologies and expressive cultures anthropologically. Prerequisites: ANTH 021, one 100-level Anthropology course.

**ANTH 203. Tourism & Heritage. 3 Credits.**

Examining tourism from an anthropological perspective, including: museums; souvenirs and tourist art; national, racial, ethnic, and indigenous identities; gender; and theories of performance and re-enactment. Prerequisites: ANTH 021 and one 100-level Anthropology course.

**ANTH 205. Senior 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: Junior/Senior standing; Anthropology major. Pre/co-requisite: Any three-credit 200-level Anthropology course.

**ANTH 209. D2: Caribbean Archaeology. 3 Credits.**

Examination of past Amerindian and Colonial era cultures in the Caribbean and the major theoretical and methodological issues surrounding their investigation. Prerequisites: ANTH 024 and one 100-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 220. Develop & Applied Anthropology. 3 Credits.**

Seminar examines the application of anthropological knowledge and methodologies to alleviate social problems around the world, with a special focus on the cultural politics of expertise. Prerequisites: ANTH 021 or ANTH 023, three 100-level courses, or Instructor permission. Alternate years.

**ANTH 225. Anthropological Theory. 3 Credits.**

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



**ANTH 228. Social Organization. 3 Credits.**

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

**ANTH 240. Human Osteology & Archaeology. 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 and ANTH 026 and one 100-level Anthropology course in archaeology or biological anthropology (see major requirements for subdisciplinary designations), or Instructor permission.

**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: Junior standing; Anthropology, Art History, Studio Art majors and minors. Alternate years.

**ANTH 272. Language, Gender and Sexuality. 3 Credits.**

Examines different theoretical approaches to understanding gender and sexuality through the study of language use, emphasizing analysis of crosscultural data from a linguistic anthropological perspective. Prerequisites: ANTH 028 or LING 080 and one Anthropology or Linguistics course at the 100-level or above or instructor permission. Cross-listed with: LING 272.

**ANTH 276. Adv Topics in Linguistics. 3 Credits.**

Advanced special topics in linguistics, sociolinguistics and linguistic anthropology. Prerequisites: ANTH 028 or LING 080 and one Anthropology or Linguistics course at the 100-level or above or permission of the Instructor.

**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 284. Linguistic Anthropology Mthds. 3 Credits.**

Exploration of key methodologies in linguistic anthropology, including theories and practice of eliciting linguistic data, conducting interviews, transcribing audio- and video-taped interactions, and analyzing conversations. Prerequisites: ANTH 028 or LING 080 and one Anthropology or Linguistics course at the 100 level or above. Cross-listed with: LING 284.

**ANTH 288. Anthropology of Global Health. 3 Credits.**

Examines the core concepts, approaches, and findings of the 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 and applied interventions. Prerequisites: ANTH 021 or ANTH 026; and ANTH 174 or six hours of ANTH at the 100 level.

**ANTH 290. Meth of Ethnographic Field Wrk. 3 Credits.**

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

**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.

**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.

**ANTH 293. 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.

**ANTH 295. Advanced Special Topics. 0-18 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 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. Prerequisite: Junior/Senior standing.

**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: Junior/Senior standing.

**ANTH 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. Offered at department discretion.

**ARABIC (ARBC)****Courses****ARBC 001. Elementary Arabic I. 4 Credits.**

The development of initial reading, listening, speaking, and writing skills in Modern Standard Arabic. Attention will be given to the mastering of the Arabic alphabet.

**ARBC 002. Elementary Arabic II. 4 Credits.**

Continuation of ARBC 001. Students are expected to continue mastering skills in reading, listening, speaking, and writing. Prerequisite: ARBC 001.

**ARBC 051. Intermediate Arabic I. 4 Credits.**

Students will continue to learn grammatical structures and improve their Arabic listening, speaking, reading, and writing skills. Prerequisite: ARBC 002.

**ARBC 052. Intermediate Arabic II. 4 Credits.**

Continuation of ARBC 051. Students will continue to develop their communicative skills. Prerequisite: ARBC 051.

**ARBC 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.

**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.**

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.

**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.**

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.

**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 140. Foundation Studio El Ed Majors. 3 Credits.**

Students select a foundation studio course, ART 002, ART 003 or ART 004 from those sections designated each semester on the course schedule. See course descriptions listed under ART.

**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 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. Prerequisites: Twelve hours in Education and related areas.

**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.**

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

**EDAR 295. Laboratory Experience in Educ. 1-15 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; One to six hours.

**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 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 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 149. Roman Art. 3 Credits.**

Examination of the artistic experiments made by Roman painters, sculptors, and architects from 3rd century B.C. to 5th century A.D. 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 162. Italian Early Renaissance Art. 3 Credits.**

Painting, sculpture, architecture and the decorative arts in Italy from 1400 to 1500, focusing on major centers of art production: Florence, Venice, Milan, Ferrara, Urbino, Rome, and Naples. Prerequisite: ARTH 005 or ARTH 006.

**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 Instructor permission. 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 172. 19th-Century European Painting. 3 Credits.**

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

**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 176. Identity Diversity Postmod Art. 3 Credits.**

Examination of art since 1960 with an emphasis on questions relating to identity and diversity. Prerequisite: ARTH 006 or FTS 007 or FTS 008 or FTS 010.

**ARTH 177. 19th & 20th Cent Arch & Design. 3 Credits.**

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

**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 180. N American Art 1600-1900. 3 Credits.**

Painting, sculpture, and architecture in the U.S. and Canada from Colonial beginnings (Hispanic, Franco, Angelo) to WWI. Emphasis on the development of nationalist sensibilities as they emerge from European sources. Prerequisites: ARTH 006 or GRS 091 (Canada).

**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 189. D2: Topics in Non-Western Art. 3 Credits.**

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

**ARTH 190. Internship: Art History. 3 Credits.**

Prerequisites: Junior standing; six hours of 100-level course work in appropriate field; departmental permission. A contract must be obtained from and returned to the Department of Art during preregistration.

**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 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 198. Readings & Research. 1-6 Credits.**

Prerequisite: Department permission.

**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; Junior/Senior standing.

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

Prerequisites: One of the following: ARTH 008, ARTH 185, ARTH 187, ARTH 188, or ARTH 196 when the topic is Asian. Three additional hours of a 100-level course either in Art History or Asian Studies.

**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.

**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 002. Two-Dimensional Studies. 3 Credits.**

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

**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 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 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 116. Drawing From the Figure. 3 Credits.**

Drawing from the model, emphasizing in-depth studies in different media. Prerequisites: ARTS 001.

**ARTS 121. Painting. 3 Credits.**

Painting as an investigation of color, space, and visual perception, with an introduction to historical and current issues of the discipline. Prerequisites: ARTS 001.

**ARTS 131. Printmaking: Etching. 3 Credits.**

Studio class using non-chemical procedures with copper plates. Prerequisites: ARTS 001 or ARTS 012.

**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 133. Printmaking: Lithography. 3 Credits.**

Basic procedures in planographic printing from stone, stressing design and technical competence. Intensity of investigation varies with individual student. Prerequisite: 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. Prerequisites: ARTS 012 or FTS 007 or FTS 008 or FTS 010.

**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 147. Visual Environment. 3 Credits.**

Exploration of public spaces, structures, architectural detail, landscaping, roadways, lighting, etc. Field trips; meeting with planners and architects; projects. Prerequisite: ARTS 001 or ARTS 012, and one of the following: ARTH 005, ARTH 006, or ARTH 008.

**ARTS 148. Motion Picture Production. 3 Credits.**

Study of the principles, properties and potentials of four-dimensional media through production exercises, viewing, reading and discussion. Includes theoretical, conceptual and technical information. Prerequisites: ARTS 012 or FTS 007 or FTS 008 or FTS 010.

**ARTS 191. Internship: Field Experience. 3 Credits.**

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 100 level courses in appropriate field; Junior standing; departmental permission.

**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. Rds&Rsch: Tutorial in Studio. 1-6 Credits.**

Independent/individual research in studio art. 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 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; 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; Junior standing.

**ARTS 221. Advanced Painting. 3 Credits.**

Exploration of historical and current issues of the discipline as content and structure are developed in semi-independent projects. Prerequisite: ARTS 012 and ARTS 121; 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 and ARTS 132 or ARTS 134; 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; 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; 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. Adv Motion Picture Production. 3 Credits.**

Advanced study of the principles, properties and potentials of four-dimensional media through production exercises, viewing, reading and discussion. Includes theoretical, conceptual and technical content. Prerequisites: ARTS 148 or FTS 141; Junior standing.

**ARTS 281. Advanced Studies in Studio Art. 1-6 Credits.**

Independent research in close consultation with faculty sponsor on a specific and advanced project. 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: Nine hours of 100-level ARTS courses, and 200-level course in topic of project; Senior standing; departmental permission.

**ARTS 283. Advanced Seminar in Studio Art. 3 Credits.**

Advanced seminar for senior studio art majors covering a range of topics. Prerequisites: Senior standing; Instructor permission.

**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.

**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 024. Astronomy Lab II:Imaging Sky. 1 Credit.**

Sky observations using binoculars, optical and radio telescopes. Observations are recorded with drawings, photographic film, and digital imaging devices. Some dark room work. Prerequisites: Concurrent enrollment or credit in ASTR 005.

**ASTR 057. Hist/Pract Ancient Astronomy. 3 Credits.**

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

**ASTR 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.

**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.**

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.

**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 257. Modern Astrophysics. 3 Credits.**

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

**ASTR 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.

**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 093. 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.

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

See Schedule of Courses for specific title.

**AT 155. Emergency Med. Response in AT. 3 Credits.**

Students will obtain skills and instruction necessary for emergency response in athletic training. Students will be prepared for certification in American Red Cross Emergency Medical Response, including CPR/AED for the Professional Rescuer and Emergency Oxygen Administration. For AT majors only.

**AT 158. Fundamentals of Athletic Trng. 4 Credits.**

This is a required course for students admitted into the Athletic Training Education Program, to be completed during their first year of study. The course has both lecture and laboratory components. Pre/co-requisite: AT 168.

**AT 159. Practicum in Athletic Trng I. 1 Credit.**

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

**AT 160. Practicum in Athletic Trng II. 1 Credit.**

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

**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 50 hours of directed observation experience in the athletic training setting, or as assigned by the instructor.

**AT 169. Clinical Experience in AT I. 1 Credit.**

Students gain clinical experiences under the direct supervision of an ATEP approved preceptor. Prerequisites: AT 158, AT 178.

**AT 170. Clinical Experience in AT II. 1 Credit.**

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

**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. Pre/co-requisites: 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. Pre/co-requisites: Senior standing in Athletic Training Education Program.

**AT 184. Injury Eval & Recognition I. 4 Credits.**

Evaluation and recognition of injuries to the head, neck, and lower extremities. Areas covered include injury mechanisms, etiology, pathology, and clinical signs and symptoms. Pre/co-requisites: AT 157 and AT 158.

**AT 185. Injury Eval & Recognition II. 4 Credits.**

Evaluation and recognition of injuries to the spine and upper extremities. Areas covered include injury mechanisms, etiology, pathology, and clinical signs and symptoms. Pre/co-requisite: AT 184.

**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. Pre/co-requisites: 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 AT's. Pre/co-requisite: 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 AT's. 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.**

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.

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

Contemporary issues in the field of Athletic Training. Topics include: pharmacology, general medical conditions and disabilities, male & female health issues, and psychology in sport. Pre/co-requisite: Junior standing and Athletic Training major.

**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 Reseach. 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 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.**

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.

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

See Schedule of Courses for specific title.

**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 Reseach. 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.

**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. Pre/co-requisite: Concurrent enrollment or credit in CHEM 031 or CHEM 032.

**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. Pre/co-requisite: Concurrent enrollment or credit in CHEM 031 or CHEM 032.

**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-requisites: Concurrent enrollment or credit in CHEM 031 or CHEM 035.

**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: BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012, or BCOR 021; CHEM 031, CHEM 032.

**BCOR 102. 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. Pre/co-requisite: BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012; CHEM 031, CHEM 032. CHEM 141, BCOR 101 recommended.

**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 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.

**BIOCHEMISTRY (BIOC)****Courses****BIOC 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.

**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 185. Biochem for Life & Health Sci. 3 Credits.**

Exploring biological processes at the molecular level and how they are controlled. Topics include enzymes, gene expression, and metabolism of proteins, carbohydrates, and lipids. Prerequisite: CHEM 042 or acceptable coursework in organic chemistry. Cross-listed with: ASCI 185, NFS 183, PBIO 185.

**BIOC 187. BiochemLab for Life&Health Sci. 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 185, ASCI 185, or NFS 183. Cross-listed with: ASCI 187, NFS 187, PBIO 187.

**BIOC 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.

**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 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 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. 2 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 212. Biochemistry of Human Disease. 3 Credits.**

Molecular approach to genetic, metabolic, and infectious diseases; recombinant DNA technology and medicine; molecular biology of cancer. Prerequisite: CHEM 042, CHEM 044, or CHEM 141.

**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.**

Nutritional Biochemistry is a 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 PBIO 185.

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

Oral and written presentation of a subject of current biochemical interest. Prerequisite: Senior standing. Cross-listed with: CHEM 284, MMG 284.

**BIOC 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.

**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.

**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 195. Biological Sciences Seminar. 1 Credit.**

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

**BSCI 196. Biological Sciences Seminar. 1 Credit.**

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

**BSCI 197. Undergrad Research. 1-12 Credits.**

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

**BSCI 198. Undergrad Research. 1-6 Credits.**

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

**BSCI 297. Advanced Undergraduate Rsch. 1-12 Credits.**

Undergraduate students are involved in advanced individual research projects sponsored by a faculty member. Arrangements are made with individual faculty members and Biological Sciences Program Director approval. Pre/co-requisites: BSCI 197/BSCI 198 or Advisor permission.

**BSCI 298. Advanced Undergraduate Rsch. 1-12 Credits.**

Undergraduate students are involved in advanced individual research projects sponsored by a faculty member. Arrangements are made with individual faculty members and Biological Sciences Program Director approval. Pre/co-requisites: BSCI 197/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 009. Science As a Way of Knowing. 3 Credits.**

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

**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 086. Intro to Forensic Biology. 3 Credits.**

An introductory-level course covering crime scene investigation, methods of evidence collection, identifying a body, cause of death and producing DNA profiles.

**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 106. Cell Structure and Function. 0 or 4 Credits.**

Molecules, structures, and physiology of cell membranes; energy transformations; nuclear and cytoplasmic events; extracellular matrix; cell signaling; and cell types and fates. Prerequisites: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012; CHEM 141, CHEM 142 recommended.

**BIOL 168. Mathematics of Biology. 3 Credits.**

Discrete biological processes: nonlinear differential equations. Continuous processes: ordinary differential equations, phase plane methods, quantitative solutions. Applications: population dynamics, epidemiology, Michaelis-Menten kinetics, autocatalysis, muscle contraction. Includes a lab. May not be taken concurrently with or after MATH 268. Pre/co-requisites: MATH 022 or MATH 023, MATH 124. Cross-listed with: MATH 168.

**BIOL 191. Research Apprenticeship. 0-3 Credits.**

Participation in a faculty research project. Students must follow all departmental guidelines. May be repeated for credit.

**BIOL 192. Research Apprenticeship. 0-3 Credits.**

Participation in a faculty research project. Students must follow all departmental guidelines. May be repeated for credit.

**BIOL 193. Internship in Biology. 3 Credits.**

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

**BIOL 194. Internship in Biology. 3 Credits.**

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

**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 197. Undergraduate Research. 3 or 6 Credits.**

Individual research under faculty guidance. Enroll following departmental guidelines. Pre/co-requisites: Junior/Senior standing; Department permission.

**BIOL 198. Undergraduate Research. 3 or 6 Credits.**

Individual research under faculty guidance. Enroll following departmental guidelines. Pre/co-requisites: Junior/Senior standing; Department permission.

**BIOL 202. Quantitative Biology. 3 Credits.**

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

**BIOL 203. Population Ecology. 3 Credits.**

Analysis of growth, regulation, and interrelations of biological populations in theoretical, laboratory, and natural systems. Prerequisite: BCOR 102.

**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 Laboratory. 4 Credits.**

Laboratory experiments to provide experience with modern genetic techniques. Bench work and data analysis emphasized. Prerequisite: BCOR 101.

**BIOL 208. Morphology&Evolution Insects. 0 or 4 Credits.**

Systematics, morphology, and anatomy of insect taxa, with comparisons to related arthropods. Prerequisite: BCOR 102.

**BIOL 209. Field Zoology. 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 225. Physiological Ecology. 3 Credits.**

Processes by which animals cope with moderate, changing, and extreme environments. Prerequisites: BCOR 102, BIOL 255.

**BIOL 238. Winter Ecology. 3 Credits.**

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

**BIOL 246. Ecological Parasitology. 1 or 3 Credit.**

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



**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. Pre/co-requisite: BCOR 101.

**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 110. Cross-listed with: ANNB 261.

**BIOL 262. Neurobiology Techniques. 4 Credits.**

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

**BIOL 263. Genetics Cell Cycle Regulation. 3 Credits.**

Molecular events during the cell cycle; mutants defective in cell cycling; comparison of normal and transformed (cancer) cell cycling. Prerequisite: BCOR 101 or Instructor permission.

**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 267. Molecular Endocrinology. 4 Credits.**

Study of hormone action at the cellular and molecular level. Prerequisite: BCOR 101.

**BIOL 268. Medical Entomology. 3-4 Credits.**

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

**BIOL 269. Plant-Animal Interactions. 3 Credits.**

Ecological and evolutionary interactions among plants and animals. Topics include herbivory, pollination, seed predation, biocontrol, and effects of global climate change. Prerequisite: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012; BCOR 102 recommended.

**BIOL 270. Speciation and Phylogeny. 3 Credits.**

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

**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 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 280. Molecular Ecology. 0 or 4 Credits.**

Molecular genetic tools and analytical methods used to investigate ecological processes in natural populations of plants and animals. Prerequisite: BCOR 102.

**BIOL 286. Forensic DNA Analysis. 3 Credits.**

Theory and techniques of modern genetics used to produce and analyze a DNA profile in forensic science. Emphasis on degraded or contaminated DNA samples. Prerequisite: BCOR 101.

**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: CHEM 141, CHEM 142, and BCOR 101.

**BIOL 295. Advanced Special Topics. 0-18 Credits.**

See Schedule of Courses for specific titles.

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

See Schedule of Courses for specific titles.

**BIOL 297. Advanced Undergraduate Rsrch. 3 or 6 Credits.**

Research under faculty guidance. Enroll following departmental guidelines. May not be used toward advanced course requirements for BA students in Biology or Zoology. Pre/co-requisites: Junior/Senior Standing; Department permission.

**BIOL 298. Advanced Undergraduate Rsrch. 3 or 6 Credits.**

Research under faculty guidance. Enroll following departmental guidelines. May not be used toward advanced course requirements for BA students in Biology or Zoology. Pre/co-requisites: Junior/Senior Standing; 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 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.**

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.

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

See Schedule of Courses for specific title.

**BME 151. Fall BME Workshop. 0 or 1 Credits.**

Seminars, lab tours and hands-on experiences to provide biomedical context to concurrently taken engineering courses. Case studies related to design and ethics. Team based project.

**BME 152. Spring BME Workshop. 0 or 1 Credits.**

Seminars, lab tours and hands-on experiences to provide biomedical context to concurrently taken engineering courses. Engineering design process. Researching and defining Capstone Design projects. Prerequisite: BME 151.

**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 187. Capstone Design I. 3 Credits.**

Project management, professional ethics, social/ economic impact, and contemporary issues that arise in engineering practice. Interdisciplinary project development including project selection, design requirements, prototyping and communications. Pre/Co-requisite: Senior standing.

**BME 188. Capstone Design II. 3 Credits.**

Cumulative, team-based interdisciplinary design experience. Subsystem design, implementation and test. System integration and test. Project demonstration, report, and presentation. Team-directed lab work. Prerequisite: BME 187.

**BME 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.

**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 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 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.

**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)****Courses****BIOS 200. Med Biostatistics&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. Prerequisites: STAT 111, STAT 141 or STAT 143; or STAT 211. Cross-listed with: STAT 200.

**BIOS 211. 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: Junior standing. Cross-listed with: STAT 211.

**BIOS 221. 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. Cross-listed with: STAT 221.

**BIOS 223. Applied 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 analysis. Prerequisite: Any 200 level Statistics course; STAT 221 or STAT 225 recommended; matrix algebra recommended. Cross-listed with: STAT 223.

**BIOS 229. Survival Analysis. 3 Credits.**

Probabilistic models and inference for time-to-event data. Censored data, life tables, Kaplan-Meier estimation, logrank tests, proportional hazards regression. Specialized applications (e.g. clinical trials, reliability). Prerequisite: Any 200 level Statistics course; one year of calculus. Cross-listed with: STAT 229.

**BIOS 231. 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. Prerequisites: BIOS 211 (BIOS 221 recommended). Cross-listed with: STAT 231.

**BIOS 235. 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: BIOS 211. Cross-listed with: STAT 235.

**BIOS 241. Statistical Inference. 3 Credits.**

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

**BIOS 251. Probability Theory. 3 Credits.**

Distribution of random variables and functions of random variables. Expectations, stochastic independence, sampling and limiting distributions (central limit theorems). Concepts of random number generation. Pre/co-requisite: MATH 121; STAT 141 or STAT 153 recommended. Cross-listed with: MATH 207, STAT 251.

**BIOS 261. 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. Pre/co-requisites: STAT 251 or either STAT 151 or STAT 153 with Instructor permission. Cross-listed with: STAT 261.

**BUSINESS ADMINISTRATION (BSAD)****Courses****BSAD 002. Prof. Develop. Series (Soph). 1 Credit.**

Seminar series focusing on engagement, career preparedness (with a focus on obtaining an internship or other equivalent experience), and information literacy. Prerequisites: Business Administration major; Sophomore standing.

**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. The Business Enterprise. 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 only.

**BSAD 025. Sustainable Bus Strategies. 3 Credits.**

Focus is on how businesses interact with society and the environment, and the role of innovation and strategy to business success. Prerequisites: EC 011, EC 012; MATH 019 or MATH 021; Minimum Sophomore standing; Business Administration major.

**BSAD 028. Intro Mgmt US Health Care Syst. 3 Credits.**

Introduces health care as organized in the US, with an emphasis on factors affecting opportunities for innovation and improvement and a focus on the business implications of ongoing changes. Prerequisite: 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 or PSYS 054; Minimum Sophomore standing; Business Administration major.

**BSAD 040. Information Technology & Mgmt. 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: BSAD 010; Business Administration major; First-year and Sophomore standing only.

**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 and either MATH 019 or MATH 021; Business Administration, Computer Science & Information Systems, Dietetics, Nutrition & Food Science, or Engineering Management major or Business Administration 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 minor; Minimum Sophomore standing.

**BSAD 094. 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.

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

See Schedule of Courses for specific titles. Prerequisite: 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 minors to fulfill three credits of upper-level business electives. Prerequisites: Non-Business Administration major.

**BSAD 102. Prof. Develop. Series (Junior). 1 Credit.**

Seminar series focusing on engagement, career preparedness (with a focus on obtaining a job) and information literacy. Prerequisites: Business Administration major; Junior 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. 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. Prerequisites: EC 011, 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: Business Administration, Computer Science & Information Systems, Engineering Management, Dietetics, Nutrition and Food Sciences major, Business Administration minor; Minimum Junior standing.

**BSAD 121. ST in Organizational Behavior. 3 Credits.**

Focuses on ways in which individuals and work groups within organizations can be better utilized as organizational resources. Prerequisites: BSAD 120; Business Administration major or minor; Minimum Junior standing.

**BSAD 123. Collective Barg & Conflict Res. 3 Credits.**

Focuses on union-employer relations and on developing the student's negotiation skills. Topics include the union contract, the causes of strikes, and the techniques for resolving conflict. A bargaining simulation is incorporated. Prerequisites: BSAD 120; Business Administration major or minor; Minimum Junior standing.

**BSAD 127. 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 128. Doing Business Internationally. 4 Credits.**

Explores the cultural dimension of working and conducting business in international settings. Prerequisites: 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; Minimum Junior standing; Business Administration, Engineering Management major; Business Administration minor.

**BSAD 138. Entrepreneurship: Bus Planning. 3 Credits.**

Develop a business plan for creation of a new venture. Explore financial and market feasibility and draw upon conceptual foundations of entrepreneurship. Prerequisites: BSAD 060; Minimum Junior standing; Business Administration, Computer Science & Information Systems, Engineering Management major; Business minor.

**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; Minimum Junior standing; Business Administration, Engineering Management, Computer Science, Computer Science & Information Systems major; Business Administration minor.

**BSAD 142. Structured Business Prgmng. 3 Credits.**

Fundamental principles of business computer programming. Topics include: constructs of structured programming, modular development, sequential and nonsequential access techniques. Applications include data editing, reporting, file updating, on-line program development. No credit for both CS 014 and BSAD 142. Prerequisites: BSAD 141; Minimum Junior standing; Business Administration, Engineering Management, Computer Science, Computer Science & Information Systems major, Business Administration minor.

**BSAD 143. Struc Anyl & Dsgn Business Sys. 3 Credits.**

In-depth study of business information system development cycle emphasizing analysis and design phases. Structured analysis and design techniques used to develop models of business information systems. Case studies such as payroll, inventory, accounts receivables, order entry, billing. Prerequisites: BSAD 141; Business Administration, Engineering Management or Computer Science & Information Systems major or 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 141; Minimum Junior standing; Business Administration, Engineering Management, Computer Science & Information Systems major, Business Administration minor.

**BSAD 145. Managing Info System Resource. 3 Credits.**

Theory and practice of managing resources of an organization's information system. Responsibilities and interactions of upper level, function area, and information system managers emphasized. Topics include project selection and control, staffing, organizing, planning, and managing the information system function. Students required to bring laptop with BSAD software to every class. Prerequisites: BSAD 120, BSAD 141; Business Administration major; Minimum Junior standing.

**BSAD 146. Business Data Communications. 3 Credits.**

Covers basic concepts of data communications, networking, and network management and security. Focus is on local area networking (LAN) technologies and protocols. Includes various hands on lab-based exercises. Prerequisite: BSAD 141; Minimum Junior standing; Business Administration, Computer Science & Information Systems, Engineering Management major, Business Administration minor.

**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 141; Minimum Junior standing; Business Administration, Engineering Management, Computer Science & Information Systems major; Business Administration minor.

**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. Credit cannot be received for CDAE 168 after completion of BSAD 150. Prerequisites: EC 011, EC 012; MATH 019 or MATH 021; STAT 141 or STAT 143 or EC 170 or PSYS 053 and PSYS 054; Minimum Junior standing; Business Administration, Computer Science & Information Systems, Engineering Management major; Business Administration minor.

**BSAD 152. Business to Business Marketing. 3 Credits.**

Exploration and analysis of the marketing of goods and services to organizations. Topics include organizational buying, market segmentation, positioning, pricing, communication, physical distribution and customer service, and sales management. Prerequisites: BSAD 150; Business Administration major or minor; 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. Credit cannot be received for both CDAE 127 and BSAD 153. 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, single-minded promotional programs. Stresses the need to integrate promotional activity into the overall marketing strategy. Credit cannot be received for both CDAE 128 and BSAD 155. 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. Intermediate Accounting I. 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 or Accounting minor; Minimum Junior standing.

**BSAD 162. Intermediate Accounting II. 3 Credits.**

Continuation of Intermediate Accounting I, with emphasis on accounting and reporting of liabilities, owners' equity and related effect on income determination of an enterprise. Prerequisites: BSAD 161, Business Administration major or Accounting minor; Minimum Junior standing.

**BSAD 165. Marketing Analysis and Action. 3 Credits.**

A second-level undergraduate marketing course that combines managerial and analytic approaches to gaining insight into customer attitudes and behaviors and improving market decision-making. Prerequisites: BSAD 150; Business Administration major or minor; Minimum Junior standing.

**BSAD 170. Business Forecasting Methods. 3 Credits.**

Looks inside the crystal ball at major forecasting methods (Smoothing, Regression, Econometric, Box-Jenkins, Combined), and analyzes elements of good forecasting practice in an organization. Extensive use of PC forecasting packages. Prerequisites: EC 011, EC 012; STAT 141 or STAT 143 or EC 170 or PSYS 053 and PSYS 054; Business Administration major or minor; 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 175. Management of Technology. 3 Credits.**

Role of technology in industry, the nature of technological change, strategies, management, research and development, forecasting, product service/project selection, development, management, transition to market, and evaluation. Prerequisites: BSAD 173; Senior Engineering Management or Business Administration major. Cross-Listed with: EGMT 175.



**BSAD 178. Quality Control. 3 Credits.**

Analysis and design of systems for obtaining quality in operations. Statistical process control (SPC) emphasized, along with current management philosophies and concepts. Prerequisites: BSAD 173; Business Administration, Engineering Management or Computer Science & Information Systems major or Business Administration minor; Minimum Junior standing.

**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. Credit cannot be received for CDAE 167 after completion of BSAD 180. Prerequisites: BSAD 060, EC 011, EC 012; MATH 019 or MATH 021; STAT 141 or STAT 143 or EC 170 or PSYS 053 and PSYS 054; Minimum Sophomore standing; Business Administration major or minor.

**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. Financial Institutions&Markets. 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 191. Strategy and Competition. 3 Credits.**

Integrative, capstone course concerned with issues and decisions facing senior executives directing entire enterprises. Students develop analytical skills surrounding industry analysis, strategy formulation, organizational design, and competitive dynamics. Recommended to take after completing all BSAD Field Courses. Prerequisites: BSAD 120, BSAD 150, BSAD 173, BSAD 180; Senior Business Administration major.

**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 141; Business Administration, Engineering Management or Computer Science & Information Systems major or Business Administration minor; 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. 1-18 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. Prerequisite: Completion of the Basic Business Core courses; at least one Business Field Course; cumulative GPA of at least a 3.0; permission of the School of Business Administration.

**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. Develop. Series (Senior). 1 Credit.**

Seminar focusing on engagement and career preparedness (with a focus on transitioning from University life to the work world). Prerequisites: BSAD 102; Business Administration major; Senior 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; Minimum Junior standing.

**BSAD 226. Current Iss in Mgmt & Org Thry. 1-3 Credits.**

Subjects may include training and development, selection and recruitment, and affirmative action. Prerequisites: BSAD 120; Business Administration major or minor; 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, you 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 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; Minimum Junior 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 256. Retail Management. 3 Credits.**

Course 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; 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 260. Financial Statement Analysis. 3 Credits.**

A study of the concepts and techniques underlying corporate financial statement analysis, with an emphasis on equity valuation models. Prerequisites: BSAD 180; Senior Business Administration major.

**BSAD 263. SU: Environmntl & Social Rprtng. 3 Credits.**

An examination of voluntary and mandatory reporting of environmental and other social activities along with related issues through readings and research. Prerequisites: BSAD 060, BSAD 061, BSAD 180; Business Administration major; Minimum Junior standing.

**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 060, BSAD 061; 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 060, BSAD 061; 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 060, BSAD 061; Senior standing; Business Administration major, Master of Accountancy student, Business Administration minor, Accounting minor.

**BSAD 270. Quant Anyl 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; Minimum Junior standing; Business Administration major or minor; other majors or minors by Instructor permission.

**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; Graduate Master of Accountancy student; Minimum Junior standing or graduate standing; or Instructor permission.

**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 Prerequisites: BSAD 180; Business Administration major or minor; Minimum Junior standing.

**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. Prerequisites: BSAD 181, BSAD 282; Senior standing; Business Administration major; Instructor permission.

**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 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 293. Integrated Product Development. 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: Junior/Senior standing or Instructor Permission. Cross-listed with: ME 265, STAT 265.

**BSAD 294. 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.

**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 035. General Chemistry for Majors 1. 0 or 4 Credits.**

For students with a strong background in physical sciences. Topics include atomic and molecular structure, gas behavior, molecular geometries, intermolecular interactions, elementary thermochemistry and stoichiometry. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 023, CHEM 025 or CHEM 031.

**CHEM 036. General Chemistry for Majors 2. 0 or 4 Credits.**

Second semester of a two-semester sequence. Topics include equilibrium thermodynamics (acid/base chemistry, solubility and electrochemistry), transition metal coordination complexes and spectroscopy. May not be taken concurrently with, or following receipt of, credit for CHEM 032. Prerequisite: CHEM 031 or CHEM 035.



**CHEM 039. Introduction to Research. 2 Credits.**

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

**CHEM 040. Introduction to Research. 2 Credits.**

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

**CHEM 042. Intro Organic Chemistry. 0 or 4 Credits.**

Bonding, structure, physical properties and chemical reactivity of basic organic functional groups and molecules of technological and biological significance, including carbohydrates, lipids, proteins. Not recommended for pre-medical students. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 026, CHEM 028, CHEM 044, CHEM 141, or CHEM 143. Prerequisite: CHEM 023 or CHEM 031.

**CHEM 044. Intro Organic Chemistry. 3 Credits.**

Bonding, structure, physical properties and chemical reactivity of simple organic functional groups and molecules of technological and biological significance, including carbohydrates, lipids, proteins. NO LABORATORY. Not recommended for pre-medical students. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 026, CHEM 028, CHEM 042, CHEM 141 or CHEM 143. Prerequisite: CHEM 023 or CHEM 025 Prerequisite: CHEM 023, CHEM 025, or CHEM 031.

**CHEM 075. Global Energy Prospective. 1 Credit.**

Overview of U.S. and global energy sources and uses; state of alternative energy; projected energy demand and impacts of conventional and alternative energy sources.

**CHEM 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.

**CHEM 095. Intro Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CHEM 096. Intro Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**CHEM 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.

**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 141 or CHEM 143.

**CHEM 141. Organic Chemistry 1. 0 or 4 Credits.**

Survey of properties and reactivity of organic compounds with consideration of bonding, stereochemistry, and reaction mechanisms. Designed for premedical and biological sciences students. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 042, CHEM 044 or CHEM 143. Prerequisite: CHEM 032 or CHEM 036.

**CHEM 142. Organic Chemistry 2. 0 or 4 Credits.**

Survey of the reactivity of organic compounds and applications to synthesis. Spectroscopy is discussed in relation to compound characterization. Designed for premedical and biological sciences students. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 144. Prerequisite: CHEM 141 or CHEM 143.

**CHEM 143. Organic Chemistry for Majors 1. 0 or 4 Credits.**

Survey of principles and reactivity of organic compounds with consideration of bonding, stereochemistry and reaction mechanism. Designed for chemistry majors. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 042, CHEM 044 or CHEM 141. Prerequisite: CHEM 032 or CHEM 036.

**CHEM 144. Organic Chemistry for Majors 2. 0 or 4 Credits.**

Survey of the reactivity of organic compounds and applications to synthesis. Spectroscopy is discussed in relation to compound characterization. Designed for chemistry majors. May not be taken for credit concurrently with, or following receipt of, credit for CHEM 142. 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 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; MATH 020 or MATH 022 or MATH 023; PHYS 011 or PHYS 051.

**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, and MATH 022. Cross-listed with: MATH 167.

**CHEM 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.

**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 201. Advanced Chemistry Laboratory. 3 Credits.**

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

**CHEM 202. Advanced Chemistry Laboratory. 2 Credits.**

Laboratory problems requiring modern analytical, physical, and inorganic synthetic techniques. Journal article writing. Prerequisite: CHEM 201.

**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 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. 2 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 142 or CHEM 144, and CHEM 162.

**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 161 or CHEM 162 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 142 or CHEM 144, and 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 227. Spec Topics in Analytical Chem. 1-3 Credits.**

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

**CHEM 228. Spec Topics in Analytical Chem. 1-4 Credits.**

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

**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 142 or CHEM 144.

**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. Topics include ligand field theory, magnetism, magnetic resonance, Mossbauer spectroscopy, and X-ray crystallography. Prerequisites: CHEM 131 or CHEM 231, and CHEM 161.

**CHEM 237. Special Topics: Inorganic. 1-3 Credits.**

Areas of current interest involving inorganic systems.

**CHEM 238. Special Topics: Inorganic. 1-3 Credits.**

Areas of current interest involving inorganic systems.

**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 251. Physical Organic Chemistry. 3 Credits.**

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

**CHEM 257. Special Topics in Organic Chem. 1-3 Credits.**

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

**CHEM 258. Special Topics in Organic Chem. 1-3 Credits.**

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

**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 262. Chemical Thermodynamics. 3 Credits.**

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

**CHEM 264. Adv Quantum & Spectroscopy. 3 Credits.**

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

**CHEM 267. Special Topics: Physical. 1-3 Credits.**

Selected topics of current interest in physical chemistry.

**CHEM 268. Special Topics: Physical. 1-3 Credits.**

Selected topics of current interest in physical chemistry.

**CHEM 282. Senior Seminar. 1 Credit.**

Oral and written presentation of a subject of current chemical interest. Prerequisite: Audit of CHEM 381.

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

Oral and written presentation of a biochemical topic, with a strong emphasis on citations from current literature. Undergraduates only. Cross-listed with: BIOC 284, MMG 284.

**CHEM 285. Special Topics. 1-3 Credits.****CHEM 286. Special Topics. 1-3 Credits.****CHEM 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 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.**

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.

**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.**

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.

**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.**

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.

**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, PHYS 031.

**CE 002. CE Graphic Design. 0 or 3 Credits.**

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

**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, hands-on design projects and computational exercises.



**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). Prerequisites: MATH 010, MATH 019, or MATH 021; Sophomore standing.

**CE 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.

**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. Co-requisite: MATH 121. Cross-listed with: ME 014.

**CE 101. Materials and Structures Lab. 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 with linkages to transportation; feedback and emergent properties; systems modeling; economics; environmental engineering introduction (mass balance, hydrology, air pollution). Prerequisites: CHEM 031, PHYS 031, MATH 021, MATH 022, CS 020.

**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 134. Sustainable Eng. Economics. 0 or 3 Credits.**

A framework for applying systems analysis tools to engineering economic decision analysis to address the environmental impacts, energy efficiency and cost effectiveness with applications to climate change needed for sustainable engineering solutions. Prerequisite: CE 132. Co-requisite: CS 020.

**CE 140. Transportation. 3 Credits.**

Analysis of transportation systems; technological characteristics; the transportation planning process and techniques of travel modeling and forecasting for both urban and rural areas. Prerequisite: CE 010.

**CE 150. Environmental Engineering. 3 Credits.**

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

**CE 151. SU: Water & Wastewater Engr. 3 Credits.**

Design of treatment systems for water supply, groundwater remediation, domestic and hazardous wastewater, sewer design; semester-long design projects; ethics; environmental health impacts; governmental regulations. Co-requisite: CE 132.

**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, 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: MATH 271, CS 020. Co-requisites: MATH 122 or MATH 124; 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; and plastic analysis and design. Prerequisite: CE 170.

**CE 173. Reinforced Concrete. 3 Credits.**

Analysis of stresses in plain and reinforced concrete members; design of reinforced concrete structures; and theory of prestressed concrete. Prerequisite: CE 170.

**CE 175. Senior Design Project. 0 or 3 Credits.**

Student teams will integrate the multiple areas of specialization in Civil/Environmental Engineering in comprehensive design experience; professional practice; ethics; written and oral presentations to professional review panels. Prerequisite: Senior standing.

**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. Prerequisite: CE 100 or ME 014. Co-requisite: CE 180.



**CE 185. SU: Capstone Design I. 3 Credits.**

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. Capstone Design II. 3 Credits.**

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.**

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.

**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.****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 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: ME 218.

**CE 220. Intro to Finite Element Anyl. 3 Credits.**

Introduction to finite element analysis: applications in solid mechanics, hydrodynamics, and transport: analysis of model behavior: Fourier analysis. Computer project required. Prerequisites: CS 020; MATH 122 or MATH 124.

**CE 226. Civil Engineering Systems Anyl. 3 Credits.**

Linear programming, dynamic programming, network analysis, simulation; applications to scheduling, resource allocation, routing, and a variety of civil engineering problems. Prerequisites: Senior/Graduate standing in Civil & Environmental Engineering. Cross-listed with: CSYS 226.

**CE 238. Design/Planning for Bikes/Peds. 3 Credits.**

Interdisciplinary introduction to design/planning concepts for bikes/pedestrians from a systems view. Examines current best practices on how effectively they address social, environmental, economic, and health related transportation issues. Prerequisite: Senior or Graduate standing.

**CE 241. Traffic Operations & Design. 3 Credits.**

Advanced concepts of traffic engineering and capacity analysis; highway and intersection capacity; traffic analysis and simulation software; design and application of controls. Prerequisite: CE 133.

**CE 245. Intelligent Transportation Sys. 3 Credits.**

Introduction to Intelligent Transportation Systems (ITS), ITS user services, ITS applications, the National ITS architecture, ITS evaluation, and ITS standards. Pre/co-requisites: CE 133. Cross-listed with: CSYS 245.

**CE 247. Alt Sustainable Waste Treatmnt. 3 Credits.**

Consideration of cultural paradigms that encourage waste generation. Design of alternative treatment systems including composting, constructed wetlands, anaerobic digestion. Research and hands-on design project. Prerequisite: CE 151.

**CE 248. Hazardous Waste Mgmt Engr. 3 Credits.**

Management of hazardous and industrial waste from generation to disposal; emphasis on pollution prevention within industry; waste minimization, recovery, reuse, treatment technologies; environmental regulations, risk assessment, costs and public policy; group projects. Prerequisite: Senior standing in engineering or sciences.

**CE 249. Solid Wastes. 3 Credits.**

Significance of solid wastes from municipal, industrial, agricultural, mining; optimization and design of collection, disposal, recycle systems; sanitary landfills, incineration, composting, material recovery. Prerequisite: CHEM 031.

**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. Graduate student independent modeling project. Prerequisites: CHEM 031, CHEM 032, CE 132.

**CE 251. Envr Facility Dsgn/Wastewater. 3 Credits.**

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

**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. 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. 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. 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 259. Msmt of Airborne Contaminants. 3 Credits.**

Quantifying airborne contaminants from processes and ambient levels. Laboratories demonstrate calibration and measurement, stack sampling and ambient air monitoring, and specific contaminant generation and measurement. Prerequisite: CE 132.

**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 261. Open Channel Flow. 3 Credits.**

Application of the laws of fluid mechanics to flow in open channels; design of channels and transition structures; modeling; uniform and gradually-varied flows. Prerequisite: CE 160.

**CE 262. Advanced Hydrology. 3 Credits.**

Introduces computer modeling of hydrological systems and involves a semester-long design project. 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 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. 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. Prerequisite: CE 170.

**CE 272. 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: 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. Prerequisite: CE 170.

**CE 281. Geotechnical Design. 3 Credits.**

Subsurface explorations; bearing capacity, lateral earth pressures, slope stability; analysis and design of shallow and deep foundations, retaining structures, and slopes. Prerequisite: CE 180.

**CE 283. Designing with Geosynthetics. 3 Credits.**

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

**CE 284. Site Characterization. 3 Credits.**

A comprehensive approach to subsurface site characterization for geotechnical and environmental designs and a systems approach for integrating the two. Prerequisites: CE 160, CE 180.

**CE 285. Geo-energy Systems. 3 Credits.**

An introduction to Geoenergy 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). 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 287. Design of Earth Structures. 3 Credits.**

Soil and rock properties using laboratory, field and in-situ testing; analysis and design of slopes, embankments and retaining structures. Prerequisite: CE 180.

**CE 288. Geoenvironmental Engineering. 3 Credits.**

Site characterization; site restoration; geotechnical aspects of waste disposal and containment; landfill design; geosynthetics. 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.**

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.

**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: Senior/Graduate 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.

**CLASSICS (CLAS)****Courses****CLAS 015. From Letters to Literature. 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 021. Classical Greek Civilization. 3 Credits.**

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

**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.**

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

**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 035. The End of the Roman Republic. 3 Credits.**

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

**CLAS 037. Early Roman Empire: Lit Trans. 3 Credits.**

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

**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.**

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.

**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 121. History of Greece. 3 Credits.**

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

**CLAS 122. History of Rome. 3 Credits.**

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

**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 Thr 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/History. Cross-listed with: HST 148.

**CLAS 149. D2: Hist of Ancient Near East. 3 Credits.**

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

**CLAS 153. Greek Drama. 3 Credits.**

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

**CLAS 154. Stories and Histories. 3 Credits.**

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

**CLAS 155. Ancient Epic. 3 Credits.**

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

**CLAS 156. Satiric Spirit. 3 Credits.**

Comedy, satire, epigram and prose fantasy as vehicles for political, social, and literary criticism in the Greco-Roman world. Prerequisite: Sophomore standing. Cross-listed with: WLIT 156.



**CLAS 157. Greek Feminism. 3 Credits.**

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

**CLAS 158. Greco-Roman Political Thought. 3 Credits.**

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

**CLAS 161. 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 162. Aristotle. 3 Credits.**

An exploration of Aristotle's metaphysics, epistemology, psychology, logic, ethics, and politics, with particular emphasis on reading Aristotle's texts while also sampling modern interpretations of his thought. Prerequisite: Three credit hours in Philosophy or Classics (Greek Culture or Greek).

**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.**

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.

**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. 0-18 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 201. Senior Seminar In Classics. 3 Credits.**

Research methods and contemporary issues in the study of classical antiquity; preparation of individual senior projects. Prerequisites: Twelve hours of Classics, Greek, or Latin; Senior standing.

**CLAS 221. Seminar in Ancient History. 3 Credits.**

Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisite: Junior/Senior/Graduate standing; Twelve hours of History.

**CLAS 222. Seminar in Ancient History. 3 Credits.**

Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**CLAS 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.

**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 200. Introduction to CTS I. 3 Credits.**

Teaches the principles of human subjects research for those pursuing a path as research assistants or coordinators.

**CTS 201. Introduction to CTS II. 3 Credits.**

Teaches the principles of human subjects research for those pursuing a path as research assistants or coordinators. Prerequisite: CTS 200.



**CTS 271. Intro Biomedical Informatics. 3 Credits.**

This survey course provides an overview of the field of biomedical informatics covering relevant topics in computer science, healthcare, biology, and social science.

**CTS 272. Applied Biomedical Informatics. 3 Credits.**

Pragmatic coverage of topics/resources relevant to biomedical informatics. Computing skills include Unix, programming, and databases; examples will involve clinical, biomedical, and public health data.

**CTS 275. Informatics Practicum. 3-12 Credits.**

Practicum experience with an informatics research or service project. Prerequisite: At least one of CTS 271, CTS 272, MMG 231, MMG 232, CS 231, or CS 232.

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

See Schedule of Courses for specific titles.

**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 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 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.

**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 101. Speech & Hearing Science. 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: Sophomore, Junior, Senior standing; Communication Sciences & Disorders, Education major or minor, Neuroscience major or Instructor permission.

**CSD 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.

**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 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.

**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. Clin Intro to Audiology & SLP. 3 Credits.**

Provides CSD students with an introduction to the professions and clinical work of audiologists and speech language pathologists. Skills and knowledge related to professional ethical issues, cultural competence, person/family centered care, and inter-professional practice will also be explored. Prerequisites: CSD 020; Sophomore standing; Communication Sciences and Disorders major.

**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. Becoming an SLPA. 3 Credits.**

Speech language pathology assistants' roles in schools; 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. Support Chldrn w/Comm Disorder. 3 Credits.**

Evidence based practice and response to intervention strategies, screening and intervention for speech and 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, STAT 111 or STAT 141.

**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 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: Instructor permission.

**CSD 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.

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

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

**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: Junior, Senior or Graduate standing.

**CMTY DEV & APLD ECON (CDAE)****Courses****CDAE 001. Drafting and Design Drawing. 3 Credits.**

Basic drafting methods and procedures of architectural, three-view, oblique, isometric, and perspective drawings. Creating freehand pictorial presentation 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 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 030. Applied Design Studio: Wood. 0 or 3 Credits.**

Common methods, processes, materials, and equipment employed in transforming wood into useful products. Includes green building principles.

**CDAE 061. Principles of Comm Development. 3 Credits.**

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

**CDAE 091. Introductory Special Topics. 1-6 Credits.**

See Schedule of Courses for specific titles.

**CDAE 092. Food Systems Seminar I. 1 Credit.**

For students in the the first year of the Food Systems major. Students will conduct a survey of the field exploring academic research in Food Systems.

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

See Schedule of Courses for specific titles.

**CDAE 101. Computer Aided Drafting&Design. 1-3 Credits.**

Using a computer to create, manipulate, and record drafting and design concepts, symbols, and conventions to prepare technical and/or presentation drawings. Prerequisite: CDAE 001 or Instructor permission.

**CDAE 102. SU: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 061 or equivalent; CDAE majors/minors only; or Instructor permission.

**CDAE 106. Renewable Energy Workshop. 4 Credits.**

Students learn principles of small-scale renewable energy including solar, wind, hydro, biofuels, and efficiency, then engage in installation workshops in a developing country or Vermont. Pre/co-requisite: CDAE 006 or Instructor permission.

**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 002, or NFS 073.

**CDAE 117. History of Costume. 0 or 3 Credits.**

See THE 041. Prerequisite: ARTH 006 or THE 001. Fall.

**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 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. The Consumer & Advertising. 3 Credits.**

Examination of advertising strategy and how it impacts consumers and the economy. Extensive application of critical analysis to actual advertising campaigns from development through evaluation. Prerequisites: CDAE 024; minimum Junior standing.

**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 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: PSS 137, ENVS 137, NR 137.

**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 and Family Finance. 3 Credits.**

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

**CDAE 159. Consumer Assistance Program. 3-6 Credits.**

Jointly sponsored by UVM and Vermont Attorney General. Under supervision of an attorney, students respond to phone and mail requests for consumer information and handle consumer complaints. Prerequisite: CDAE 157 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. Marketing: Comm 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 169. Data Management & Analysis. 3 Credits.**

Using technology to accomplish tasks specific to entrepreneurs. May include spreadsheets, databases, presentations, mapping, markets, WWW, and project management. Prerequisite: CDAE 085 or CS 002.

**CDAE 170. Solar Strategies Bldg Constrct. 3 Credits.**

Passive, active, and hybrid heating; photovoltaic electric systems. Physical principles, site evaluation, component and system analysis, materials selection, and design of low-cost systems. Prerequisites: MATH 010 and CDAE 001.

**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 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 186. Sustain Dev Sm Island States. 4 Credits.**

This course is a general introduction to problems of sustainable development on small island developing states utilizing a case study of St. Lucia, West Indies. Prerequisites: CDAE 002 or CDAE 061; Instructor permission.

**CDAE 191. Special Problems. 1-12 Credits.**

Independent projects under direction of a faculty member. Includes undergraduate teaching assistance. Prerequisite: Instructor permission. One to six hours (maximum).

**CDAE 192. Food Systems Seminar II. 1 Credit.**

For students in the second year of the Food Systems major. Refines the ability to critically address academic research in the field. Prerequisite: CDAE 092 or Sophomore standing.

**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. Field Experience/Practicum. 1-15 Credits.**

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Prerequisite: Instructor permission. Total credit toward graduation in CDAE 196 and CDAE 296 cannot exceed fifteen hours.

**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. Markets, Food & Consumers. 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. SU: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 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. Pre/co-requisites: PSS 137 or one course in ecology plus one course in design or drawing; minimum Junior standing. Cross-listed with: PSS 238, ENVS 238, NR 238.



**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. SU: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. Prerequisites: CDAE 102 or equivalent.

**CDAE 258. Consumer Policy:Iss & Analysis. 3 Credits.**

Examination and analysis of contemporary issues underlying a variety of consumer policies such as health care, income inequality, and consumer protection. Prerequisites: CDAE 254 or Instructor permission; POLS 021 or similar course. Spring.

**CDAE 259. Consumer Assistance Program II. 3 Credits.**

A practicum providing further experience working as a consumer advocate in the CAP office. Builds on experience with consumer complaints and inquiries gained in CDAE 159. Prerequisites: CDAE 159 and Instructor permission.

**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 CS 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 required.

**CDAE 272. Int'l Economic Development. 3 Credits.**

International trade, finance, investment and development theories and policies for community development. Prerequisite: CDAE 102 or equivalent. Co-requisite: CDAE 273.

**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 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 287. Spatial Analysis. 3 Credits.****CDAE 291. Special Problems. 1-6 Credits.**

Independent projects under the direction of a faculty member. Includes undergraduate teaching assistance. Prerequisite: Department permission. Students may enroll more than once for a maximum of twelve hours.

**CDAE 292. Seminar. 1-3 Credits.**

Reports, discussions, and investigations in selected fields. May enroll more than once up to six hours.

**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. Field Experience/Practicum. 1-18 Credits.**

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

**CDAE 297. Undergraduate Research. 3 Credits.**

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

**CDAE 298. Undergraduate Research. 3 Credits.**

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

## 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 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 022. The Science of Happiness. 3 Credits.**

Explores how to foster more fulfilling and productive lives, and the understanding and development of high potential. Students in this class learn how to create positive change by reinterpreting goals using positive psychology.

**COMU 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.

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

See Schedule of Courses for specific title.

**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 MRI's and EEG's, epigenetics, and questionnaire data. Pre/Co-requisite: COMU 001.

**COMU 151. Developmental Psychopathology. 3 Credits.**

Helps students understand the psychopathology of children by examining the interaction between environmental and genetic influences. Pre/Co-requisite: COMU 123 or COMU 021.

**COMU 152. Intro. to Child Psychiatry. 3 Credits.**

Provides an overview and understanding of current research and methods within child psychiatry. Pre/Co-requisite: COMU 122.

**COMU 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.

**COMU 191. Consequences of Concussion. 3 Credits.**

Covers the different aspects of concussions such as structural changes, functional changes, behavioral health, general health, and magnetic resonance imaging. Pre/Co-requisite: COMU 123 or COMU 021.

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

See Schedule of Courses for specific title.

**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.**

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.

**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 title.

**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.

**COMPLEX SYSTEMS (CSYS)****Courses****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 213. Systems & Synthetic Biology. 3 Credits.**

Applying engineering tools to the design and analysis of biomolecular processes; gene regulatory networks; nonlinear dynamics in molecular biology; biological circuit design; biological signal processing. Prerequisite: Background required: Differential Equations, Linear Algebra, Programming. Cross-listed with: ME 213, EE 213.

**CSYS 221. Deterministic Modls Oper Rsch. 3 Credits.**

The linear programming problem. Simplex algorithm, dual problem, sensitivity analysis, goal programming. Dynamic programming and network problems. Prerequisites: MATH 122 or MATH 124; MATH 121 recommended. Cross-listed with: MATH 221.

**CSYS 226. Civil Engineering Systems Anyl. 3 Credits.**

Linear programming, dynamic programming, network analysis, simulation; applications to scheduling, resource allocation routing, and a variety of civil engineering problems. Pre/co-requisites: Senior/ Graduate standing in CEE or Instructor permission. Cross-listed with: CE 226.

**CSYS 245. Intelligent Transportation Sys. 3 Credits.**

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

**CSYS 251. Artificial Intelligence. 3 Credits.**

Introduction to methods for realizing intelligent behavior in computers. Knowledge representation, planning, and learning. Selected applications such as natural language understanding and vision. Prerequisites: CS 103 or CS 123; CS 104 or CS 124; STAT 153 or equivalent. Cross-listed with: CS 251.

**CSYS 253. Appl Time Series & Forecasting. 3 Credits.**

Autoregressive moving average (Box-Jenkins) models, autocorrelation, partial correlation, differencing for nonstationarity, computer modeling. Forecasting, seasonal or cyclic variation, transfer function and intervention analysis, spectral analysis. Prerequisites: CE 211 or CE 225; or CE 141 or CE 143 with Instructor permission. Cross-listed with: STAT 253.

**CSYS 256. Neural Computation. 3 Credits.**

Introduction to artificial neural networks, their computational capabilities and limitations, and the algorithms used to train them. Statistical capacity, convergence theorems, backpropagation, reinforcement learning, generalization. Prerequisites: MATH 122 or MATH 124 or MATH 271; STAT 143 or STAT 153 or equivalent; CS 110. Cross-listed with: STAT 256, CS 256.

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

**CSYS 268. Mathematical Biology & Ecology. 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 or MATH 230 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 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.

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

See Schedule of Courses for specific titles.

**CIS 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.

**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.**

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.

**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 002. MS Office: Beyond the Basics. 0 or 3 Credits.**

Word documents looking dull? Excel charts lacking something? PowerPoint slides fizzling? All this and more is covered. Learn more than just the basics.

**CS 005. Introductory Special Topics. 0-3 Credits.**

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

**CS 008. Intro to Web Site Development. 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.

**CS 014. Visual Basic Programming. 3 Credits.**

Introduction to Microsoft's rapid development environment. Create playful and relevant Windows applications.

**CS 020. 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. 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 032. Puzzles, Games & Algorithms. 0 or 3 Credits.**

Introductory computer science through exploration and analysis of mathematical puzzles and games, and the algorithms that handle them.

**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. Discrete Structures. 3 Credits.**

Introduction to analytic and formal methods of computer science with practical examples, including analysis or data structures, recursion relations, proof methods, and logic programming. Credit not given for more than one of CS 064, MATH 052 or MATH 054. Prerequisites: CS 020 or CS 021; MATH 021.

**CS 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.

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

See Schedule of Courses for specific titles. Prerequisite: Instructor permission.

**CS 110. 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. 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 110 with a grade of C- or better.

**CS 121. 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. Prerequisite: CS 110.

**CS 124. Data Structures & 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; CS 064 or MATH 052.

**CS 125. Computability and 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 128. Probability Models & Inference. 3 Credits.**

Introduction to probability and statistics with computer science applications: probability spaces, discrete and continuous random variables, distributions, conditional probability, Markov chains, statistical estimation and regression. Prerequisites: CS 064 or MATH 052.

**CS 142. Advanced Web Design. 0-3 Credits.**

Advanced web site design, including structure, architecture, compliance, CSS, usability, etc., to help create a pleasing user experience. Prerequisite: CS 008.

**CS 148. Database Design for the Web. 0 or 3 Credits.**

Design and implementation of a relational database model using SQL and PHP. Typical project includes creation of ecommerce shopping site. Prerequisites: CS 008 and CS 021.

**CS 189. CS for Geospatial Technologies. 0 or 3 Credits.**

Introductory course providing hands-on experience with activities involving programming languages, platforms, and technologies in use by the GIS programmer/developer. Prerequisite: One of CS 020, CS 021, CE 010, GEOG 081, or NR 143.



**CS 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.

**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. Operating Systems. 0 or 3 Credits.**

Supervisory and control software for multiprogrammed computer systems. Processes synchronization, interprocess communication, scheduling, memory management, resource allocation, performance evaluation, object-oriented systems, case studies. Prerequisites: CS 121 and CS 124.

**CS 204. 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. Software Engineering. 3 Credits.**

Treatment of software engineering problems and principles, including documentation, information hiding, and module interface specification syntax and semantics. Requires participation in a team project. Prerequisite: CS 124.

**CS 206. 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 222. 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. 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. 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 228. 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 231. Programming for Bioinformatics. 3 Credits.**

Introductory course on computing (including scripting, database, and statistical analysis) for developing bioinformatics applications. Particular emphasis is given to comparative genomics and systems biology scenarios. Prerequisites: STAT 151, STAT 153 or Instructor permission. Cross-listed with: MMG 231.

**CS 232. Methods in Bioinformatics. 3 Credits.**

This course provides a methodological survey of bioinformatics. Particular emphasis is given to algorithms associated with sequence analysis, comparative genomics, structural biology, and systems biology. Prerequisites: STAT 151, STAT 153, or Instructor permission. Cross-listed with: MMG 232.

**CS 243. 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 251. Artificial Intelligence. 3 Credits.**

Introduction to methods for realizing intelligent behavior in computers. Knowledge representation, planning, and learning. Selected applications such as natural language understanding and vision. Prerequisites: CS 103 or CS 123; Prerequisites: CS 124; CS 128 or STAT 151 or STAT 143. Cross-listed with: CSYS 251.

**CS 254. Machine Learning. 3 Credits.**

Introduction to machine learning, including supervised and unsupervised learning algorithms, reinforcement learning, and computational learning theory. Prerequisites: CS 128 or STAT 151 or STAT 143; MATH 121; MATH 122 or MATH 124.

**CS 256. Neural Computation. 3 Credits.**

Introduction to artificial neural networks, their computational capabilities and limitations, and the algorithms used to train them. Statistical capacity, convergence theorems, backpropagation, reinforcement learning, generalization. Prerequisites: MATH 122 or MATH 124 or MATH 271; CS 128 or STAT 143 or STAT 151; CS 110. Cross-listed with: STAT 256, CSYS 256.

**CS 260. Parallel Computing. 3 Credits.**

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

**CS 265. Computer Networks. 3 Credits.**

Introduction to the theoretical and pragmatic principles and practices of computer networking. Topics include: local area networks; the Internet; network and world-wide-web application programming. Prerequisites: CS 110; CS 121; STAT 143.

**CS 266. 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: Prerequisite: CS 124.

**CS 274. Computer Graphics. 3 Credits.**

Graphical representation of two- and three-dimensional objects on color raster displays. Line generation, region filling, geometric transformations, hidden line and surface removal, rendering techniques. Prerequisites: CS 104 or CS 124; MATH 122 or MATH 124 or MATH 271 recommended.

**CS 275. Mobile Apps & Embedded Devices. 3 Credits.**

A projects-based course focused on applications development on wireless and embedded platforms, including iOS, Arduino, and Linux-based devices. Emphasis on C programming and cyber-physical systems software. Prerequisite: CS 124. 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.

**CS 284. Undergraduate Honors Thesis. 3 Credits.**

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

**CS 287. 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. 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 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.

**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 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.**

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.

**EDCO 091. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**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.**

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.

**EDCO 191. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title.

**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 220. Developmental Persp in Counsel. 3 Credits.**

Survey of major and emerging theories of human development and application of theoretical concepts to self and others from a counseling perspective. Prerequisite: Graduate standing; others by Instructor permission.

**EDCO 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.

**EDCO 291. Special Topics in Counseling. 1-18 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 051. D1:Intr Crit Race & Ethnic Std. 3 Credits.**

A theoretical analysis of the articulation of race and ethnicity in the United States.

**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 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. Field Experience: Internship. 3 Credits.**

Approved programs of learning outside the classroom. 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 192. Field Experience: Seminar. 3 Credits.**

In-class discussion and instruction concerning approved programs of learning outside of the classroom. 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 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. Readings and Research. 1-12 Credits.**

Readings and research. Prerequisite: Instructor permission.

**CRES 198. Readings and Research. 1-12 Credits.**

Readings and research. Prerequisite: Instructor permission.

**CRES 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 and PSYS 170. Cross-listed with: PSYS 276.

**CRES 277. Seminar in CRES. 3 Credits.**

Interdisciplinary examination of theoretical foundation of Critical Race and Ethnic Studies. Emphasis on relationship among race, class, gender, and ethnicity. Prerequisite: Six hours in Critical Race & Ethnic Studies.

**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. 3 Credits.**

Selection and development of topic for investigation using assigned faculty member as preceptor. Prerequisites: CRES 051; permission of Director of Critical Race & Ethnic Studies.

**CRES 298. Independent Study. 3 Credits.**

Selection and development of topic for investigation using assigned faculty member as preceptor. Prerequisites: CRES 051; permission of Director of Critical Race & Ethnic Studies.

## CURRICULUM & INSTRUCTION (EDCI)

### Courses

**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 207. Univ and Third World Devel. 3 Credits.**

Examination of the role of educational policies on urbanization vs. ruralization in the human capital formation process of third world countries. Pre/co-requisites: six hours of Political Science, History, Geography or Economics, or Instructor permission.

**EDCI 211. Educational Measurements. 3 Credits.**

The essential principles of measurement in education. Topics include validity, reliability, principles of test construction, item analysis, and analysis of standardized tests as they apply to the classroom. Pre/co-requisite: twelve hours in Education and related areas.

**EDCI 215. The Gifted Child. 3 Credits.****EDCI 238. Teach'g w/Global Perspective. 3 Credits.**

Approaches to teaching global and multicultural issues: justice and human rights, peace, and the environment. Development of curriculum materials. Links between local and global concerns. Prerequisite: Twelve hours of Education and related areas.

**EDCI 241. Science for the Elem School. 3 Credits.**

Examines a number of elementary school science programs. Emphasis on methods and materials relating to construction and use of science units for children in grades K-6. Pre/co-requisite: twelve hours in Education and related areas and Instructor permission.

**EDCI 245. Computer Apps in Elem&Sec Curr. 3 Credits.**

For elementary, secondary educators with experience in simple programming. Design of instructional procedures, integrating computers into school curriculum. Use of computer software to teach basic skills, reasoning, thinking skills. Prerequisites: CS 003 or equivalent; Instructor permission.

**EDCI 261. Current Direction in C&I. 3 Credits.**

Current trends, issues, literature, programs, and organizational activities in fields of curriculum and instruction emphasizing areas of individual concern. Focus on elementary and secondary school levels. Prerequisite: Twelve credits in Education or equivalent.

**EDCI 295. Laboratory Experience in Educ. 1-6 Credits.**

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

**EDCI 296. Laboratory Experience in Educ. 1-6 Credits.**

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

**DANCE (DNCE)****Courses****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 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 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 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 035. D2: Argentine Tango. 3 Credits.**

Introduction to Argentine tango, including how to dance, understand music, and interact within a tango community. Emphasis on tango roots in multiple cultures and engaging in gender-neutral partnering to fuel creativity and diversity awareness. Reading, writing, and live events 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 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 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 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 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. Readings & Research. 1-6 Credits.**

Supervised independent study in dance. Inter-disciplinary topics are encouraged. Prerequisite: Department permission.

**DNCE 198. Readings & Research. 1-6 Credits.**

Supervised independent study in dance. Inter-disciplinary topics are encouraged. Prerequisite: Department 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 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.

**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.****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 100. Inquiry & Pedagog in Early Edu. 0 or 10 Credits.**

Strategies for the observation, documentation and development of curriculum in early education from a social-constructivist perspective through seminar participation and an internship experience in an early childhood setting. Offered Fall only. Pre/co-requisite: EDEC 001.

**EDEC 101. Multiple Roles of Tcher in ECE. 3 Credits.**

Explores the multiple roles of the teacher in Early Childhood Education as they relate to inquiry, pedagogy, and the construction of inclusive and engaging learning environments for young children and their families. Prerequisites: Early Childhood PreK-3 or Early Childhood Special Education major or Instructor permission. Pre/Co-requisite: EDEC 122. Co-requisites: EDEC 103; Praxis Core or pending.

**EDEC 102. Curriculum in ECE. 3 Credits.**

A social constructivist view on curriculum in Early Childhood Education that corresponds with evidence-based understanding of how young children learn and develop. Students will examine historical antecedents, elements of early learning standards, and high quality classroom environments. Prerequisites: EDTE 001 or EDEC 001 or Instructor permission; Early Childhood Preschool or Early Childhood Special Education majors only or instructor permission. Co-requisites: EDEC 101, EDEC 103; Praxis Core or pending.

**EDEC 103. Early Childhood Practicum. 4 Credits.**

Practicum experience at the UVM Campus Children's Center lab school with children birth-age 6. Prerequisites: Early Childhood PreK-3 or Early Childhood Special Education major; Praxis core requirement fulfilled or pending. Pre/co-requisites: EDEC 122. Co-requisite: EDEC 101.

**EDEC 122. Fundamentals of EC Education. 3 Credits.**

A study of Early Childhood Education systems, contexts and pedagogical frameworks that correspond with evidence-based understanding of how young children learn and develop. Students will examine various models of ECE, multiculturalism, early learning standards, assessments and high quality classroom environments. Prerequisites: EDEC 001, EDEC 063; Early Childhood PreK-3 or Early Childhood Special Education majors only; or Instructor permission.

**EDEC 139. Early Childhood Internship. 9 Credits.**

Student teaching experience: UVM Campus Children's Center lab school, children birth to age 6. Collaborative work with children, teachers, families to develop curriculum and environments that promote play, development, learning in a social constructivist context. Prerequisites: EDEC103, EDEC 122; Early Childhood PreK-3 or Early Childhood Special Education major; or Instructor permission; Praxis Core requirement fulfilled or pending. Co-requisite: EDEC 140.

**EDEC 140. Early Childhood Seminar. 3 Credits.**

Seminar supports EDEC 139, EC Internship at UVM lab school, with children birth to age 6. Pedagogical practices and leadership skills through integrated readings and research in Early Childhood Education; particular emphasis on curriculum development. Prerequisites: EDEC 101, EDEC 122; Early Childhood PreK-3 or Early Childhood Special Education major; or Instructor permission; Praxis Core requirement fulfilled or pending. Co-requisite: EDEC 139.

**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 140; Early Childhood PreK-3 majors; or Instructor permission. Co-requisites: EDEC 179, EDEC 181, EDEC 182.

**EDEC 179. K-3 Interdisciplinry Practicum. 4 Credits.**

Inter-disciplinary practicum in a K-3 public school classroom, designed to provide students with opportunities to practice teaching methods in Literacy, Science and Social Studies while ensuring a differentiated approach to curriculum development, instruction and assessment. Prerequisites: EDEC 139; Praxis Core Requirement Fulfilled; Early Childhood PreK-3 major; or Instructor permission. Co-requisites: EDEC 156, EDEC 181, and EDEC 182.

**EDEC 180. ELA Across Content Areas. 6 Credits.**

This seminar/practicum provides the foundation needed to implement an integrated approach to designing, presenting, and evaluating an English Language Arts (ELA) curriculum across content areas, such as science inquiry, social studies, language and literacy. Pre/co-requisites: EDEC 103, EDEC 189 or Instructor permission.

**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 140;, Praxis Core Requirement Fulfilled; Early Childhood PreK-3 majors; or Instructor permission. Co-requisites: EDEC 156, EDEC 179, and 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 140; Praxis Core Requirement Fulfilled; Early Childhood PreK-3 majors; or Instructor permission. Co-requisites: EDEC 156, EDEC 179, and EDEC 181.

**EDEC 187. K-3 Studnt Teachng Internship. 12 Credits.**

Full time, semester-long student teaching experience in a primary (K-3) setting. Prerequisites: EDEC 179; Early Childhood PreK-3 major; Praxis Core Requirement Fulfilled; GPA of 3.0 or higher. Co-requisite: EDEC 188.

**EDEC 188. K-3 Seminar. 3 Credits.**

Supports the EDEC 187 K-3 Internship. It will address pertinent issues in early elementary teaching and learning, while preparing students to construct their licensure portfolios. Prerequisites: EDEC 156, EDEC 179, EDEC 181, and EDEC 182; Early Childhood PreK-3 major; Praxis Core Requirement fulfilled; GPA of 3.0 or higher. Co-requisite: EDEC 187.

**EDEC 189. Early Childhood Practices. 0-15 Credits.**

Supervised planning and conducting the Early Childhood Laboratory Center. Integrated Readings and Research, Early Childhood Seminar, and Curriculum Workshop. Prerequisite: Permission. Variable credit.

**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. Readings & Research. 1-4 Credits.****EDEC 200. Contemporary Issues. 1-6 Credits.****EDEC 291. Independent Study. 1-15 Credits.**

Reading, discussion, and special field and/or laboratory investigations related to work with children birth to grade 3. Students may enroll more than once for up to 15 credit hours. 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 296. Field Experience. 1-15 Credits.**

Professionally-oriented field experience under joint supervision by faculty and community representative, credit arranged up to 15 hours. Prerequisite: Department permission.

## EARLY CHILDHOOD SPECIAL EDUC (ECSP)

### Courses

**ECSP 187. Student Teaching Practicum. 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 210, ECSP 211; Praxis Core requirement fulfilled; minimum GPA of 3-point-0 or higher.

**ECSP 200. Contemporary Issues. 1-6 Credits.****ECSP 202. D2: Introduction to EI/ECSE. 3 Credits.**

This course serves as an introduction to the profession and the importance of becoming an advocate for children (0 - 6) experiencing diversity of ability, culture and or language.

**ECSP 210. Curriculum in EI/ECSE. 3-4 Credits.**

Designing and implementing services and supports for young children with diverse abilities. Topics include IEP/IFSP, embedding instruction, family-centered, and inclusion. three credits, four credits with 30-hour field experience. Pre/Co-requisites: ECSP 202; Praxis Core requirement fulfilled for licensure candidates. Cross-listed with: ECSP 310.

**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 with 30-hour field experience. Pre/Co-requisites: Completion or co-enrollment in ECSP 202 for undergraduates; Praxis Core requirement fulfilled for licensure candidates. Cross-listed with: ECSP 311.

**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. Cross-listed with: ECSP 320. For Graduate students only.

**ECSP 295. Lab Experience in Education. 1-6 Credits.**

Undergraduate only.

**ECSP 296. Field Experience. 1-12 Credits.**

## 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.

**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.**

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.



**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 118. History of Economic Thought. 3 Credits.**

Explores how and why new economic ideas and theories emerge historically. Includes concept of value, theories of distribution, ideas of Keynes, Schumpeter, Veblen and Hayek. Prerequisites: EC 011, 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 153. D1:African Amer in the US Econ. 3 Credits.**

An examination of historical and contemporary inequality between whites and blacks, focusing especially on labor, housing, and credit markets. 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. 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 any of: STAT 111, STAT 140, STAT 141, STAT 143.

**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.**

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.



**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 194. ISSP Thesis. 3 Credits.**

Design, research, and writing of a thesis on an economic topic for students in the Integrated Social Sciences Program. Prerequisites: EC 011, EC 012.

**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. 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 210. Sem A:Econ Hst, Systems&Ideas. 3 Credits.**

Topics on the evolution of economic systems and ideas. Prerequisites: EC 170, EC 171, EC 172.

**EC 220. Sem B:Macroeconomics&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, EC 171, EC 172.

**EC 221. Topics in Central Banking. 3 Credits.**

Topics such as US monetary policy, central banking operations in the US, Europe, and Asia, currency boards, theory and practice of monetary unions. Prerequisites: EC 120, EC 170, EC 171, EC 172.

**EC 230. Sem C:Microeconomics & 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, 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. Sem D:Intern'l & Dev Economics. 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, EC 171, EC 172.

**EC 250. Sem E:Labor, Race & Gender. 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, EC 171, EC 172.

**EC 260. Sem F: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, 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.**

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.

**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 001. Schooling, Learning & Society. 3 Credits.**

Introduction to issues and problems in American education: schools and learning, professional careers, individuals in systems, characteristics of learners. Required readings and papers.

**EDSS 010. ACCESS Education. 1 Credit.**

Create a safe community to discuss disability related issues. Introduce students to organizational systems, goal setting, learning styles, self-advocacy, disabilities, and study skills.

**EDSS 011. Race and Culture. 1 Credit.**

Introduction to issues of diversity, multiculturalism and cultural pluralism in our different communities and in our country as a whole.

**EDSS 012. Race&Culture Contemp Issues. 1 Credit.**

Gives an expanded introduction to US social justice issues. Forms of discrimination that shape US culture explored and skills in self-reflection and critical analysis developed.

**EDSS 055. Special Topics. 1-6 Credits.****EDSS 094. 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.

**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.**

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.

**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 208. The Mass Media as Educator. 3 Credits.**

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

**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 248. Educational Media. 3 Credits.**

Modern instructional aids, theory and practice, educational media related to psychology of teaching and learning. Prerequisite: Twelve hours in education and related areas.

**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 title.

**EDSS 295. 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. 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.

**ELECTRICAL ENGINEERING (EE)****Courses****EE 001. EE Principles and Design. 0 or 3 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. No credit for both EE 001 and CEMS 085.

**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. Prerequisite: MATH 022. Co-requisite: PHYS 125.

**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; PHYS 125.

**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 and hands-on exercises. Prerequisites: MATH 022; 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. Prerequisites: EE 081 or EE 100; PHYS 125. Co-requisite: EE 004.

**EE 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.

**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 Electrical Engineering majors. Co-requisite: PHYS 125 or BME 041.

**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; CS 020 or CS 021.

**EE 113. SU: Electric Energy Systems. 0-4 Credits.**

Energy sources, including renewables; generation, delivery, consumption of electricity; power plants, emissions, policy; three-phase power, transformers, motors/generators; sustainability and electric energy. Laboratory included. Prerequisite: EE 003 or EE 100.

**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. Electronic circuit analysis and simulation. Prerequisite: 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 100, CS 020 or CS 021, and CS 031.

**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. Prerequisites: PHYS 125, MATH 271, EE 004.

**EE 163. Solid State Phys Electronics I. 4 Credits.**

Physical principles required to understand the operation of common semiconductor devices. Physical models of p-n junctions, Schottky barriers, and MOS field-effect transistors. Prerequisites: PHYS 125, MATH 271.

**EE 171. Signals & Systems. 0 or 4 Credits.**

Discrete and continuous-time signals and systems. Input/output descriptions and analysis. Convolution, Fourier analysis and Laplace transforms, Sampling and z-transforms. Application to electrical engineering design problems. Prerequisite: EE 004 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: EE 171. Co-requisite: STAT 151.

**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 an electronic circuit that helps to address an engineering application. Prerequisite: EE 183. Co-requisite: EE 121.

**EE 187. Capstone Design I. 3 Credits.**

Project management, professional ethics, social/ economic impact, and contemporary issues that arise in engineering practice. Interdisciplinary project development including project selection, design requirements, prototyping and communications. Pre/co-requisite: Senior standing.

**EE 188. Capstone Design II. 0 or 3 Credits.**

Cumulative, team-based interdisciplinary design experience. Subsystem design, implementation and test. System integration and test. Project demonstration, report, and presentation. Team-directed lab work. Prerequisite: EE 187.



**EE 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.

**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.****EE 194. College Honors. 3-6 Credits.****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 207. Introductory Bioengineering. 3 Credits.**

Introduction to biomedical engineering science including biomechanics, biomaterials, biomedical imaging, rehabilitation engineering, biomedical computing, biomedical instrumentation, and transport phenomena. Pre/co-requisites: Senior/Graduate standing in engineering; 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. Prerequisite: EE 171 or ME 111. Cross-listed with: ME 210.

**EE 212. Computer Vision. 3 Credits.**

Introduction to computer vision systems for interactive and industrial applications using both hard/software computational approaches. Pre/co-requisites: CS 110; MATH 122 (preferred) or MATH 124 or MATH 271.

**EE 213. Systems & Synthetic Biology. 3 Credits.**

Applying engineering tools to the design and analysis of biomolecular processes; gene regulatory networks; nonlinear dynamics in molecular biology; biological circuit design; biological signal processing. Prerequisites: Background required: Differential Equations, Linear Algebra, Programming. Cross-listed with: CSYS 213, ME 213.

**EE 215. Electric Energy Systems Analy. 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 221. Prin VLSI Digital Circuit Des. 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 121. Pre/co-requisites: EE 131.

**EE 222. Prin VLSI Analog Cir Design. 0 or 3 Credits.**

The design, layout, and simulation of VLSI analog circuits. Emphasis on small signal models and circuits used in operational amplifiers. Prerequisites: EE 163, EE 121, Instructor permission.

**EE 224. Principles VLSI System Design. 3 Credits.**

Survey of VLSI design. Architecture and partitioning of functions. Design for testability. Simulation including timing. Synthesis. Design verification; manufacturing interface. Required team project and report. Prerequisite: EE 221 or Instructor permission.

**EE 227. Biomed Measmnts Instrum & Sys. 3 Credits.**

Biomedical and clinical engineering in research, industry, and health care institutions. Measurement techniques and instrumentation. Integrated biomedical monitoring, diagnostic, and therapeutic systems. Co-requisites: EE 121, ANPS 020; Instructor permission. Alternate years.

**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. Prerequisite: Senior standing in Engineering or Physics.

**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, either EE 134 or CS 101.

**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 233. Microprocessor Systems & Appl. 0 or 4 Credits.**

Basic principles of mini/microcomputers; A/D; D/A; channels, magnetic devices, display devices, mechanical devices; interface designs of analog systems to mini/microcomputers; principles of microprogramming; bit-slice-based microcomputers. Prerequisite: Department permission; CS 101 desirable.

**EE 241. Electromagnetic Wave Theory. 3 Credits.**

Electromagnetic radiation and wave propagation in complex media and systems: angular spectrum of plane waves, dispersive pulse propagation, applications to communications, imaging and remote sensing. Prerequisite: EE 141 or equivalent.

**EE 245. Quantum Electronics. 3 Credits.**

A theoretical description of light-matter interactions in photon emitting resonant cavities. A practical understanding of laser design and operation. Prerequisite: EE 141.

**EE 247. Physical Optics. 3 Credits.**

Fundamental properties of the optical field. Molecular optics and the Ewald-Oseen extinction theorem. Foundations of geometrical optics. Diffraction and aberration theory. Prerequisite: EE 141.

**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 163.

**EE 262. Solid-State Materials&Devices. 3 Credits.**

Multijunction and interface devices. Heterostructure and optical devices. Dielectric and optical properties solids. High-frequency and high-speed devices. Novel materials and devices. Prerequisite: EE 163.

**EE 266. Science & Tech Integrated Cir. 3 Credits.**

Science and technology of integrated circuit fabrication. Interaction of processing with material properties, electrical performance, economy, and manufacturability. Prerequisite: EE 163 or EE 261; Co-requisite: EE 164 or EE 262.

**EE 272. Information Theory. 3 Credits.**

Introduction to probability concepts of information theory; entropy of probability models; theoretical derivations of channel capacity; coding methods and theorems, sampling theorems. Prerequisite: STAT 143, STAT 151, or STAT 153.

**EE 273. Digital Communications. 3 Credits.**

Digital modulation/demodulation methods and BER performance; source entropy and channel capacity; optimal detection; convolutional codes and decoding algorithms. Pre/co-requisites: EE 174 and STAT 151.

**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 276. Image Processing & Coding. 3 Credits.**

Image enhancement techniques by point and spatial operations. Data compression techniques to include scalar quantization, entropy coding, transform and sub-band coding. Labs on PC hardware; PC and Unix-based software. Prerequisite: EE 275.

**EE 277. Image Anyl&Pattern Recognition. 3 Credits.**

Image, shape, and texture analysis. Statistical pattern recognition methods. Pattern recognition and computer vision techniques for machine parts recognition and automatic visual inspection. Prerequisite: EE 276.

**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 174 or Instructor permission.

**EE 281. Materials Science Seminar. 1 Credit.**

Presentation and discussion of advanced electrical engineering problems and current developments. Prerequisite: Senior or Graduate Engineering enrollment.

**EE 282. Seminar. 1 Credit.****EE 283. Seminar. 1 Credit.****EE 284. Seminar. 1 Credit.****EE 289. Digital Signal Processing Lab. 1 Credit.**

Design and microcontroller based implementation of real-time digital signal processing systems. Experiments include sampling, digital filtering, and the FFT. Simulations using computer vision software. Pre/co-requisite: EE 171. Co-requisite: EE 275.

**EE 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.

**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 011. Computers in El Ed Classroom. 3 Credits.**

Students use the University's network and internet, exchange e-mail, construct electronic portfolios, and examine software to help them in their studies and future classrooms.

### **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. 2-6 Credits.**

### **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 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. Social Educ and Social Studies. 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.**

Incorporate visual and performing arts (music, movement, theatre) as a way of learning and teaching by focusing on artistic expression. Emphasis on multi-cultural arts. Pre/co-requisites: EDEL 010 Fall semester or permission of the Instructor.

### **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 187. Plan,Adapt,Deliv Lit Instruct. 3 Credits.**

Methods of diagnostic teaching in reading and writing. Identifying components of effective programs and use of research findings to deliver instruction in meaningful contexts. Documentation of personal model of literacy for professional portfolio. Prerequisite: EDEL 175, EDEL 176; or Instructor permission. Pre/Co-requisites: EDEL 155, EDEL 156, EDEL 157, EDEL 158, EDEL 177; or Instructor permission.

### **EDEL 188. Principles of 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. Concurrent with EDEL 185 and EDEL 187. Prerequisite: Method Blocks in Inquiry and Literacy.

### **EDEL 189. Portfolio Dev&Reflective Pract. 1 Credit.**

This course develops candidates' critical reflectivity on their knowledge and expertise of classroom teaching through the construction of a professional portfolio. Prerequisite: Concurrent with EDEL 185 and EDEL 188.

### **EDEL 197. Readings & Research. 1-4 Credits.**

### **EDEL 200. Contemporary Issues. 0-3 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.

**EDEL 270. Kindergarten Methods & Org. 3 Credits.**

Objectives, organization, curriculum, methods and materials, and relationships of kindergarten preschool experiences. Prerequisite: Twelve hours in education and related areas.

**EDEL 271. Kindergarten Educ W/Lab. 3 Credits.**

Designed to acquaint the prospective kindergarten teacher with educational research conducted by Piaget, Bruner, Montessori, and others with experiences provided for working with children of kindergarten age. Prerequisite: Twelve hours in education and related areas.

**EDEL 295. Lab Experience in Education. 1-12 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.

**SURGERY (SURG)****Courses****SURG 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.

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

See schedule of courses for specific titles.

**SURG 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.

**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. 3 Credits.**

Introduction to research in emergency medicine with a laboratory focusing on human subjects research in the emergency department. Prerequisites: Junior status or Instructor permission; completion of mandatory hospital training at least one month before semester.

**SURG 201. Emergency Medicine Research II. 3 Credits.**

Advanced discussion and research training in emergency medicine with continued emergency department-based human subjects laboratory. Prerequisite: SURG 200.

**SURG 220. Adv Topics Emerg Med Research. 3-6 Credits.**

Emergency medicine research under guidance of a faculty member. Prerequisites: SURG 200, SURG 201 and/or faculty permission.

**SURG 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.

**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.

**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.**

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 020. Programming for Engineers. 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: CS 020. Credit not given for both CS 016 and CS 020/ENGR 020.



**ENGR 050. First Year Engineering Seminar. 0 or 1 Credits.**

This required seminar for first year engineering students exposes them to curricular options career paths. The course will also introduce basic principles of engineering design through project based laboratories. Students will interact with faculty, professionals and peers in their fields.

**ENGR 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.

**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 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.

**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: Senior/Graduate standing.

**ENGR 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.

**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.**

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.

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

See Schedule of Course for specific title.

**EMGT 175. The Management of Technology. 3 Credits.**

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

**EMGT 176. Plant Planning and Design. 4 Credits.**

Analysis of facilities and services requirements, material handling, office and clean room layout, mathematical and computer techniques, safety and plant conservation. Prerequisites: Junior standing in Engineering or Business Administration or Instructor permission.

**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.**

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.

**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 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.**

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.

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

See Schedule of Course for specific title.

**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.**

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.

**ESOL 095. Introductory Special Topics. 0-18 Credits.**

See Schedule of Courses for specific titles.

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

See Schedule of Courses for specific titles.

**ESOL 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.

**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.**

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.

**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 title.

**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. 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 004. Engl for International Stdnets. 3 Credits.**

Review of English grammar, practice in expository writing, vocabulary building, and improvement of speaking and listening skills. Prerequisite: Instructor permission.

**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 006. 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 011. Types of Literature. 3 Credits.**

Introduction to fiction, poetry, and drama - past and present, British and American.

**ENGS 012. Introduction to Drama. 3 Credits.**

Study of the play as a work of literature and as a dramatic experience. Continental, British, and American drama from all ages.

**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. British Literature I. 3 Credits.**

Survey of British literary history from the beginnings to the late 18th century.

**ENGS 022. British Literature II. 3 Credits.**

Survey of British literary history from the late 18th century to the present.

**ENGS 023. American Literature I. 3 Credits.**

Survey of American literary history from the beginnings to the Civil War.

**ENGS 024. American Literature II. 3 Credits.**

Survey of American literary history following the Civil War.

**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 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 050. Expository Writing. 3 Credits.**

Intermediate course in expository writing (nonfiction that describes, informs, and persuades) emphasizing rhetorical choices for varying audiences and purposes. 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 061. D2: Intro to African Literature. 3 Credits.**

Readings in African literature, concentrating on major human and political themes and literary techniques.

**ENGS 065. Survey of Folklore. 3 Credits.**

Basic concepts of folklore; development of the discipline; defining the major genres; role of folklore in modern society.

**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. Introductory Seminar. 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. Required of all English majors.

**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.**

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. Departmental Permission required. 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: ENGS 085 and Sophomore standing.

**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 and 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; 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; Sophomore standing.

**ENGS 107. Topics in Comp & Rhetoric. 3 Credits.**

Representative topics: Investigating Literacy, Cybercultural Rhetoric. May repeat with different content. Pre/co-requisites: three hours of ENGS and Sophomore standing.

**ENGS 108. Advanced Composition Workshop. 3 Credits.**

Representative topics include Digital Composing and Critical Writing. May be repeated with different content. Pre/co-requisites: three hours of English and Sophomore standing.

**ENGS 109. Topics in Critical Theory. 3 Credits.**

Topics vary by semester and by professor. Representative topics: Psychoanalytic Criticism; Narrative Theory. May repeat for credit with different content. Pre/co-requisite : three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 110. Gender & Sex in Lit Studies. 3 Credits.**

Courses address writing by women and LGBT authors and/or literary representations of gender and society. May be repeated for credit with different content. Pre/co-requisites: Three hours in English numbered ENGS 005 - ENGS 096; 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; 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; 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; Sophomore standing.

**ENGS 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 or ENGS 053; Sophomore standing. May repeat for credit with different content.

**ENGS 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. Prerequisites: ENGS 050, ENGS 051, or ENGS 053; Sophomore standing.

**ENGS 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. Instructor Permission required. Prerequisites: Sophomore standing and ENGS 053.

**ENGS 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. Instructor Permission required. Prerequisite: Sophomore standing and ENGS 053.

**ENGS 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; Sophomore standing.

**ENGS 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; Sophomore standing.



**ENGS 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; Sophomore standing.

**ENGS 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; Sophomore standing.

**ENGS 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; Sophomore standing.

**ENGS 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; Sophomore standing.

**ENGS 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; Sophomore standing.

**ENGS 138. Milton. 3 Credits.**

Milton's major works in various intellectual, historical, and aesthetic contexts, with special attention to *Paradise Lost*. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 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; Sophomore standing.

**ENGS 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; Sophomore standing.

**ENGS 142. 18th Century British Novel. 3 Credits.**

Fiction from its origin through the 18th century. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 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; Sophomore standing.

**ENGS 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; Sophomore standing.

**ENGS 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; Sophomore standing.

**ENGS 146. 19th Century British Novel. 3 Credits.**

British fiction of the 19th century. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 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; Sophomore standing.

**ENGS 151. 19th Century American Poetry. 3 Credits.**

American verse of various genres and modes by such authors as Whitman, Poe, Dickinson, Longfellow, and Sigourney. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; 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, Chesnut, Chopin, and Jewett. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 153. 19th Century American Prose. 3 Credits.**

American non-fictional genres including essays, histories, slave narratives, speeches, and sermons. Pre/co-requisite: Three hours in English courses numbered ENGS 005 and ENGS 096; 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; 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; Sophomore standing. Cross-listed with: GSWS 142.



**ENGS 159. D1: Afr Am Lit to Harlem Ren. 3 Credits.**

A survey of African American writings from the Colonial period to WW1. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 160. D1:Afr Am Lit & Cul Before 1900. 3 Credits.**

Topics in literature and culture of African Americans before 1900. Topics: Slavery and American Literature; Slavery's Shadows. May repeat for credit with different content. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 161. 20th-Century British Novel. 3 Credits.**

British novelists since 1900, including Forster, Conrad, Lawrence, Woolf, and other more recent writers. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 162. 20th-Century Irish Literature. 3 Credits.**

Irish literature from 1890 to the present, emphasizing Joyce and Yeats. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**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; 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 and Sophomore standing.

**ENGS 165. Modern Drama. 3 Credits.**

20-century drama by writers such as Ibsen, Shaw, Beckett, Brecht, Miller, Pinter, and Churchill. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 166. Modern American Novel. 3 Credits.**

The tradition of the American novel through the mid-twentieth century. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; 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; 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; Sophomore standing.

**ENGS 169. Queer Topics in 20C Lit & Cul. 3 Credits.**

Examines representations of non-normative sexuality and gender through theory, film, literature, and/or cultural studies. May repeat for credit with different content. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; 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; Sophomore standing.

**ENGS 172. Contemporary American Novel. 3 Credits.**

The American novel from the mid-twentieth century. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 173. Contemporary Short Fiction. 3 Credits.**

Among considerations of this discussion-oriented class will be strengths and weaknesses of short stories and story collections published from 1990 to present. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; 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 ; 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; Sophomore standing.

**ENGS 178. Literature of Vermont. 3 Credits.**

An exploration of Vermont writing from the narratives of the Allen brothers to poetry and fiction of today. Occasional special topics. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing. Cross-listed with: VS 160.

**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; Sophomore standing.

**ENGS 180. Topics in Canadian Literature. 3 Credits.**

Topics vary by semester and by professor. Representative topics: The Development of a National Literature. May repeat for credit with different content. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**ENGS 181. Topics in Caribbean Literature. 3 Credits.**

Topics vary by semester. Topics: Introduction to Anglophone Caribbean Literature; Contemporary Caribbean Women Writers; History of Caribbean Novel. May repeat for credit with different content. Pre/co-requisite: Three hours in English courses numbered ENGS 005 - ENGS 096; 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; 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; 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; 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 and Sophomore standing. May be repeated for credit with different content.

**ENGS 191. 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. Departmental Permission required. Offered at department discretion. Prerequisite: Junior/Senior standing.

**ENGS 192. 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. Departmental Permission required. Offered at department discretion. Prerequisite: Junior/Senior 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 and 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 and 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 and 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, Pre/co-requisite: Department permission. for which credit is awarded. 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 202. 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;" "Women's Texts. 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; 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 212. Seminar in Writing. 3 Credits.**

Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing. 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 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 251. 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 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 290. Sem Prospective Tchrs of Engl. 3 Credits.**

Approaches to teaching composition, literature, and the English language in secondary school. 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.**

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. 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 085. Robotics. 3 Credits.**

An exploration of the fundamentals of engineering and electronics. Lectures will include principles of engineering, physics, electronics, mechanics, and computer programming. Laboratory experiments will require students to build simple robots to demonstrate these principles. Prerequisite: Non-degree students only.



**CEMS 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.

**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.**

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.

**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 title.

**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.**

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.

**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 title.

**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.**

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.

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

See Schedule of Courses for specific title.

**ENSC 130. Global Environmental Assessmnt. 0 or 3 Credits.**

Assessment of human impacts on the global environment. Hands-on application of satellite remote sensing and geographic information systems to address key environmental issues. Prerequisites: MATH 019 and either BCOR 011 or BOT 004 and either CHEM 023 or CHEM 031.

**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, BCOR 012, CHEM 031, CHEM 032, MATH 019, and MATH 020.

**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.**

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. 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 222. Pollution Ecology. 3 Credits.**

Impacts of pollutants on the structure and function of ecosystems. Examination of how air, land, and water influence fate and effects of pollutants. Prerequisites: BCOR 011, CHEM 023, and either NR 103 or BCOR 102.

**ENSC 274. Climate Change: 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: NR 103; Graduate status or Senior standing; one introductory or general chemistry course or Instructor permission.

**ENSC 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.

**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.

**Courses****ENVS 001. SU: Intro to Envrnmtl 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. D2:SU: International Env Stdies. 0 or 4 Credits.**

Multidisciplinary analysis of the interaction of global and local variables in understanding and solving pervasive environmental problems. Prerequisite: First-Year/Sophomore standing.

**ENVS 091. 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.

**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 107. SU: Human Health & Envrnmt. 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 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: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, ENSC 001. Cross-listed with: NR 153.

**ENVIRONMENTAL STUDIES (ENVS)**

**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 040; GEOG 050 or GEOG 070. 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 151. Intermed Environmental Studies. 3 Credits.**

Individual investigation of interdisciplinary areas of environmental studies with emphasis on academic and career choices and preparation for senior thesis/project. Prerequisites: ENVS 001 or ENVS 002; Environmental Studies major.

**ENVS 153. D2: Ethnobotany. 3 Credits.**

Human interactions with plants used for food, medicine, material culture, ritual and symbol, examined from both cultural and biological perspectives, using global and local examples. 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. 3 Credits.**

Cross-listed with: PSS 156. Design of agriculturally productive environments that have the diversity, stability, and resilience of the natural biosphere to harmoniously integrate landscape and people. Prerequisite: Three hours basic biological or ecological science, or permission.

**ENVS 166. Env History of N America. 3 Credits.**

Examination of human-environmental interaction on the North American continent over the past five hundred years. Prerequisite: ENVS 001 or NR 002. Cross-listed with: HST 166.

**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. Prerequisite: ENVS 002 or NR 002. May not be taken concurrently with or following receipt of credit for HST 067 since course requirements partially overlap.

**ENVS 170. Environmental Art Practice. 3 Credits.**

Explorations in environmental perception and aesthetics, using field and studio methods in the creative process and drawing on interdisciplinary approaches to the environmental humanities. Repeatable up to 4 times with different content. Prerequisite: ENVS 001, ENVS 002, or NR 002.

**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 177. Intro to Landscape Restoration. 3 Credits.**

Introduction to the history, philosophical foundations, and approaches to restoration of natural landscapes damaged by human activity and neglect. Case studies of selected local sites. Prerequisite: ENVS 001 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: Prerequisite: ENVS 001, ENVS 002, or NR 002.

**ENVS 181. D1: Race, Class and Garbage. 3 Credits.**

Examining environmental waste through social justice analysis of pollution patterns that reflect racism, sexism, classism, including responsive strategies of the environmental justice movement. 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 184. SU: Sust Transpo Planning. 3 Credits.**

Environmental and social impacts of auto-dependence and future-oriented solutions to reduce auto-dependence and impacts and create sustainable transportation solutions. Prerequisite: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, 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. SU: 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 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 189. SU: Intro to Systems Thinking. 3 Credits.**

The use of systems theory and models to synthesize information, develop long-term approaches, and implement sustainable solutions to complex environmental problems. Prerequisite: One of the following: ENVS 001, ENVS 002, NR 001, NR 002, ENSC 001.

**ENVS 191. 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. 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; Junior/Senior 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; Junior/Senior standing.

**ENVS 212. 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 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. Pre/co-requisites: Minimum Junior standing, PSS 137 or one course in ecology plus one course in design or drawing. Cross-listed with: CDAE 238, PSS 238, NR 238.

**ENVS 250. Adv Env Field Studies. 3 Credits.**

Advanced travel study courses examining environmental issues from local ecological, political, and socioeconomic perspectives using experiential learning methods in diverse sites. Prerequisite: Junior standing.

**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.**

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. Prerequisite: ENVS 002; Junior standing.

**ENVS 292. Env Conflict Resolution. 3 Credits.**

Explores the causes of conflicts involving environmental concerns and the role of environment as a factor in conflict development and mediation. Prerequisites: 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 & MOVEMENT SCIENCE (EXMS)

### Courses

**EXMS 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.

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

See Schedule of Courses for specific titles.

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

See Schedule of Courses for specific titles.

**EXMS 150. Intro to Exercise Science. 1 Credit.**

This course introduces students to the discipline of exercise science, the responsibilities of the exercise science professional, and varied career paths in the field. Prerequisite: Senior Exercise & Movement Science majors.

**EXMS 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.

**EXMS 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.

**EXMS 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.

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

See Schedule of Courses for specific titles.

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

See Schedule of Courses for specific titles.

**EXMS 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.

**EXMS 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 and ANPS 020; Junior standing in Exercise & Movement Science or Physical Education.

**EXMS 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.

**EXMS 244. Nutrition for Health & Fitness. 3 Credits.**

This course will explore how nutrition can influence overall health, disease, fitness and performance. Prerequisite: NFS 043.

**EXMS 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, EXMS 254; Senior standing in Exercise & Movement Science.

**EXMS 254. Neural Control of Movement. 3 Credits.**

An exploration of the neural systems involved in movement, how their functions relate to motor control theories, and changes associated with exercise or physical therapy. Prerequisites: ANPS 019, ANPS 020, EXMS 240; Exercise & Movement Science major.

**EXMS 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. Prerequisites: Junior standing in Exercise & Movement Science or Physical Education.

**EXMS 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, EXMS 244.



**EXMS 263. Fitness for Spec Populations. 3 Credits.**

Advanced course in exercise testing and prescription for a variety of unique populations. Techniques and modifications that support fitness programming for these groups will be reviewed. Prerequisites: RMS 250, EXMS 260; Senior standing in Exercise & Movement Science.

**EXMS 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, EXMS 245; Senior standing.

**EXMS 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, EXMS 245; Senior standing.

**EXMS 270. Senior Seminar. 1 Credit.**

This senior seminar 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.

**EXMS 272. Senior Capstone Experience. 1-6 Credits.**

Supervised capstone experience in EXMS. This may include but is not limited to: independent research, teaching assistantships, service learning, and/or clinical internships in the field. Prerequisites: Senior standing in Exercise & Movement Science.

**EXMS 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.

**EXMS 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.

**EXMS 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.

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

See Schedule of Courses for specific titles.

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

See Schedule of Courses for specific titles.

**EXMS 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.

**FAMILY&CONSUMER SCIENCES (EDFC)****Courses****EDFC 095. 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.

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

See Schedule of Course for specific title.

**EDFC 123. Methods In Nutrition Education. 3 Credits.**

Planning and presenting of appropriate methods, media, and materials for audiences in community, school, and institutional settings emphasizing interpersonal communication and group process skills.

**EDFC 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.

**EDFC 195. 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.

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

See Schedule of Course for specific title.

**EDFC 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.

**EDFC 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.

**EDFC 200. Contemporary Issues. 1-6 Credits.**

**EDFC 220. Fam&Consumer Sci/Contemp Schl. 3 Credits.**  
Required for licensure. Exploration of education options in a variety of Family & Consumer Sciences related areas and in different types of schools and programs.

**EDFC 221. Mgmt School Youth Organization. 2 Credits.**

The role of youth organization advisor, particularly FCCLA. Emphasis on service learning and use of advisory councils. Includes observation and participation in school related activities.

**EDFC 222. Curriculum Dev Human Sciences. 3 Credits.**

Basic principles of curriculum development applied to human sciences education. Unique characteristics and contributions of human science education as related to educational, economic, and sociological trends. Spring in odd number years.

**EDFC 224. Evaluation In Human Sciences. 3 Credits.**

Test, questionnaire, interview schedule construction, and other non-testing means of evaluation. Usability, objectivity, validity, reliability, and discrimination of evaluation instruments. Selected sociometric techniques and evaluation in affective domain. Spring.

**EDFC 225. Teaching Pract: Human Sciences. 1-15 Credits.**

Teaching in middle or secondary schools under guidance of cooperating teachers and college supervisor. Credits variable up to fifteen hours per semester.

**EDFC 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.

**EDFC 295. 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.

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

See Schedule of Courses for specific titles.

**EDFC 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.

**EDFC 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.

**FILM & TELEVISION STUDIES (FTS)****Courses****FTS 007. Dev Motion Pct I: Origin-1930. 3 Credits.**

Introduction to basic film history, theory, and analytical skills. An historical overview of international cinema from its origins until 1930.

**FTS 008. Dev Motion Pct II: 1930-1960. 0 or 3 Credits.**

Introduction to basic film history, theory, and analytical skills. An historical overview of international cinema from the onset of sound to 1960.

**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. Dev Motion Pct III: 1960-2000. 3 Credits.**

Introduction to basic film history, theory, and analytical skills. An historical overview of international cinema from 1960 until 2000.

**FTS 091. 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. 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 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 132. Studies Adv Film/TV History. 3 Credits.**

Intensive focus on various historical movements within film and/or television. 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 135. D1: Race & Ethnicity in Film/TV. 3 Credits.**

This course explores the historical/social/political forces that have shaped the representations of race and ethnicity in film and/or television. Prerequisite: FTS 007, FTS 008, FTS 009, or FTS 010.

**FTS 141. Film & Video Production I. 3 Credits.**

An introduction to techniques and theories of video production. Prerequisites: FTS 121 and one of the following: FTS 007, FTS 008, FTS 009, FTS 010.

**FTS 142. Film & Video Production II. 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 145. Screenwriting II. 3 Credits.**

Intermediate topics in screenwriting. Topics vary with instructor, and may include writing the thriller, the romantic comedy, etc. Prerequisite: FTS 144.

**FTS 191. 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. 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.**

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. 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.**

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. 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.

**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. 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 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. Cross-listed with: WFB 013.

### **FOR 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. Cross-listed with: WFB 014.

### **FOR 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. Cross-listed with: WFB 015.

### **FOR 021. Dendrology. 0 or 4 Credits.**

Classification, silvical characteristics, and identification features of native and introduced trees and shrubs.

### **FOR 073. Small Woodland Management. 3 Credits.**

Concepts of forest ecology, resource inventory, cultural practices, and multiple use management for small woodland areas.

### **FOR 081. Forestry Seminar. 1 Credit.**

Readings and discussions introducing current issues in forestry. Prerequisite: Rubenstein School of Environment and Natural Resources students only.

### **FOR 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.

### **FOR 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific title.

### **FOR 121. Forest Ecology Laboratory. 0 or 2 Credits.**

Application of ecological principles in the analysis of forest communities. Prerequisite: FOR 021.

### **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.**

Cross-listed with: NR 146, GEOG 185. Identification, interpretation, measurement, and mapping of natural resources from aerial photographs and satellite imagery. Labs include air photo interpretation and digital image analysis. Prerequisite: Junior standing. Alternate years.

### **FOR 152. Forest Resources Values. 3 Credits.**

History, methods, and current issues associated with the nonmarket and market values of forest-based resources, including aesthetics, wildlife, recreation, water, and timber. Prerequisite: EC 012 or CDAE 061. Cross-listed with: PRT 152.

### **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.**

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.

### **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. 0-18 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 222. Advanced Silviculture. 0 or 3 Credits.**

Scientific basis and contemporary status of silviculture practices. Prerequisite: FOR 223. Alternate years, 2000-01.

### **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 225. Tree Structure & Function. 3 Credits.**

Basic anatomy and physiology of trees and other woody plants, emphasizing their unique structural and physiological adaptations to the environment. Prerequisite: Instructor permission.

### **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: CHEM 031, CHEM 032, NR 103 and either NR 143 or NR 146. Cross-listed with: NR 228.



**FOR 235. Forest Ecosystem Health. 4 Credits.**

Forest health is a broadly defined, emerging discipline in forestry and ecology that examines the agents and processes affecting tree and forest decline. Prerequisites: NR 103, BIOL 001 and BIOL 002 or PBIO 004, FOR 021.

**FOR 272. SU: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 275. Forest Watershed Management. 0 or 3 Credits.**

Concepts of forest hydrology and forest watershed management; emphasis on natural processes and impacts of quantity, quality, and seasonal distribution of flow from watersheds. Prerequisite: NR 102.

**FOR 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.

**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 095. 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.

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

See Schedule of Course for specific title.

**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.**

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.

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

See Schedule of Course for specific title.

**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 204. Sem in Educational History. 3 Credits.**

Selected topics in history of education. Education in democratic and authoritarian social orders. Topics: education of women, black heritage, American higher education in transition. Prerequisite: Twelve hours in education and related areas or Instructor permission.

**EDFS 205. History of American Education. 3 Credits.**

Educational principals and practices in the U.S. as they relate to the main currents of social history. Key ideas of historic and contemporary significance. Prerequisite: Twelve hours in education and related areas or Instructor permission.

**EDFS 206. D2:Comparative Education. 3 Credits.**

Examines educational challenges confronting countries around the world. Explores issues related to sustainable development, diversity, citizenship, and justice in formal and nonformal educational contexts. Prerequisite: Twelve hours in education and related areas.

**EDFS 207. Traditionalist Education. 3 Credits.**

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

**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 255. School as Social Institution. 3 Credits.**

Examination of the school and related social institutions, focus on themes, including: social class, race, ethnicity, socialization, role of the family, social change. Prerequisite: Twelve hours of education and related areas.

**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.**

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. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

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

See Schedule of Course for specific title.

**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 009. Basic French Grammar Review. 3 Credits.**

Thorough review of French grammar in preparation for intermediate level. Considerable emphasis on written exercises.

**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.**

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.

**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 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 113. English/French Translation. 3 Credits.**

Introduction to English-French translation strategies as basis for improving French writing 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 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.**

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.

**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 205. Topics in Adv Lang Study. 3 Credits.**

Varied topics devoted to a special area such as translation, creative writing, French for the professions (medicine, business, journalism, law), etc. 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 235. Medieval/Renaissance Topics. 3 Credits.**

Study of literary and non-literary writings from Medieval and Renaissance France. Texts may deal with questions of otherness, religion, gender, and/or politics. Prerequisites: FREN 141 or FREN 142.

**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 247. Power/Desire in Class Fr Drama. 3 Credits.**

How dramatists like Corneille, Moliere and Racine used history, legend and satire to explore questions of tyranny, freedom, passion, generosity, hypocrisy, truthfulness and more. Prerequisites: FREN 141 or FREN 142.

**FREN 256. Enlightenment Society Reimagined. 3 Credits.**

How did 18C writers use the representation of social hierarchy, gender relations, the exotic, etc., to (re-)define French culture on the eve of the Revolution? Prerequisites: FREN 141 or FREN 142.

**FREN 265. Romanticism and Symbolism. 3 Credits.**

Exploration of the idealist tradition in 19th century French poetry and novels. Authors may include Constant, Chateaubriand, Stael, Hugo, Flaubert, Baudelaire, Verlaine, Mallarme. 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 270. Lyric Poetry: Harmony & Crisis. 3 Credits.**

A consideration of the French lyric tradition. Authors may include the troubadours, Ronsard, Dubellay, Hugo, Baudelaire, Mallarme, Rimbaud, Valery, Roubaud. 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 276. Topics in Modern French Lit. 3 Credits.**

Selected topics dealing with poetry and/or narrative related either to an historical period or a literary movement. 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. D2:MultiethnicFrance: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 Hebert, Michel Tremblay, Jacques Godbout, Gaston Miron. Prerequisites: Either FREN 141 or FREN 142, or both.

**FREN 289. African Lit: French Express. 3 Credits.**

Study of West African poetry, theatre, novel, and civilization as an expression of the Black experience in the language of the French colonizer. Prerequisites: FREN 141 or FREN 142.

**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 294. Topics in French Cinema. 3 Credits.**

A topical approach to the study of French cinema and cinematographic aesthetics, from the medium's beginnings through contemporary films. Prerequisites: 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.**

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.

## 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:World Regional Geog. 3 Credits.**

Basic introduction to Geography by way of a regional approach to human and environmental topics.

**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. Geography of Vermont. 3 Credits.**

Introduction to physical, social, historical, and economic geographies of Vermont. Focus on landscape change and environmental issues from a global perspective.

**GEOG 070. Space, Place and Society. 3 Credits.**

An introduction to human geography; the study of space and spatial arrangement, the construction of place and experience, 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. Introduction to Remote Sensing. 3 Credits.**

Geographic analysis and evaluation of aerial imagery produced by remote sensors and its relationship to environmental problems in the social and physical sciences.

**GEOG 090. International Field Studies. 3 Credits.**

Field course abroad (e.g. South Africa or England). Intensive study of the geography of a country or region, with attention to related issues.

**GEOG 091. 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.



**GEOG 092. Vermont Field Studies. 3 Credits.**

Field course on a geographical theme (e.g. physical or regional geography) in the Burlington area or surrounding region. Cross-listed with: VS 092.

**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 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. 3 Credits.**

Analysis of regional and local climatic data with special reference to climatic controls; special laboratory projects. 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 or GEOL 055.

**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 152. Canada. 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 153. The Circumpolar Arctic. 3 Credits.**

Examines the physical and human geography of the circumpolar Arctic. Prerequisite: GEOG 040 or GEOG 050.

**GEOG 154. D2:SU:Geography of Development. 3 Credits.**

Issues of global inequality, modernization and environmental degradation with a focus on colonialism, postcolonialism, and displacement of people, livelihoods and cultures by development processes. Prerequisite: GEOG 050 or GEOG 070.

**GEOG 156. D2:Latin America. 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 157. Geography of the Pacific. 3 Credits.**

Physical and human environments of Polynesia, Micronesia and Melanesia. Focus on the impacts of colonialism, warfare, weapons testing, poverty, the tourism industry, and environmental change. Prerequisite: GEOG 070.

**GEOG 158. Geography of the Middle East. 3 Credits.**

Political, cultural, and physical geography of the Middle East, with an emphasis on the relationship between the Middle East and the West. Prerequisite: GEOG 050 or GEOG 070.

**GEOG 159. Europe. 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.

**GEOG 160. The United States. 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 163. D1: Race Geographies. 3 Credits.**

Explores the links between race, racism, and geography, including issues of slavery, Jim Crow laws, gender, migration, housing, gangs, HIV/AIDS, urban development, and mass incarceration. Prerequisite: GEOG 060 or GEOG 070.

**GEOG 170. Historical Geography. 3 Credits.**

Cross-listed with: HST 170. Examination of the tools, techniques, and perspectives used in studying the historic development of places and landscapes. Vermont and other North American case studies. Prerequisite: GEOG 050 or GEOG 070.

**GEOG 171. Cultural Geography. 3 Credits.**

Distribution of race, ethnicity, language, and religion at different geographical scales and how these factors contribute to world and regional events. Prerequisite: GEOG 050 or GEOG 070.

**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. Prerequisite: GEOG 040; GEOG 050 or GEOG 070. Cross-listed with: ENV 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 176. Geography of Global Economy. 3 Credits.**

Distribution of global economic activity and power. Processes of uneven development and globalization including industrialization, the "global assembly line", trade, investment and migration. Prerequisite: GEOG 070.

**GEOG 177. Political Geography. 3 Credits.**

Examines the relationships between nation states and political identity. Other political-spatial constructs are also examined, including the private and public dichotomy, cyberspace, and borders. Prerequisite: GEOG 050 or GEOG 070 or POLS 051 or POLS 071. Cross-listed with: POLS 161.

**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. Cross-listed with: GSWS 170.

**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. Cross-listed with: ANTH 179.

**GEOG 184. Geog Info: Concepts & 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: GEOG 081 or NR 025.

**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: GEOG 081 or NR 025. Cross-listed with: FOR 146, NR 146.

**GEOG 186. Qualitative Research in Geog. 3 Credits.**

Students will learn data collection, analysis, and representation techniques for qualitative data with emphasis on geographic practices, such as participatory mapping and mixed-methods approaches. Prerequisite: GEOG 081.

**GEOG 190. International Field Studies. 3 Credits.**

Field course abroad (e.g. South Africa or England.) Intensive study of the geography of a country or region, with attention to related issues. Prerequisite: Three hours in Geography.

**GEOG 191. Geography 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. Prerequisite: Junior/Senior standing.

**GEOG 192. Vermont Field Studies. 3 Credits.**

Field course on a geographical theme (e.g. physical or regional geography) in the Burlington area or surrounding region. Prerequisite: GEOG 040, GEOG 050, GEOG 061, GEOG 070, or VS 052. Cross-listed with: VS 192.

**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 202. Research Methods. 3 Credits.**

A systematic overview of the art and science of geographical inquiry. Examination of key research and methodological approaches in the discipline. Prerequisite: Junior/Senior standing.

**GEOG 203. Contemp Geog Thought Context. 3 Credits.**

A survey of paradigms and issues in contemporary geography. Attention paid to the social and historical contexts of geographic thought. Prerequisite: Junior/Senior standing.

**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; Junior/Senior 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; Junior/Senior 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; Junior /Senior 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; Junior/Senior 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; Junior/Senior 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; Junior/Senior 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; Junior/Senior standing.

**GEOG 287. Spatial Analysis. 3 Credits.**

Analysis of spatial pattern and interaction through quantitative models; introduction to measurement, sampling, and covariation in a spatial framework. Prerequisite: Junior/Senior standing.

**GEOG 291. 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.

**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.**

An introduction to the earth as a closed system, the cycling of materials and energy within it, and how it interacts with the hydrosphere and atmosphere. May not be taken for credit concurrently with, or following receipt of, credit for GEOL 002.

**GEOL 002. Earth System Science. 3 Credits.**

An introduction to earth as a closed system, the cycling of materials and energy within it, and how it interacts with hydrosphere and atmosphere. No Lab. May not be taken for credit concurrently with, or following receipt of, credit for GEOL 001.

**GEOL 003. Fire & Ice. 3 Credits.**

Introduction to volcanoes/plate tectonics ("fire") and glaciers/climate change ("ice") using lectures, slides, discussion, and field trips. Considers Vermont and world-wide geological examples.

**GEOL 005. Mt - Lake: Geol Lake Chmpln Bsn. 4 Credits.**

Scientific principles applied to the geology and geologic history of the Lake Champlain Basin.

**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 008. The Dynamic Earth. 3 Credits.**

Exploration of Earth from a systems perspective, the exchange of mass and energy with the atmosphere, hydrosphere and lithosphere. How geologists use the scientific method. Credit not given for both GEOL 008 and either GEOL 005 or GEOL 001.

**GEOL 010. Geological Oceanography. 0 or 3 Credits.**

Characteristics and development of the oceans, their basins and shorelines, including plate tectonic history and basic physical, chemical, and biological processes. Prerequisite: GEOL 001.

**GEOL 025. Environmental Geology Survey. 3 Credits.**

Environmental Geology is the study of the interactive relationship between humans and their geologic environment. No lab.

**GEOL 053. Planetary Geology. 3 Credits.**

Characterizes the differences and similarities between the Terrestrial and Jovian Planets, the dynamic processes that shape our home planet and compares the geologic processes active in our Solar System. Prerequisite: ASTR 005.

**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.**

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.

**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 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, GEOL 005, or GEOL 055.

**GEOL 110. SU: Earth Materials. 0 or 4 Credits.**

Introduction to the major rocks and rock-forming minerals and their relationship to formation/depositional environments. Prerequisite: GEOL 001, GEOL 005 or GEOL 055.

**GEOL 112. Mineralogy&Optic Crystallgrphy. 4 Credits.****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 153. Stratigraphy & Sedimentology. 0 or 4 Credits.**

Properties of physical sedimentation, principles of stratigraphy and basin analysis, and comparison of modern and ancient environments. Lab includes field trips. Prerequisite: GEOL 062.

**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 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.

**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. 3 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: 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 242. Basin Analysis. 3 Credits.**

This course examines the formation and evolution of sedimentary basins, including tectonic setting, sediment supply, and subsidence history. Prerequisite: GEOL 153.

**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 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 261. Geodynamics. 4 Credits.**

Examines physical evolution of the Earth on regional to global scale. Project oriented, focusing on analysis and interpretation of geologic and geophysical data. Prerequisites: GEOL 101, 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 265. Geomicrobiology. 3 Credits.**

An introduction to microbial control of redox chemistry on Earth's surface, including field techniques and a detailed look at how microbes affect element cycling. Prerequisite: GEOL 135.

**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 272. Regional Geology. 0 or 4 Credits.**

Discussion of the geology of a selected region of North America; a four-week summer field trip to the area in question. Prerequisites: GEOL 101, GEOL 110.

**GEOL 273. Geology of the Appalachians. 3 Credits.**

Origin of mountain belts; the Appalachian mountain system discussed in terms of tectonics and geologic processes active in modern continental margins. Prerequisites: GEOL 101, GEOL 110.

**GEOL 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.

**GEOL 291. Seminar in Geology. 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.

**GEOL 292. Senior Seminar. 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.

**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 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. 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 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.

**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 103. Composition & Conversation. 3 Credits.**

An intensive language course concentrating on more advanced syntax, vocabulary building, and idiomatic expression through written compositions, translations, and oral presentations. Prerequisite: GERM 052 or equivalent.

**GERM 104. German News Media. 3 Credits.**

Analysis of journalistic style and content in news coverage of contemporary events as reported in newspapers, magazines, radio, and television in German-speaking countries. Prerequisite: GERM 052 or equivalent.

**GERM 121. Culture & Civilization to 1900. 3 Credits.**

Historical, intellectual, and artistic developments of German culture and civilization from Roman times through the 19th century, stressing written and oral work. Prerequisite: GERM 052 or equivalent.

**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 155. German Lit in Context I. 3 Credits.**

Introduction to German Literature from the Enlightenment through Realism with attention to political, philosophical, musical, and artistic developments. Authors may include Goethe, Schiller, Novalis, Hoffmann, Heine, and Buchner. Prerequisite: GERM 052.

**GERM 156. German Lit in Context II. 3 Credits.**

Study of 20th century German literature in historical and cultural contexts. Introduction to important topics and stylistic elements through representative texts from prevalent literary movements. Prerequisite: GERM 052.

**GERM 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.

**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 201. Methods Research&Bibliography. 3 Credits.**

Introduction to tools and methods of research, including major bibliographical sources, reference works, dictionaries, editions, and journals concerned with German literature, language, and folklore. Prerequisite: Two 100-level courses.

**GERM 202. Expository Writing. 3 Credits.**

Improvement of writing skills through work with authentic texts from different content areas (literature, media, science, business). Emphasis on stylistic development and sophisticated vocabulary-building. Prerequisite: Two 100-level courses.

**GERM 213. History of the German Language. 3 Credits.**

Historical and linguistic development of the German language from Indo-European to the present, emphasizing sound shifts, the 16th century, and the modern age. Prerequisite: GERM 155 or GERM 156; one other 100-level course.

**GERM 214. Middle Ages. 3 Credits.**

Analysis and discussion of several "Minnesang" poets (esp. Walther and Neidhart), the Nibelungenlied, the courtly epics Erec, Parzival, and Tristan, and the satirical epic Helmbrecht. Prerequisite: GERM 155 or GERM 156; one other 100-level course.

**GERM 225. Goethe. 3 Credits.**

Study of Goethe's accomplishments in poetry, drama, and the novel during major phases of his literary career: Sturm und Drang, Classicism, and Romanticism. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 226. Schiller. 3 Credits.**

Major attention will be paid to Schiller's development as a dramatist (from Die Rauber to Wilhelm Tell) as well as to his contributions to German Classicism. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 237. 19th-Century Prose. 3 Credits.**

Literary and stylistic analysis of prose works by Tieck, Kleist, Stifter, Gotthelf, Droste-Hulshoff, Storm, Keller, and Hauptmann with emphasis on Romanticism, Poetic Realism, and Naturalism. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 247. German Lit from 1890 to 1945. 3 Credits.**

Naturalism, Symbolism, Expressionism and subsequent trends through readings of authors such as Hauptmann, Rilke, Kaiser, Kafka, Mann, and Brecht. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 248. Contemporary German Literature. 3 Credits.**

Literary movements and their major representatives from 1945 to the present, including relevant sociopolitical, intellectual, and cultural aspects. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 251. German Folklore. 3 Credits.**

Verbal folklore genres (fairy tales, legends, folk songs, and proverbs) treated in their relation to literature, mass media, and popular culture. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 263. German Romanticism. 3 Credits.**

Study of major works by authors such as Friedrich Schlegel, Novalis, Brentano, Hoffmann, and Eichendorff in their literary, artistic, philosophical, and sociopolitical contexts. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 271. Proverbs. 3 Credits.**

Diachronic and synchronic survey of German proverbs, proverbial expressions, and wellerisms, emphasizing their use and function in literature, art, mass media, advertisements and oral communication. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 273. German Intellectual Movements. 3 Credits.**

A survey of developments in art, music, philosophy, and social thought from the Enlightenment to 1945, with particular attention to their impact on German literature. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 275. Fin-de-Siecle. 3 Credits.**

Prevalent literary and intellectual movements at the turn of the 20th century in their historical, sociopolitical, and cultural contexts. Study of Nietzsche, Freud, Rilke, Hofmannsthal, Schnitzler, and Mann. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 276. Brecht & the Modern Drama. 3 Credits.**

Brecht's revolutionary concept of "epic theatre" in theory and practice and its influence on subsequent dramatists, including Durrenmatt, Frisch, Handke, Hochhuth, Muller, and Weiss. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**GERM 279. German Short Story after 1945. 3 Credits.**

Aesthetic and thematic evolution of the short story and its relation to historical, political, and cultural developments from 1945 to the present. Prerequisite: GERM 155 or GERM 156 and one other 100-level course.

**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.**

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.

**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 005. Glimpses of Chinese Culture. 1 Credit.**

Explore and experience important and intriguing aspects of Chinese culture through lectures and activities. Content is distinct from GRS 006.

**GRS 006. Glimpses of Chinese Culture. 1 Credit.**

Explore and experience important and intriguing aspects of Chinese culture through lectures and activities. Content is distinct from GRS 005.

**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.**

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.

**GRS 091. Introduction to Region. 3 Credits.**

Region specific introductory courses taught with interdisciplinary perspective.

**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 191. 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.

**GRS 192. 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.

**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:Seminar in Global Studies. 3 Credits.**

An advanced interdisciplinary seminar that examines the social, political, economic, natural, and cultural dimensions of globalization and transnational interdependencies. Prerequisite: Global Studies major with second-semester Junior/Senior status.

**GRS 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.

**GRS 291. Regional Studies Seminar. 3 Credits.**

Interdisciplinary seminar with geocultural focus. Regional content/topics vary by instructor. Prerequisite: Instructor permission.

**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: Junior/Senior standing or Graduate student, 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: Junior/Senior standing or Graduate student, 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 035. History of Costume. 3 Credits.**

Overview of period costume and its adaptation for the stage. Cross-listed with: THE 041.

**GSWS 041. D1: Afr American Women Writers. 3 Credits.**

This course will explore the role of literature, autobiography, memoir, and hip-hop in the construction of identity for a selection of African American women writers.

**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.**

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.

**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 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 112. Studies in Gender & Religion. 3 Credits.**

Selected topics focusing on the social and religious construction of gender and the shape of women's religious lives. Religious traditions studied vary by semester. May be repeated up to six hours. Prerequisite: Three hours in Religion. Cross-listed with: REL 173.

**GSWS 113. D2:Women & Religion in Africa. 3 Credits.**

This course examines the relationships between women and religious institutions, practices, and communities in a variety of settings in sub-Saharan Africa. Prerequisite: Three hours in Religion. Cross-listed with: REL 163.



**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 130. History of Women in US. 3 Credits.**

Survey of the origins and changes in images, status, and roles of women in American society since the colonial period. Prerequisites: HST 011 or HST 012, or three hours in Gender, Sexuality, and Women's Studies. Cross-listed with: HST 182.

**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 141. D1: Afr Amer Women's Writing. 3 Credits.**

Examination of African American women's fiction, not only for its literary achievements, but also for the way it has addressed, accommodated, and eluded implicit demands that it represent black male and female lives in specific ways. Prerequisite: Three hours in English courses numbered ENGS 005 - ENGS 096; Sophomore standing.

**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, and 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 150. D2: Women and Gender in Society. 3 Credits.**

Examination of the construction of gender in women's lives with an emphasis on the relationship between gender, race, sexuality and class in contemporary society. Prerequisites: Three hours of Sociology or GSWS 001. Cross-listed with: SOC 122.

**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, and Culture. 3 Credits.**

Cross-cultural study of gender, sex, and sexuality, including exploring the cultural construction of categories and cultural practices related to gender, sex, and sexuality. Prerequisite: ANTH 021. Cross-listed with: ANTH 172.

**GSWS 170. 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, and Women's Studies. Cross-listed with: GEOG 178.

**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 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.**

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.

**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 a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Prerequisite: A contract must be obtained from and returned to the Gender, Sexuality, and Women's Studies Program office during registration; permission of Director of Gender, Sexuality, and 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 a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Prerequisite: A contract must be obtained from and returned to the Gender, Sexuality, and Women's Studies Program office during registration; permission of Director of Gender, Sexuality, and 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.**

An interdisciplinary examination of women's position in culture and society. Special emphasis on the relationship between gender, race, class, ethnicity, and sexuality. Prerequisites: GSWS 001, six additional hours in Gender, Sexuality, and Women's Studies, and admission to the Gender, Sexuality, and Women's major or minor program.

**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: Six hours of Sociology to include one of SOC 029, SOC 122, or SOC 129. 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 260. 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. Prerequisite: One Psychology course at the 100-level or above. Cross-listed with: PSYS 255.

**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 in GSWS courses; or twelve hours in history. Cross-listed with: HST 280.

**GSWS 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.

**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, and 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, and Women's Studies.

**GRADUATE (GRAD)****Courses****GRAD 291. Undergrad Research. 3 Credits.****GREEK & LATIN (GKLT)****Courses****GKLT 295. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles. Undergraduate only.

**GREEK (GRK)****Courses****GRK 001. Elementary. 4 Credits.****GRK 002. Elementary. 4 Credits.****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. 3 Credits.**

Review of syntax. Readings from Plato, Herodotus, and Euripides.

**GRK 052. Intermediate. 3 Credits.**

Review of syntax. Readings from Homer.

**GRK 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.

**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.**

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.

**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 and Demosthenes. B. Saylor Rodgers. Alternate years, as needed.

**GRK 202. Greek Comedy. 3 Credits.**

Two plays of Aristophanes. Alternate years, as needed.

**GRK 203. Greek Historians. 3 Credits.**

Thucydides, Books I and II; selections from Herodotus and Xenophon's Hellenica. Alternate years, as needed.

**GRK 204. Greek Tragedy. 3 Credits.**

Sophocles' Antigone, and Euripides' Medea, or two equivalent plays. Alternate years, as needed.

**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.

**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.

**GRK 211. Greek Prose Style. 3 Credits.**

Readings in literary prose analyzed stylistically and imitated in composition. Required of Greek majors.

**GRK 212. Greek Prose Style. 3 Credits.**

Readings in literary prose analyzed stylistically and imitated in composition. Required of Greek majors.

**GRK 227. Greek Lyric Poetry. 3 Credits.**

A study of early Greek personal, elegiac, and choral poetry from Archilochus to Pindar, including Sappho and Alcaeus, Simonides and Bacchylides. Prerequisites: Two years of college Greek or equivalent. Alternate years, as needed.

**GRK 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.

**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.

## HEALTH (HLTH)

### Courses

**HLTH 003. Medical Terminology. 2 Credits.**

Terminology related to medical and health sciences. Online.

**HLTH 010. Health & Wellness. 1 Credit.**

This course is for Health & Wellness RLC students only. We explore the six domains of health & wellness (physical, emotional, spiritual, environmental, intellectual, and social) through readings, discussions, and hands-on activities.

**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 026. Medical Equipment Applications. 3 Credits.**

Hands-on laboratory course in the classroom. Includes bedside medical equipment demonstrations, exercises and problem resolution, device simulators, safety and performance testing.



**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.**

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.

**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 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 103. D2: Intro to Global Health. 3 Credits.**

An intermediate level lecture/discussion course that explores global health and global health challenges affecting people primarily in developing or resource- constrained countries. Pre/co-requisite: Sophomore standing.

**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 106. D2:Bali: Conscious, Culture, Comm. 3 Credits.**

This course will provide opportunities to develop intercultural communication skills including cultural awareness, cultural adaptation, cultural empathy and non- evaluative listening through experience with Balinese families, teachers and traditional healers. Prerequisite: Instructor permission.

**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 124. Mental Health and Aging. 3 Credits.**

Course will cover the main theories of older adult development and aging as well as the latest research on psychological and emotional changes with aging.

**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.**

Introduces students to the principles and practice of mindfulness as taught by the contemporary mindfulness in healthcare movement. Through readings, discussion, and writing this course explores the cultural, environmental, health-related, sociological and spiritual connections associated with eating. 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 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 150. Infectious Disease & Hum Hst. 3 Credits.**

This course will explore how the changing world has impacted the development and spread of infectious disease.

**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 156. Taping & Wrapping for Athletes. 1 Credit.**

Basic prophylactic taping and wrapping techniques for the physically active, including the associated mechanisms and care for these common injuries.

**HLTH 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.

**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 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: Junior/Senior level standing and Instructor permission.

**HLTH 211. D2: Sustainable Dev Pub Hlth. 3 Credits.**

Introduction to development of sustainable public health interventions through service learning. Faculty-led program abroad. Prerequisite: Junior standing or above.

**HLTH 212. Intro to Humanitarian Aid. 1 Credit.**

Service learning in supporting humanitarian aid such as in rural Uganda for NGO affiliates. This is a follow-up course for students who have completed HLTH 211 or PRNU 241 Public Health Nursing. Prerequisite: HLTH 211 or PRNU 241.

**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 250. Community Participatory Rsch. 3 Credits.**

Examines the process and development of conducting community-based participatory research projects in collaboration with a community partner.

**HLTH 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.

**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.

**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 150. Sem: Health Educ. 1-4 Credits.**

Research, discussion, and critical examination of selected topics and special issues in health not currently covered in existing courses.

Prerequisite: Six hours in health education or Instructor permission. Variable credit, one to four hours.

**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 182. Health Methods and Materials. 3 Credits.**

Fundamental methods of teaching health as applied to school and public health education. Consideration of materials applicable to health education, evaluation techniques, preparation of teaching units and bibliographies. Prerequisite: EDHE 046.

**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 208. School Health Programs. 3 Credits.**

Organization of the total school health program. Problems and administration in the area of school environment, health services, health education, and school-community relationship. Prerequisite: EDHE 046 or equivalent.

**EDHE 211. Community Health Ed. 3 Credits.**

Government and voluntary agencies' sociological, historical, educational, environmental, and medical influences. Role of community health educator in these influences and major American health concerns. Prerequisite: EDHE 046 or equivalent.

**EDHE 220. Stress Mgmt Hlth Professionals. 3 Credits.**

Physiological, psychological, and sociological aspects of stress. Theory, practices, teaching techniques, and application relevant to teaching students and/or clients. Prerequisite: EDHE 046 or equivalent.

**EDHE 295. Lab Experience in Educ. 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.

**HEALTH SCIENCES (HSCI)****Courses****HSCI 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.

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

See Schedule of Courses for specific titles.

**HSCI 101. Issues in Cont. Public Health. 3 Credits.**

Introductory investigation of public health. Explores 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 102. Epidemics in Hist & Imaginatr. 3 Credits.**

Explores epidemic disease through the lens of history and fiction. Students will learn about what makes a disease epidemic or pandemic, how the causes of disease have been discovered, and interventions to stop the spread of disease.

**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.

**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.

**HSCI 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.

**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 195. 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 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.

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

See Schedule of Course for specific title.

**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.**

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.

**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 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.

**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.**

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.

**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 095. 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.

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

See Schedule of Course for specific title.

**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.**

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.

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

See Schedule of Course for specific title.

**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 202. Human Rel in Univ Res Halls. 1 Credit.**

Emphasis on human relations, group dynamics, advising models, student development theory, organizational development, and contemporary student issues in a residential environment. Prerequisite: Residence hall staff.

**EDHI 213. Ldr:Theories,Styles&Realities. 2 Credits.**

Introductory course in leadership development designed for student leaders. Includes study of planning, time management, organizational theory, communication skills, group process, team building.

**EDHI 214. Adv Seminar in Leadership. 2 Credits.**

Focuses on student leaders' experiences and how those experiences relate to activities beyond the University setting.

**EDHI 230. Intro to Intergroup Dialog. 1 Credit.**

Develop skills for discourse on difficult topics toward end of fostering meaningful and sustained cross-group relationships. Course topics: nature of dialogue, intergroup dialogue model, basic facilitation skills, social justice, social identities (race, gender, class, sexual orientation), and oppression and privilege.

**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.**

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. Prerequisite: Permission of the Coordinator of Professional Laboratory Experiences.

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

See Schedule of Course for specific title.

**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 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.

**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. 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 B.C.E. to A.D. 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 014. Ideas in the Western Tradition. 3 Credits.**

Great books of Western civilization in their historical setting. Renaissance to Existentialism. Co-requisites: ENGS 028, REL 028; 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 021. Classical Greek Civilization. 3 Credits.**

Cross-listed with: CLAS 021.

**HST 022. Classical Roman Civilization. 3 Credits.**

Cross-listed with CLAS 023.

**HST 035. D2: History of India to 1750. 3 Credits.**

Introduction to the early history of the Indian subcontinent, focusing on the political, cultural, and religious forces that shaped the region before British colonialism.

**HST 036. D2:History of India since 1750. 3 Credits.**

Survey of the modern history of South Asia from the advent of British colonialism to the present, focusing on colonialism, nationalism, globalization, and religious conflict.

**HST 040. D2: African History to C-1870. 3 Credits.**

Introduction to the political, social and economic history of Africa, focusing on the major events and forces that shaped the continent before the colonial period.

**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. 3 Credits.**

An introductory survey of the history of Chinese and Japanese civilizations from their Neolithic origins until the twentieth century.

**HST 062. D2: Colonial Latin Amer Hist. 3 Credits.**

Comparative survey concentrating on the complex cultural, economic, and political development of Spanish and Portuguese America from pre-Conquest to 1820.

**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 U.S. 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. May not be taken concurrently with or following receipt of credit for ENVS 167 since course requirements partially overlap.

**HST 068. D1: Race & Nation in the U.S.. 3 Credits.**

Survey of race relations and the construction of national identity in the United States from colonial origins to the present.

**HST 070. Topics in Global History. 1-3 Credits.**

Representative topics: "Golden Age of Piracy," "Global History and Total War," "Vikings." May be repeated for credit with different content.

**HST 072. Graveyards, Tombs&Undertakers. 1-3 Credits.**

This course explores the ways in which American cemeteries, burial practices, and grieving for the dead are studied.

**HST 073. Topics in European History. 1-3 Credits.**

Subjects vary by semester. Representative topics: Europe Since 1945," "European's Women's History. May be repeated for credit with different content.

**HST 075. Topics in VT History. 1-3 Credits.**

Subjects vary by semester. Representative topics: History of Lake Champlain," "Looking Around Burlington. May be repeated for credit with different content.

**HST 080. Topics in US History. 1-3 Credits.**

Subjects vary by semester. Representative topics: "Native American History," "The Golden Age of Sports." 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 099. 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.

**HST 101. History Methods. 3 Credits.**

Students investigate the theory and practice of history by critiquing historians' methods, analyzing primary sources, and developing the necessary research/writing skills to construct historical arguments. Prerequisites: History major; three hours in History; Sophomore standing recommended.

**HST 106. D2: Himalayas:1750 to Present. 3 Credits.**

Explores the modern history of the Himalayas, examining how the region has participated in global struggles for power, enlightenment, capital, and control over the environment. Prerequisite: Three hours of History.

**HST 107. D2: Visual Cultures of India. 3 Credits.**

Examines how visual materials (buildings, posters, film, clothing, etc.) have generated meanings in different historical contexts, and their use for social, cultural and political ends. Prerequisite: Three hours of History.

**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, 1350-1688. 3 Credits.**

Examines the social, cultural, and political history of the British Isles from 1350 to 1688, focusing on institutions, religious beliefs, literature, art, and everyday life. Prerequisite: 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.**

The Cold War was an ideological and geopolitical struggle between the US and the Soviet Union. Its political, social, cultural, and economic repercussions will be addressed in this course. 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. Prerequisites: HST Prerequisite: HST 010 or HST 016. Cross-listed with: HS 112.

**HST 113. Global Hst in Age of Total War. 3 Credits.**

Examines the relationship between the development of "total war" (including resource mobilization and popular nationalism in multiple nation-states) and major themes in modern global history. Prerequisite: Three hours of History.

**HST 114. East European Nationalism. 3 Credits.**

Politics and culture of nationalisms in East-Central and Southeastern Europe since 1772, focusing on the Czech, Hungarian, Polish and Serb nations. Prerequisite: HST 010, HST 016, HST 137, or HST 138.

**HST 115. History of Poland. 3 Credits.**

History of the Polish people and Polish state from the 10th century to the present. Strong emphasis on the 20th century. Prerequisite: HST 010, HST 015, or HST 016. Cross-listed with: HS 115.

**HST 116. Medieval Mystics & Heretics. 3 Credits.**

This course covers the explosion of new religious ideas that characterized the period 1100-1500, and the Church's response to these challenges. Prerequisite: HST 015.

**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: HST 015.

**HST 118. Postwar Europe. 3 Credits.**

The course explores the changes and continuities in European societies following the devastation of the Second World War. Prerequisite: Three hours of History.

**HST 119. D2: Modern Jewish History. 3 Credits.**

The history of the Jewish people from the 18th century to the present, focusing on Europe and the United States. Prerequisite: HST 010 or HST 016. Cross-listed with: HS 119.

**HST 121. History of Greece. 3 Credits.**

Cross-listed with CLAS 121.

**HST 122. History of Rome. 3 Credits.**

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

**HST 125. The Renaissance. 3 Credits.**

European society from the 14th to early 16th century, emphasizing the transition from medieval to "modern society and the roots of Renaissance Italy's cultural and artistic brilliance. Prerequisite: HST 009, HST 010, HST 014, HST 015, or HST 016.

**HST 126. The Reformation. 3 Credits.**

European society from the Renaissance to mid-17th century. Emphasis on religious struggles growing out of Protestant Reformation and their impact on the social, political, economic, and cultural movements of the era. Prerequisite: HST 009, HST 010, HST 014, HST 015, or HST 016.

**HST 127. European Culture&Soc 1914-1945. 3 Credits.**

Survey of European high modernism, focusing on the avant-garde, Stalinism, fascism, and popular culture. Prerequisite: HST 014 or HST 016.

**HST 128. Eur Soc & Culture 1880-1920. 3 Credits.**

European society and culture before and during "The Great War." Transitions in the arts, philosophy, science and technology, industry, dance, theatre, attitudes, and diplomacy. Prerequisite: HST 014 or HST 016.

**HST 130. European Intellectual History. 3 Credits.**

The history of ideas in Europe from the 15th to the 20th centuries. Topics vary according to instructor. Prerequisite: HST 009, HST 010, HST 014, HST 015, or HST 016.

**HST 132. Modern Irish History. 3 Credits.**

Ireland 1600 to present. English subjugation of Ireland, Anglo-Irish, emergence of Irish nationalism, Irish Literary Renaissance, Irish Free State, and ongoing problem of Northern Ireland. Prerequisite: HST 014 or HST 016.

**HST 137. History of Russia to 1917. 3 Credits.**

Russian political, social, and intellectual history from Kievan Rus' to the Revolutions of 1917, focusing on the Imperial period (1700-1917). Prerequisite: HST 010, HST 016, HST 114, or HST 138.

**HST 138. History of Russia since 1917. 3 Credits.**

Soviet political and social history, 1917-1991, centering on the Stalin era and on efforts of post-Stalin regimes to deal with the Stalinist legacy. Prerequisite: HST 010, HST 016, HST 114, or HST 137.

**HST 139. Modern Germany. 3 Credits.**

Political, cultural, and social history of Germany from unification in 1871 through the Wilhemine empire, Weimar Republic, Nazi era, and postwar period. Prerequisite: HST 010, HST 016, or work in German. Cross-listed with: HS 139.

**HST 140. D2: W Africa:Holy War-Colonial. 3 Credits.**

Lecture survey. Topics include: Sudanic states, Islamic revolution, slavery and the slave trade, European scramble and the African resistance, colonialism and the colonial state, African nationalism. Prerequisite: Three hours of History.

**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. 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 146. D2:Hist of Modern Middle East. 3 Credits.**

This course is designed to offer an historical understanding of social and political change in the Middle East during the 19th and 20th centuries. Prerequisite: HST 045 or HST 046.

**HST 147. Ancient Law. 3 Credits.**

Comparative study of three major ancient legal systems and their role in their respective societies:ancient Near East (Sumerian to Hittite), Greek and Roman. Prerequisite: Three credits in Classics, History, Philosophy, 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/History. Cross-listed with: CLAS 148.

**HST 149. D2:Hist of Ancient Near East. 3 Credits.**

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

**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 U.S. diplomatic history. May repeat for credit with different content. Prerequisite: Three hours of History.

**HST 154. The Atlantic World 1400-1800. 3 Credits.**

A cross-cultural and comparative study of the Atlantic World, 1400-1800, focusing upon social, cultural, religious and economic topics and themes. Prerequisite: Three hours of History.

**HST 155. Colonial North America. 3 Credits.**

The political, economic and social history of colonial North America with special attention paid to cross-cultural and comparative history. 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: HST 011 or HST 012. Cross-listed with: VS 158.

**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, and Women's Studies. Cross-listed with: GSWS 131.

**HST 165. Canadian-American Relations. 3 Credits.**

Canada's relationship with the U.S. from the Revolutionary War to the present, emphasizing diplomatic, economic, social, and environmental relations in the 19th and 20th centuries. Prerequisite: Three hours of U.S. or Canadian history.

**HST 166. Env History of N America. 3 Credits.**

Examination of human-environmental interaction on the North American continent over the past five hundred years. Pre/co-requisite: Three hours History. Prerequisite: Three hours of History. Cross-listed with: ENV5 166.

**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.**

Prerequisite: GEOG 050, GEOG 070, HST 011, or HST 012. Cross-listed with: GEOG 170.

**HST 171. Social History of the U.S.. 3 Credits.**

Selected topics in history of American society, including community structures, family life, work patterns, value systems, social class, and mobility. Prerequisite: HST 011 or HST 182.

**HST 172. Social History of the U.S.. 3 Credits.**

Selected topics in history of American society, including community structures, family life, work patterns, value systems, social class, and mobility. Prerequisite: HST Prerequisite: HST 012 or HST 182.

**HST 173. Americans & Int'l Affairs I. 3 Credits.**

A survey history of Americans and the U.S. in international affairs from the colonial period through U.S. entry into World War I in 1917. Prerequisite: HST 010, HST 011, HST 012, HST 016, HST 036, HST 041, HST 046, HST 055, HST 063, HST 065, or HST 068.



**HST 174. Americans & Int'l Affairs II. 3 Credits.**

A survey history of Americans and the U.S. in international affairs from World War I to the present. Prerequisite: HST 010, HST 012, HST 016, HST 036, HST 041, HST 046, HST 055, HST 063, HST 065, or HST 068.

**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 179. U.S. History Since 1960. 3 Credits.**

Topical review of U.S. history since 1960, emphasizing problems of interpreting and reconstructing the recent past. Prerequisite: HST 012.

**HST 181. Film and History. 3 Credits.**

Topics in the history of American and European cinema and society, focusing on the filmmaker as historian and the film as historical artifact. Prerequisite: Three hours of History or Film.

**HST 182. History of Women in the US. 3 Credits.**

Survey of the origins and changes in images, status, and roles of women in American society since the colonial period. Prerequisite: Three hours of History or Gender, Sexuality, and Women's Studies minor. Cross-listed with: GSWS 130.

**HST 183. US Military History. 3 Credits.**

Development of the U.S. military establishment within the framework of U.S. history from the Colonial era to the present. Prerequisite: HST 010, HST 011, or HST 012.

**HST 184. Vermont History. 0-3 Credits.**

Survey of Vermont history from early times to the present. Prerequisite: HST 011 or HST 012. Cross-listed with: VS 184.

**HST 187. D1:Afr Amer Hst:1619-Civil War. 3 Credits.**

Economic, social, political, and intellectual developments in U.S. history as they have affected and been affected by African-Americans, 1619 to Civil War. Prerequisite: Three hours of History.

**HST 188. D1:Afr Amer Hst:Civil War-pres. 3 Credits.**

Economic, social, political, and intellectual developments in U.S. history as they have affected and been affected by African-Americans, Civil War to present. Prerequisite: Three hours 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: HST 010 or HST 016. Cross-listed with: HS 190.

**HST 191. World War II. 3 Credits.**

Causes, conduct, and consequences of global war from 1931-1945, including social, economic, political, and diplomatic as well as military aspects. Prerequisite: HST 010 or HST 016. Cross-listed with HS: 191.

**HST 192. Sp Meth Sec Ed for Soc Studies. 3 Credits.**

Social studies curricula and selected social studies topics. Not acceptable toward fulfilling Arts and Sciences College major requirements. Prerequisite: Acceptance in teacher certification program.

**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: May be prescribed by an individual instructor; Junior/Senior standing.

**HST 198. Undergraduate Research. 3-18 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: May be prescribed by an individual instructor; Junior/Senior standing.

**HST 199. 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. Prerequisite: Junior/Senior standing.

**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. 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.**

Selected topics on the nature and results of interactions among the world's peoples. HST 209: to 1500. HST 210: since 1500. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History including HST 009 or HST 010.

**HST 210. Seminar in Global History. 3 Credits.**

Selected topics on the nature and results of interactions among the world's peoples. HST 209: to 1500. HST 210: since 1500. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History including HST 009 or HST 010.

**HST 211. D2: Cultrs of Colonialism:India. 3 Credits.**

Examines cultural expressions of colonial power through the example of British India, exploring colonialism's impact on Indian ideas about gender, family, caste, community, and nation. Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**HST 221. Seminar in Ancient History. 3 Credits.**

Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisites: Junior/Senior/Graduate Prerequisites: Junior/Senior/Graduate standing; twelve hours of History. Cross-listed with: CLAS 221, CLAS 222.



**HST 222. Seminar in Ancient History. 3 Credits.**

Selected aspects of Near Eastern, Greek, or Roman History (e.g. trade and colonization, imperialism, social and political institutions, cultural and intellectual developments). Prerequisites: Junior/Senior/Graduate standing; twelve hours of History. Cross-listed with: CLAS 221, CLAS 222.

**HST 224. Seminar in Medieval Europe. 3 Credits.**

Selected topics on Europe from the Fall of Rome to the Renaissance. Prerequisites: Twelve hours of History including HST 015; Junior/Senior/Graduate standing.

**HST 225. Seminar in Early Modern Europe. 3 Credits.**

Selected topics on European history from the Renaissance to the French Revolution. Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**HST 226. Seminar in Modern Europe. 3 Credits.**

Selected topics on European history from 1815 to present. Prerequisites: Twelve hours of History including HST 014 or HST 016; Junior/Senior/Graduate standing. Cross-listed with: HS 226.

**HST 227. Seminar in Modern Europe. 0 or 3 Credits.**

Selected topics on European history from 1815 to present. Prerequisites: Twelve hours of History, including HST 014 or HST 016; Junior/Senior/Graduate standing. Cross-listed with: HS 227.

**HST 228. Seminar in Popular Culture. 3 Credits.**

History of the attitudes of ordinary people towards every day life in European society from the Middle Ages to the present. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

**HST 237. Imperial Russian History. 3 Credits.**

Selected topics in Russian intellectual, social, and cultural history from the Petrine era to the end of the Romanov rule. Prerequisites: Junior/Senior/Graduate Standing; twelve hours of History including HST 010, HST 016, HST 137, or HST 138.

**HST 238. Seminar in Soviet History. 3 Credits.**

Selected topics in Soviet social and cultural history from the Bolshevik Revolution to the death of Stalin (1917-53). Prerequisite: Junior/Senior/Graduate standing; twelve hours of History including HST 010, HST 016, HST 137, or HST 138.

**HST 240. D2: Compar Slavery: Hist Persp. 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. Prerequisite: Junior/Senior/Graduate standing.

**HST 241. Seminar in African History. 3 Credits.**

Topics in African history. Generally, the seminar will focus on one of three themes: Islam, slavery or urbanism. Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**HST 250. D2: Seminar in East Asian Hst. 3 Credits.**

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

**HST 252. D2: Seminar on China. 3 Credits.**

Selected topics on the history of China. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History, including HST 150 or equivalent.

**HST 265. Seminar in Canadian History. 3 Credits.**

Topics in 19th and 20th century Canadian history; national development, regionalism, multiculturalism, and international relations. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

**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 US Social History. 3 Credits.**

Topics in U.S. Social History. HST 271: to the Civil War; HST 272: Civil War to the present. Prerequisite: Junior/ Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**HST 272. Seminar in US Social History. 3 Credits.**

Topics in U.S. Social History. HST 271: to the Civil War; HST 272: Civil War to the present. Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**HST 273. Seminar in Modern U.S. History. 3 Credits.**

Selected topics in U.S. history, among them foreign relations, the role of the presidency, World War II, and the Cold War. Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**HST 274. Seminar in Modern U.S. History. 3 Credits.**

Selected topics in U.S. history, among them foreign relations, the role of the presidency, World War II, and the Cold War. Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**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: 12 hours in History, or GSWS 001 and six additional hours in GSWS courses. Cross-listed with: GSWS 280.

**HST 284. Seminar in Vermont History. 3 Credits.**

Topical approach to Vermont history through original research utilizing primary sources available at UVM, the Vermont Historical Society, and the Vermont State Archives. Prerequisites: Junior/Senior/Graduate standing; twelve hours of History, including HST 184 or permission.

**HST 287. Seminar in Historiography. 3 Credits.**

Topics and methods in contemporary historical writing. Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**HST 295. Special Topics Seminar. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**HST 296. Special Topics Seminar. 1-18 Credits.**

See Schedule of Courses for specific titles. Prerequisites: Junior/Senior/Graduate standing; twelve hours of History.

**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.

**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.

**HST 299. 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.

**HOLOCAUST STUDIES (HS)****Courses****HS 017. German Literature:Translation. 3 Credits.**

See Schedule of Courses for specific titles.

**HS 092. 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.

**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 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. Prerequisites: HST 010 or HST 016. Cross-listed with: HST 112.

**HS 115. History of Poland. 3 Credits.**

History of the Polish people and Polish state from the 10th century to the present. Strong emphasis on the 20th century. Pre/co-requisites: HST 010 or HST 015 or HST 016. Cross-listed with: HST 115.

**HS 117. German Literature:Translation. 3 Credits.**

See Schedule of Courses for specific titles. Cross-listed with: WLIT 117.

**HS 119. D2: Modern Jewish History. 3 Credits.**

The history of the Jewish people from the 18th century to the present, focusing on Europe and the United States. Prerequisites: HST 010 or HST 016. 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: HST 010 or HST 016 or work in German. 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. 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. Prerequisites: HST 010 or HST 016. Cross-listed with: HST 190.

**HS 191. World War II. 3 Credits.**

Causes, conduct, and consequences of global war from 1931-1945, including social, economic, political, and diplomatic as well as military aspects. Prerequisites: HST 010 or HST 016. Cross-listed with: HST 191.

**HS 192. 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.

**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 226. Seminar in Modern Europe. 3 Credits.**

Selected topics on European history from 1815 to present. Prerequisites: 12 hours of history including HST 014 or HST 016; Junior/Senior/Graduate standing. Cross-listed with: HST 226.

**HS 227. Seminar in Modern Europe. 3 Credits.**

Selected topics on European history from 1815 to present. Prerequisites: Twelve hours of History, including HST 014 or HST 016; Junior/Senior/Graduate standing. Cross-listed with: HST 227.

**HS 281. Sem:Lit Genre,Period or Theme. 3 Credits.**

Study of a literary genre, period, or theme through close readings of representative texts supplemented by lectures and reports on socio-cultural context. May be repeated. Cross-listed with: GERM 281.

**HS 282. Sem:Lit Genre, Period or Theme. 3 Credits.**

Study of a literary genre, period, or theme through close readings of representative texts supplemented by lectures and reports on socio-cultural context. May be repeated. Cross-listed with: GERM 282.

**HS 292. 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.

**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 032. Critical Looking. 1 Credit.**

This course develops strategies for looking critically at original works of art and architecture from the University and Burlington communities. Emphasis upon writing and speaking.

**HCOL 085. Honors College 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.

**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.

**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.****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 249. Honors: Psychology. 1-6 Credits.  
 HON 250. Honors: Religion. 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.

## 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 and Family Studies and to critically think about these concepts and practices. Prerequisite: Human Development and 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 031. D2: Undoing Identity. 3 Credits.**  
 Introduction to identity intersections. Readings in identity performance and creation of multi-media text-based work will result in a new awareness of how identity is created.

**HDFS 055. Special Topics I. 1-6 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 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.



**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 152. Biology of Aging. 3 Credits.**

Cross-listed with: NURS 100.

**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 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. Readings & Research. 1-4 Credits.**

Prerequisite: Sophomore standing.

**HDFS 200. Contemporary Issues. 1-6 Credits.**

Prerequisite: Junior/Senior standing.

**HDFS 242. D2: Development of Prejudice. 3 Credits.**

Course examines the development of personal, family, community and institutional prejudice across the life span. Analysis of theories of prejudice is done to understand discrimination. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

**HDFS 243. D2: Cross Cultural Human Dev. 3 Credits.**

Course focuses on the understanding of the influences of cultures on human development processes from critical and ecological perspectives. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

**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, 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, 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 265. Teaching Human Development. 3 Credits.**

Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

**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. May be taken more than once up to a maximum of 12 hours. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

**HDFS 267. D2: Adv Gender & Sexual Idem. 3 Credits.**

Intensive study of lesbian, gay, bisexual, and/or transgender identities, families, and communities in diverse individual, social, political, and cultural contexts. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Juniors standing.

**HDFS 268. Sem In Close Relationships. 3 Credits.**

Causal conditions influencing formation, maintenance, and dissolution of intimate adult relationships. Draws on theory and students' personal experiences to explicate the nature of close relationships in contemporary American society. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

**HDFS 285. Adolescent Development in Context. 3 Credits.**

This course explores physical, cognitive, and social development that occur during adolescence. Emphasis is placed on the contexts that shape this development. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

**HDFS 289. Adv Theories of Human Dev. 3 Credits.**

Comparative overview of major theoretical perspectives in the study of human development with particular emphasis on the interplay of method and theory and the applied implications of each theoretical model and theory. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

**HDFS 291. Special Problems. 1-6 Credits.**

Reading, discussion, and special field and/or laboratory investigations. Prerequisite: Junior standing. Students may enroll more than once up to twelve hours.

**HDFS 295. 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. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

**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.

## HUMAN FUNCTIONING AND REHABILITATION SCIENCE (HFRS)

## HUMANITIES (HUMN)

### Courses

#### **HUMN 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.

#### **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.**

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.

#### **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.**

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.

#### **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.

## INDIVIDUALLY DESIGNED MAJORS (IDM)

### Courses

#### **IDM 264. Honors:Individually Des Majors. 3 Credits.**

See pages 61 and 62, and contact program for specific requirements.

#### **IDM 265. Hon:Individually Des Majors. 3 Credits.**

See pages 61 and 62, and contact program for specific requirements.

## 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.**

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.

#### **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 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 157. Modern Italian Fictions. 3 Credits.**

An introduction to Italian literature from the 18th century to today, with attention to art, music, cinema, and the Internet. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052 or equivalent.

**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 162. Masters of Italian Renaissance. 3 Credits.**

A study of the most representative authors of the 15th and 16th centuries in historical and artistic context. Emphasis on reading and class discussions. Prerequisite: ITAL 052.

**ITAL 166. Literature of Feelings. 3 Credits.**

A study of Italian attitudes towards sex, love, and honor as depicted in short stories from medieval to contemporary times. 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 170. Cultures of Women in Italy. 3 Credits.**

A study of Italian women writers, journalists, artists, and film directors. Emphasis on reading and discussion. Prerequisite: ITAL 052 or equivalent.

**ITAL 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.

**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.**

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.

**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 010. Japanese-Daily Communication. 3 Credits.**

Introductory level course on speaking everyday Japanese. Emphasis on solid understanding and accurate use of grammar patterns in a culturally appropriate context and conversational situations. No prior knowledge expected.



**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.**

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.

**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 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 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.

**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 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.

**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.

## LATIN (LAT)

### Courses

**LAT 001. Elementary. 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.

**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. 3 Credits.**

Selections from Cicero and other prose authors.

**LAT 052. Intermediate Latin. 3 Credits.**

Selections from Vergil and Ovid.

**LAT 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.

**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 101. Survey Latin Literature. 3 Credits.**

Selections from principal Roman authors.

**LAT 102. Survey Latin Literature. 3 Credits.**

Selections from principal Roman authors.

**LAT 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.

**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 203. Republican Prose. 3 Credits.**

Extensive reading in Caesar and Sallust, and in the speeches of Cicero. Alternate years, as needed.

**LAT 204. Epic Poets. 3 Credits.**

Extensive reading in Lucretius, Vergil, Ovid, and others. Alternate years, as needed.

**LAT 211. Latin Prose Style. 3 Credits.**

Readings in literary prose analyzed stylistically and imitated in composition. Required of Latin majors.

**LAT 212. Latin Prose Style. 3 Credits.**

Readings in literary prose analyzed stylistically and imitated in composition. Required of Latin majors.

**LAT 227. Roman Lyric Poets. 3 Credits.**

Selections from the works of Catullus, Horace, Propertius, and Tibullus. Alternate years, as needed.

**LAT 251. Roman Letters. 3 Credits.**

Letters of Cicero, Horace, and Pliny. Alternate years, as needed.

**LAT 252. Comedy. 3 Credits.**

Two plays of Plautus and Terence. Study of the precursors of this literary form. Alternate years, as needed.

**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.

**LAT 255. Historians of the Empire. 3 Credits.**

Historians of the Empire. Augustus, Res Gestae; Tacitus, Annals, I-IV; selections from Suetonius and Ammianus Marcellinus. Alternate years, as needed.

**LAT 256. Satire. 3 Credits.**

Selections from Horace, Persius, Juvenal, Petronius. Study of the development of this literary form. Alternate years, as needed.

**LAT 271. Silver Latin. 3 Credits.**

Extensive reading of post-Augustan authors not included in other advanced courses. Alternate years, as needed.

**LAT 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.

**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)****LIBRARY SCIENCE (EDLI)****Courses****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 272. Manage Schl Library Media Ctrs. 3 Credits.**

Overview of administrative issues, including development of policies and procedures, budget preparation, personnel administration, and public relations. Focus on information technology and literacy. Prerequisites: Twelve hours in education and related areas, or Instructor permission.

**EDLI 273. Organizing Schl Libr Media Ctr. 3 Credits.**

Introduction to cataloging of print and non-print materials, Dewey Decimal Classification, application of microcomputers to catalog and circulation services. Prerequisite: EDLI 272 or equivalent.

**EDLI 274. Design Instr Sch Lbr Media Ctr. 3 Credits.**

Designing library instruction for integration with curricula and collaborating to create effective lessons. Issues surrounding active learning, critical thinking, learning styles, and assessment are examined. Prerequisite: EDLI 272 or equivalent.

**EDLI 275. Dev Sch Libr Media Ctr Collect. 3 Credits.**

Evaluating and selecting books, periodicals, audiovisuals, software, and other materials for full range of student ages and ability levels. Maintaining collection, weeding, using interlibrary loan, and dealing with censorship. Prerequisite: EDLI 272 or equivalent.

**EDLI 276. Information Sources & Services. 3 Credits.**

Helping students and teachers find information using print, online, CD-ROM and other resources. Developing interview skills and selecting materials for elementary and secondary core collections. Prerequisite: EDLI 272 or equivalent.

**EDLI 277. Info Tech Schl Libr Media Ctrs. 3 Credits.**

Selecting, using, and maintaining full range of media equipment, including audiovisual and computer based systems. Designing and improving presentation facilities for media. Prerequisite: EDLI 272 or equivalent.

**EDLI 295. Lab Experience in Educ. 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.

**LINGUISTICS (LING)****Courses****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 084. Language & Arabic Culture. 3 Credits.**

Theoretical approach to language and society focusing on the functions played by the Arabic language in Arab societies.

**LING 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.

**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 101. Intro Linguistics. 3 Credits.****LING 102. Linguistics. 3 Credits.****LING 135. D1: Language & Ethnicity. 3 Credits.**

Explores language patterns of U.S. ethnic minorities, focusing on language and identity construction, and also Whiteness, White privilege, and its relation to standard language ideology. Prerequisite: LING 080.

**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 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.**

This course serves as an introduction to the syntax of natural languages and a rigorous approach to the analysis of sentence structure. Pre/co-requisites: ANTH 028 or LING 080. Cross-listed with: ANTH 142.

**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 169. Phonology & Morphology. 3 Credits.**

Phonology/Morphology surveys the study of the organization of sounds and internal word structure, covering a range of phenomena: alternations, constraints, allomorphy, clitics, tone, and more. Prerequisite: LING 080.

**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 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.

**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.**

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.

**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 270. Techniques & Procedures in ESL. 4 Credits.**

Designed for students preparing to teach English to speakers of other languages. Students learn 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, EDTE 057. Pre/co-requisite: LING 177.

**LING 272. Language, Gender and Sexuality. 3 Credits.**

Examines different theoretical approaches to understanding gender and sexuality through the study of language use, emphasizing analysis of crosscultural data from a linguistic anthropological perspective. Prerequisites: ANTH 028 or LING 080, and one 100-level Anthropology or Linguistics course. Cross-listed with: ANTH 272.

**LING 284. Linguistic Anthropology Method. 3 Credits.**

Exploration of key methodologies in linguistics and linguistic anthropology, including theories and practice of eliciting linguistic data, conducting interviews, transcribing audio- and video-taped interactions, and analyzing conversations. Prerequisites: ANTH 028 or LING 080 and one Anthropology or Linguistics course at the 100 level or above. Cross-listed with: ANTH 284.

**LING 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.

**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 200. Contemporary Issues. 1-6 Credits.****EDLT 222. Cltvate Chil 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 223. Read Pgms in Sec Schl & Col. 3 Credits.**

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

**EDLT 228. Lit in Jr/Sr High Schl Curr. 3 Credits.**

Literacy Criticism for Teachers.

**EDLT 234. Lit & Lang for Chil & Youth. 3 Credits.**

Characteristics, interests, reading habits of children and youth; selection, evaluation of literature. Organizing book units for teaching literature, for content areas. Emphasis on development of oral, written expression. Prerequisite: Twelve hours in Education and related areas or Instructor permission.

**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 295. Laboratory Experience in Educ. 1-6 Credits.****MATHEMATICS (MATH)****Courses****MATH 001. Elementary College Algebra. 3 Credits.**

Fundamental operations and study of high school topics: fractions; exponents; radicals; linear and quadratic equations; proportion; progressions; binomial theorem. No University credit given for this course. Prerequisite: One year of high school algebra.

**MATH 009. 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. 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 019 or above. Prerequisite: Two years of secondary school algebra; one year of secondary school geometry.

**MATH 015. 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. Fund Concepts Elem 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. 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. 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. Fundamentals of Calculus I. 3 Credits.**

Introduction to limits and differential calculus with a wide variety of applications. Students interested in intensive use of mathematics should take MATH 021. Credit not given for more than one of the courses MATH 019, 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. Fundamentals of Calculus II. 3 Credits.**

Introduction to integral calculus with a wide variety of applications. A student who completes MATH 020 may be admitted to MATH 022; however, MATH 019, MATH 023 is preferable to MATH 019, MATH 021, MATH 022 or MATH 019, MATH 020, MATH 022. Prerequisite: MATH 019.

**MATH 021. 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, or strong background in secondary school algebra and trigonometry. 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. Calculus II. 4 Credits.**

Techniques and applications of integration. Polar coordinates, Taylor polynomials, sequences and series, power series. Prerequisite: MATH 021. Credit will not be given for both MATH 022 and MATH 023.

**MATH 023. 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 052. 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 both MATH 052 and MATH 054.

**MATH 054. Fund of Math of Computation. 3 Credits.**

Introduction to mathematical theory and techniques underlying computer science. Co-requisite: MATH 019 or MATH 021.



**MATH 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.

**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 121. Calculus III. 4 Credits.**

Vectors, vector-valued functions. Calculus of functions of several variables: partial derivatives, gradient, divergence, curl, multiple integrals, line integrals, Stokes' and Green's theorems. Prerequisite: MATH 022 or MATH 023.

**MATH 122. 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. Linear Algebra. 3 Credits.**

Matrices, linear dependence, vector spaces, linear transformations, characteristic equations and applications. Credit not given for both MATH 122 and MATH 124. Co-requisite: MATH 121.

**MATH 141. Real Analysis 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. Pre/co-requisite: MATH 052.

**MATH 151. 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.

**MATH 161. Development of Mathematics. 3 Credits.**

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 167. Physical Chemistry Preparation. 1 Credit.**

Review of relevant mathematical and physical concepts as applied to physical chemistry. Credit cannot be obtained for both MATH 167 and MATH 121. Not available for credit for E&M students. Prerequisite: MATH 022; CHEM 032 or CHEM 036. Cross-listed with: CHEM 167.

**MATH 168. Mathematics of Biology. 0 or 3 Credits.**

Discrete biological processes: nonlinear difference equations. Continuous processes: ordinary differential equations, phase plane methods, quantitative solutions. Applications: population dynamics, epidemiology, Michaelis-Menten kinetics, autocatalysis, muscle contraction. Includes a lab. May not be taken concurrently with or after MATH 268. Pre/co-requisites: MATH 022 or MATH 023; MATH 122 or MATH 124. Cross-listed with: BIOL 168.

**MATH 173. 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 or MATH 054 or CS 064.

**MATH 183. Fundamentals 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.**

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.

**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.****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 207. 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. Prerequisites: MATH 121; STAT 151 or STAT 153 recommended. Cross-listed with: STAT 251, BIOS 251.

**MATH 221. Deterministic Modls Oper Rsch. 3 Credits.**

The linear programming problem. Simplex algorithm, dual problem, sensitivity analysis, goal programming. Dynamic programming and network problems. Prerequisites: MATH 122 or MATH 124; MATH 121 desirable. Cross-listed with: CSYS 221.

**MATH 222. Stochastic Models in Oper Rsch. 3 Credits.**

Development and solution of some typical stochastic models. Markov chains, queueing problems, inventory models, and dynamic programming under uncertainty. Prerequisite: MATH 207, STAT 151.

**MATH 230. Ordinary Differential 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. Mathematical Models & Analysis. 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 236. Calculus of Variations. 3 Credits.**

Necessary conditions of Euler, Legendre, Weierstrass, and Jacobi for minimizing integrals. Sufficiency proofs. Variation and eigenvalue problems. Hamilton-Jacobi equations. Prerequisite: MATH 230.

**MATH 237. 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, MATH 124 or MATH 271; knowledge of computer programming.

**MATH 238. Applied Computational Methods. 3 Credits.**

Direct and iterative methods for solving linear systems; numerical solution of ordinary and partial differential equations. Focus will be on application of numerical methods. Prerequisites: MATH 121; MATH 122 or MATH 124 or MATH 271.

**MATH 240. Fourier Series&Integral Trans. 3 Credits.**

Fourier series, orthogonal functions, integral transforms and boundary value problems. Prerequisite: MATH 230 or MATH 271.

**MATH 241. 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 052; MATH 121; MATH 122 or MATH 124.

**MATH 242. Anyl Several Real Variables 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. Abstract Algebra I. 3 Credits.**

Basic theory of groups, rings, fields, homomorphisms, and isomorphisms. Prerequisite: MATH 052; MATH 122 or MATH 124.

**MATH 252. 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 insolvability of quintic equations. Prerequisite: MATH 251.

**MATH 255. Elementary Number Theory. 3 Credits.**

Divisibility, prime numbers, Diophantine equations, congruence of numbers, and methods of solving congruences. Prerequisite: MATH 052 or MATH 054.

**MATH 257. Topics in Group Theory. 3 Credits.**

Topics may include abstract group theory, representation theory, classical groups, Lie groups. Prerequisite: MATH 251.

**MATH 260. 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 either MATH 052 or MATH 054.

**MATH 264. Vector Analysis. 3 Credits.**

Gradient, curl and divergence, Green, Gauss, and Stokes Theorems, applications to physics, tensor analysis. PrerequisiteS: MATH 121; MATH 122 or MATH 124 or MATH 271.

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

**MATH 268. Mathematical Biology&Ecology. 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 Instructor permission. Cross-listed with: CSYS 268.

**MATH 271. Adv Engineering Mathematics. 3 Credits.**

Differential equations and linear algebra, including linear ordinary differential equations, Laplace transforms, matrix theory, and systems of differential equations. Examples from engineering and physical sciences. Prerequisite: MATH 121. Credit not granted for both MATH 230 and MATH 271. No credit for Mathematics majors.

**MATH 272. 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. 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 or MATH 054.

**MATH 274. Numerical Linear Algebra. 3 Credits.**

Direct and iterative methods for solving linear equations, least square factorization methods, eigenvalue computations, ill-conditioning and stability. Prerequisite: MATH 237.

**MATH 283. Junior-Senior Seminar. 1 Credit.**

Students required to give presentations on selected topics.

**MATH 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.

**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.

**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.

## MATHEMATICS FOR EDUCATORS (MAED)

### Courses

**MAED 205. Math as a Second Language. 3 Credits.**

Deep conceptual understanding of the operations of arithmetic and interrelationships among arithmetic, algebra, and geometry; applications to the K-8 classroom. Prerequisite: Teacher license.

**MAED 210. Functions/Algebra for Teaching. 3 Credits.**

Functions, graphs, inverse functions, linear functions, straight lines, linear equations and inequalities, and applications; applications to the K-8 classroom. Prerequisite: MAED 205.

**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. Prerequisites: MAED 205 and MAED 210.

**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 205, MAED 210, and 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 205, MAED 210, and 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 205, MAED 210, and 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 205, MAED 210, 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 295. Advanced Special Topics. 1-18 Credits.**

See Schedule of Courses for specific title.

## MECHANICAL ENGINEERING (ME)

### Courses

**ME 001. First-Year Design Experience. 0 or 2 Credits.**

Introduction to the engineering profession and design. Hands-on experiences that emphasize interdisciplinary teamwork, technical communications, and project design methodologies.

**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. Prerequisite: CE 001, MATH 121, ME 012, or concurrent enrollment. Cross-listed with: CE 100.

**ME 040. Thermodynamics. 3 Credits.**

Principles of engineering thermodynamics; applications of these principles to thermodynamic cycles. Prerequisites: MATH 022, PHYS 031.

**ME 042. 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.

**ME 044. Heat Transfer. 1 Credit.**

Introductory treatment of heat transfer by conduction, convection, and radiation. Co-requisite: ME 040.



**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.**

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.

**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.**

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 114. Intro Engineering Mechanics. 3 Credits.**

Introduction to statics, dynamics, fluid mechanics, strength of materials, thermodynamics. Prerequisite: Junior standing in engineering or physical sciences.

**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 and ME 040.

**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 150. The Engineering Profession. 3 Credits.**

Professional practice of engineering. Laws, ethics, engineering economy, liability, insurance, and contracts. Prerequisite: Senior standing or Instructor permission.

**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 170. Mechanical Design I. 0 or 4 Credits.**

Advanced mechanics of materials, stress strain, bending and torsion of slender members, energy methods, finite element modeling, and CAD topics including parametric and solid modeling. Prerequisite: ME 101.

**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 172. Design of Systems. 3 Credits.**

Design synthesis and optimization; probabilistic aspects in design; expert systems in design. Prerequisite: ME 171.

**ME 174. Industrial Design Project. 1 Credit.**

Design projects from industry. Prerequisite: ME 171.

**ME 185. Capstone Design I. 3 Credits.**

Design teams apply their knowledge and skills, mentored by faculty and/or industry partners, to design, analyze, build, and test novel devices, mathematical models, or processes that meet functional needs. Prerequisite: Senior standing.

**ME 186. Capstone Design II. 0 or 3 Credits.**

Design teams apply their knowledge and skills, mentored by faculty and/or industry partners, to design and build novel devices that meet functional needs. Prerequisite: ME 185.

**ME 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.

**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.****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 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 207. Bioengineering. 3 Credits.**

Introduction to bioengineering including biomechanics, rehabilitation, instrumentation, imaging, biomaterials, and transport. Pre/co-requisites: Senior/Graduate standing in Engineering; Instructor permission.

**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. Prerequisites: EE 171 or ME 111. Cross-listed with: EE 210.

**ME 213. Systems & Synthetic Biology. 3 Credits.**

Applying engineering tools to the design and analysis of biomolecular processes; gene regulatory networks; nonlinear dynamics in molecular biology; biological circuit design; biological signal processing. Prerequisite: Background required: Differential Equations, Linear Algebra, Programming. Cross-listed with: CSYS 213, EE 213.

**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. Orbital Mechanics. 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 012. Co-requisites: ME 111 or Instructor permission.

**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 235. Turbomach Vibration Anyl/Tstng. 2 Credits.**

Vibration in rotating machines; vibration measurement techniques; machinery condition and degradation; condition monitoring and predictive maintenance; industrial vibration techniques including proximity probes, accelerometers, FFT analyzer. Prerequisite: ME 244.

**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 241. Combustion Processes. 3 Credits.**

Combustion thermodynamics; chemical kinetics; laminar flames, premixed and diffusion; turbulent flames; ignition, explosion, and detonation; droplet combustion; flame spread; large scale fires; rocket combustion. Prerequisite: Senior/Graduate standing.

**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 244. Intro to Turbomachinery Anyl. 2 Credits.**

Fundamental turbomachinery principles of fluid mechanics, thermodynamics, and structural analysis; basic equations and computational techniques for analysis and design to model and evaluate turbomachinery. Prerequisite: ME 243, MATH 271.

**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 246. Centrifugal Compressors. 2 Credits.**

Fluid dynamic and thermodynamic principles of centrifugal compressor design and design practice; limits of stable operation and instability prediction and control. Prerequisite: ME 244.

**ME 247. Centrifugal Pumps. 2 Credits.**

Centrifugal pump design principles and practice; performance limits; cavitation; design tools and pump design optimization. Prerequisite: ME 244.

**ME 248. Turbomachinery Special Topics. 1 or 2 Credit.**

Content in axial fans/compressors; axial, radial, or steam turbines; CFD, dynamics/rotordynamics, or materials for turbo-machinery; power plant or refrigeration cycle developments; turbocharged and compound IC-engines. Prerequisite: ME 244.

**ME 249. Computational Fluids Engr. 0 or 3 Credits.**

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 253. Corrosion of Materials. 3 Credits.**

Corrosion principles: electrochemical, environmental, and metallurgical aspects. Corrosion testing. Corrosion prevention. Seawater corrosion. Biological corrosion. Material selection. Prerequisite: ME 101.

**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.**

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. Integrated Product Developmnt. 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. Cross-listed with: BSAD 293.

**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 283. Lab Techniques Turbomach Dev. 2 Credits.**

Instruments and transducers for performance, flow, and structural measurements in turbo-machinery; the role of test data in design and development; experimental data acquisition and processing. Prerequisite: ME 244.

**ME 285. Biomedical Engineering Seminar. 1 Credit.**

Presentation and discussion of advanced biomedical engineering problems and current research developments. Prerequisite: Senior/Graduate engineering enrollment.

**ME 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.

**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.

**MEDICAL LAB & RADIATION SCI (MLRS)****Courses****MLRS 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.

**MLRS 054. Principles of Microbiology. 3 Credits.**

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

**MLRS 056. Principles of Microbiology Lab. 1 Credit.**

Laboratory experiences dealing with the structure, physiology, and control of microorganisms, particularly those of medical importance. Prerequisite: MLRS 054.

**MLRS 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.

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

See Schedule of Courses for specific titles.

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

See Schedule of Courses for specific titles.

**MLRS 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. Prerequisites: MLS and MLS-PBC students only.

**MLRS 140. Radiation Science. 3 Credits.**

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

**MLRS 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.

**MLRS 175. Medical 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: MLRS 141, RADT 152, and ANPS 020.

**MLRS 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.

**MLRS 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.

**MLRS 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. Offered at department discretion.

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

See Schedule of Courses for specific titles.

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

See Schedule of Courses for specific titles.

**MLRS 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.

**MLRS 215. CT Procedures. 3 Credits.**

This course provides in-depth study of the concepts, use and practice of CT Procedures related to Nuclear Medicine Technology and Radiation Therapy. Prerequisites: ANPS 019 and ANPS 020, MLRS 175.

**MLRS 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.

**MLRS 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. Co-requisites: MLRS 242 or MMG 223.



**MLRS 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.

**MLRS 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: MLRS 281.

**MLRS 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.

**MLRS 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.

**MLRS 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. Prerequisite: Department permission.

**MLRS 294. Undergraduate Research II. 1-6 Credits.**

Individual research performed under the supervision of a faculty mentor. A written report and seminar is required. Prerequisite: MLRS 293, Department permission.

**MLRS 295. Prin of Education & Management. 3 Credits.**

Introduction to educational practices, management strategies, and professionalism. Third year standing, Medical Laboratory Science, Nuclear Medicine Technology, Radiation Therapy majors only.

**MLRS 296. Leadership & Mgt in Hlth Care. 3 Credits.**

This course will familiarize students with operational aspects of healthcare management, including but not limited to process improvement, budgeting, team building and information management. Prerequisites: NLS, NMT, RADT majors only; 3rd or 4th year cohort standing.

**MLRS 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.

**MLRS 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.

**MLRS 299. Advanced Special Topics. 1-18 Credits.**

Courses or seminars beyond scope of existing departmental offerings. Prerequisite: Department permission.

**MEDICAL LABORATORY SCIENCE (MLS)****Courses****MLS 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.

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

See Schedule of Courses for specific titles.

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

See Schedule of Courses for specific titles.

**MLS 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.

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

See Schedule of Courses for specific titles.

**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. 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:Immunohepatology. 3 Credits.**

Experiences in an approved clinical laboratory education site in the area of clinical immunohepatology. Prerequisite: Medical Laboratory Science Seniors only.

**MLS 262. Immunohepatology. 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.**

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.

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

See Schedule of Courses for specific titles.

**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. Unseen Worlds:Microbes and 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 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. 2 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 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. 1-6 Credits.**

Undergraduate students accommodated in individual research projects sponsored by department member. Arrangement with individual department member and Undergraduate Program Director approval. Credits negotiable.

**MMG 198. Undergraduate Research. 1-6 Credits.**

Undergraduate students accommodated in individual research projects sponsored by department member. Arrangement with individual department member and Undergraduate Program Director approval. Credits negotiable.

**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 203. Mamm Cell Cult:Molecular Biol. 0 or 4 Credits.**

The basic principles and techniques of mammalian cell culture, as well as cell and mammalian molecular genetics. Prerequisite: BCOR 103 or MMG 104, Permission of Coordinator. Alternate years. Spring.

**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 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. 2 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. Co-requisites: MMG 205 or MMG 206. Cross-listed with: BIOC 207 and 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. Clinical Microbiology I. 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 231. Programming for Bioinformatics. 3 Credits.**

Introductory course on computing (including scripting, database, and statistical analysis) for developing bioinformatics applications. Particular emphasis is given to comparative genomics and systems biology scenarios. Prerequisites: STAT 151, STAT 153, or Instructor permission. Cross-listed with: CS 231. Alternate Years. Spring.

**MMG 232. Methods in Bioinformatics. 3 Credits.**

This course provides a methodological survey of bioinformatics. Particular emphasis is given to algorithms associated with sequential analysis, comparative genomics, structural biology, and systems biology. Prerequisites: STAT 151, STAT 153, or Instructor permission. Cross-listed with: CS 232. Alternate Years. Spring.

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

Oral and written presentation of a subject of current biochemical interest. Prerequisite: Audit of BIOC 381. Cross-listed with: BIOC 284/CHEM 284.

**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. Advanced Undergrad Research. 1-18 Credits.**

Undergraduate students are involved in advanced individual research projects sponsored by department member. Arrangement with individual department member and Undergraduate Program Director approval. Fall. Pre/co-requisite: MMG 197, MMG 198 or Advisor Permission.

**MMG 298. Advanced Undergrad Research. 1-6 Credits.**

Undergraduate students are involved in advanced individual research projects sponsored by department member. Arrangement with individual department member and Undergraduate Program Director approval. Spring. Pre/co-requisite: MMG 197 or MMG 198 or Advisor Permission.

**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 010. Introduction to Teaching. 3 Credits.**

Orientation to teaching at middle level. Examination of young adolescent students, teachers' roles, reflective practice, guided inquiry, middle schooling and middle school concept. Prerequisite: Admission to Pre-professional teaching education.

**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 I. 2-6 Credits.****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 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 197. Readings & Research. 1-4 Credits.****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. Pre/co-requisites: Acceptance to licensing program. Cross-listed with: EDSC 207.

**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 295. Laboratory Experience. 1-6 Credits.**

## 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 014. Orienteering. 1 Credit.**

Basic practical skills such as maps, compass, and environmental awareness. Classroom participation, written exams, and completion of an orienteering course determine student grades. Open to all First-Year and Sophomore students. Cross-listed with: PEAC 014. Fall/Spring.



**MS 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. Cross-listed with: PEAC 017. Fall/ Spring.

**MS 019. Backpacking. 1 Credit.**

Techniques of planning and organizing a backpacking trip. Basic instruction includes clothing, equipment, and environmental awareness. Includes one overnight backcountry trek. Student grades determined by class participation and participation in the practical exercise. Open to all First-Year and Sophomore students. Cross-listed as PEAC 019. Fall/ Spring.

**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 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 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.

## MOLECULAR PHYSIOLOGY & BIOPHYS (MPBP)

### Courses

**MPBP 019. UG Human Anatomy & Physiology. 4 Credits.**

Two-semester course with credit given only upon completion of both semesters. Structure and function of human body using cadaver dissections, histological material, and physiological experiments. Required of Medical Technology, Nursing, Nutritional Sciences, Dental Hygiene, Radiologic Technology, and Physical Education; others with Instructor permission. Prerequisite: MATH 019 for MATH 020.

**MPBP 020. UG Human Anatomy & Physiology. 4 Credits.**

Two-semester course with credit given only upon completion of both semesters. Structure and function of human body using cadaver dissections, histological material, and physiological experiments. Required of Medical Technology, Nursing, Nutritional Sciences, Dental Hygiene, Radiologic Technology, and Physical Education; others with Instructor permission. Prerequisite: MATH 019 for MATH 020.

**MPBP 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.

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

See schedule of courses for specific titles.

**MPBP 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.

**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.**

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.

**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. Intro to Classical Music. 3 Credits.**

A survey of musical styles from Medieval Gregorian chant to the present. No prerequisite. May not be counted toward the major.

**MU 004. Sound, Sense, and Ideas. 3 Credits.**

A writing-intensive course, exploring topics in Western, non-Western, folk, art, or popular repertoires. See Schedule of Courses for specific topics. Usually offered as a TAP course. No prerequisite. May not be counted toward the major.

**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 major.

**MU 006. American Music. 3 Credits.**

Survey of American music from the Pilgrims to the present. Folk, popular, and classical music. Vernacular and cultivated traditions. No prerequisites. May not be counted toward the major.

**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. No prerequisite. May not be counted toward the major.

**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 109. May not be counted toward the major.

**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 011. D1: Chasing the Blues. 3 Credits.**

Exploration of blues history and culture and its relationship to African American history through travel, speakers, live music, museums, discussion, reading and media.

**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 016. Musical Theatre Performance. 3 Credits.**

Singing technique and vocal development with acting/song interpretation. Includes posture, breathing, phonation, registration, resonance, articulation, and voice qualities (classical, Broadway legit, belt voice, belt mix). May not be used as credit by Music majors/minors; may be counted toward Theatre major/minor with prior approval. Cross-listed with: THE 016.

**MU 019. D1: Latin Jazz Immersion. 3 Credits.**

Explore the culture and music of Latin Jazz from its roots in Caribbean and Latin American traditions to its combination "perfecta" with jazz.

**MU 021. Beginning Group Lessons. 1 Credit.**

Group lessons at the beginning level in voice and various instruments. May not be counted toward the major or minor. May be repeated up to three times for credit. No prerequisites.

**MU 024. 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: MU 041, MU/MUSE majors, minors, or Instructor permission.

**MU 025. Group Jazz Piano II. 1 Credit.**

Some review of concepts from MU 024. Exploration of topics including stride, modal comping, and chord substitution. Prerequisites: MU 024; MU/MUSE majors, minors; or Instructor permission.

**MU 041. Piano Proficiency 1. 1 Credit.**

Basic piano technique and grand staff reading. For students preparing to enter MU 024 or MU 042. Placement Test. Music majors or Instructor permission. Prerequisites: Rudimentary keyboard skills and reading ability.

**MU 042. Piano Proficiency 2. 1 Credit.**

Functional piano skills for musicians. Scales, technique, harmonizing, sight reading, repertory. Prerequisites: MU 041 or equivalent determined by placement test.

**MU 043. Piano Proficiency 3. 1 Credit.**

Preparation for Piano Proficiency Exam. Scales, repertory, sight reading, chordal accompaniment styles, score reading, transposing. Prerequisites: MU 042 or equivalent determined by placement test.

**MU 054. Harmony and Form Lab I. 1 Credit.**

Intensive study of solfege, elementary keyboard harmony, and dictation. Co-requisite: MU 109.

**MU 056. Harmony and Form Lab II. 1 Credit.**

Intensive study of solfege, intermediate keyboard harmony, and dictation. Prerequisites: MU 054 or Instructor permission; piano skill equivalent to MU 041. Co-requisite: MU 110.

**MU 060. Intro to Music Technology. 3 Credits.**

Survey of MIDI and digital audio sequencing, notation, accompaniment, and multimedia software for music composition/arranging, performance, and pedagogy, including survey of pedagogical music software. Prerequisite: MU 009 or Instructor permission.

**MU 061. 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 or Instructor permission.

**MU 062. Technology for Music Education. 3 Credits.**

Explores technology used in music education. Topics include computer hardware and software, electronic keyboards and MIDI, recording equipment and introductory technique. Prerequisites: MU 009 and Instructor permission.

**MU 075. Exploring Songwriting. 3 Credits.**

Students develop and refine the ability to express themselves through songwriting as they study current songs, compose and perform original songs, and mentor classmates. No prerequisite. May not be counted toward the major.

**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 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 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. Pre/co-requisite: MU 109.

**MU 106. American Music. 3 Credits.**

Survey of American music from the Pilgrims to the present. Folk, popular, and classical music. Vernacular and cultivated traditions. Includes research projects.

**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 take MU 054 concurrently. Prerequisites: MU 009 or equivalent, determined by placement test.

**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 113. Seminar in Ethnomusicology. 3 Credits.**

See Schedule of Courses for specific topics. Prerequisite: MU 007 or MU 107; Instructor permission.

**MU 117. Swing Band. 1 Credit.**

A big band specializing in dance band styles (Latin as well as swing). Occasional performances for dancers. Prerequisite: audition.

**MU 118. Latin Jazz Ensemble. 1 Credit.**

A medium-size group (rhythm section and percussionists with horns and sometimes vocalists) where students learn fundamentals of Latin music in a jazz context. Prerequisite: audition.

**MU 119. Jazz Vocal Ensemble. 1 Credit.**

Nine to sixteen vocalists (SATB), a cappella or accompanied by piano or rhythm section, perform arrangements of standard songs and jazz tunes. Prerequisite: audition.

**MU 120. Catamount Pep Band. 0.5 Credits.**

This ensemble performs at several home winter athletic events. Open to all students; an opportunity for those with previous band experience to continue playing. Prerequisite: audition.

**MU 121. Concert Band. 1 Credit.**

Concert Band is open to all students. Repertory is chosen from the standard literature as well as contemporary music. Prerequisite: Audition.

**MU 122. University Concert Choir. 1 Credit.**

Mixed SATB choir. Performing choral masterworks from the baroque period to the present. Open to all students.

**MU 123. Orchestra. 1 Credit.**

Full orchestra comprising strings, woodwinds, brass, and percussion. All university students may audition. Several performances each year.

**MU 124. University Jazz Ensemble. 1 Credit.**

Exploration of classic big band repertory and works of contemporary composers and arrangers. Performance in one major concert every semester and occasional appearances off campus. Prerequisite: Audition.

**MU 125. Vermont Wind Ensemble. 1 Credit.**

Vermont Wind Ensemble is a select group, open to all students. Repertory is chosen from the standard literature as well as contemporary music. Prerequisite: Concurrent enrollment in MU 121; audition.

**MU 126. Accompanying. 1-6 Credits.**

Lessons in piano accompanying for soloists, taught by piano and instrumental/vocal faculty. Juried performance expected.

**MU 127. University Catamount Singers. 1-6 Credits.**

Mixed, select SATB chamber choir. Performing vocal music from the medieval period to the present. Open to all students. Prerequisite: Audition.

**MU 128. Opera Workshop. 1-6 Credits.**

Study and performance of scenes from the operatic and musical theater repertory for the stage actor/actress.

**MU 129. Percussion Ensemble. 1-6 Credits.**

Percussion ensemble is open to all students. Repertory is chosen from the standard literature as well as improvisatory traditions of percussion music.

**MU 130. Chamber Music. 1-6 Credits.**

Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required.

**MU 131. A & B Jazz Combos. 1-6 Credits.**

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

**MU 132. Post Bop Ensemble. 1 Credit.**

A small jazz group (rhythm section plus two to four horns) specializing in post-1950's repertoire (Wayne Shorter, Chick Corea, etc.) as well as original compositions. Prerequisite: audition.

**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 009 or Instructor permission; intermediate instrumental skill.

**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.

**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 176. Music for Elem Teachers. 3 Credits.**

Development of musical skills, understandings, and attitudes for teaching music in the elementary classroom. Prerequisites: Sophomore standing in elementary education, and early childhood majors only; or acceptance into licensure program.

**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 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. Readings and Research. 1-6 Credits.**

Supervised independent study in music. Inter-disciplinary topics are encouraged. Pre/co-requisites: Department permission.

**MU 198. Readings and Research. 1-6 Credits.**

Supervised independent study in music. Inter-disciplinary topics are encouraged.

**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 203. Genre Seminar. 3 Credits.**

Survey of the musical style within a genre. Context, history, legacy. Past offerings have included piano literature, choral literature, and bebop. See Schedule of Courses for specific topics. Prerequisite: MU 109 and MU 110, and either MU 111 or MU 112.

**MU 205. Period Seminar. 3 Credits.**

Survey of music from a particular historical era. Context, composers, legacy. Past offerings have included music of the twentieth century, Baroque music, and twentieth century blues traditions. Prerequisites: MU 109, MU 110, and either MU 111 or MU 112.

**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: Senior standing as a Music History major; permission of the Instructor.

**MU 217. Swing Band. 1 Credit.**

A big band specializing in dance band styles (Latin as well as swing). Occasional performances for dancers. Prerequisite: audition.

**MU 218. Latin Jazz Ensemble. 1 Credit.**

A medium-size group (rhythm section and percussionists with horns and sometimes vocalists) where students learn fundamentals of Latin music in a jazz context. Prerequisite: audition.

**MU 219. Jazz Vocal Ensemble. 1 Credit.**

Nine to sixteen vocalists (SATB), a cappella or accompanied by piano or rhythm section, perform arrangements of standard songs and jazz tunes. Prerequisite: audition.

**MU 220. Catamount Pep Band. 0.5 Credits.**

This ensemble performs at several home winter athletic events. Open to all students; an opportunity for those with previous band experience to continue playing. Prerequisite: audition.

**MU 221. Concert Band. 1 Credit.**

Concert Band is open to all students. Repertory is chosen from the standard literature as well as contemporary music.

**MU 222. University Concert Choir. 1 Credit.**

Mixed SATB choir. Performing choral masterworks from the baroque period to the present. Open to all students.

**MU 223. Orchestra. 1 Credit.**

Full orchestra comprising strings, woodwinds, brass, and percussion. All university students may audition. Several performances each year.

**MU 224. University Jazz Ensemble. 1 Credit.**

Exploration of classic big band repertory and works of contemporary composers and arrangers. Performance in one major concert every semester and occasional appearances off campus. Prerequisites: Audition and Instructor permission.

**MU 225. Vermont Wind Ensemble. 1 Credit.**

Vermont Wind Ensemble is a select group, open to all students. Repertory is chosen from the standard literature as well as contemporary music. Prerequisite: Concurrent enrollment in MU 121.

**MU 226. Accompanying. 1-6 Credits.**

Lessons in piano accompanying for soloists, taught by piano and instrumental/vocal faculty. Juried performance expected.

**MU 227. University Catamount Singers. 1-6 Credits.**

Mixed, select SATB chamber choir. Performing vocal music from the medieval period to the present. Open to all students.

**MU 228. Opera Workshop. 1-6 Credits.**

Study and performance of scenes from the operatic and musical theater repertory for the stage actor/actress.

**MU 229. Percussion Ensemble. 1-6 Credits.**

Percussion ensemble is open to all students. Repertory is chosen from the standard literature as well as improvisatory traditions of percussion music.

**MU 230. Chamber Music. 1-6 Credits.**

Study and performance of masterworks for small groups. Attendance at all rehearsals and public performances required. Outside practice required.



**MU 231. A & B Jazz Combos. 1-6 Credits.**

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

**MU 232. Post Bop Ensemble. 1 Credit.**

A small jazz group (rhythm section plus two to four horns) specializing in post-1950's repertoire (Wayne Shorter, Chick Corea, etc.) as well as original compositions. Prerequisite: audition.

**MU 250. Senior Recital. 1 Credit.****MU 251. Advanced Theory: Counterpoint. 3 Credits.**

Contrapuntal forms and procedures: analysis and writing. Examples from 16th through 20th centuries. Prerequisite: MU 110 or Instructor permission.

**MU 253. Orchestration. 3 Credits.**

Characteristics of instruments, study of instrumental scores, arranging and transcribing for ensembles. Prerequisite: MU 110 or 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 110.

**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 257 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 repertory. Prerequisites: MU 159, or Instructor permission.

**MU 260. Sr Theory/Composition Project. 1 Credit.**

Research paper or composition/analysis; Topic chosen under direction of staff member. Prerequisite: Senior standing as theory major.

**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 290. Teaching Internship. 12 Credits.**

Supervised field work designed to give students experience in specialized areas for their professional development. Prerequisite: Senior standing.

**MU 291. Music Technology Internship. 1-18 Credits.**

Supervised fieldwork designed to give students experience in specialized areas for their professional development. Prerequisite: MU 261 and Senior standing in Music Technology Concentration.

**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.

**MUSIC LESSONS (MUL)**

**Courses****MUL 033. Private Lessons. 1 or 2 Credit.**

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: Successful completion of Level I Examination.

**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 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.

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

See schedule of courses for specific titles.

**MUL 133. Private Lessons: Music Minors. 1 or 2 Credit.**

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; successful completion of Level I Examination.

**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.**

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.

**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 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.

**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.

**MUSIC EDUCATION (EDMU)****Courses****EDMU 181. Music for Elementary Teachers. 3 Credits.**

Development of musical skills, understandings, and attitudes pertinent to the teaching of music in elementary classroom. Prerequisite: Elementary majors; acceptance into teacher education program.

**EDMU 281. Elementary Music Ed Methods. 3 Credits.**

Methods and materials for teaching music in elementary schools. Five hours classroom observation per week required. Prerequisite: Junior standing in Music Education.

**EDMU 282. Secondary Music Ed Methods. 3 Credits.**

Methods and materials in the teaching of vocal and instrumental music in secondary schools. Five hours classroom observation per week required. Prerequisite: Junior standing in Music Education.

**NATURAL RESOURCES (NR)**

## Courses

### **NR 001. Natural Hist & Field Ecology. 0 or 4 Credits.**

Introduction to the dynamics of the natural world. Basic concepts of biological, chemical, physical, and ecological sciences and the application and interpretation of quantitative measurements are presented within a natural history context.

### **NR 002. Nature & Culture. 0 or 3 Credits.**

Introduction to natural resources and the environment from a social/cultural perspective. Emphasis on environmental history, values, and ethics with application to natural resource and environmental policy.

### **NR 006. D1:Race & Culture in NR. 0 or 2 Credits.**

Introduces the First-Year student to issues of race and culture and their relevance to society, natural resources, and the environment.

### **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 025. Measurements & Mapping. 0 or 4 Credits.**

Introduction to surveying, mapping, aerial photo measurements, and interpretation for natural resource planning and management. Prerequisite: NR 001.

### **NR 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.

### **NR 095. Introductory Special Topics. 0-18 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. Water as a Natural Resource. 3 Credits.**

Uses of water resources and impacts on aquatic systems and human society. Similar to GEOG 145. Prerequisites: 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: NR 001.

### **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 125. Ecological Coop Living. 2 Credits.**

Engaging students in the Slade Special Interest Program in the development of their residence as a self-sufficient, ecological cooperative on campus through the design, implementation, and maintenance of an ecologically-minded infrastructure of technology and day-to-day living arrangements. Prerequisite: Current resident in Slade Hall.

### **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.**

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 170. Intro Dynamic Simulation Mdlg. 1 Credit.**

Elementary principles of dynamic simulation modeling and use of the STELLA II dynamic simulation software. Example simulations of natural environmental systems. Prerequisite: Sophomore standing.



**NR 176. Water Quality Analysis. 0 or 3 Credits.**

Selected aspects of elementary water chemistry and bioassay as related to surface and ground waters. Five laboratory experiences. Two and a half hours lecture per week and twenty hours lab per semester.

**NR 189. Student-Designed Course Work. 1-3 Credits.**

Student-taught course work beyond the scope of formal courses in natural resources. Developed according to RSENR guidelines with sponsorship by interested faculty. Variable credit.

**NR 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.

**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. Ecosys Mgt:Integ Sci,Soc & Pol. 3 Credits.**

Integration of natural and social science into ecosystem management and policy. Consideration of ecosystem integrity, ecosystem degradation, human needs and values, and the application of management principles within a holistic context. Prerequisites: NR 001, NR 002, 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 001, NR 002, NR 103, NR 104, 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 222. Pollution Ecology. 3 Credits.**

Impacts of pollutants on the structure and function of ecosystems. Examination of how air, land, and water influence ecological fate and effects of pollutants. Prerequisites: BIOL 001 or BCOR 011, and CHEM 023 or CHEM 031, and NR 103 or BCOR 102.

**NR 224. Conservation Biology. 3 Credits.**

Conservation of biological diversity at genetic, species, ecosystem, and landscape levels. Emphasis on genetic diversity, population viability, endangered species, critical habitats, international implications. Prerequisites: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012, and NR 103 or BCOR 103.

**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: CHEM 031, CHEM 032, NR 103, and either NR 143 or NR 146. Cross-listed with: FOR 228.

**NR 235. Legal Aspects Envir Planning. 3 Credits.**

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

**NR 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. Cross-listed with: CDAE 238, ENVS 238, PSS 238.

**NR 240. Park and Wilderness Mgmt. 3 Credits.**

History, philosophy, and management of wilderness, national parks, and related areas. Prerequisites: Junior standing in Parks, Recreation and Tourism. Cross-listed with PRT 240.

**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 245. Integrating GIS & Statistics. 3 Credits.**

Advanced approaches in integrating Geographic Information Systems (GIS) and statistical methods to analyze quantitatively spatial patterns and relationships. Prerequisites: Senior/Graduate standing; Either NR 143, GEOG 184, or NR 343 and either STAT 111, STAT 141, NR 140, or STAT 211.



**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 natural resource policy, emphasizing current issues in forest policy. Prerequisite: NR 153.

**NR 255. Field Mthds in Water Resources. 3 Credits.**

Techniques used in field assessment of water quality in rivers and lakes. Case studies on the LaPlatte River and Lake Champlain. Sampling strategies, field measurements, and data evaluation. Extensive field work. Prerequisite: NR 102.

**NR 256. Ecology of a Large Lake. 4 Credits.**

A field exploration of the littoral zone and deep lake environments and human impacts on large lakes using Lake Champlain as the class laboratory. Prerequisite: NR 103 or BCOR 102.

**NR 260. Wetlands Ecology & Mgmt. 3 Credits.**

Structure, dynamics and values of natural and artificial wetlands; wetlands management and issues. Prerequisites: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012, and NR 103 or BCOR 102.

**NR 261. Wetlands Ecology Lab. 1 Credit.****NR 262. Int'l Problems in NR Mgmt. 3 Credits.**

Discussion of problems associated with the management of natural resources which have international implications. Topics may include deforestation, desertification, fisheries, wildlife, refuges, fuelwood, pollution. Prerequisite: Senior standing.

**NR 264. SL: C Ross Env Publ Serv Pract. 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 265. Environment & Human Behavior. 3 Credits.**

Applies social psychological frameworks--attitudes, exchange theory, symbolic interaction, group processes, social cognition, discourse theory--to help understand environmentally related behaviors, conflict, and management. Prerequisite: Junior standing.

**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 270. Toxic&Hrds Subst in Srf Water. 3 Credits.**

The fate of toxic and hazardous pollutants, including trace elements and organics, in surface waters; effects on human health and aquatic biota. Prerequisites: BIOL 001, and CHEM 023 and CHEM 042, or CHEM 102; Senior standing.

**NR 275. NR Planning: Theory & Methods. 3 Credits.**

Investigates theoretical development of natural resource planning. Studies planning methods appropriate to protection and use of scenic, recreational, forest, agriculture, and historic resources and ecologically sensitive areas. Prerequisite: Senior standing.

**NR 276. Water Quality Anlys & Interp. 0 or 3 Credits.**

Selected aspects of water chemistry and bioassay as related to surface and ground waters. Laboratory analysis of water quality parameters and data interpretation. Prerequisite: Senior standing.

**NR 279. Watershed Management Hydrology. 0 or 3 Credits.**

Fundamental elements of hydrology and contaminant transport in watersheds. Application of dynamic simulation techniques. Discussion of new technologies for watershed management. Prerequisites: NR 170; Senior standing.

**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.**

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.

**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 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 097. Readings & Research. 1-6 Credits.****NSCI 098. Readings & Research. 1-6 Credits.****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 pairs of courses: BIOL 001 and BIOL 002, BCOR 011 and BCOR 012, 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 pairs of courses: BIOL 001 and BIOL 002, BCOR 011 and BCOR 012, or ANPS 019 and ANPS 020.

**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. Intrmd Readings & Research. 1-6 Credits.****NSCI 198. Intrmd Readings & Research. 1-6 Credits.****NSCI 225. Human Neuroanatomy. 0-3 Credits.**

Functional anatomy of the human nervous system and its cells. Focus on both peripheral and central nervous system. Lectures and laboratory (gross and microscopic anatomy). Prerequisite: Instructor permission.

**NSCI 255. Neuroregeneration. 3 Credits.**

An analysis of the cellular and molecular processes involved in injury, responses to damage, and differences in the capacity of specific neural tissues to regenerate. Prerequisite: NSCI 111.

**NSCI 261. Neurobiology. 3 Credits.**

Focus on molecular and cellular aspects of the nervous system. Electrical signaling, synaptic transmission, signal transduction, neural development, plasticity, and diseases. Prerequisites: BIOL 103 or ANPS 019 & ANPS 020. Cross-listed with: 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 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. Advanced Readings & Research. 1-6 Credits.****NSCI 298. Advanced Readings & Research. 1-6 Credits.****NUCLEAR MEDICINE TECHNOLOGY (NMT)****Courses****NMT 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.

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

See Schedule of Course for specific title. Offered at department discretion.

**NMT 152. Radiopharmaceuticals. 0-4 Credits.**

The radiopharmacological aspects of nuclear medicine technology, including radiation physics, safety, tracer principles, dosimetry, and venipuncture. Prerequisite: MLRS 141. NMT students only.

**NMT 153. Nuclear Med Clin Procedures I. 3 Credits.**

Principles of diagnostic imaging procedures emphasizing the nuclear medicine technologist's role in patient care and preparation, radiopharmaceutical selection, image acquisition, and data processing and analysis. Prerequisites: ANPS 019, ANPS 020, and MLRS 141. Co-requisites: NMT 152 and NMT 163.

**NMT 154. Nuclear Med Clin Procedures II. 3 Credits.**

Principles and technical considerations of in vivo and in vitro nuclear medicine diagnostic and therapeutic procedures. Prerequisite: NMT 153. Co-requisite: NMT 263.

**NMT 155. Instrumentation I. 3 Credits.**

Nuclear medicine instrumentation, with emphasis on planar imaging devices, computer, and quality control; introduction to SPECT camera systems. Prerequisite: MLRS 141. Co-requisite: NMT 164.

**NMT 156. Instrumentation II. 3 Credits.**

Advanced nuclear medicine instrumentation with emphasis on state-of-the-art imaging devices including PET/CT and SPECT/CT. Prerequisite: NMT 155. Co-requisite: NMT 263.

**NMT 160. Patient Care Seminar. 1 Credit.**

Prepares the students of nuclear medicine technology with basic patient care techniques. NMT majors only. Co-requisites: NMT 164; NMT students only; Instructor permission.

**NMT 162. Introduction to Clinical NMT. 1 Credit.**

Clinical practicum designed to provide the student with an orientation to the clinical environment, with emphasis in radiation safety, patient care and communication. Prerequisite: MLRS 140. Co-requisites: MLRS 141, NMT students only.

**NMT 163. Nuclear Med Clin Practicum I. 0 or 1 Credits.**

Students observe, participate, and demonstrate competency in the clinical setting. Prerequisite: MLRS 141. Co-requisites: NMT 152, NMT 153.

**NMT 164. Nuclear Med Clin Practicum II. 3 Credits.**

Students participate in routine imaging procedures emphasizing patient care, positioning, and instrumentation. Prerequisites: NMT 163; Medical Radiation Science majors with Nuclear Medicine Technology concentration only. Co-requisite: NMT 174.

**NMT 174. Nuclear Cardiology. 3 Credits.**

Designed to provide the student a comprehensive understanding of the theory and principles of nuclear medicine cardiac imaging. Prerequisites: NMT 152, NMT 163. Co-requisite: NMT 164.

**NMT 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.

**NMT 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.

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

See Schedule of Course for specific title. Offered at department discretion.

**NMT 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.

**NMT 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.

**NMT 252. Senior Seminar. 2 Credits.**

Course designed to consolidate, review, and enhance the principles and practice of nuclear medicine learned in previous courses through discussion and student presentations. Prerequisite: NMT 164. Co-requisite: NMT 263.

**NMT 263. Adv Nuclear Med Clin Pract III. 3 Credits.**

Experience in advanced clinical and pharmacological procedures. Prerequisites: NMT 164; Medical Radiation Science majors with Nuclear Medicine Technology concentration only. Co-requisites: NMT 154, NMT 156, NMT 252.

**NMT 264. Clinical Practicum IV. 14 Credits.**

Full-time clinical experience at an affiliated institution. NMT majors only. Prerequisite: NMT 263.

**NMT 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.

**NMT 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.

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

See Schedule of Courses for specific titles. Offered at department discretion.

**NMT 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.

**NMT 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 003. Medical Terminology. 2 Credits.**

Terminology related to medical and health sciences. Online. Prerequisite: CNHS students or DNFS majors.

**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 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.

**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 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.



**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 202. D2: Social Justice and Health. 3 Credits.**

Examination of the health impacts of injustice and the role of health professionals, their associations and employers in promoting social justice to improve health. Pre/co-requisites: CNHS Honors College Junior or permission of the Instructor.

**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.**

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.

**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.**

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.

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

See Schedule of Course for specific title.

**NURS 120. Pathophysiology. 3 Credits.**

This course is designed to provide the student with a comprehensive foundation in pathophysiology. The phenomena that result in dysfunction in human physiologic response will be examined. Prerequisites: ANPS 019, ANPS 020; MMG 065, MMG 101 or MLRS 054, MLRS 056 recommended.

**NURS 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.

**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 244. Applied Patho-Pharmacology. 2 Credits.**

Focuses on the integration and application of principles and knowledge gained through the study of pathophysiology and pharmacology. A holistic and lifespan approach, which incorporates theory, research, and information literacy, will be used in examining the care of clients. Prerequisite: Senior standing.

**NURS 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.

**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 021. Vtrim for Undergrads Part II. 1 Credit.**

This course is designed to teach healthy eating, exercise and weight management behaviors to college students. Prerequisite: NFS 020.

**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.**

Study of the scientific aspects of food with emphasis on reasons for procedures used and phenomena occurring in food preparation. Spring.

**NFS 054. Basic Concepts of Foods Lab. 1 Credit.**

Developing comprehension of scientific principles of food preparation through modification of standard recipes, manipulation of ingredients and techniques, and evaluation using sensory and objective methods. Prerequisites: NFS 053 or concurrent registration in NFS 053 or permission; Department majors only. Spring.

**NFS 063. Obesity,Weight Control&Fitness. 3 Credits.**

Introduction to the causes, consequences, and treatment of obesity. Fall.

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

Introductory level special topics courses.

**NFS 113. Food Policy and Politics. 3 Credits.**

Provides students with a systems perspective on food policies and politics across the food system. This systems course focuses on understanding the food policy process, policymakers, stakeholders, issues, goals and feedbacks between food policy and politics. Prerequisites: CDAE 002 or CDAE 004.

**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.

**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 054, 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. Biochem for Life & Health Sci. 3 Credits.**

Exploring biological processes at the molecular level and how they are controlled. Topics include enzymes, gene expression, and metabolism of proteins, carbohydrates, and lipids. Prerequisites: CHEM 042 or acceptable coursework in organic chemistry. Cross-listed with: ASCI 185, BIOC 185, P BIO 185.

**NFS 185. D2:Food and Culture. 3 Credits.**

This course examines how the cultivation, preparation and consumption of food are rich symbolic processes through which humans interact with our natural and social environments. Prerequisite: ANTH 021. Cross-listed with: ANTH 185.

**NFS 187. BiochemLab for Life&Health Sci. 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: ASCI 185, BIOC 185, NFS 183, P BIO 185. Cross-listed with: ASCI 187, BIOC 187, P BIO 187.

**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. Field Experience. 1-15 Credits.**

Professionally-oriented field experience under joint supervision by faculty and business or community representative. Credits negotiable, maximum of 15 hours in NFS 196 and NFS 296 combined. Prerequisite: Department permission.

**NFS 197. Undergraduate Research. 1-3 Credits.**

Individual laboratory or community research in food or nutritional sciences under the guidance of a faculty member. Prerequisite: Department permission.

**NFS 198. Undergraduate Research. 1-15 Credits.**

Individual laboratory or community research in food or nutritional sciences under the guidance of a faculty member. 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. Pre/co-requisites: 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 Pre/co-requisites: NFS 043, NFS 053, NFS 054, 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; P BIO 185; ANPS 019; 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: CHEM 042, ANPS 020, NFS 053, NFS 054, NFS 143.

**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: Instructor permission.

**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, NFS 244.

**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: Junior or Senior standing. Spring.

**NFS 263. Nutritional Biochemistry. 3 Credits.**

Comprehensive study of metabolism of carbohydrates, lipids, and protein emphasizing diet induced, hormone mediated alterations in metabolism (e.g. starvation and obesity). Prerequisite: NFS 243 or Instructor permission. Spring.

**NFS 274. Community Practicum. 1-6 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 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. Field Experience. 1-15 Credits.**

Professionally-oriented field experience under joint supervision of faculty and business or community representative. Credit negotiable. Maximum of fifteen hours in NFS 196 and NFS 296 combined. Prerequisite: Departmental permission.



## OBSTETRICS & GYNECOLOGY (OBY)

### Courses

#### **OBY 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: Orthopaedics. 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.

## OVERSEAS STUDY PROGRAM (OSSP)

### Courses

#### **OSSP 000. Overseas Study Program. 0-12 Credits.**

#### **OSSP 001. ISEP Exchange. 12 Credits.**

#### **OSSP 002. UVM Exchange. 12 Credits.**

#### **OSSP 003. Oaxaca Study Abroad. 1-9 Credits.**

## PARKS, RECREATION AND TOURISM (PRT)

### Courses

#### **PRT 001. Intro to Recreation & Tourism. 3 Credits.**

Introduction to leisure studies focusing on outdoor recreation and tourism. Includes philosophy, history, social science, future trends, and business applications of recreation and tourism.

#### **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.**

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.

#### **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 152. Forest Resource Values. 3 Credits.**

History, methods, and current issues associated with the nonmarket and market values of forest-based resources, including aesthetics, wildlife, recreation, water, and timber. Prerequisite: EC 012 or CDAE 061. Cross-listed with: FOR 152.

#### **PRT 153. Recreation Admin & Operations. 3 Credits.**

Administration and operation of outdoor recreation agencies and businesses. Special emphasis on recreation administrative structures, personnel management, and maintenance of parks and outdoor recreation areas. Prerequisite: Junior standing.

#### **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.**

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.

#### **PRT 191. Parks, Rec & Tourism Practicum. 1-6 Credits.**

Supervised field experience in national, state, urban, or private park and recreation operations. 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. SU: Ecotourism. 3 Credits.**

Study of nature-based travel emphasizing international destinations. Examination of ecotourism as a tool for preservation and economic development. Prerequisite: 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.**

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.

**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.**

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.

**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.**

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.

**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.**

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.

**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.**

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.

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

See schedule of courses for specific titles.

**PHRM 191. 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.

**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.**

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.

**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. Advanced Pharmacology Research. 1-18 Credits.**

Independent laboratory research performed under faculty supervision in an area of ongoing pharmacology research. Students must make arrangements with faculty prior to registering. Prerequisite: PHRM 201.

**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. Introduction to Logic. 3 Credits.**

Study of the basic principles of deductive inference.

**PHIL 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.

**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 101. History of Ancient Philosophy. 3 Credits.**

Study of the works of the Pre-Socratics, Plato, Aristotle, and their successors. Prerequisite: One Philosophy course.



**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 Philosophy course.

**PHIL 105. History of Medieval Philosophy. 3 Credits.**

Study of works of such major philosophical figures as Augustine, Anselm, Abelard, Aquinas, Duns Scotus, and William of Ockham. Prerequisite: PHIL 101 is recommended.

**PHIL 108. 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 or Instructor permission.

**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 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 Philosophy course.

**PHIL 120. Phil of Cognitive Science. 3 Credits.**

An examination of philosophical issues concerning the nature of the human mind raised by the cognitive sciences (psychology, computer science, linguistics, and neuroscience). Prerequisite: One course in Philosophy or Instructor permission (students with relevant background are encouraged to seek permission).

**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 135. Philosophy of Religion. 3 Credits.**

Typical topics: the nature of religion, the concept of God, the grounds for belief in God, mortality, truth, and revelation. Historical and contemporary sources. Prerequisite: One Philosophy course.

**PHIL 140. Social & Political Philosophy. 3 Credits.**

Examination of some major figures in the history of social and political philosophy, focusing on issues such as political obligation, rights, property, and justice. Prerequisite: One Philosophy course.

**PHIL 142. Philosophy of Law I. 3 Credits.**

Analysis of the nature of law, the relation between law and morality, legal obligation, and the judicial decision. Prerequisite: One Philosophy course or POLS 041. Cross-listed with: POLS 143.

**PHIL 143. Philosophy of Law II. 3 Credits.**

Problems of liberty, e.g. freedom of expression, privacy, paternalism; scope and limits of the criminal law; philosophy of punishment; selected problems in criminal justice, e.g. plea bargaining; preventive detention. Prerequisites: One Philosophy course or POLS 041. Cross-listed with: POLS 144.

**PHIL 144. Phil Problems in Medicine. 3 Credits.**

Such issues as the physician-patient relationship, allocation of organs for transplantation, reproductive assistance technology and genetic engineering, the justice of the health-care delivery system. Prerequisite: One Philosophy course.

**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 Philosophy course or Instructor permission.

**PHIL 152. Philosophy of Art. 3 Credits.**

A consideration of some leading theories of art, and their application to problems of art as they appear in music, literature, painting, and in the general criticism of the arts. Prerequisite: One Philosophy course.

**PHIL 160. Continental Philosophy. 3 Credits.**

An explanation of such movements in Continental philosophy as phenomenology, existentialism, and structuralism and such figures as Husserl, Heidegger, Sartre, and Foucault. Prerequisite: One Philosophy course.

**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.**

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.

**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 when different authors are studied. Prerequisite: One Philosophy course at 100-level.

**PHIL 211. Phil of Mind: Advanced Topics. 3 Credits.**

In-depth study of topics like consciousness, the relation between the mental (belief, sensations, etc.) and the physical (chemicals, neurons, etc.) and how minds represent things. Prerequisite: One Philosophy course at the 100-level.

**PHIL 217. Philosophy of Language. 3 Credits.**

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

**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. Prerequisite: One Philosophy course 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. Prerequisite: One Philosophy course 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 when topic is significantly different and with departmental approval.) Prerequisite: PHIL 101, PHIL 102 or PHIL 135.

**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. Prerequisite: One Philosophy course at the 100-level.

**PHIL 241. Contemp Social & Political Phil. 3 Credits.**

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

**PHIL 242. Justice & Equality. 3 Credits.**

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

**PHIL 244. Phil of Medicine: Adv Topics. 3 Credits.**

In-depth study of issues in contemporary medical ethics such as genetic engineering, cloning, embryonic stem cell research, abortion and physician-assisted suicide. Prerequisite: One Philosophy course at 100-level.

**PHIL 265. American Philosophy. 3 Credits.**

The thought of such leading American philosophers as Peirce, James, Royce, Santayana, Dewey, and Whitehead. Prerequisites: PHIL 101, PHIL 102.

**PHIL 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.

**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 001. Remedial Physical Education. 0.5-1 Credits.**

**PEAC 002. Advanced Physical Conditioning. 1 Credit.**  
Focus on learning how to effectively train different metabolic pathways. Participants will learn the different ways the body works in order to produce energy, how to train those energy systems and proper technique while doing so.

**PEAC 003. Ski Conditioning. 1 Credit.****PEAC 004. Weight Training 1-4. 1 Credit.****PEAC 005. Club Sports. 1 Credit.****PEAC 006. Fitness Assessment. 1 Credit.****PEAC 007. Weight Reduction. 1 Credit.****PEAC 008. Exercise & Weight Management. 1 Credit.**

Focus on establishing an understanding of fitness techniques and programming as well as nutrition information. Participants will learn correct form in a variety of muscular strength and endurance exercises as well as cardio-respiratory training principles.

**PEAC 009. Run For Fitness. 0.5 Credits.****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 013. Wilderness Survival. 1 Credit.****PEAC 014. Orienteering 1-2. 1 Credit.**

Basic practical skills such as maps, compass, and environmental awareness. Classroom participation, written exams, and completion of an orienteering course determine student grades. Open to all First-Year and Sophomore students. Cross-listed with: MS 014. Fall/Spring.

**PEAC 015. Rappelling. 0.5-1 Credits.****PEAC 016. Gymnastics 1-4. 1 Credit.****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. Cross-listed with: MS 017. 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 019. Backpacking. 1 Credit.**

Techniques of planning and organizing a backpacking trip. Basic instruction includes clothing, equipment, and environmental awareness. Includes one overnight backcountry trek. Student grades determined by class participation and participation in the practical exercise. Open to all First-Year and Sophomore students. Cross-listed as MS 019. Fall/Spring.

**PEAC 020. Triathlon Swim Training. 1 Credit.**

Development of the skills needed to achieve success at the swimming portion of a triathlon event. Focuses on increasing endurance, efficiency, and speed in the water.

**PEAC 021. Walking for Fitness 1-4. 0.5-1 Credits.****PEAC 022. Stretch & Relaxation. 0.5-1 Credits.****PEAC 023. Cross Training. 1 Credit.****PEAC 024. Stress Reduction 1-4. 1 Credit.****PEAC 025. Orienteering. 1 Credit.****PEAC 026. Jogging for Fitness. 1 Credit.**

This course examines cardio-respiratory, fitness, exercise principles, and how to design and evaluate fitness programs/workouts. Additionally, the course emphasizes the importance of life-long exercise.

**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 028. Conditioning Act. 1 Credit.****PEAC 029. Cycling & Heart Rate Training. 1 Credit.****PEAC 030. Stand-Up Paddleboarding. 1 Credit.**

Introduces the sport of Stand-Up Paddleboarding. Begins with SUP basics, progresses to more advanced stroke techniques to increase speed and endurance on longer distance and racing.

**PEAC 031. Aerobic Exercise 1-4. 1 Credit.****PEAC 033. Aquatic Aerobics 1-2. 1 Credit.****PEAC 034. Aerobic Dance. 1 Credit.****PEAC 035. Low Impact Aerobics 1-4. 1 Credit.****PEAC 036. Swimming 1-2. 1 Credit.**

Focuses on the development of stroke technique in order to create, execute, and improve a level-appropriate workout. Introduces the four competitive swim strokes, and two survival strokes.

**PEAC 038. Swimming 3-4. 1 Credit.****PEAC 039. Swim for Fitness. 1 Credit.****PEAC 040. Advanced Lifesaving. 1 Credit.****PEAC 041. Lifeguard Training. 1 Credit.****PEAC 042. Emergency Water Safety. 0.5-1 Credits.****PEAC 043. WSI-Crossover. 0.5 Credits.****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 050. Individual Sports. 1 Credit.****PEAC 051. Advanced Sailing. 0.5 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 053. Archery 1-4. 1 Credit.**

**PEAC 054. Archery 2. 0.5 Credits.**

**PEAC 056. Badminton 1-2. 0.5-1 Credits.**

**PEAC 057. Badminton 2. 0.5 Credits.**

**PEAC 058. Badminton 3-4. 1 Credit.**

**PEAC 059. Fencing. 0.5-1 Credits.**

**PEAC 060. Badminton 4. 0.5 Credits.**

**PEAC 061. Bowling 1-4. 0.5-1 Credits.**

**PEAC 062. Bowling 3-4. 1 Credit.**

**PEAC 063. Horseback Riding 1-4. 0.5 Credits.**

**PEAC 064. Skating 1. 0.5 Credits.**

**PEAC 065. Figure Skating 1-4. 0.5-1 Credits.**

**PEAC 066. Inter Skating. 0.5 Credits.**

**PEAC 067. Ice Hockey 1-2. 1 Credit.**

**PEAC 068. 5k/10k Training. 1 Credit.**

For the recreational runner training and preparing for either a 5K or a 10K race. Focuses on building a fitness foundation and will include a variety of workouts.

**PEAC 070. Racquet Sports. 1 Credit.**

**PEAC 071. Handball 1-2. 1 Credit.**

**PEAC 073. 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 075. Judo 1-4. 1 Credit.**

**PEAC 077. Judo 3-4. 1 Credit.**

**PEAC 079. Racquetball 1-4. 1 Credit.**

**PEAC 081. Racquetball 3-4. 1 Credit.**

**PEAC 085. Telemarking 1-4. 0.5-1 Credits.**

**PEAC 086. Snowboarding 1-4. 0.5-1 Credits.**

**PEAC 087. Downhill Skiing 1-4. 1 Credit.**

**PEAC 088. Ski Instructors. 0-1 Credits.**

**PEAC 089. X-Country Skiing 1-4. 0.5 Credits.**

**PEAC 091. Intermediate X-C Skiing 3-4. 0.5 Credits.**

**PEAC 092. Squash 1-2. 1 Credit.**

**PEAC 093. Squash 3-4. 1 Credit.**

Focuses on squash strategy, refining footwork and form. Prerequisite: An understanding of how to play squash and the proper form.

**PEAC 096. Tennis 1-2. 1 Credit.**

**PEAC 098. Tennis 3-4. 1 Credit.**

**PEAC 100. Tennis 5-6. 1 Credit.**

**PEAC 102. Tennis Doubles 3-4. 1 Credit.**

Students will learn rules, positioning, and a variety of strategies unique to doubles tennis.

**PEAC 103. Yoga & Ayurveda. 1 Credit.**

**PEAC 104. Platform & Indoor Tennis 3-4. 1 Credit.**

The first half of this course is an introduction to platform tennis, an outdoor game played on a raised miniature court surrounded by screened walls. The second half of the course is an intermediate tennis course.

**PEAC 105. Outdoor Recreation. 1 Credit.**

**PEAC 106. Platform Tennis 1-2. 1 Credit.**

This course is an introduction to platform tennis, an outdoor game played on a raised miniature court surrounded by screened walls.

**PEAC 107. Water Safety Instructor Training. 1 Credit.**

Students will complete all classroom and pool requirements necessary to sit for the American Red Cross Water Safety Instructor Exam. In addition, students will be trained in CPR and first aid.

**PEAC 108. Moo Gong Do 1-2. 1 Credit.**

**PEAC 109. Yoga Asana & Philosophy. 1 Credit.**

Explores yoga philosophy and addresses questions about yogic philosophy. To accompany philosophical explorations, asana will be practiced. Covers basic postures and the vinyasa (flow) to promote lifelong practice.

**PEAC 110. Moo Gong Do 3-4. 1 Credit.**

**PEAC 111. Golf 1. 0.5-1 Credits.**

**PEAC 112. Golf 2. 0.5 Credits.**

**PEAC 113. Golf 1-4. 1 Credit.**

**PEAC 114. Mountain Biking. 0.5-1 Credits.**

**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 117. Racquetball 5-6. 1 Credit.**

**PEAC 125. Team Sports 1. 1 Credit.**

**PEAC 126. Team Sports 2. 1 Credit.**

**PEAC 136. Team Handball. 0.5 Credits.**

**PEAC 143. Volleyball 1. 0.5-1 Credits.**

**PEAC 144. Volleyball 2. 0.5 Credits.**

**PEAC 145. Volleyball 3-4. 1 Credit.**

**PEAC 146. Volleyball 4. 0.5 Credits.**

**PEAC 147. Volleyball 5-6. 1 Credit.**

**PEAC 150. Introduction to Dance. 1 Credit.**

**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 152. Hip Hop Dance 3-4. 1 Credit.**

This course is an intermediate level hip hop dance class that utilizes more complex and challenging combinations as dances are choreographed.

**PEAC 153. Global Dance. 1 Credit.**

This is a survey course designed to explore dance traditions and styles from around the world.

**PEAC 154. West African Dance. 1 Credit.**

This class incorporates various styles of West African Dance and explores dance as part of the culture of many West African societies.

**PEAC 155. Tap Dance 1-4. 1 Credit.****PEAC 161. Modern Jazz 1-2. 1 Credit.****PEAC 163. Cabaret Jazz. 1 Credit.**

Exploration and overview of cabaret forms; combines components of Horton technique, release technique, and contemporary forms. Explores different styles of modern jazz.

**PEAC 165. Jazz Aerobics 1-2. 1 Credit.****PEAC 166. Ballet 1-2. 1 Credit.****PEAC 168. Ballet 3-4. 1 Credit.****PEAC 169. Ballet 4. 0.5 Credits.****PEAC 170. Ballet 3-6. 1 Credit.****PEAC 171. Modern Dance 1-2. 1 Credit.****PEAC 179. Folk & Square Dancing 1-2. 1 Credit.****PEAC 183. Ballet 5-6. 0.5-1 Credits.****PEAC 185. Ballet 5-6. 1 Credit.****PEAC 187. Ballroom Dance 1-2. 1 Credit.****PEAC 188. Orchesis Dancers. 1 Credit.****PEAC 189. Social Dance:International. 0.5 Credits.****PEAC 190. Dance for Majors. 1 Credit.****PEAC 192. Jazz 5+. 1 Credit.****PEAC 199. Physical Education Activities. 0.5-1 Credits.****PHYSICAL EDUCATION-PROF (EDPE)****Courses****EDPE 021. Foundations of Phys Educ. 3 Credits.**

Examination of the development of physical education as an academic discipline and profession, its foundations, current trends, issues and career opportunities. Prerequisite: Physical Education majors; others by Instructor permission.

**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 026. Water Safety Instructor. 2 Credits.**

Advanced performance skills in swimming, diving, survival, and rescue techniques. Theory and practice in techniques of teaching aquatic skills. Red Cross certification as Water Safety Instructor or Instructor for Beginning Swimming. Prerequisite: Current Red Cross Lifesaving Certificate.

**EDPE 032. Recreational Sport Officiating. 2 Credits.**

Basic techniques and skills of rule interpretation for officiating recreational sport competition.

**EDPE 054. Hist, Phil, and Trends in Rec. 3 Credits.**

Review of chronological history of evolution of recreation movement; examination of past and emerging theories and philosophies of recreation and leisure; exploration of trends in recreation and leisure and probable impact on our life styles.

**EDPE 055. Special Topics I. 1-6 Credits.****EDPE 100. Integ Movement/Elem School Cur. 2 Credits.**

Planning and implementing movement-based lessons and integrating movement across the curriculum for children aged 5-12.

**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 121. Coaching Baseball. 0-2 Credits.**

Theory and technique of coaching interscholastic baseball. Includes practice, game, and schedule organizations. Prerequisite: Skill competency in baseball; Sophomore standing, or Instructor permission.

**EDPE 123. Coaching Softball. 2 Credits.**

Theory and technique of coaching interscholastic softball. Includes practice, game, and schedule organizations. Prerequisite: Skill competency in softball; Sophomore standing, or Instructor permission.

**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. Cross-listed with: EXMS 166.

**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 168. Measurement&Data Analysis. 1 or 3 Credit.**

Introductory statistics and research design class. Covers basic statistics--t-tests, measurement scales, Anova, correlations, etc. Application in physical education and exercise science are specifically discussed. Prerequisites: EXSS majors only; others by Instructor permission. Cross-listed with: EXMS 168.

**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 185. Injury Eval&Rec: Athl Training. 4 Credits.**

Course is integrative and clinical in nature, consisting of injury evaluation and recognition skills. Injury mechanisms, etiology, pathology, clinical signs and symptoms. Prerequisites: EDPE 157, EDPE 158.

**EDPE 195. Hlth/Fitness Ldrshp&Programmng. 3 Credits.**

Practical approach to significance, theories, and characteristics of leadership content, and methods of program planning. Field work practice in planning and leadership techniques. Prerequisite: EDPE 021.

**EDPE 197. Readings & Research. 1-4 Credits.****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 201. Admin of Athletic Programs. 3 Credits.**

Background for effective administration of the athletic program of schools. Include scheduling, budgeting, management, equipment, policy, public relations, and education justification. Prerequisite: Twelve hours of education and Psychology.

**EDPE 203. Principles of Physical Ed. 3 Credits.**

Principles basic to sound philosophy of physical education for appraisal of historical development; relationship to health education, recreation, and other areas; foundation and functions of physical education. Prerequisite: Admission to the program and Instructor permission.

**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. Cross-listed with: EXMS 265.

**EDPE 266. Ex Prescrip: Sprt, Hlth, Fit, Perf. 3 Credits.**

Course covers basic concepts of exercise prescription and exercise program design. Particular attention is paid to individualization of exercise program to meet participant needs. Cross-listed with: EXMS 266.

**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 295. Lab Experience in Education. 1-12 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.

**PHYSICAL THERAPY (PT)****Courses****PT 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.



**PT 206. Professional Seminar 4. 0 Credits.**

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

**PT 215. Movement Science 2. 3 Credits.**

Lecture and laboratory experience re theory, concepts, and measurement of normal sensory motor development, motor control, and motor learning across the lifespan. Pre/co-requisites: ANNB 302, PT 242, and RMS 213. Enrolled as a DPT student.

**PT 295. Advanced Special Topics. 1-15 Credits.**

See Schedule of Courses for specific titles.

**PHYSICS (PHYS)****Courses****PHYS 009. 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.

**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.**

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.

**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 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 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.

**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 201. Experimental Physics I. 3 Credits.**

Experiments in classical and modern physics. Prerequisites: PHYS 128; MATH 121; Junior standing.

**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 257. Modern Astrophysics. 3 Credits.**

Stellar structure and evolution, compact objects, the interstellar medium, galactic structure, gravitational theory, and cosmology, the formation of our solar system and terrestrial life. Prerequisite: One 100-level course in physical science or engineering. Cross-listed with: ASTR 257.

**PHYS 258. Relativity. 3 Credits.**

Development of Einstein's theory of special relativity. Lorentz transformation, time dilation, length contraction, mass variation, relative velocities. Introduction to four-dimensional space. Concepts of general relativity. Applications selected from astrophysics, elementary particles, etc. Prerequisite: PHYS 128.

**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.**

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.

**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 & SOIL SCIENCE (PSS)****Courses****PSS 003. D2:SU:Coffee Ecol & Livelihood. 3 Credits.**

This course presents an overview of the environmental, social and economic dimensions of coffee production, commercialization and consumption, with a focus on Mesoamerica coffee producing regions.

**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 Ecological Agr. 3 Credits.**

Ecological concepts as applied to agriculture including farm visits.

**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 095. 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.**

Survey of the major insect orders, and methods for controlling injurious species. Prerequisites: PSS 010, PSS 021, one semester Biology, or Instructor permission.

**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 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, PSS 021, 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, PSS 021, 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.**

Principles and practices of growing and utilizing forage plants for hay, silage and pasture; introduction to management intensive grazing; understanding forage quality. Pre/co-requisites: PSS 010, one semester of Biology, one semester of Plant Biology, 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. Alternate years.

**PSS 156. SU: Permaculture. 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 credits in a basic biological or ecological science, or 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 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 197. Undergrad Independent Study. 1-6 Credits.**

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

**PSS 198. Undergrad Independent Study. 1-6 Credits.**

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

**PSS 208. Organic Farm Planning. 3 Credits.**

Students acquire financial, business, and technical knowledge and skills needed to run a 3-acre vegetable farm at UVM's Horticultural Research Farm. Pre/co-requisites: PSS 021 and one 100-level PSS course, equivalent experience, or Instructor permission.

**PSS 209. Sustainable Farming Practicum. 4 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.**

This course presents an in-depth overview of research and applications in the field of agroecology, including current ecological and social dynamics in agricultural landscapes in Vermont and abroad. Pre/co-requisites: PSS 021 and one semester ecology at the 100-level or above or Instructor permission. Cross-listed with: ENVS 212.

**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. Cross-listed with: CDAE 238, ENVS 238, NR 238.

**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 266. Soil Water Movement. 3 Credits.**

Mathematical modeling and physical principles of the soil-water-plant interaction and its relationship to environmental and agricultural issues. Prerequisites: PSS 161, one semester of Physics or Instructor permission. Alternate years.

**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 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 297. Advanced Independent Study. 1-6 Credits.**

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

**PSS 298. Advanced Independent Study. 1-6 Credits.**

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

**PLANT BIOLOGY (PBIO)**

**Courses****PBIO 004. 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 095. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**PBIO 096. 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, and one year of Chemistry; 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 001, BIOL 002. 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. Pre/co-requisites: PBIO 004 or BIOL 002 or BCOR 012.

**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. Pre/co-requisites: PBIO 004, or BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012 or Instructor permission. Cross-listed with: PSS 117. Alternate years.

**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 BIOL 002, BCOR 011 or BCOR 012, or PBIO 004.

**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: A college-level biology course or permission of Instructor.

**PBIO 185. Biochem for Life & Health Sci. 3 Credits.**

Exploring biological processes at the molecular level and how they are controlled. Topics include enzymes, gene expression, and metabolism of proteins, carbohydrates, and lipids. Prerequisite: CHEM 042 or acceptable coursework in organic chemistry. Cross-listed with: ASCI 185, BIOC 185, NFS 183.

**PBIO 187. BiochemLab for Life&Health Sci. 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: ASCI 185, BIOC 185, NFS 183, or PBIO 185. Cross-listed with: ASCI 187, BIOC 187, NFS 187.

**PBIO 193. College Honors. 3 Credits.**

For Arts and Sciences Seniors.

**PBIO 194. College Honors. 3 Credits.**

For Arts and Sciences Seniors.

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

See Schedule of Courses for specific titles.

**PBIO 197. Undergrad Research. 1-6 Credits.**

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

**PBIO 198. Undergrad Research. 1-6 Credits.**

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

**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 (BCOR 101 recommended). Alternate years.

**PBIO 213. Plant Communities. 0-3 Credits.**

Plant sociology; structure and organization of the plant community; sampling methods and analysis of data; climatic and edaphic factors; field work. Prerequisite: PBIO 109 or Department permission.

**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 226. Environmental Problem Solving. 1-3 Credits.**

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

**PBIO 232. Botany Field Trip. 1 Credit.**

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

**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 251. Principles of Light Microscopy. 1 Credit.**

Introduction to the optics, construction, and care of the light microscope. Theory of phase and interference contrast, fluorescence, and video methods. Prerequisites: One year of Physics or Instructor permission.

**PBIO 260. Plant Population Biology. 3 Credits.**

Study of how environmental and life-history characteristics of plants determine the dynamics and evolution of populations. Prerequisite: BCOR 102 or Instructor permission.

**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 275. Global Change Ecology. 3 Credits.**

Survey of global climate change including its causes, mechanisms, and ecological and societal impacts. Prerequisite: BCOR 102 or equivalent.

**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 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.**

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

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

See Schedule of Courses for specific titles.

**PBIO 297. Advanced Undergrad Research. 1-6 Credits.**

Individual projects under direction of a faculty member, including original research and readings. Prerequisites: Junior/Senior standing; Department permission.

**PBIO 298. Advanced Undergrad Research. 1-6 Credits.**

Individual projects under direction of a faculty member, including original research and readings. Prerequisites: Junior/Senior standing; Department permission.

**POLITICAL SCIENCE (POLS)****Courses****POLS 021. American Political System. 3 Credits.**

Institutions, processes, and problems of American government.

**POLS 028. D1: Race & Ethnicity in the US. 3 Credits.**

Examines race and oppression in American society by looking at the experiences of four groups: Native Americans, African Americans, Latinos and Asians.

**POLS 029. D1: Amer Civil Rights Movemnts. 3 Credits.**

Examination of American racial discrimination; emphasis on strategies and actions of NAACP, SCLC, SNCC, Black Panthers, Nation of Islam, to end racial discrimination.

**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.**

Examination of the basic theoretical concepts in international relations. Introduces the student to systemic, domestic, and individual levels of analysis for assessing foreign policy decisions.

**POLS 071. Comparative Political Systems. 3 Credits.**

Examination of political behavior, political structures, and political processes from a cross-national perspective.

**POLS 091. 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.

**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 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 130. SU: U.S.Environmental Politics. 3 Credits.**

Environmental and natural resources politics in the American context. Analysis of the environmental movement and political theories, issues, processes, and institutions. Prerequisite: POLS 021.

**POLS 131. Political Leadership. 3 Credits.**

Methods of identifying leaders, their relationships with nonleaders and with one another, their impact on public policy, and their personalities and social backgrounds. Prerequisite: POLS 021.

**POLS 132. US Supreme Court:Proc&Policy. 3 Credits.**

The U.S. Supreme Court as one of the three major political institutions, including the selection process, intracourt politics, and dynamics of court decision making. Prerequisite: POLS 021.

**POLS 133. Public Opinion/Political Part. 3 Credits.**

Theories and the empirical study of public opinion and political participation. Topics include: public opinion polling methodology, the origins of political outlooks, ideology, authoritarianism, generational politics, public opinion on race, voting behavior. Prerequisite: POLS 021.

**POLS 137. Politics and The 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 151. American Foreign Policy. 3 Credits.**

Overview of the United States' involvement with the world. Focuses on the domestic political, institutional, and ideological influences on the formation of policy. Prerequisite: POLS 051.

**POLS 153. International Organization. 3 Credits.**

Theory and practice in supranational institutions. 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.**

Formation and operation of the state system in the 20th century Middle East. Emphasis on Great Power involvement, Arab-Israeli issues, regional conflict, transitional ideologies. Prerequisite: POLS 051.

**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 160. International Development. 3 Credits.**

Examination of theories defining the post-World War II development project, alternatives to the project, and their relevance to solving global development problems. Prerequisite: POLS 051.

**POLS 161. Political Geography. 3 Credits.**

Prerequisites: POLS 051, POLS 071, GEOG 050, or GEOG 070.  
Cross-listed with: GEOG 177.

**POLS 168. D2: Middle East Politics. 3 Credits.**

State formation in the Middle East and problems it has occasioned. Review of modern history and examination of contemporary politics of several countries. Prerequisite: POLS 071.

**POLS 171. Western European Political Sys. 3 Credits.**

A comparative examination of the British, German, and French political systems. Prerequisite: POLS 071.

**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 175. D2: Govt & Politics of China. 3 Credits.**

Institutions, processes, and problems of government of China. Prerequisite: POLS 071.

**POLS 176. D2: Govt & Politics of Japan. 3 Credits.**

Institutions, processes, and problems of government in Japan. Prerequisite: POLS 071.

**POLS 177. D2: Pol Systs 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. Comparative Environmental 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: POLS 021, POLS 041, POLS 051, or POLS 071, and STAT 051 or higher. 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 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.**

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.

**POLS 192. 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.

**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 220. Topics in Law. 3 Credits.**

In-depth analysis of selected topics in law. May repeat for credit with different content. Prerequisites: POLS 021, three hours at 100-level.

**POLS 222. Constitutional Law II. 3 Credits.**

Selected topics in constitutional law. Prerequisite: POLS 122.

**POLS 225. Intergovernmental Relations. 3 Credits.**

Problems of the federal system. National-state-local cooperative administration of selected public functions. Prerequisite: POLS 021, three hours at the 100-level.

**POLS 226. Topics on the Presidency. 3 Credits.**

Further study of the executive branch and its operations. Selected topics, e.g. presidential decision making. White House staffing and operations, congressional-executive relations. Prerequisite: POLS 124.

**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 Shop. 3 Credits.**

Involves students in policy research for the Vermont State Legislature on a wide range of topics that include the environment, health, and welfare. Prerequisite: Instructor permission.

**POLS 232. Comparative State Politics. 3 Credits.**

Politics, policy, and institutions of state governments of the U.S.; techniques for comparative analysis of these aspects of politics. Prerequisite: POLS 021, three hours at the 100-level.

**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 137.

**POLS 238. Law & Public Policy. 3 Credits.**

Examination of courts as policymakers, relationships with other actors in the policy process, fields in which courts play policy roles, and difficulties facing judges. Prerequisite: POLS 021, three hours at the 100-level.

**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. Cross-listed with: PHIL 242.

**POLS 244. Liberalism and its Critics. 3 Credits.**

This course examines the works of leading contemporary liberal political theorists, and also works representing various theoretical approaches critical of liberalism. Prerequisite: POLS 041, three hours at the 100-level.

**POLS 245. Ethics and Public Policy. 3 Credits.**

This course explores some of the most difficult moral questions that confront citizens and policymakers today. Topics include the ethics of war and torture, abortion and euthanasia, capital punishment, immigration, and other related issues. Prerequisite: One course in ethics or political philosophy.

**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 251. Foreign Pol Newly Indep States. 3 Credits.**

Examines the development of foreign relations of post-Soviet states, with a special focus on Russia and the post-Communist era. Prerequisite: POLS 051, three hours at the 100-level.

**POLS 257. Pol of European Integration. 3 Credits.**

Survey of the European Union including historical development, public opinion, governmental institutions, internal policies, external relations, and future prospects. Prerequisites: POLS 051 or POLS 071, and three hours at the 100-level; or appropriate International Studies background.

**POLS 258. Causes of War. 3 Credits.**

Examination of various theories explaining the outbreak of war, with applications to historical cases. Prerequisites: POLS 051, three hours at the 100-level.

**POLS 259. Sem in International Relations. 3 Credits.****POLS 260. War, Strategy and Politics. 3 Credits.**

The domestic, international, and geopolitical factors determining states' choice of strategies and tactics in interstate conflicts and confrontations. Contemporary and historical examples. Prerequisites: POLS 051, three hours at the 100-level.

**POLS 261. Topics American Foreign Policy. 3 Credits.**

In-depth examination of selected topics related to the making and implementation of U.S. foreign policy. Prerequisites: POLS 051, three hours at the 100-level.

**POLS 263. Third World Foreign Policy. 3 Credits.**

The particular security and political economic challenges facing states in the process of nation-building in Latin America, Africa, Middle East, South Asia, Southeast Asia. Prerequisites: POLS 051, three hours at the 100-level.

**POLS 265. East Asian Political Economy. 3 Credits.**

Examination of the historical, political, economic, and international factors for the rise of East Asia since the Second World War. Prerequisite: POLS 051 or POLS 071, Prerequisites: POLS 051 or POLS 071, three hours at the 100-level.

**POLS 266. D2: Politics of Persian Gulf. 3 Credits.**

Covers the political systems of the states bordering the Persian Gulf, the role of oil in regional politics and the international relations of the region. Prerequisite Prerequisite: POLS 157 or POLS 168.

**POLS 268. Oil and Politics. 3 Credits.**

Explores the relationship between energy resource wealth and political outcomes in oil-producing states and examines the geopolitical role of oil in the international system. Prerequisites: POLS 071, three hours at 100-level.

**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 272. Eastern European Pol Systems. 3 Credits.**

Examination of Eastern European political systems with emphasis on the role of ethnic conflict and Marxist-Leninist ideology. Prerequisites: POLS 071, three hours at the 100-level.



**POLS 276. British Politics. 3 Credits.**

Topics include the role of the citizenry; the character of political and governmental institutions; and policy making in particular fields. Northern Ireland is also covered. Prerequisites: POLS 071, three hours at the 100-level; or appropriate International Studies background.

**POLS 277. Comparative Ethno-Nationalism. 3 Credits.**

Ethnicity and nationalism in Europe, Asia, and Africa. Political, historical, social, and economic factors are examined comparatively. Prerequisite: POLS 071; three Prerequisites: POLS 071, three hours at the 100-level.

**POLS 279. Sem in Comparative Politics. 3 Credits.****POLS 280. D2: Central Asian Politics. 3 Credits.**

This course explores political and economic change in Soviet and post-Soviet Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Prerequisites: POLS 071, three hours at the 100-level; or appropriate Russian/East European Studies background.

**POLS 290. D2: Post-Soviet Ethnic Conflict. 3 Credits.**

Examines ethnic conflict in various post-Soviet states including Ukraine, Moldova, Georgia, Armenia, Azerbaijan, Kyrgyzstan, Latvia, Estonia and Russia. The material includes both theories of nationalism/ethnic conflict and case studies to generate theoretical explanations for cases of conflict. Prerequisite: POLS 071.

**POLS 291. 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.

**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 001. Elementary Portuguese I. 4 Credits.**

Fundamentals of Portuguese composition, comprehension, pronunciation, speaking, reading, and writing in a cultural context. Classes are conducted in Portuguese and students engage in active use of the language. No prior knowledge expected.

**PORT 002. Elementary Portuguese II. 4 Credits.**

Continuation of PORT 001. Fundamentals of Portuguese composition, comprehension, pronunciation, speaking, reading, and writing in a cultural context. Classes are conducted in Portuguese and students engage in active use of the language. Prerequisite: PORT 001.

**PORT 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: PORT 002.

**PORT 052. Intermediate II. 3 Credits.**

Continuation of PORT 051. Grammar review, moving toward increased proficiency in composition, comprehension, pronunciation, speaking, reading, and writing. Emphasis on cultural context. More extensive and sophisticated compositions than in Portuguese 051. Prerequisite: PORT 052.

**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 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 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.

**PROFESSIONAL NURSING (PRNU)****Courses****PRNU 060. Trans to Contmp 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.**

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.

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

See Schedule of Courses for specific titles.

**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. 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 128. Pharmacology. 0-4 Credits.**

Examination and application of knowledge of pharmacotherapeutic principles to nursing practice. Prerequisites: PRNU 114, CHEM 026, ANPS 020. Pre/co-requisite: NURS 120.

**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 132. Child & Adoles Nurs:Thry & Ptm. 0 or 5 Credits.**

Through classroom and practicum, students learn essential nursing interventions for children/adolescents/ families experiencing health alterations. Prerequisites: PRNU 128, PRNU 129, NURS 120. Pre/co-requisite: PRNU 131.

**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.**

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.

**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. 1-18 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 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 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 241. Public Hlth Nurs: Thy & Prctm. 0-6 Credits.**

Through classroom and practicum experiences students will learn nursing interventions to promote population health and community partnership. Students provide care to a defined community and work in collaboration with professionals in a variety of settings. Prerequisites: PRNU 132, PRNU 231, PRNU 234, PRNU 235. Co-requisite: PRNU 240.

**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 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.**

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.

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

See Schedule of Courses for specific titles.

**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 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. Will include an in-class component. 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 or BIOL 001.



**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 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 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. 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.

**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 only.

**PSYS 211. Learning. 3 Credits.**

Analysis of theory and research on the basic learning process and behavior. Prerequisites: PSYS 053 and 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 054 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 and PSYS 111.

**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 and PSYS 111; 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; and PSYS 115 or NSCI 110.

**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; and PSYS 115 or NSCI 110.

**PSYS 217. Animal Behavior. 3 Credits.**

Behavior of animals under controlled experimental conditions and in their natural environments. Consideration of evolution, development, function, and control of behavior. Prerequisites: PSYS 053; and PSYS 111 or PSYS 115 or NSCI 110.

**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 and PSYS 115.

**PSYS 219. Sel Topics Behavioral Neurosci. 3 Credits.**

Selected topics examining the role of the central nervous system in determining behavior, including innate behaviors, arousal, motivation, learning, and memory. Prerequisites: PSYS 053; and PSYS 115 or NSCI 110.

**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 and 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 and 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 253. Cognitive Development. 3 Credits.**

Examination of research and theory concerning developmental changes in the human processing of information from infancy to adulthood centered around the work of Piaget. 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 and 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. Prerequisite: PSYS 111 or PSYS 115 or PSYS 130 or PSYS 150 or PSYS 170. Cross-listed with: GSWS 260.

**PSYS 256. Infant Development. 3 Credits.**

Biological, cognitive, and social aspects of infant development in context; opportunities to evaluate and design research and apply knowledge to parenting, prevention, and social policy. Prerequisites: 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 and PSYS 150.

**PSYS 258. Psyc of Adult Develmt & Aging. 3 Credits.**

Psychological development in the final third of the life span emphasizing theory and research concerning social, cognitive, perceptual, and mental health transitions and support interventions. Prerequisites: PSYS 001; and HDFS 020 or HDFS 195 or HDFS 295.

**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 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 and 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 and 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 and PSYS 170. Cross-listed with: CRES 276.

**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 and PSYS 170.

**PSYS 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. 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. 0-18 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 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 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.**

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.

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

See schedule of courses for specific titles.

**PH 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.

**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.**

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.

**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.**

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.

**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.**

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.

**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 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. 14 Credits.**

Students are assigned to approved clinical education sites to observe and increase their participation in the clinical environment. Evaluations based on defined clinical objectives and competencies to be completed by the clinical and University faculty. RADT majors only. Prerequisite: Successful completion of all previous required major courses and concurrent enrollment in RADT 280. Spring.

**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 280. Quality Assurance & Treatment Plan. 3 Credits.**

The integration of clinical oncology, radiobiology, dosimetry, and treatment planning, and how they affect patient outcomes. Co-requisite: RADT 274.

**RADT 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.

**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.**

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.

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

See Schedule of Courses for specific titles.

**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 Ath Trn & 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.**

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.

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

See Schedule of Courses for specific titles.

**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 213. Biomechanics of Human Movement. 3 Credits.**

Students learn to apply kinesiology and biomechanical principles and concepts to the analysis of human movement, posture, joint structure and function, and gait. Pre/co-requisites: ANPS 019/ANPS 020, and Undergraduate Physics.

**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 244. Patient Mgmt Therapeutic Modal. 0 or 3 Credits.**

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

**RMS 250. Exercise Physiology. 0-4 Credits.**

An exploration of the acute and long-term responses to exercise on the metabolic, skeletal, cardiovascular, and respiratory systems. Prerequisites: ANPS 019/ANPS 020; EMS, AT majors only or Instructor permission.

**RMS 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.

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

See Schedule of Courses for specific titles.

**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 027. Integrated Humanities. 3 Credits.**

Study of religious and philosophical thought in Western culture from Hebraic and Greek antiquity to present. Co-requisites: Concurrent enrollment in the Integrated Humanities Program, ENGS 027, HST 013.

**REL 028. Integrated Humanities. 3 Credits.**

Study of religious and philosophical thought in Western culture from Hebraic and Greek antiquity to present. Co-requisite: Concurrent enrollment in the Integrated Humanities Program, ENGS 028, HST 014.

**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 080. Religion & Race in America. 3 Credits.**

Historical survey of forms of African-American religion in the U.S. in their relation to slavery, segregation, and civil rights; current issues in education and cultural diversity.

**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 086. Phil Questions & Rel Responses. 3 Credits.**

An exploration of philosophic questions dealing with religious responses drawing on thinkers from classical, modern, and contemporary texts.

**REL 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.

**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 103. Sacred Sounds. 3 Credits.**

This course examines the sonic aspects of religious life, paying particular attention to musical phenomena. Prerequisite: Three hours of 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 107. Rel Perspectives on Death. 3 Credits.**

Comparative study of the history of Christian and Buddhist beliefs and practices concerned with the afterlife, specifically the postmortem realms of heaven, hell, and purgatory. Prerequisite: Three hours of Religion.

**REL 108. Myth, Symbol & Ritual. 3 Credits.**

Study of patterns and significance of myth and ritual as they appear in cross-cultural perspective, with reference to contemporary interpretations of symbol and language. Prerequisite: Three hours in Religion.

**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 111. Western Religious Thought. 3 Credits.**

Study of ways in which Western religious thinkers-in both Greek and Biblical traditions-have expressed and responded to philosophical-theological questions about human existence, world, and God. Prerequisite: Three hours in Religion.

**REL 114. Hebrew Scriptures. 3 Credits.**

Study of the history and writings of the Hebraic-Judaic religion to the first century B.C. Prerequisite: Three hours in Religion.

**REL 116. Judaism. 3 Credits.**

Investigation of sustaining rituals, customs, institutions, and beliefs of normative Judaism. Prerequisite: Three hours in Religion.

**REL 123. D1:Rel,Race & Ethnicity in US. 3 Credits.**

Examines how religion and race intersect in the United States from the nineteenth century until the present. Explores how religion and race inform territorial claims, racial violence and identity, and representations of otherness. Prerequisite: Three hours in Religion.

**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 127. D1:Caribbean Religion & Beyond. 3 Credits.**

Investigates the ways in which Christianity, Vodou, and Rastafarianism have been represented in terms of U.S. racial/racist assumptions, cultural imaginaries, and imperial political projects. Prerequisite: 3 hours in Religion.

**REL 128. 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 130. D2: Islam. 3 Credits.**

Overview examining doctrines and practices of Muslims and their religious institutions from the rise of Islam to the present. Prerequisite: Three hours in Religion.

**REL 131. D2:Studies in Hindu Traditions. 3 Credits.**

Selected writings, rituals, and developments in Hindu traditions with reference to cultural assumptions of India. 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 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 163. D2:Women & Religion in Africa. 3 Credits.**

This course examines the relationships between women and religious institutions, practices, and communities in a variety of settings in sub-Saharan Africa. Prerequisite: Three hours in Religion. Cross-listed with:GSWS 113.

**REL 167. D2:Christianity in Africa. 3 Credits.**

Examination of Christianity in Africa from both historical and cultural perspectives. Prerequisite: Three hours in Religion.

**REL 173. Studies in Gender & Religion. 3 Credits.**

Selected topics focusing on the social and religious construction of gender and the shape of women's religious lives. Religious traditions studied vary by semester. Prerequisite: Three hours in Religion. May be repeated up to six hours. Cross-listed with: GSWS 112.



**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, HST 190, or Permission of Instructor.

**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.**

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.

**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.

**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 214. Studies in Judaica. 3 Credits.**

Selected topics of concentration emerging out of and related to the study of normative Judaism, e.g. the prophetic faith, Rabbinic Judaism, Hasidism, and Jewish mysticism. Prerequisites: Nine hours in Religion, with three hours at the intermediate level; REL 116 recommended. May be repeated up to six hours.

**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, REL 125, or REL 173 recommended). May be repeated up to six hours.

**REL 228. Studies in Western Rel Thought. 3 Credits.**

Important figures, issues, movements, or texts examined. Prerequisites: Nine hours in Religion, with three hours at the intermediate level. May be repeated up to six hours.

**REL 230. Studies in Islam. 3 Credits.**

Topics varying by semester such as Women and Islam, Sufi (mystical) traditions, Shi'ite Islam, Islam and the West, and South Asian Muslim Cultures. Prerequisites: Nine hours in Religion, with three hours at the intermediate level; REL 130 recommended.

**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 240. Studies in Asian Religions. 3 Credits.**

Concentrated studies in the history, life, or thought of a selected Asian religious tradition. Prerequisite: Three hours in Religion at intermediate level in the same religious traditions.

**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.**

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.

**REL 291. Tpcs in Hist & Phenom of Rel. 1-6 Credits.**

Prerequisite: Nine hours in Religion, with six hours at the intermediate level; Junior standing. May be repeated up to six hours.

**REL 292. Tpcs in Hist & Phenom of Rel. 1-6 Credits.**

Prerequisite: Nine hours in Religion, with six hours at the intermediate level; Junior standing. May be repeated up to six hours.

**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.

**REL 298. 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 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.**

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.

**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 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 141. Reading Comprehension. 3 Credits.**

Development of contextual strategies for reading authentic texts on a number of content areas, primarily expository texts from Russian newspapers, magazines, historical and scientific documents. Prerequisite: RUSS 052.

**RUSS 142. Listening Comprehension. 3 Credits.**

Intensive directed aural work with authentic Russian-language media (especially television, radio, and films), supplemented by work on vocabulary development and listening strategies. Prerequisite: RUSS 052.

**RUSS 161. Russian Lexicology. 3 Credits.**

Study of Russian word roots and derivational morphology to increase vocabulary recognition and retention, building on correspondences with English/Latinic equivalent roots where possible. Prerequisite: RUSS 052.

**RUSS 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.

**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 251. Russian News Media. 3 Credits.**

Analysis of journalistic style and content in news coverage of contemporary events as reported in Russian newspapers and radio and television broadcasts. Prerequisite: RUSS 052, RUSS 141, or RUSS 142 recommended.

**RUSS 281. Sem on Sel Lit Genre or Period. 3 Credits.**

Study of a literary genre or period through close readings of representative texts supplemented by lectures and reports on sociocultural context. May be repeated. Prerequisite: One 100-level Russian course.

**RUSS 282. Seminar on Selected Author(s). 3 Credits.**

Study of author(s) through close readings of representative texts supplemented by lectures and reports on the works' sociocultural context. May be repeated. Prerequisite: One 100-level Russian course.

**RUSS 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.

**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 050. Exploring Education. 3 Credits.**

Introduction to philosophical, psychological, sociological questions basic to teaching and learning. Exploration of beliefs and understandings about personal learning and the field of education.

**EDSC 055. Special Topics. 1-6 Credits.****EDSC 197. Readings & Research. 1-4 Credits.****EDSC 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.

**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 Tch. 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 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. Tchng Math in Secondary Schools. 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. Tchng 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 295. Lab Experience. 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.

**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. Includes a service-learning component.

**SWSS 003. Human Needs & Social Services. 3 Credits.**

Students provide volunteer service in a human service agency, relate observations to theory about clients, agency structure, programs, and operations, and assess their commitment to the profession of social work. Prerequisite: SWSS 002 or Instructor permission.

**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 007. Quantitative Meth SW Research. 3 Credits.**

Introduction to statistics and social work research methods. This course introduces students to quantitative methodology in research and practice.

**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 047. 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 003.

**SWSS 048. 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 003; SWSS 047.

**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 099. 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.

**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 003.

**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 003, and 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 160. Soc Wrk Pr:Chld,Fam&Youth Svc. 3 Credits.**

Explores perspectives relevant to child protection and family support. Emphasizes skills in writing reports, giving oral testimony, making referrals, interdisciplinary collaboration, ethical decision making, cultural competence. Pre/co-requisite: Junior status in Social Work; SWSS 002, SWSS 003, SWSS 047, SWSS 048; or permission of Instructor.

**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. Pre/co-requisites: SWSS 047, SWSS 048, SWSS 164, SWSS 165, and 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 003, SWSS 047, SWSS 048, or Instructor permission.

**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 003, SWSS 047, SWSS 048, or Instructor permission.

**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 or Instructor permission.

**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: Social Work major, Senior standing or Instructor permission.

**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: Social Work major; SWSS 168; Senior standing; or Instructor permission.

**SWSS 171. Field Experience Seminar I. 3 Credits.**

Weekly integrative seminar; discussion of practice within field agency. Prerequisite: Concurrent enrollment in SWSS 173.

**SWSS 172. Field Experience Seminar II. 3 Credits.**

Weekly integrative seminar; discussion of practice within field agency. Prerequisite: Concurrent enrollment in 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. Pre/co-requisite: Social Work major; Senior standing; Instructor permission; taken concurrently with SWSS 168 and 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. Pre/co-requisite: Social Work major; Senior standing; Instructor permission; SWSS 168 and SWSS 171; taken concurrently with SWSS 169 and 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.**

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. 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 225. Transf Ourselves&Comm:SW Persp. 3 Credits.**

An MSW foundation elective that examines systems of oppression and social work strategies to decrease biased practices and create more equitable communities and institutions. Prerequisite: Matriculation in the foundation year of graduate study in Social Work; or Instructor permission.

**SWSS 226. Assessment Theory Social Work. 3 Credits.**

An MSW foundation elective analyzing competing and complementary assessment theories and their implications in social work in health/mental health and with children and families. Prerequisite: MSW standing or Instructor permission.

**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 228. Aging:A Strength&Hum Right Per. 3 Credits.**

An examination of aging for social work policy and practice from the perspectives of strengths, social justice, human rights and critical social constructionism.

**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 280. Perspectives on Social Work. 4 Credits.**

Taking a social constructionist stance, students explore guiding concepts of the MSW curriculum and their application to social work practice, policy, human behavior and research. Pre/co-requisite: MSW standing.

**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 296. Social Work in Global Context. 3 Credits.**

Study of social work issues in different parts of the world. Located at the University of Lapland in Finland. Prerequisite: Background in human services or social work major; or MSW standing; permission of the Instructor.

**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.**

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.

**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.

**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 U.S., causes and consequences. Focus on wealth, prestige, and power. Inequalities of age, gender, and ethnicity also examined.

**SOC 043. Survey of Mass Communication. 3 Credits.**

The historical development of the socioeconomic, political, educational, and religious impacts of the press, film, radio, and television in American society.

**SOC 049. Science Fiction & Society. 3 Credits.**

Explores works in science fiction and sociology as an introduction to core sociological questions and critical thinking.

**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.

**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.**

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.

**SOC 090. Intro to Soc Theory/Methods. 3 Credits.**

This course, required for Sociology minors, introduces students to important theoretical perspectives and research methods in sociology that social scientists use to answer sociological questions.

**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 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 higher, and three hours of Sociology or six hours in a related social science; 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: Six hours of Sociology; 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 103. Environ Crises Modern Society. 3 Credits.**

Examines global, national, and local ecological crises both empirically and theoretically. Emphasis on economic processes, political/legal aspects, and social activism. Prerequisite: Three hours of Sociology.

**SOC 105. The Community. 3 Credits.**

Comparative examination of patterns of social interaction in social groups with common territorial bases in contemporary societies and the analysis of community structure and dynamics. Prerequisite: Three hours of Sociology.

**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 or PSYS 001.

**SOC 114. Sociology of Punishment. 3 Credits.**

This course explores the concept of punishment from sociological perspective. Focus is on analysis of formal and informal punishment, and the ironies of punishment/social control. Prerequisite: Three hours of Sociology.

**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 117. D1:Multiracial People&Identity. 3 Credits.**

The purpose of this course is to examine race relations in the United States through the lens of romantic interracial relationships and mixed-race people. Prerequisite: Three hours of Sociology.

**SOC 118. Race, Crime & Criminal Just. 3 Credits.**

A comprehensive examination of race, gender, and class on racial minorities' participation in criminal activities and how individuals are treated by the criminal justice system. Prerequisite: Three hours of Sociology.

**SOC 119. D1: Race & Ethnicity. 3 Credits.**

Description and analysis of ethnic, racial, and religious groups in the U.S. Examination of social/cultural patterns in the larger society and in these groups themselves. Prerequisite: Three hours of Sociology. Cross-listed with: ANTH 187.

**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 professional experience working with the elderly.

**SOC 121. 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 122. D2:Women & Gender in Society. 3 Credits.**

Examination of the construction of gender in women's lives with an emphasis on the relationship between gender, race, sexuality and class in contemporary society. Prerequisite: Three hours of Sociology or GSWS 001. Cross-listed with: GSWS 150.

**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 130. Sociology of Heterosexuality. 3 Credits.**

Examination of heterosexuality as cultural production with attention to how heterosexuality works along side other forms of social power especially gender, race, and class. Prerequisite: Three hours of Sociology or GSWS 001.

**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 145. Youth and Popular Culture. 3 Credits.**

Examination of the historical and contemporary development of children's popular culture, its sociocultural significance, and children's perspectives on various cultural forms. Prerequisites: Three hours of Sociology.

**SOC 148. Sociology of News. 3 Credits.**

Explores sociological processes that shape the news, controversies about the news, and ways to interpret the news critically. Prerequisite: Three hours of Sociology.

**SOC 150. Popular Culture. 3 Credits.**

Analysis of social significance of a selected range of contemporary non-elite cultural forms in the U.S., such as rock music, television programming, and popular literature. Prerequisite: Three hours of Sociology.

**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 or six hours of Religion.

**SOC 154. Social Org of Death & Dying. 3 Credits.**

Comparative examination of sociocultural adaptations to mortality with special attention to family, medical, legal, religious, and economic responses to fatal illness and death in contemporary society. Prerequisite: Three hours of Sociology.

**SOC 156. Sociology of Freakishness. 3 Credits.**

This course considers how American popular culture was born of the display of racial, cultural, sexual and bodily freaks. 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 161. Sociology of Leisure. 3 Credits.**

Analysis of the sociocultural organization of nonwork activity, emphasizing the relationships of class, life style, education, and work to contemporary recreation and leisure use patterns. Prerequisite: Three hours of Sociology.

**SOC 171. D2:Soc Chng&Dev Persp 3rd Wrld. 3 Credits.**

Perspectives on development in the Third World. Prerequisite: Three hours of Sociology.

**SOC 185. 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.

**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.

**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 202. Population Dynamics. 3 Credits.**

Analysis of the factors affecting human population growth and distribution, migration patterns, and the relationship between economic activity and population trends. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101.

**SOC 203. Adv Environmental Sociology. 3 Credits.**

Examination of theoretical interpretations of environmental problems, sources, and solutions, focusing on the social conditions under which problems arise. Emphasis on writing and individual research projects. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 205. Rural Communities in Mod Soc. 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. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing. Cross-listed with: CDAE 205.

**SOC 206. Urban Communities in Mod Soc. 3 Credits.**

The changing structure and dynamics of urban social organization in context of modernization and urbanization. Emphasis on cities and metropolitan areas in the U.S. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 207. Community Org & Development. 3 Credits.**

Communities as changing sociocultural organizational complexes within modern society. Special attention given to problems of formulation and implementation of alternative change strategies. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 209. Small Groups. 3 Credits.**

Examination of the structure and dynamics of small groups and the interpersonal, informal network of relations that characterize the interaction of members. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 211. Soc Movements&Collective Behav. 3 Credits.**

Examination of origins, development, structure, and consequences of crowds, riots, crazes, rumors, panics, and political and religious movements and their relationships to cultural and social change. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; 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 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 213. Women in Dev in 3rd World. 3 Credits.**

An examination of the meaning and measurement of development, sociodemographic characteristics, sex stratification, and effects of Colonialism and Westernization on women's issues in the third world. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 214. Delinquency. 3 Credits.**

Analysis of the nature and type of juvenile behavior that violates law, the mechanisms for defining such behaviors as delinquent, and their causes and consequences. Prerequisites: SOC 001, and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 216. Criminal Justice. 3 Credits.**

Analysis of the social structures and processes in the arenas of criminal justice, the labeling of criminal offenders, and other issues related to crime, punishment, and justice. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 217. Corrections. 3 Credits.**

Analysis of the social structures and processes involved with individuals designated as offenders of criminal law: probation, prison, parole, and programs of prevention and rehabilitation. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**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 and one of: SOC 090, SOC 100, SOC 101; 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 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 220. Internship in Gerontology. 3 Credits.**

Supervised service or research internship integrating theoretical and practical gerontological issues. Prerequisite: Instructor permission.

**SOC 221. Disaster & Vulnerability. 3 Credits.**

This seminar explores disaster events in depth, paying particular attention to how differential vulnerability affects impacts and recovery. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 222. Aging & Ethical Issues. 3 Credits.**

Analysis of selected ethical issues posed by an aging society and faced by older persons, their families, health care and service providers, and researchers. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**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 and one of: SOC 090, SOC 100, SOC 101; Junior standing. Cross-listed with: GSWS 250.

**SOC 224. Health Care and Aging. 3 Credits.**

Health and health care issues in aging and old age with emphases on chronic illness and health care institutions, occupations, financing, and long-term care. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 225. Organizations in Mod Society. 3 Credits.**

Examination of basic classical and contemporary theory and research on the human relations, internal structures, environments, types, and general properties of complex organizations and bureaucracies. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**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 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**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 and one of: SOC 090, SOC 100, SOC 101; 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 and one of: SOC 090, SOC 100, SOC 101; 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 and one of: SOC 090, SOC 100, SOC 101; 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 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 251. Sociology of Ideology & Religion. 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. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 252. Sociology of Emotions. 3 Credits.**

Studies the theoretical premises of a sociocultural explanation of emotions; examines specific emotions such as respect, shame, hatred, love and compassion in humans; and explores the existence of emotions in non-human animals. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 253. Sociology of Animals & Society. 3 Credits.**

This course provides a sociological perspective on the human/animal relationship in late modernity. Cross/cultural, philosophical, and animal rights/welfare issues will also be studied. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 254. Sociology of Health & Medicine. 3 Credits.**

The social organization and institutional relationships of medicine in society and the role of sociocultural factors in the etiology, definition, identification, and treatment of illness. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 255. Soc of Mental Health. 3 Credits.**

Analysis of the social structures and processes involved in the identification, definition, and treatment of mental illness and its sociocultural etiology and consequences. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 256. Sociology of End of Life Care. 3 Credits.**

Explores in depth the evolution of care for dying individuals from the perspectives of the traditional medical model, hospice movement and emergent palliative care paradigm. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 258. Sociology of Law. 3 Credits.**

Analysis of the sociocultural structure of the legal institution and its relationships to other institutions: the social organization of the legal profession, lawmaking, and the courts. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 260. Sociology of Education. 3 Credits.**

This course 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 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 262. Race, Gender, and Work. 3 Credits.**

Focus on the intersections between race and ethnic relations, the politics of gender, and employment opportunity in the 21st-century workplace. Prerequisites: SOC 001; SOC 090 or SOC 100 or SOC 101.

**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 and one of: SOC 090, SOC 100, SOC 101; 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 and one of: SOC 090, SOC 100, SOC 101; 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 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 279. Contemporary Sociological Thry. 3 Credits.**

Critical examination of contemporary functional, conflict, exchange, interactionist, and structural theoretical approaches. A number of other theoretical approaches selected by seminar participants also examined. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 281. Seminar. 3 Credits.**

Presentation and discussion of advanced problems in sociological analysis. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 282. Seminar. 3 Credits.**

Presentation and discussion of advanced problems in sociological analysis. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 285. 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. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 286. 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. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**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 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**SOC 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. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

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

See Schedule of Courses for specific titles. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

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

See Schedule of Courses for specific titles. Prerequisites: SOC 001 and one of: SOC 090, SOC 100, SOC 101; 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 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**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 and one of: SOC 090, SOC 100, SOC 101; Junior standing.

**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 009. Basic Spanish Grammar Review. 3 Credits.**

Thorough review of Spanish grammar in preparation for intermediate level. Considerable emphasis on written exercises.

**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 011. Elem Span Conversation Oaxaca. 3 Credits.**

Elementary language study for students on the UVM Oaxaca program. Includes grammar study and attention to developing oral proficiency skills. Prerequisite: SPAN 001.

**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. More extensive and sophisticated readings and compositions than in Spanish 051. Prerequisite: SPAN 051 or equivalent.

**SPAN 089. 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.

**SPAN 090. Intrm Span Conversation Oaxaca. 3 Credits.**

Intermediate language study for students on the UVM Oaxaca program. Includes grammar study and attention to developing oral proficiency skills. Prerequisite: SPAN 002.

**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 101. Composition & Conversation. 3 Credits.**

Writing practice, sentence structure, correct expression, and guided discussions in Spanish of assigned topics. A good command of basic grammar expected. Prerequisite: SPAN 052 or Instructor permission.

**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 Instructor permission.

**SPAN 109. Spanish Grammar. 3 Credits.**

An intensive study of Spanish grammar. Topical approach. Prerequisite: SPAN 052 or Instructor permission.

**SPAN 110. Adv Span Conversation Oaxaca. 3 Credits.**

Advanced language study for students on the UVM Oaxaca program. Includes grammar study and attention to developing oral proficiency skills. Prerequisite: SPAN 052.

**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. Intro Lit & Culture Spain I. 3 Credits.**

An introductory survey of major developments in Spanish peninsular literature and culture. Readings and discussions focus on textual analysis and historical and cultural contexts. Prerequisite: SPAN 140.

**SPAN 144. Intro Lit & Culture Spain II. 3 Credits.**

An introductory survey of major developments in Spanish peninsular literature and culture. Readings and discussions focus on textual analysis and historical and cultural contexts. Prerequisite: SPAN 140.

**SPAN 145. Intro Lit & Culture Lat Am I. 3 Credits.**

An introductory survey of major developments in Latin American literature and culture. Readings and discussions focus on textual analysis and historical and cultural contexts. Prerequisite: SPAN 140.

**SPAN 146. Intro Lit & Culture Lat Am II. 3 Credits.**

An introductory survey of major developments in Latin American literature and culture. Readings and discussions focus on textual analysis and historical and cultural contexts. 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.**

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.

**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 211. History of Spanish Language. 3 Credits.**

The evolution of the Spanish language from its origins to the present. Prerequisite: SPAN 140.

**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 dialectical features that differentiate Latin American and peninsular Spanish and factors that have contributed to this process. Prerequisite: Six credits at 100 level.

**SPAN 236. Poetic Voices/Cultural Change. 3 Credits.**

A topical approach to exploration of self and society in Spain's poetic voices before 1700. Verses range from humorous to amorous, from satirical to political. Prerequisite: SPAN 140.

**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 246. Reading Cervantes. 3 Credits.**

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

**SPAN 250. Dilemmas of Mdrnty in Span Lit. 3 Credits.**

How Spanish writers since the Enlightenment have responded to the changes accompanying the arrival of "modernity". Topics may include questions of identity, democracy, traditional beliefs. Prerequisite: SPAN 140.

**SPAN 252. Span Lit:Dictatorshp-Democracy. 3 Credits.**

Literature in Spain from the Franco dictatorship to the present. Topics include censorship and dissidence, writing-in-exile, and contemporary trends. Prerequisite: SPAN 140. Undergraduate only.

**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 260. Gender in Hispanic Literatures. 3 Credits.**

A topical exploration of how Hispanic women writers and literary representations of gender-related issues reflect, expand and question literary and cultural norms. Prerequisite: SPAN 140.

**SPAN 261. Hispanic Writing from Margins. 3 Credits.**

Exploration of writers and communities at the margins of mainstream Latin-America and/or Spanish culture. Topics may include indigenous, Afro-Hispanic, regionalist authors; testimonial literatures; censorship. Prerequisite: SPAN 140.

**SPAN 264. 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 268. Hispanic Folklore. 3 Credits.**

Explores the folklore of Spain and Latin America with emphasis on literary and artistic traditions. Prerequisite: SPAN 140.



**SPAN 269. 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 274. Latin American Poetry. 3 Credits.**

A topical exploration of Latin-American poetry. Possibilities include the innovations of modernismo, recent hypertextual trends and more. 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 281. Contemp Latin Amer Fiction. 3 Credits.**

A study of representative works by major authors tracing the development of narrative forms from their roots in the last century to the present. Prerequisite: SPAN 140.

**SPAN 286. Writing Revolution-Latin Amer. 3 Credits.**

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

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.

**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 292. Modern Cultures of Spain. 3 Credits.**

A study of the cultures of Spain from the Enlightenment to the present, emphasizing the major intellectual, political, and artistic developments. Prerequisite: SPAN 140.

**SPAN 293. Early Latin American Cultures. 3 Credits.**

A study of colonial Latin American cultures from pre-Hispanic times through Independence. Emphasis on major intellectual, artistic, and cultural developments. Prerequisite: SPAN 140.

**SPAN 294. Modern Latin American 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.

**SPAN 299. Topics in Hispanic Cultures. 3 Credits.**

Focus on a particular cultural topic in the Hispanic world. Study might emphasize regional studies, current conflicts on ecology, ethnicity, and gender. 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 197. Independent Study. 1-3 Credits.****EDSP 200. Contemporary Issues. 1-3 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.

**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 207. Cooperative Learning. 3 Credits.**

Theoretical and experiential instruction in procedures to increase social acceptance and academic achievement of exceptional learners in mainstream settings through cooperative learning. Prerequisites: Instructor permission.

**EDSP 216. Curr&Instrct in Special Ed. 3 Credits.**

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

**EDSP 217. Behavior Analysis in SpecialEd. 3 Credits.**

Individualized instruction for learners with significant disabilities emphasizing learning principles, behavior analysis, and research based instruction and interventions. Prerequisite: Instructor Permission.

**EDSP 221. Family Centered Services. 3 Credits.**

An in-depth study of families of children with special needs; family ecology; interaction and life cycle. Development and implementation of family/professional collaboration strategies. Practicum required. Prerequisite: Instructor permission.

**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 228. Adv Methods & Instr Special Ed. 3 Credits.**

Students apply advanced principles of behavior analysis in the development and implementation of instructional programs for learners with moderate and severe disabilities. Prerequisite: Instructor permission and introductory behavior analysis course.

**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 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 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, mental retardation, behavior disorders, and/or multidisabilities. Prerequisite: 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 & Decision. 3 Credits.**

Inductive, deductive, causal, and analogical reasoning as applied to the speaking situation.

**SPCH 051. Persuasion. 3 Credits.**

Human motivation, attitudes, emotion, stereotypes, attention and audience psychology as applied in the speaking situation.

**SPCH 071. Fundamentals of Debate. 3 Credits.**

An introduction to intercollegiate debate, students learn basics of argumentation & national debate tournament/cross examination debate. Students travel to tournaments. Prerequisite: SPCH 011.

**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 082. African American Rhetoric. 3 Credits.**

Through "Great Speakers" approach, this course utilizes rhetoric criticism to examine, attempt to understand & analyze the advocacy & discourse of African Americans throughout history.

**SPCH 083. Rhetoric of Reggae Music. 3 Credits.**

Course examines origins, characteristics, social phenomena, and messages found in African-Caribbean musical form: Reggae. Reggae music is examined as rhetorical and social movement.

**SPCH 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.

**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 171. Advanced Debate. 3 Credits.**

For students interested in competitive academic debate in the WUDC format. Course offers opportunities to advance debating skills by competing against other college debaters. Prerequisites: SPCH 071 or SPCH 072.

**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 184. Rhetoric of Ivan Illich. 3 Credits.**

Course focuses on the non-fiction works of Ivan Illich (1926-2002), who was an influential social critic and questioned the assumptions of our daily lives. Prerequisites: SPCH 011, SPCH 031, or SPCH 051.

**SPCH 185. Rhetoric of Terrorism. 3 Credits.**

Examines terrorism through the lens of rhetorical criticism. Students survey approaches to rhetorical criticism, using acquired skills to investigate the rhetoric of terrorism. Prerequisites: SPCH 011, SPCH 031, or SPCH 051.

**SPCH 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.

**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.**

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.

**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. 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 H.S. algebra. No credit for Sophomores, Juniors, or Seniors in the mathematical and engineering sciences.

**STAT 087. Introduction 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.

**STAT 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.

**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. 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; Sophomore standing.

**STAT 141. Basic Statistical Methods. 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. Prerequisites: Minimum Sophomore standing.

**STAT 143. 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. Prerequisites: MATH 020 or MATH 022; Sophomore standing.

**STAT 151. 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.

**STAT 153. Prob & Stat for Cmpt Sci. 3 Credits.**

Foundations of probability, conditioning, independence, expectation and variance. Discrete and continuous probability distributions. Computer simulation examples. Introductory descriptive and inferential statistics. Simple regression analysis. Pre/co-requisite: MATH 020 or MATH 022.

**STAT 183. Statistics for Business. 3 Credits.**

Advanced quantitative methodologies for contemporary business scenarios. Analysis of variance, multiple regression, time series analysis, non-parametric methods, Bayesian statistics and decision analysis. Prerequisite: STAT 141 or EC 170.

**STAT 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.

**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. Med Biostatistics&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. Cross-listed with: BIOS 200.

**STAT 201. Stat Computing & Data Analysis. 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. Prerequisite: STAT 111 with Instructor permission, or STAT 141 or STAT 211.

**STAT 211. 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: Junior standing. Cross-listed with: BIOS 211.

**STAT 221. Statistical Methods II. 3 Credits.**

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

**STAT 223. Applied 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: Any 200-level Statistics course, STAT 221 or STAT 225 recommended, matrix algebra recommended. Cross-listed with: BIOS 223.

**STAT 224. Stats for Quality&Productivity. 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 225. Applied Regression Analysis. 3 Credits.**

Simple linear and multiple regression models; least squares estimates, correlation, prediction, forecasting. Problems of multicollinearity and influential data (outliers).

**STAT 229. Survival/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 or above. Cross-listed with: BIOS 229.

**STAT 231. 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 211; STAT 221 recommended.

**STAT 233. Survey Sampling. 3 Credits.**

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

**STAT 235. 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. Cross-listed with: BIOS 235.

**STAT 237. Nonparametric Statistical Mthd. 3 Credits.**

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

**STAT 241. Statistical Inference. 3 Credits.**

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

**STAT 251. 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. Cross-listed with: MATH 207, BIOS 251.

**STAT 252. Appl Discr Stochas Proc Models. 1 Credit.**

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

**STAT 253. Appl Time Series & Forecasting. 3 Credits.**

Autoregressive moving average (Box-Jenkins) models, autocorrelation, partial correlation, differencing for nonstationarity, computer modeling. Forecasting, seasonal or cyclic variation, transfer function and intervention analysis, spectral analysis. Prerequisite: STAT 211 or STAT 225; or STAT 141 or STAT 143 with Instructor permission. Cross-listed with: CSYS 253.

**STAT 256. Neural Computation. 3 Credits.**

Introduction to artificial neural networks, their computational capabilities and limitations, and the algorithms used to train them. Statistical capacity, convergence theorems, backpropagation, reinforcement learning, generalization. Prerequisites: MATH 122 or MATH 124 or MATH 271; STAT 143 or STAT 153 or equivalent; CS 110. Cross-listed with: CS 256, CSYS 256.

**STAT 261. 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; or STAT 151 or STAT 153 with Instructor permission. Cross-listed with: BIOS 261.

**STAT 265. Integrated Product Development. 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. Cross-listed with: BSAD 293.

**STAT 281. Statistics Practicum. 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. Prerequisite: STAT 200 or STAT 201 or STAT 221 through STAT 237 or STAT 253; some statistical software experience; Instructor permission.

**STAT 287. 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. Prerequisites: CS 020 or CS 021; STAT 141 or STAT 143 or STAT 211; CS 110 and MATH 124 recommended.

**STAT 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.

**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.

**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.

**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. 1-6 Credits.**

See Schedule of Courses for specific titles.

**EDTE 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.

**EDTE 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.

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

See Schedule of Courses for specific titles.

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

See Schedule of Courses for specific titles.

**EDTE 201. Developing Curriculum for ELLs. 3 Credits.**

Prepares students who intend to teach in a PreK-12 classroom environment or similar setting by exploring language acquisition theories, instructional methods, and lesson planning for English language learners.

**THEATRE (THE)****Courses****THE 001. Introduction to Theatre. 3 Credits.**

Overview of general theatre practices and theories, emphasizing history, script analysis, character development, and communicative skills directed toward a modern audience.

**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 020. Fundamentals of Lighting. 4 Credits.**

Primary course in the area of stage lighting design and execution. Includes Lab.

**THE 030. Fundamentals of Scenery. 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 041. History of Costume. 3 Credits.**

Overview of period costume and its adaptation for the stage. Cross-listed with: GSWS 035. Alternating Falls with THE 042.

**THE 042. Fund Theatrical Make-up. 3 Credits.**

Focus on the development of drawing, painting, and sculpture skills as they relate to the creation of a dramatic character for the stage. Alternating Falls w/ THE 041.

**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.**

Course focuses on plays and playwrights in contemporary theatre exploring themes pertaining to race, sexuality, gender and the physically challenged. Prerequisite: Sophomore standing.

**THE 076. D1:Contemp US Latina/o Theatre. 3 Credits.**

Analysis of contemporary Latina/Latino-American plays and playwrights. Prerequisite: Sophomore standing.

**THE 091. 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.

**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:Contmp 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. Alternating Falls 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 141. Adv Costume:Draping&Flat Pattn. 3 Credits.**

Explores the methods of creating period shapes. Students develop a sloper, fit it to a human body, create a researched and completed period costume. Prerequisite: THE 040. Alternating Springs w/ THE 142, THE 143, & THE 144.

**THE 142. Adv Cost Const:Per Undrgarmts. 3 Credits.**

Focuses on techniques for creating artificial understructures that support period silhouettes. Corsets, hoop skirts, petticoats, etc., are researched, fit on the human body, and constructed. Prerequisite: THE 040. Alternating Springs w/ THE 141, THE 143, THE 144.

**THE 143. Adv Costume Constr:Millinery. 3 Credits.**

Explores methods of hat construction, including work in various media. Methods of shaping, covering, and trimming are researched, leading to the completion of hats. Prerequisite: THE 040. Alternating Springs with THE 141, THE 142, THE 144.

**THE 144. Adv Costume Constr:Tailoring. 3 Credits.**

Explores traditional methods of tailoring as well as practical adaptations for the stage. Research, discussion, and demonstration lead to completion of a period suit. Prerequisite: THE 040. Alternating Springs with THE 141, THE 142, THE 143.

**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. Pre/co-requisites: THE 050, ENGS 053; Instructor permission.

**THE 180. Eurotheatre. 1-6 Credits.**

Spring research and preparation for 2-week intensive study of theatre in Europe. Trip: May/June culminating in submission of journal and research paper. Prerequisite: Interview with the professor required. Alternating Spring.

**THE 190. Theatre Practicum. 0.5-3 Credits.**

Students actively involved in current department productions may earn credit for work on stage or backstage. Project proposals must be approved by department faculty and be of significant scope to qualify for credit. Prerequisite: Permission. Repeatable up to three hours.

**THE 191. 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.

**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 210. Acting V:Shakespeare Scne Stdy. 3 Credits.**

Refining and developing script analysis and performance skills using Shakespeare, ancient Greek, Moliere, or other stylized texts. Prerequisites: THE 010 and THE 110 or Instructor permission. Fall.

**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 230. Advanced Scene Design. 3 Credits.**

An in-depth study of the realization process for a stage design. A combination of script analysis, sketching, model making, rendering, and paint elevations, all as forms of communication. Prerequisite: THE 030. Alternating Falls with THE 131.

**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 251. Directing II. 3 Credits.**

Development of skills and aesthetic values through the direction of a complete one act play. Not offered as performance opportunity. Enrolled students may not act in their own projects. Prerequisites: THE 250; Instructor permission; Senior standing. Spring.

**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 255. Playing with Femininity. 3 Credits.**

Finding new femininities. Investigating how contemporary American artists use femininity to question and invert cultures and explore new femininities challenging gender, race and sexual preferences. Prerequisites: THE 150 or Instructor permission.

**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.**

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.

**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. Introduction to Vermont. 3 Credits.**

Survey of Vermont's geography, history, politics, social issues, ethnic populations, culture, and environment. Special emphasis on an interdisciplinary approach to the study of Vermont.

**VS 055. Environmental Geology. 0 or 4 Credits.**

See GEOL 055.

**VS 064. D1: Native Americans of Vermont. 3 Credits.**

See ANTH 064. Cross-listed with: ANTH 064.

**VS 091. 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.

**VS 092. Vermont Field Studies. 3 Credits.**

Cross-listed with: GEOG 092.

**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 123. The Vermont Political System. 3 Credits.**

See POLS 123. Prerequisite: POLS 021.

**VS 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 change over time. Prerequisite: HST 011 or HST 012. Cross-listed with: HST 158.

**VS 160. The Literature of Vermont. 3 Credits.**

Cross-listed with: ENGS 178.

**VS 162. Geography of Place Names. 3 Credits.**

Investigation and interpretation of the names found on maps of Vermont, North America, and Europe. Prerequisite: Three hours in Geography.

**VS 184. Vermont History. 3 Credits.**

Survey of Vermont history from early times to the present. Prerequisite: HST 011 or HST 012. Cross-listed with: HST 184.

**VS 191. 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. Prerequisite: Nine hours of Vermont Studies; Junior/Senior standing.

**VS 192. Vermont Field Studies. 3 Credits.**

Prerequisite: GEOG 040, GEOG 050, GEOG 061, GEOG 070, or VS 052. Cross-listed with: GEOG 192.

**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 230. The Vermont Economy. 3 Credits.**

Prerequisites: EC 170, EC 171, EC 172. Cross-listed with: EC 230, Seminar C.

**VS 284. Seminar in Vermont History. 3 Credits.**

Topical approach to Vermont history through original research utilizing primary sources available at UVM, the Vermont Historical Society, and the Vermont State Archives. Prerequisites: Twelve hours of History, including VS 184; Junior/Senior standing. Cross-listed with: HST 284.

**VS 291. 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.

**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. Cross-listed with: FOR 013.

**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. Cross-listed with FOR 014.

**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. Cross-listed with: FOR 015.

**WFB 074. 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.**

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.

**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. 3 Credits.**

Identification, life histories, preferred habitats, conservation concerns, and appropriate means of capture and field study for all reptiles and amphibians of Vermont.

**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 and BIOL 002, or BCOR 011 and 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 175. Wildlife and Society. 3 Credits.**

Investigates how people's attitudes, institutions, policies, and behaviors have affected wildlife across the North American landscape. Alternate years.

**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 177. Texas Wildlife Field Trip. 2 Credits.**

Major ecosystems and associated wildlife of south Texas, including Gulf coast, coastal prairies, lower Rio Grande Valley, and Chihuahuan desert. Field trip over spring recess. Prerequisite: WFB 130. 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.**

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.

**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 P BIO 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, BIOL 002, WFB 161.

**WFB 271. Wetlands Wildlife. 4 Credits.**

Ecology, behavior, and population dynamics of wetland wildlife with emphasis on policy and management for waterfowl in North America. Prerequisites: WFB 174; NR 103 or BCOR 102.

**WFB 273. Terrestrial Wildlife. 3 Credits.**

Integration of ecological principles, wildlife biology, land use, and human dimensions in wildlife. Emphasis on development and maintenance of terrestrial wildlife habitat, and population regulation of terrestrial species. Prerequisites: WFB 174, and NR 103 or BCOR 102.

**WFB 274. Terrestrial Wildlife Lab. 1 Credit.**

Laboratory and field experience related to terrestrial species and management of their habitat. Field project required.

**WFB 275. Wildlife Behavior. 3 Credits.**

Behavior and social organization of game and nongame species as they pertain to population management. Prerequisites: BIOL 001 and BIOL 002, or BCOR 011 and BCOR 012, and 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. 4 Credits.**

Wildlife ecology with an emphasis on 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.**

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.

**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 011. French Lit in Translation. 3 Credits.**

Selected topics in French literature. Readings and discussion of representative works in English translation. No knowledge of French required.

**WLIT 012. Francophone Lit in Translation. 3 Credits.**

Selected topics in the literature of the French-speaking world (excluding France). Readings and discussion of representative works in English translation. No knowledge of French required.

**WLIT 013. Italian Lit in Translation. 3 Credits.**

Selected topics in the literature of Italy. Readings and discussion of representational work in English translation. No knowledge of Italian is necessary.

**WLIT 014. Spanish Lit in Translation. 3 Credits.**

Selected topics in Spanish literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required.

**WLIT 015. Span-Amer Lit in Translation. 3 Credits.**

Selected topics in Spanish-American literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required.

**WLIT 016. 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.

**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 Globalizatn. 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 035. The End of the Roman Republic. 3 Credits.**

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

**WLIT 037. Early Roman Emp:Lit&Translat'n. 3 Credits.**

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

**WLIT 042. Mythology. 3 Credits.**

Greek myth in literature, art, and music from antiquity to modern times. Cross-listed with CLAS 042.

**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:Clsscl Chinese Lit in Trans. 3 Credits.**

A survey course on classical Chinese literature. Knowledge of Chinese language is preferred but not required.

**WLIT 111. French Lit in Translation. 3 Credits.****WLIT 112. Francophone Lit in Translation. 3 Credits.**

Selected topics in the literature of the French-speaking world (excluding France). Readings and discussion of representative works in English translation. No knowledge of French required. Prerequisite: Sophomore standing.

**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 114. Spanish Lit in Translation. 3 Credits.**

Selected topics in Spanish literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required. Prerequisite: Sophomore standing.

**WLIT 115. Span-Amer Lit in Translation. 3 Credits.**

Selected topics in Spanish-American literature. Readings and discussion of representative works in English translation. No knowledge of Spanish required. 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 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 122. Dante's Comedy. 3 Credits.**

A study of Dante's Comedy in Modern English translation.

**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 153. Greek Drama. 3 Credits.**

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

**WLIT 154. Stories and Histories. 3 Credits.**

Prerequisite: Sophomore standing; three hours in Classics.

**WLIT 155. Ancient Epic. 3 Credits.**

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

**WLIT 156. Greek & Roman Satiric Spirit. 3 Credits.**

Comedy, satire, epigram and prose fantasy as vehicles for political, social, and literary criticism in the Greco-Roman world. Prerequisite: Sophomore standing. Cross-listed with: CLAS 156.

**WLIT 157. Greek Feminism. 3 Credits.**

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

**WLIT 188. Studies in Comparative Lit. 3 Credits.**

Courses comparing literary works from different countries, cultures, or language groups. May be repeated for credit with different topic. Prerequisite: Sophomore Standing.

**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 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.





## THE COLLEGE OF AGRICULTURE AND LIFE SCIENCES

<http://www.uvm.edu/~cals/>

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

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

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

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 development, economics, geography, history, political science, 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 ENGL 050 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).

## 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.
- **Statistics:** Students demonstrate the use of numbers for data analysis and inference. Competency may be met by satisfactory completion of one course: STAT 111 or higher or equivalent.

## 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. Students are recognized at the CALS Honors Day.

## HONORS PROGRAM

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

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

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

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

## PRE-MEDICAL AND PRE-VETERINARY OPPORTUNITIES

### 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.

### Pre-Veterinary Opportunities

#### UVM/TUFTS SCHOOL OF VETERINARY MEDICINE PROGRAM

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

Participants in this program are offered the assurance of veterinary school admission without the substantial investments of time and energy that other pre-veterinary students typically make in the process of preparing, researching, and applying to numerous veterinary schools and preparing for optimal scores on the GRE. Program participants can select any undergraduate major, explore other areas of interest during their junior and senior years or choose to study abroad, thus broadening their undergraduate experience.

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

It is expected that competitive applicants will have:

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

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

For more details on the application process and program requirements, visit the Pre-veterinary Information for Prospective Students on the Department of Animal Science 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 must have a minimum GPA of 3.00 in the sciences and meet the minimum score for the Graduate Record exam (GRE). Additional course work includes two semesters each of inorganic chemistry, organic chemistry, physics, and biology (all with labs) and one semester each of calculus, statistics, biochemistry, genetics, and cell biology. Applicants must have a minimum of fifteen credits in each of their eight semesters of undergraduate work at UVM.

#### 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 5-10 students yearly 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. Applications from University

of Vermont students to study at UoG must reach UoG by 1 January for commencement in September of that year.

## MAJORS

- Animal and Veterinary Sciences B.S. (p. 213)
- Biochemistry B.S. (p. 218)
- Biological Science B.S. (p. 220)
- Community Entrepreneurship B.S. (p. 222)
- Community and International Development B.S. (p. 221)
- Dietetics, Nutrition and Food Sciences B.S. (p. 230)
- Ecological Agriculture B.S. (p. 232)
- Environmental Sciences B.S. (p. 226)
- Environmental Studies B.S. (p. 227)
- Microbiology B.S. (p. 228)
- Molecular Genetics B.S. (p. 228)
- Nutrition and Food Sciences B.S. (p. 231)
- Plant Biology B.S. (p. 235)
- Public Communication B.S. (p. 222)
- Self-Designed B.S. (p. 237)
- Sustainable Landscape Horticulture B.S. (p. 233)

## MINORS

- Animal and Veterinary Sciences (p. 217)
- Applied Design (p. 222)
- Biochemistry (p. 219)
- Community and International Development (p. 223)
- Community Entrepreneurship (p. 223)
- Consumer Affairs (p. 223)
- Consumer and Advertising (p. 223)
- Ecological Agriculture (p. 234)
- Environmental Studies (p. 227)
- Food Systems (p. 224)
- Green Building and Community Design (p. 224)
- Microbiology (p. 229)
- Molecular Genetics (p. 229)
- Nutrition and Food Sciences (p. 232)
- Plant Biology (p. 237)
- Public Communication (p. 225)
- Soil Science (p. 234)
- Sports Management (p. 225)
- Sustainable Landscape Horticulture (p. 235)

## 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 and CALS 002 (Foundations) or equivalent courses.
5. 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.
6. 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.
7. 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	
With calculus:		8
PHYS 051	Fundamentals of Physics I	
PHYS 152	Fundamentals of Physics II	
<b>Mathematics (requirement varies)</b>		
MATH 019	Fundamentals of Calculus I	3
MATH 020	Fundamentals of Calculus II	3
<b>Biochemistry</b>		
BIOC 212	Biochemistry of Human Disease	3
<b>Humanities, Social Sciences, Languages</b>		
Students must complete the minimum college requirements in this area that includes English composition and speech. Advanced composition and additional courses in this area are encouraged as time allows.		

### Veterinary Medical Schools

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

<b>Biochemistry</b>		
PBIO 185 & PBIO 187	Biochem for Life & Health Sci and BiochemLab for Life&Health Sci	4
<b>Written English</b>		
Choose two of the following:		6
ENGS 001	Written Expression	
ENGS 050	Expository Writing	
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.

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.

**DEPARTMENT OF ANIMAL AND VETERINARY SCIENCES**

<http://asci.uvm.edu/>

Domestic animals play a major role in our lives through agriculture, recreation, biomedical science, 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 science, agribusiness, companion animal care and breeding, zoos and aquaria, or education. To provide the necessary flexibility to achieve this diversity, students work closely with faculty advisors to individualize their programs.

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

The Department of Animal and Veterinary Sciences actively encourages participation in undergraduate research, internships, and study abroad. By combining classroom, laboratory, and practical experience, students maximize their performance in a friendly environment and develop responsibility for and control over their education.

**MAJORS**

**ANIMAL AND VETERINARY SCIENCES MAJOR**

Animal and Veterinary Sciences B.S. (p. 213)

**MINORS**

**ANIMAL AND VETERINARY SCIENCES MINOR**

Animal and Veterinary Science (p. 217)s

**GRADUATE**

Animal and Veterinary Sciences M.S.

Animal, Nutrition and Food Science Ph.D.

Cellular, Molecular, and Biomedical Sciences Ph.D.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate>) for more information

**ANIMAL AND VETERINARY SCIENCES B.S.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 211)

This page includes descriptions of the four Animal and Veterinary Sciences concentrations:

- Dairy Production Concentration (p. )
- Equine Science Concentration (p. )
- Zoo, Exotic, and Companion Animal Concentration (p. )
- Pre-Veterinary/Pre-Professional Science Concentration (p. )

**MAJOR REQUIREMENTS - COMMON TO ALL CONCENTRATIONS**

Animal and Veterinary Sciences		
ASCI 001	Introductory Animal Sciences	4
ASCI 110	Animal Nutrit, Metab & Feeding	4
ASCI 122	Animals in Soc/Animal Welfare	3
ASCI 141	Anat&Physiol Domestic Animals	4
ASCI 181	Animal Science Career Seminar	1
ASCI 215	Physiology of Reproduction	3

One additional Animal and Veterinary Sciences elective at the 200-level		3 or 4
<b>Animal Health</b>		
Choose one 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	
MMG 101	Microbiol & Infectious Disease	
MMG 222	Clinical Microbiology I	
MMG 223	Immunology	
MMG 225	Eukaryotic Virology	
MLRS 242	Immunology	
<b>Genetics</b>		
Choose one of the following genetics options:		3
ASCI 168	Animal Genetics	
BCOR 101	Genetics	
<b>Biology</b>		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	8
or BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
<b>Chemistry</b>		
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	
<b>Mathematics</b>		
MATH 009	College Algebra (or higher)	3
<b>Statistics</b>		
STAT 111	Elements of Statistics	3
or STAT 141	Basic Statistical Methods	
or STAT 211	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 DAIRY PRODUCTION CONCENTRATION

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 should also consider a minor in Community Entrepreneurship (CEnt) 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
CALS 001 Foundations:Communication Meth	3
CALS 002 Foundation:Information Tech	3
ASCI 001 Introductory Animal Sciences	4
Inorganic Chemistry	4
Organic Chemistry	4
Mathematics or Diversity or Sustainability	6
ENGS 001 Written Expression	3
BIOL 002 Principles of Biology or BCOR 012 Exploring Biology	4
Year Total:	31
Sophomore	Credits
ASCI 122 Animals in Soc/Animal Welfare	3
ASCI 181 Animal Science Career Seminar	1
ASCI 141 Anat&Physiol Domestic Animals	4
ASCI 168 Animal Genetics	3
BIOL 001 Principles of Biology or BCOR 011 Exploring Biology	4
Mathematics or Diversity or Sustainability	3
ASCI 118 Appl Animal Health	3
ASCI 134 CREAM	4
Statistics	3
ASCI 177 Animal Plagues & Global Health	3

Electives	3
Year Total:	34
<b>Junior</b>	<b>Credits</b>
ASCI 110 Animal Nutrit, Metab & Feeding	4
Mathematics or Diversity of Sustainability	3
ASCI 156 Dairy Management Seminar	2
ASCI 135 CREAM	4
ASCI 143 Forage and Pasture Mgmnt	4
ASCI 234 Advanced Dairy Management	15
Year Total:	32
<b>Senior</b>	<b>Credits</b>
ASCI 156 Dairy Management Seminar	2
ASCI 216 Endocrinology	3
ASCI 215 Physiology of Reproduction	3
ASCI 220 Lactation Physiology	3
ASCI 230 Agricultural Policy & Ethics	3
ASCI 252 FARMS Senior Project	4
Mathematics or Diversity or Sustainability	3
ASCI 264 Clin Topics:Livestock Medicine	3
Electives	6
Year Total:	30
Total Credits in Sequence:	127

## EQUINE SCIENCE CONCENTRATION

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 world-famous Morgan Horse Farm at Middlebury, about 45 minutes from campus, is also part of the department and offers opportunities for study and research. Students may also enroll in equine courses at the Miner Agricultural Research Institute in Chazy, New York. Students with an interest in equine business should also consider a minor in Community Entrepreneurship (CEnt) 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

<b>First Year</b>	<b>Credits</b>
CALS 001 Foundations:Communication Meth	3
CALS 002 Foundation:Information Tech	3
ASCI 001 Introductory Animal Sciences	4
Inorganic Chemistry	4
Organic Chemistry	4
Mathematics or Diversity or Sustainability	3
ENGS 001 Written Expression	3
BIOL 002 Principles of Biology or BCOR 012 Exploring Biology	4
ASCI 115 Introduction to Equine Studies	4
Year Total:	32
<b>Sophomore</b>	<b>Credits</b>
ASCI 122 Animals in Soc/Animal Welfare	3
ASCI 181 Animal Science Career Seminar	1
ASCI 141 Anat&Physiol Domestic Animals	4
ASCI 168 Animal Genetics	3
BIOL 001 Principles of Biology or BCOR 011 Exploring Biology	4
Mathematics or Diversity or Sustainability	3
ASCI 117 Horse Health and Disease	3
Equine Enterprise Management	3
Equine Training Tech	3
Electives	3
Year Total:	30
<b>Junior</b>	<b>Credits</b>
ASCI 110 Animal Nutrit, Metab & Feeding	4
Mathematics or Diversity or Sustainability	3
ASCI 215 Physiology of Reproduction	3
ASCI 121 Equus	8
Statistics	3
ASCI 143 Forage and Pasture Mgmnt	4
ASCI 208 Equine Industry Issues	3
Electives	6
Equine Reproduction Workshop	1



Year Total:	35
<b>Senior</b>	<b>Credits</b>
ASCI 221 Lameness in Horses	4
Equine Internship	6
ASCI 125 Equine Instructing Techniques	2
Mathematics or Diversity or Sustainability	3
Electives	15
Year Total:	30
Total Credits in Sequence:	127

### ZOO, EXOTIC, AND COMPANION ANIMAL CONCENTRATION

This concentration is designed for students who are primarily interested in zoo, exotic, and companion animals and are interested in transitioning to jobs in these industries after graduation. Courses are offered on the management, care, breeding, health, and training of zoo, exotic, and companion animals with hands on experiences available locally and through summer course work and internships. A potential plan of student is outlined below but individual plans will ultimately be designed by the student and advisor. Students should also consider a minor in either Psychological Science from the Department of Psychological Science or a minor in Community Entrepreneurship (CEnt) 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.

First Year	Credits
CALS 001 Foundations:Communication Meth	3
CALS 002 Foundation:Information Tech	3
ASCI 001 Introductory Animal Sciences	4
Inorganic Chemistry	4
Organic Chemistry	4
Mathematics or Diversity or Sustainability	3
ENGS 001 Written Expression	3
BIOL 002 Principles of Biology or BCOR 012 Exploring Biology	4
ASCI 006 Companion Animal Care & Mgmt	3
Year Total:	31

Sophomore	Credits
ASCI 122 Animals in Soc/Animal Welfare	3
ASCI 181 Animal Science Career Seminar	1
ASCI 141 Anat&Physiol Domestic Animals	4
ASCI 168 Animal Genetics	3
BIOL 001 Principles of Biology or BCOR 011 Exploring Biology	4
Mathematics or Diversity or Sustainability	3
ASCI 118 Appl Animal Health	3
Statistics	3
Understanding and Speaking Dog	3
Electives	6
Year Total:	33
Junior	Credits
ASCI 110 Animal Nutrit, Metab & Feeding	4
Mathematics or Diversity or Sustainability	3
ASCI 215 Physiology of Reproduction	3
MMG 101 Microbiol & Infectious Disease	4
ASCI 171 Zoos, Exotics & Endang Species	3
WFB 174 Prin of Wildlife Management	3
ASCI 143 Forage and Pasture Mgmt	4
Canine Behavior	3
Electives	9
Year Total:	36
Senior	Credits
ASCI 272 Adv Top:Zoo,Exotic,Endang Spec	3
WFB 273 Terrestrial Wildlife	3
WFB 130 Ornithology	3
ASCI 216 Endocrinology	3
ASCI 263 Clin Top:Companion Animal Med	3
Mathematics or Diversity or Sustainability	3
Electives	12
Year Total:	30

Total Credits in Sequence:	130
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## PRE-VETERINARY/PRE-PROFESSIONAL SCIENCE CONCENTRATION

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.

First Year	Credits
CALS 001 Foundations:Communication Meth	3
CALS 002 Foundation:Information Tech	3
ASCI 001 Introductory Animal Sciences	4
Inorganic Chemistry	8
Mathematics (MATH 019) or Diversity or Sustainability	3
ENGS 001 Written Expression	3
BIOL 002 Principles of Biology or BCOR 021 Accelerated Biology	4
ASCI 006 Companion Animal Care & Mgmt	3
Year Total:	31
Sophomore	Credits
ASCI 122 Animals in Soc/Animal Welfare	3
ASCI 181 Animal Science Career Seminar	1
ASCI 141 Anat&Physiol Domestic Animals	4
ASCI 168 Animal Genetics	3
BIOL 001 Principles of Biology or BCOR 011 Exploring Biology	4
Mathematics (MATH 019) or Diversity or Sustainability	3
ASCI 118 Appl Animal Health	3
Organic Chemistry	8
ASCI 117 Horse Health and Disease	3
ASCI 177 Animal Plagues & Global Health	3
Year Total:	35
Junior	Credits
ASCI 110 Animal Nutrit, Metab & Feeding	4

Mathematics (MATH 019) or Diversity or Sustainability	3
MMG 101 Microbiol & Infectious Disease	4
BCOR 103 Molecular and Cell Biology	4
ENGS 050 Expository Writing or ENGS 053 Intro to Creative Writing	3
STAT 141 Basic Statistical Methods	3
ASCI 277 Animal and Human Parasitology	3
Physics	8-10
Year Total:	32-34
Senior	Credits
ASCI 185 Biochem for Life & Health Sci	3
ASCI 187 BiochemLab for Life&Health Sci	1
ASCI 216 Endocrinology	3
ASCI 263 Clin Top:Companion Animal Med	3
ASCI 264 Clin Topics:Livestock Medicine	3
Mathematics (MATH 019) or Diversity or Sustainability	3
Electives	15
Year Total:	31
Total Credits in Sequence:	129-131

## ANIMAL AND VETERINARY SCIENCES MINOR

### REQUIREMENTS

At least fifteen credits of course work in Animal and Veterinary Sciences including:

Choose one introductory semester course	3 or 4
ASCI 001	Introductory Animal Sciences
or ASCI 006	Companion Animal Care & Mgmt
or ASCI 115	Introduction to Equine Studies
Three courses at or above the 100-level	

## 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. 218)

## MINORS

### BIOCHEMISTRY MINOR

Biochemistry (p. 219)

## 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. 396)

All students must meet the College Requirements. (p. 211)

## MAJOR REQUIREMENTS

In addition to the CALS or CAS college distribution requirements, the biochemistry core requires satisfactory completion of:

Choose one of the following options:		8
<b>Option A (recommended)</b>		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
<b>Option B</b>		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
MATH 021	Calculus I	4
MATH 022	Calculus II	4
Choose one of the following options:		8-10
<b>Option A (recommended)</b>		
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II	
<b>Option B</b>		
PHYS 011 & PHYS 012 & PHYS 021 & PHYS 022	Elementary Physics and Elementary Physics and Introductory Lab I and Introductory Lab II	
Choose one of the following options:		8
<b>Option A (recommended)</b>		
CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	
<b>Option B</b>		
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
Choose one of the following options:		8
<b>Option A (recommended)</b>		
CHEM 143 & CHEM 144	Organic Chemistry for Majors 1 and Organic Chemistry for Majors 2	
<b>Option B</b>		
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2	



CHEM 165	Intro Physical Chemistry	3
BIOC 205	Biochemistry I	3
BIOC 206	Biochemistry II	3
BIOC 207	Biochemistry Lab	2
BIOC 296	Advanced Special Topics	1-18
BCOR 101	Genetics	3
BCOR 103	Molecular and Cell Biology	4
Nine credits of advanced biochemistry-related electives.		9
Choose 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 Laboratory	
Total Credits		70-91

## BIOCHEMISTRY MINOR

### REQUIREMENTS

Seventeen credits of chemistry and biochemistry course work:

CHEM 143	Organic Chemistry for Majors 1 <sup>1</sup>	4
CHEM 144	Organic Chemistry for Majors 2 <sup>2</sup>	4
BIOC/CHEM/ MMG 205	Biochemistry I	3
BIOC/CHEM/ MMG 206	Biochemistry II	3
BIOC/CHEM/ MMG 207	Biochemistry Lab	2
BIOC 296	Advanced Special Topics	1

<sup>1</sup> CHEM 141 may be substituted for CHEM 143

<sup>2</sup> CHEM 142 may be substituted for CHEM 144

### 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. 220)

**BIOLOGICAL SCIENCE B.S.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 211)

**MAJOR REQUIREMENTS**

The Biological Science B.S. core curriculum requires satisfactory completion:

Choose one of the following:		4-8
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
BCOR 021	Accelerated Biology	
BCOR 101	Genetics	3
BCOR 102	Ecology and Evolution	4
BCOR 103	Molecular and Cell 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 options:		8-10
<b>Option A</b>		
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
PHYS 012 & PHYS 022	Elementary Physics and Introductory Lab II	
<b>Option B</b>		
PHYS 051	Fundamentals of Physics I	
PHYS 152	Fundamentals of Physics II	
Choose one of the following sequences:		6-8
MATH 019 & MATH 020	Fundamentals of Calculus I and Fundamentals of Calculus II	
MATH 021 & MATH 022	Calculus I and Calculus II	
STAT 141	Basic Statistical Methods	3
or STAT 211	Statistical Methods I	

In addition and in consultation with their academic advisor, students will design a course of study that includes an additional twenty-six credits of advanced life science electives.	26
Total Credits	74-82

In consultation with their academic advisor, students will design a course of study that includes an additional twenty-six credits of advanced life science electives. From the advanced-level electives, students are advised to complete twelve credits from courses with a quantitative component, three credits that stress oral communication and three credits that stress written communication.

Within the advanced-level elective courses, and excluding the BCOR courses, no more than eight credits at the 100-level may apply toward the major except with written permission from an advisor and not exceeding three 100-level courses. With an advisor's permission, a biologically relevant 300-level course may be applied toward the advanced-level course requirement.

Up to six credits of undergraduate research in any biological discipline may be applied to the twenty-six credits of advanced electives. Only three of these can be taken for credit at the 100-level, and these will be counted in the eight credits allowed at the 100-level.

**DEPARTMENT OF COMMUNITY DEVELOPMENT AND APPLIED ECONOMICS**

<http://www.uvm.edu/~cdae/>

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

**THE CDAE MISSION**

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

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

CDAE also offers seven minors: Community Entrepreneurship; Community and International Development; Public Communication; Applied Design; Consumer Affairs; Consumer and Advertising; and Green Building and Design. CDAE also participates

in the College of Agriculture and Life Sciences interdepartmental Food Systems minor.

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

## 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	Principles of Comm Development	3
CDAE 102	SU:Sustainable Community Dev	3
CDAE 127	Consumer,Markets&Public Policy	3
CDAE 250	Applied Research Methods	4
Additionally required are:		9
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		
Two 3-credit university-approved Diversity courses		
PCOM Majors Only - the following are also required:		9
MATH 009	College Algebra	3
STAT 111	Elements of Statistics	3
CID and CENT Majors Only - the following are also required:		
MATH 019	Fundamentals of Calculus I	3
STAT 141	Basic Statistical Methods	3

## MAJORS

### COMMUNITY DEVELOPMENT AND APPLIED ECONOMICS MAJORS

Community Entrepreneurship B.S. (p. 222)

Community and International Development B.S. (p. 221)

Public Communication B.S. (p. 222)

## MINORS

### COMMUNITY DEVELOPMENT AND APPLIED ECONOMICS MINORS

Applied Design (p. 222)

Community Entrepreneurship (p. 223)

Community and International Development (p. 223)

Consumer Affairs (p. 223)

Consumer and Advertising (p. 223)

Food Systems (p. 224)

Green Building and Community Design (p. 224)

Public Communication (p. 225)

Sports Management (p. 225)

## 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. 396)

All students must meet the College Requirements. (p. 211)

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.

## 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 seven of the following:		27-28
CDAE 106	Renewable Energy Workshop	
CDAE 157	Consumer Law and Policy	
CDAE 171	Community&Int'l Econ Transform	
CDAE 186	Sustain Dev Sm Island States	
CDAE 218	Community Org & Development	
CDAE 237	SU:Economics of Sustainability	
CDAE 251	SU:Contemp Policy Iss:Comm Dev	
CDAE 272	Int'l Economic Development	
CDAE 273	Project Development & Planning	
Transfer Credit or CDAE Special Topics courses, as appropriate		

**COMMUNITY ENTREPRENEURSHIP B.S.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 211)

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.

**MAJOR REQUIREMENTS**

Students must complete:

CDAE 157	Consumer Law and Policy	3
CDAE 166	Intro to Comm Entrepreneurship	3
CDAE 167	Fin Mgmt: Comm Entrepreneurs	0 or 4
CDAE 168	Marketing: Comm Entrepreneurs	3
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

**PUBLIC COMMUNICATION B.S.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 211)

Public Communication (PCOM) is the practice of understanding, designing, implementing, and evaluating successful communication campaigns within a framework that serves the public interest. The PCOM program uses communication to inform and persuade, to build relationships, and to encourage open dialog in organizations and communities toward resilient solutions. This is accomplished by crafting successful messages through the application of research, theory, technical knowledge, and sound design principles. Students majoring in Public Communication use an integrated, hands-on approach to communication in the public interest to critically analyze situations, manage information, and craft messages that work in an increasingly global society.

**MAJOR REQUIREMENTS**

CDAE 014	Visual Design Studio	1
CDAE 015	Visual Communication	3
CDAE 120	Strategic Writing for PCOM	3
CDAE 121	News Writing Across Media	3
CDAE 124	Public Communication Media	3
CDAE 129	Communication Law	3
CDAE 224	Public Communication Capstone	3
PA 206	Intro Cont Public Affairs	3
Choose five of the following:		15
CDAE 128	The Consumer & Advertising	
CDAE 157	Consumer Law and Policy	
CDAE 159	Consumer Assistance Program	
CDAE 166	Intro to Comm Entrepreneurship	
CDAE 168	Marketing: Comm Entrepreneurs	
CDAE 231	Applied Computer Graphics	
CDAE 251	SU:Contemp Policy Iss:Comm Dev	
SOC 043 & SOC 243	Survey of Mass Communication and Mass Media in Modern Society	
or SOC 150	Popular Culture	
or POLS 137	Politics and The Media	
CDAE 095	Special Topics (Special Topics courses as approved by advisor)	
CDAE 195	Special Topics	

**APPLIED DESIGN MINOR REQUIREMENTS**

Nine credits including:		9
CDAE 015	Visual Communication	
CDAE 001	Drafting and Design Drawing	



or CDAE 016	Digital Illustration	
CDAE 101	Computer Aided Drafting&Design	
or CDAE 231	Applied Computer Graphics	
Six advisor-approved credits. Students from the College of Arts and Sciences must have their advisor pre-approve the two focus courses.		6
Nine of the fifteen credits must be at the 100-level or above.		

**RESTRICTIONS**

Ineligible Major: Studio Art

**COMMUNITY AND INTERNATIONAL DEVELOPMENT MINOR**

**REQUIREMENTS**

CDAE 002	D2:SU:World Food,Pop & Develop	3
CDAE 061	Principles of Comm Development (CAS students may substitute EC012 for CDAE 061)	3
CDAE 102	SU:Sustainable Community Dev	3
CDAE 171	Community&Int'l Econ Transform	3
or CDAE 296	Field Experience/Practicum	
or CDAE 273	Project Development & Planning	
Choose one of the following:		3
CDAE 166	Intro to Comm Entrepreneurship	3
CDAE 167	Fin Mgmt: Comm Entrepreneurs	4
CDAE 237	SU:Economics of Sustainability	3
CDAE 251	SU:Contemp Policy Iss:Comm Dev	3
CDAE 255	Applied Consumption Economics	3
CDAE 272	Int'l Economic Development	3
CDAE 186	Sustain Dev Sm Island States	4
CDAE 208	Agricultural Policy and Ethics	3
CDAE 218	Community Org & Development	3
CDAE 276	Community Design Studio	3
Or other courses (e.g. Special Topics ending in -95) as approved by advisor		

**RESTRICTIONS**

Ineligible Major: Community and International Development

**COMMUNITY ENTREPRENEURSHIP MINOR**

**REQUIREMENTS**

CDAE 061	Principles of Comm Development	3
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CDAE 166	Intro to Comm Entrepreneurship	3
CDAE 167	Fin Mgmt: Comm Entrepreneurs	4
CDAE 168	Marketing: Comm Entrepreneurs	3
Choose one of the following:		
CDAE 102	SU:Sustainable Community Dev	3
CDAE 157	Consumer Law and Policy	3
CDAE 266	Dec Making:Comm Entrepreneurs	3
CDAE 267	Strat Plan:Comm Entrepreneurs	4

**RESTRICTIONS**

Ineligible Major: Community Entrepreneurship

**CONSUMER AFFAIRS MINOR**

**REQUIREMENTS**

CDAE 159	Consumer Assistance Program	3-6
CDAE 157	Consumer Law and Policy	3
PA 206	Intro Cont Public Affairs	3
Restricted Electives - Choose two of the following:		6
CDAE 102	SU:Sustainable Community Dev	
CDAE 024	Fund of Public Communication	
or CDAE 124	Public Communication Media	
CDAE 127	Consumer,Markets&Public Policy	
CDAE 128	The Consumer & Advertising	
CDAE 250	Applied Research Methods	
CDAE 296	Field Experience/Practicum	
CDAE 195	Special Topics	

**CONSUMER AND ADVERTISING MINOR**

**REQUIREMENTS**

CDAE 015	Visual Communication	3
CDAE 128	The Consumer & Advertising	3
CALS 183	Communication Methods	3
Choose two of the following:		6
CDAE 168	Marketing: Comm Entrepreneurs	
PA 206	Intro Cont Public Affairs	
CDAE 231	Applied Computer Graphics	
SOC 043	Survey of Mass Communication	
or SOC 150	Popular Culture	

CDAE 127	Consumer,Markets&Public Policy	
CDAE 296	Field Experience/Practicum	
CDAE 195	Special Topics (As approved by advisor)	

**RESTRICTIONS**

Ineligible Major: Public Communication

**FOOD SYSTEMS MINOR**

<http://www.uvm.edu/~fsminor/>

**REQUIREMENTS**

A minimum of eighteen credits.

Choose nine credits from Group 1:		9
PSS 021	SU: Intro to Ecological Agr	
NFS 073	D2:SU:Farm to Table: Food Sys	
PBIO 006	SU: The Green World	
CDAE 002	D2:SU:World Food,Pop & Develop	
PHIL 010	Introduction to Philosophy (ONLY when the topic is Ethics of Eating)	
Choose at least nine credits from Group 2:		
ANTH/NFS 185	D2:Food and Culture	
FS 355	Ethics and the Food System	
HCOL 186	Honors College Sophomore Sem	
PBIO 177	Biology of Fungi	
ASCI 122	Animals in Soc/Animal Welfare	
CDAE 127	Consumer,Markets&Public Policy	
PSS 154	Composting Ecology & Mgmt	
PSS/ENVS 156	SU: Permaculture	
ENVS 183	Env Impacts of Consumerism	
CDAE 208/ASCI 230	Agricultural Policy and Ethics	
PSS/ENVS 212	SU: Advanced Agroecology	
CDAE 237	SU:Economics of Sustainability	
PSS 209	Sustainable Farming Practicum	
PSS 124	Agroecology of Vegetable Crops	
Students may also choose from a list of special topics courses related to food systems. Please refer to the Food Systems Minor website for a current list.		

**GREEN BUILDING AND COMMUNITY DESIGN MINOR**

**REQUIREMENTS**

<b>GBCD Basics</b>		
Choose three of the following:		9
CDAE 001	Drafting and Design Drawing	
CDAE 101	Computer Aided Drafting&Design	
CDAE 118	Visual Presentation Techniques	
PSS 137	Landscape Design Fundamentals	
<b>Engery and Sustainable Green Communities</b>		
Choose two of the following:		6
CDAE 006	Energy Alternatives	
CDAE 102	SU:Sustainable Community Dev	
CDAE 131	Appl Des Studio: Lt Frame Bldg	
CDAE 171	Community&Int'l Econ Transform	
CDAE 186	Sustain Dev Sm Island States	
CDAE 273	Project Development & Planning	
CDAE 276	Community Design Studio	
ENVS 177	Intro to Landscape Restoration	
CDAE 195	Special Topics (Special Topics offerings may be applied toward the minor, but require pre-approval from the student's academic advisor.)	
NR 288	Ecol Design & Living Technol	
NR 289	Advanced Ecological Design	
PSS 156	SU: Permaculture	
PSS 208	Organic Farm Planning	
PSS 238	Ecological Landscape Design	
<b>Total:</b>		15

**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

CDAE 024	Fund of Public Communication	3
CDAE 124	Public Communication Media	3
Choose 3 of the following:		9
CDAE 015	Visual Communication	
CDAE 120	Strategic Writing for PCOM	
CDAE 127	Consumer, Markets & Public Policy	
CDAE 128	The Consumer & Advertising	
PA 206	Intro Cont Public Affairs	
CDAE 168	Marketing: Comm Entrepreneurs	
CDAE 231	Applied Computer Graphics	
Or other courses (e.g. Special Topics ending in -95) as approved by advisor		

## RESTRICTIONS

Ineligible Major: Public Communication

## PRE/CO-REQUISITES

ENGS 001	Written Expression	3
CALS 183	Communication Methods	3
Statistics/Research course, e.g.:		3-4
STAT 111	Elements of Statistics	
STAT 141	Basic Statistical Methods	
CDAE 250	Applied Research Methods	

## SPORTS MANAGEMENT MINOR REQUIREMENTS

The courses for the minor include three required courses and at least three elective courses, one from each category, for a minimum of 18 required credits. 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 courses for the minor include:

Required Courses:		
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 055	Special Topics I (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	Marketing: Comm 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	
BSAD 138	Entrepreneurship: Bus Planning	
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.

## 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 SCIENCE 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 (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 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 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 focus areas:

- 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
- 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. 226)

## ENVIRONMENTAL SCIENCES B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 211)

### 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 Ecological Agr	
BCOR 102	Ecology and Evolution	
MMG 101	Microbiol & Infectious Disease	
Environmental Science minimal basic science/quantitative courses (which also fill college core requirements):		34
BCOR 011	Exploring Biology	
BCOR 012	Exploring Biology	
GEOL 055	Environmental Geology	
or PSS 161	SU:Fundmntls of Soil Science	
(PSS 161 is required for many PSS courses in several curricular concentrations; most students should take this course.)		
MATH 019	Fundamentals of Calculus I	
MATH 020	Fundamentals of Calculus II	
NR 140	Applied Environ Statistics	
or STAT 141	Basic Statistical Methods	
CHEM 031	General Chemistry 1	
CHEM 032	General Chemistry 2	
CHEM 042	Intro Organic Chemistry	
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 Chemistry		
Environmental Geology		
Global Environmental and Climate Change		
Water Resources		
Up-to-date course requirements for each Focus Area are available from the student's advisor or the department, or by going to the Focus Areas section of the Environmental Sciences website. Students may elect to petition to develop a Self-Designed curriculum track.		

## 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 four different colleges, including the College of Agriculture and Life Sciences, the College of Arts and Sciences, the College of Education and Social Services 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 or thesis, usually carried out in the senior year.

### MAJORS

#### ENVIRONMENTAL STUDIES MAJOR

Environmental Studies B.S. (p. 227)

### MINORS

#### ENVIRONMENTAL STUDIES MINOR

Environmental Studies (p. 227)

### ENVIRONMENTAL STUDIES B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 211)

### 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 Envrnmntl Studies	4
ENVS 002	D2:SU:International Env Stdies	4
ENVS 151	Intermed Environmental Studies	3
Nine credits of a senior capstone		9
Thirty credits of approved environmentally-related courses at the 100- or 200-level, including three credits at the 200-level, with at least one environmentally-related course in each of the following areas:		30
Natural sciences		
Humanities		
Social sciences		
International studies (may be fulfilled with study abroad experience)		

### ENVIRONMENTAL STUDIES MINOR REQUIREMENTS

Seventeen credits in Environmental Studies consisting of:

ENVS 001	SU:Intro to Envrnmntl Studies	4
ENVS 002	D2:SU:International Env Stdies	4
Nine credits at the 100-level or above. (Of the nine credits, one non-ENVS course at the appropriate level may be substituted with the approval of the student's advisor and the Environmental Program.)		9

## DEPARTMENT OF MICROBIOLOGY AND MOLECULAR GENETICS

<http://www.uvm.edu/microbiology/>

The College of Agriculture and Life Sciences shares this department with the College of Medicine (COM). Undergraduate studies are in CALS while graduate studies are in the COM. 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. 228)

Molecular Genetics B.S. (p. 228)

## MINORS MICROBIOLOGY AND MOLECULAR GENETICS MINORS

Microbiology (p. 229)

Molecular Genetics (p. 229)

## 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. 396)

All students must meet the College Requirements. (p. 211)

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

## MOLECULAR GENETICS B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 211)

Students who choose the molecular genetics major must also fulfill the basic distribution requirements for a Bachelor of Science (B.S.) degree from the College of Agriculture and Life Sciences and a core set of courses, totaling 65 credits, including: First-year Colloquium,

Senior Seminar, Microbiology and Infectious Diseases, Recombinant DNA Lab, Molecular Cell Biology, general biology, biochemistry, genetics, general and organic chemistry, calculus, physics, and statistics. In addition, molecular genetics majors take Prokaryotic Molecular Genetics and a minimum of twelve credits from an array of upper-level molecular genetics courses, including Molecular Cloning, Eukaryotic Genetics, Bioinformatics, Eukaryotic Virology, Protein-DNA Interactions, internships, and undergraduate research. These courses meet the prerequisites for applying to medical school or to graduate school to do life sciences or biomedical research.

## MICROBIOLOGY MINOR

### REQUIREMENTS

MMG 101	Microbiol & Infectious Disease	4
MMG 104	Intro Recombinant DNA Tech	2
BCOR 101	Genetics	0 or 3
or BCOR 103	Molecular and Cell Biology	
Six credits of upper-level courses in area of interest		6

### PRE/CO-REQUISITES

BCOR 011	Exploring Biology	0 or 4
BCOR 012	Exploring Biology	0 or 4
CHEM 031	General Chemistry 1	0 or 4
CHEM 032	General Chemistry 2	0 or 4
CHEM 141	Organic Chemistry 1	0 or 4
CHEM 142	Organic Chemistry 2	0 or 4

## MOLECULAR GENETICS MINOR

### REQUIREMENTS

MMG 101	Microbiol & Infectious Disease	4
MMG 104	Intro Recombinant DNA Tech	2
BCOR 101	Genetics	0 or 3
or BCOR 103	Molecular and Cell Biology	
Six additional credits of upper-level courses in area of interest		6

### PRE/CO-REQUISITES

BCOR 011	Exploring Biology	0 or 4
BCOR 012	Exploring Biology	0 or 4
CHEM 031	General Chemistry 1	0 or 4
CHEM 032	General Chemistry 2	0 or 4
CHEM 141	Organic Chemistry 1	0 or 4
CHEM 142	Organic Chemistry 2	0 or 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, 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

<b>Communication Skills</b>		
ENGS 001	Written Expression (or HCOL 085 or English 050)	3
CALS 183	Communication Methods (or equivalent)	3
<b>Fine Arts and Humanities</b>		
Any two humanities courses (Note: See diversity course substitute for Humanities)		6
<b>Social Science Core</b>		
PSYS 001	Intro to Psychological Science	3
SOC 001	SU: Introduction to Sociology	3
or ANTH 021	D2:SU: Cultural Anthropology	
<b>Basic Science Core</b>		
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 & PBIO 187	Biochem for Life & Health Sci and BiochemLab for Life&Health Sci	4
<b>Analytic Sciences Core</b>		
STAT 111	Elements of Statistics	3
CALS 085	Computer Applications (or equivalent)	3
<b>CALS Orientation for first year students only</b>		
Diversity (may substitute for Humanities; see list)		

CALS 001 & CALS 002	Foundations:Communication Meth and Foundation:Information Tech (first year students only)	6
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## MAJORS

### NUTRITION AND FOOD SCIENCES MAJORS

Dietetics, Nutrition and Food Sciences B.S. (p. 230)

Nutrition and Food Sciences B.S. (p. 231)

## MINORS

### NUTRITION AND FOOD SCIENCES MINORS

Nutrition and Food Sciences (p. 232)

Food Systems (p. 231)

## GRADUATE

Animal, Nutrition and Food Science Ph.D.

Dietetics M.S.D.

Food Systems AMP

Food Systems M.S.

Food Systems Ph.D.

Nutrition and Food Sciences M.S.

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. 396)

All students must meet the College Requirements. (p. 211)

## MAJOR REQUIREMENTS

### Dietetics, Nutrition and Food Sciences Track

<b>Analytic Sciences Core</b>		
BSAD 060	Financial Accounting	3
or CDAE 158	Personal and Family Finance	
<b>Required Courses</b>		
NFS 043	Fundamentals of Nutrition	3
NFS 044	Survey of the Field	1
NFS 053	Basic Concepts of Foods	3
NFS 054	Basic Concepts of Foods Lab	1
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 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
BIOC 263	Nutritional Biochemistry	3
BSAD 120	Leadership & Org Behavior	3
HLTH 003	Medical Terminology	2
Choose one of the following:		1-3
NFS 196	Field Experience	
NFS 198	Undergraduate Research	
NFS 274	Community Practicum	
NFS 296	Field Experience	
Electives		15-26
Category Two Diversity Requirement		
ANTH 021 and HLTH 105 fulfill the Category Two Diversity requirement		

Note: Students wishing to apply to Medical, Naturopathic, Chiropractic, Osteopathic, Dental or Graduate School should take: Chem 31 and Chem 141 (in place of Chem 23 and Chem 42), plus use electives to take Chem 32 and Chem 142, Biology 1 & 2, Physics 11 & 12, or 31 & 42 plus lab 21 & 22. Math 19 & 20 or Math 21 & 22 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. 396)

All students must meet the College Requirements. (p. 211)

### MAJOR REQUIREMENTS

#### Nutrition and Food Sciences Track

<b>Analytic Sciences Core</b>	
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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
<b>Required Courses</b>		
NFS 043	Fundamentals of Nutrition	3
NFS 044	Survey of the Field	1
NFS 053	Basic Concepts of Foods	3
NFS 054	Basic Concepts of Foods Lab	1
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 203	Food Microbiology	3
NFS 213	Food Microbiology Lab	1
NFS 243	Advanced Nutrition	3
In consultation with the student's academic advisor, select four additional NFS courses, at least two of which must be at the 200-level		12
Electives		30-39
<b>Category Two Diversity Requirement</b>		
ANTH 021 and HLTH 105 fulfill the Category Two Diversity requirement.		

Note: Students wishing to apply to Medical, Naturopathic, Chiropractic, Osteopathic, Dental or Graduate School should take: Chem 31 and Chem 141 (in place of Chem 23 and Chem 42), plus use electives to take Chem 32 and Chem 142, Biology 1 & 2, Physics 11 & 12, or 31 & 42 plus lab 21 & 22. Math 19 & 20 or Math 21 & 22 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.

## FOOD SYSTEMS MINOR REQUIREMENTS

A minimum of eighteen credits.

Choose nine credits from Group 1:		9
PSS 021	SU: Intro to Ecological Agr	
NFS 073	D2:SU:Farm to Table: Food Sys	
PBIO 006	SU: The Green World	
CDAE 002	D2:SU:World Food,Pop & Develop	

PHIL 010	Introduction to Philosophy (ONLY when the topic is Ethics of Eating)	
Choose at least nine credits from Group 2:		
ANTH/NFS 185	D2:Food and Culture	
FS 355	Ethics and the Food System	
HCOL 186	Honors College Sophomore Sem	
PBIO 177	Biology of Fungi	
ASCI 122	Animals in Soc/Animal Welfare	
CDAE 127	Consumer,Markets&Public Policy	
PSS 154	Composting Ecology & Mgmt	
PSS/ENVS 156	SU: Permaculture	
ENVS 183	Env Impacts of Consumerism	
CDAE 208/ ASCI 230	Agricultural Policy and Ethics	
PSS/ENVS 212	SU: Advanced Agroecology	
CDAE 237	SU:Economics of Sustainability	
PSS 209	Sustainable Farming Practicum	
PSS 124	Agroecology of Vegetable Crops	
Students may also choose from a list of special topics courses related to food systems. Please refer to the Food Systems Minor website for a current list.		

## NUTRITION AND FOOD SCIENCES MINOR

### REQUIREMENTS

A total of fifteen credits in Nutrition and Food Sciences:

NFS 043	Fundamentals of Nutrition	3
NFS 053	Basic Concepts of Foods	3
Choose one of the following:		3
NFS 143	Nutrition in the Life Cycle	
NFS 153	Principles of Food Technology	
Six credits of NFS didactic courses numbered at or above the 100-level		6

### RESTRICTIONS

Independent study, field experience and undergraduate research cannot be counted in this total.

## DEPARTMENT OF PLANT AND SOIL SCIENCE

<http://www.uvm.edu/~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

Ecological Agriculture B.S. (p. 232)

Sustainable Landscape Horticulture B.S. (p. 233)

### MINORS

#### PLANT AND SOIL SCIENCE MINORS

Ecological Agriculture (p. 234)

Food Systems (p. 234)

Soil Science (p. 234)

Sustainable Landscape Horticulture (p. 235)

### 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

### ECOLOGICAL AGRICULTURE B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

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

## MAJOR REQUIREMENTS

PSS 021	SU: Intro to Ecological Agr	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 158	Internship:Eco Ag/Landscape Hrt	1-3
or PSS 209	Sustainable Farming Practicum	
PSS 161	SU:Fundmntls of Soil Science	4
PSS 162	Soil Fertility & Conservation	3
PSS 208	Organic 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
BIOL 002	Principles of Biology	4
BCOR 102	Ecology and Evolution	4
or NR 103	Ecology, Ecosystems & Environ	
CDAE 061	Principles of Comm Development	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
CHEM 026	Outline of Organic & Biochem	4
MATH 010	Pre-Calculus Mathematics	3
or MATH 019	Fundamentals of Calculus I	
STAT 111	Elements of Statistics	3
or STAT 141	Basic Statistical Methods	
Nine credits of PSS courses at the 100-level or higher (excluding PSS 195/PSS 196 Special Topics and PSS 197/PSS 198 Independent Study or online courses unless prior approval is obtained by the student's advisor)		9

All students must get a C- or better in all courses required by the ECAG major.

## SUSTAINABLE LANDSCAPE HORTICULTURE B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 211)

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 145	Turfgrass Management	3
PSS 158	Internship:Eco Ag/Landscape Hrt	1-3
PSS 161	SU:Fundmntls of Soil Science	0 or 4
PSS 162	Soil Fertility & Conservation	3
PSS 238	Ecological Landscape Design	4
PSS 281	Prof Dev:Eco Ag/Sust Lndsc Hrt	1
BIOL 001	Principles of Biology	4
BIOL 002	Principles of Biology	4
BCOR 102	Ecology and Evolution	4
or NR 103	Ecology, Ecosystems & Environ	
CDAE 061	Principles of Comm Development	3
CDAE 166	Intro to Comm Entrepreneurship	3
PBIO 104	Plant Physiology	4
NR 143	Intro to Geog Info Systems	3
or CDAE 101	Computer Aided Drafting&Design	

CHEM 023	Outline of General Chemistry	4
CHEM 026	Outline of Organic & Biochem	4
MATH 010	Pre-Calculus Mathematics	3
or MATH 019	Fundamentals of Calculus I	
STAT 111	Elements of Statistics	3
or STAT 141	Basic Statistical Methods	
or NR 140	Applied Environ Statistics	

All students must get a C- or better in all courses required by the SLH major.

### ECOLOGICAL AGRICULTURE 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 fifteen credits from the following courses:

PSS 021	SU: Intro to Ecological Agr	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 124	Agroecology of Vegetable Crops	
PSS 127	Greenhouse Operations & Mgmt	
PSS 138	Commercial Plant Propagation	
PSS 143	Forage and Pasture Mgmnt	
PSS 154	Composting Ecology & Mgmt	
PSS 156	SU: Permaculture	
PSS 161	SU: Fundmntls of Soil Science	
PSS 162	Soil Fertility & Conservation	
PSS 208	Organic Farm Planning	
PSS 209	Sustainable Farming Practicum	
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).	
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#### RESTRICTIONS

Ineligible Major: Ecological Agriculture

### FOOD SYSTEMS MINOR

#### REQUIREMENTS

A minimum of eighteen credits.

Choose nine credits from Group 1:		9
PSS 021	SU: Intro to Ecological Agr	
NFS 073	D2:SU:Farm to Table: Food Sys	
PBIO 006	SU: The Green World	
CDAE 002	D2:SU:World Food,Pop & Develop	
PHIL 010	Introduction to Philosophy (ONLY when the topic is Ethics of Eating)	
Choose at least nine credits from Group 2:		
ANTH/NFS 185	D2:Food and Culture	
FS 355	Ethics and the Food System	
HCOL 186	Honors College Sophomore Sem	
PBIO 177	Biology of Fungi	
ASCI 122	Animals in Soc/Animal Welfare	
CDAE 127	Consumer,Markets&Public Policy	
PSS 154	Composting Ecology & Mgmt	
PSS/ENVS 156	SU: Permaculture	
ENVS 183	Env Impacts of Consumerism	
CDAE 208/ASCI 230	Agricultural Policy and Ethics	
PSS/ENVS 212	SU: Advanced Agroecology	
CDAE 237	SU:Economics of Sustainability	
PSS 209	Sustainable Farming Practicum	
PSS 124	Agroecology of Vegetable Crops	
Students may also choose from a list of special topics courses related to food systems. Please refer to the Food Systems Minor website for a current list.		

### SOIL SCIENCE MINOR

#### REQUIREMENTS

A minimum of seventeen credits including:



PSS 161	SU:Fundmntls of Soil Science	4
Four 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 266	Soil Water Movement	
PSS 268	Soil Ecology	
PSS 269	Soil/Water Pollution/Bioremed	
With one PSS course substitution allowed from the following:		
GEOL 151	Geomorphology	
GEOL 234	Global Biogeochemical Cycles	
NR 260	Wetlands Ecology & Mgmt	

## SUSTAINABLE LANDSCAPE HORTICULTURE MINOR REQUIREMENTS

A minimum of fifteen 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 one of the following:		3-4
PSS 106	Entomology & Pest Mgmt	
PSS 117	Plant Pathology	
PSS 138	Commercial Plant Propagation	
PSS 145	Turfgrass Management	
PSS 156	SU: 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/~plantbio/>

The Bachelor of Science in Plant Biology is offered by the College of Agriculture and Life Sciences. A Bachelor of Arts in Plant Biology is offered through the College of Arts and Sciences.

## 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. Most students also 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

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## MINORS

### PLANT BIOLOGY MINOR

Plant Biology (p. 237)

## 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. 396)

All students must meet the College Requirements. (p. 211)

This page also includes descriptions of and specific requirements for the three Plant Biology concentrations:

- General Plant Biology Concentration (p. 236)
- Ecology and Evolutionary Biology of Plants Concentration (p. 236)
- Plant Molecular Biology Concentration (p. 236)

Students select from three concentrations: General Plant Biology, Plant Molecular Biology, and Ecology and Evolutionary Biology of Plants. Basic courses that are required for all of the concentrations, and additional courses specific for each concentration, are listed below. Students may petition the Department of Plant Biology to

substitute similar courses for those listed. Study of a modern foreign language is encouraged for those attracted to the many international career opportunities in plant biology.

## MAJOR REQUIREMENTS

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

BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
BCOR 101	Genetics	3
PBIO 104	Plant Physiology	4
CHEM 031	General Chemistry 1 <sup>1</sup>	4
CHEM 032	General Chemistry 2 <sup>1</sup>	4
CHEM 141	Organic Chemistry 1 <sup>1</sup>	4
CHEM 142	Organic Chemistry 2 <sup>1</sup>	4
Choose one of the following sequences:		6-8
MATH 019 & MATH 020	Fundamentals of Calculus I and Fundamentals of Calculus II	
MATH 021 & MATH 022	Calculus I and Calculus II	
Choose one of the following:		3
STAT 141	Basic Statistical Methods	
STAT 211	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	

<sup>1</sup> Students desiring an especially strong foundation in chemistry may enroll in the equivalent courses for chemistry majors: CHEM 035, CHEM 036, CHEM 143, CHEM 144 instead of taking CHEM 031, CHEM 032, CHEM 141, CHEM 142.

Students must also complete the requirements for one of the following concentrations:

## GENERAL PLANT BIOLOGY CONCENTRATION

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

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

Concentration Requirements		
PBIO 108	Morph & Evo of Vascular Plants	4
or PBIO 109	Plant Systematics	
BCOR 102	Ecology and Evolution	4
or BCOR 103	Molecular and Cell Biology	
Concentration Electives		
At least eighteen credits of courses relevant to plant biology (at least two must be PBIO courses and at least two must be 200-level courses) selected in consultation with the student's advisor.		18

## ECOLOGY AND EVOLUTIONARY BIOLOGY OF PLANTS CONCENTRATION

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

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

Concentration Requirements		
PBIO 108	Morph & Evo of Vascular Plants	4
PBIO 109	Plant Systematics	4
BCOR 102	Ecology and Evolution	4
Concentration Electives		
At least fifteen credits of courses relevant to plant biology, including at least one ecology course (at least two must be PBIO courses and at least two must be 200-level courses) selected in consultation with the student's advisor.		15

## PLANT MOLECULAR BIOLOGY CONCENTRATION

This concentration focuses on the inner workings of plants at the molecular, cellular, and organismal levels. Although the basic cellular functions of plants are the same as those of animals, plants face unique challenges and have evolved interesting solutions. To understand the unique biology of plants within a context of what is known about other organisms, courses examining the biochemistry and molecular biology of plants are supplemented by courses on the molecular functions and development of other organisms. In addition to course work, students are encouraged to get hands-on

laboratory experience by taking advantage of the many opportunities to participate in independent research with departmental faculty.

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

Concentration Requirements		
BIOC 205	Biochemistry I <sup>1</sup>	3
BIOC 206	Biochemistry II <sup>1</sup>	3
BIOC 207	Biochemistry Lab <sup>1</sup>	2
BCOR 103	Molecular and Cell Biology	4
PBIO 108	Morph & Evo of Vascular Plants	4
or PBIO 109	Plant Systematics	
Concentration Electives		
At least twelve credits of courses relevant to plant biology (at least two must be PBIO courses and at least two must be 200-level courses) selected in consultation with the student's advisor.		12

<sup>1</sup> PBIO 185 and PBIO 187 may be substituted for BIOC 205, BIOC 206, and BIOC 207 with instructor permission.

To learn more about the undergraduate program, visit the Plant Biology department's website.

## PLANT BIOLOGY MINOR REQUIREMENTS

At least fifteen credits of course work in Plant Biology including:

Choose one introductory semester course:		4
PBIO 004	Intro to Botany	
BIOL 001	Principles of Biology	
BIOL 002	Principles of Biology	
BCOR 011	Exploring Biology	
BCOR 012	Exploring Biology	
Two courses at or above the 100-level		
At least one course at the 200-level		

## RESTRICTIONS

Ineligible Majors: Plant Biology, Biology, Biological Sciences

## PRE/CO-REQUISITES

The required introductory course is likely to be the prerequisite for all the remaining courses. There are no implicit requirements.

## SELF-DESIGNED B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 211)

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

The objective is to design a coherent and unique plan of study to meet the specific learning needs of the student and by which the student will achieve an advanced state of skills, knowledge, and values in their chosen field. The student must justify the designed package in two ways:

1. value to the student;
2. uniqueness and deviation from curricula already available.

The Self-Designed major usually comprises about sixty + credits of study in the junior and senior years (after the college core requirements have been fulfilled).

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

The design of the major is itself an intensive learning experience; therefore, students should plan to spend some time each week over the course of one semester designing their major.

## THE COLLEGE OF ARTS AND SCIENCES

<http://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 two programs that help them complete the first year successfully and acquire the skills and background necessary for success throughout their university careers.

In their first semester, students are encouraged to enroll in the Teacher-Advisor Program (TAP), which is designed to help students begin a successful liberal arts education. TAP combines interactive courses with careful academic advising. In TAP seminars, students approach significant issues from a variety of points of view, develop their critical thinking, and improve their skills in oral and written communication. Students' TAP instructors are also their academic advisors and help first-year students discover their interests and reach academic goals. TAP courses all satisfy the 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.

As students enter their second semester, it is important for them to continue developing the critical thinking, speaking and writing skills cultivated in TAP, and also to reflect on their choices of majors and minors. The second-semester program, Academic Introduction

to the Major (AIM), is designed to facilitate the transition into a potential major. Courses identified in the AIM program encourage the intellectual shift from a broad exposure to the liberal arts to in-depth study in a particular field. The AIM program identifies courses in all disciplines that serve as "gateway" courses to the major, giving students an opportunity to begin exploring the discipline in a more substantial manner in course work that introduces them to the nature of inquiry typical in the major.

### PRE-PROFESSIONAL PREPARATION

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

#### Medicine and Dentistry

Minimum requirements for entry into medical 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 Services office coordinates pre-medical and pre-dental advising, and has information about the requirements of specific medical and dental schools.

Because the UVM College of Arts and Sciences offers the advantages of a small liberal arts college within a comprehensive university, students have the opportunity to do research with faculty who are nationally and internationally recognized leaders in their fields. The college has an excellent record of placing graduates in medical and dental schools. Among the institutions where recent pre-medical graduates are now studying are Albert Einstein College of Medicine, 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 Services and faculty and staff advisors in Arts and Sciences. The college begins working with students as soon as they express an interest in law and provide guidance throughout their undergraduate career.

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

## Graduate Study in Other Fields

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

## Secondary Teaching

Students in the College of Arts and Sciences who are interested in becoming eligible to teach in secondary grades (7-12) should review the College of Education and Social Services section titled Teacher Education. All requirements must be fulfilled as listed in the CESS

Secondary Education State Approved program and not simply the sequence of professional courses.

## 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

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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 seven years must comply with the requirements in the catalogue current at the date of readmission. Disputed rulings may be appealed to the Committee on Academic Standing.

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 eight credits of physical education toward the 120 required for graduation. Of the 120 credits required, students electing a minor offered by the college must complete 96 credits in courses offered by departments and programs in the College of Arts and Sciences. The remaining 24 credits may be taken in courses offered by any academic unit at the University of Vermont. Students electing an approved minor offered by another school or college of the university must complete 84 credits in courses offered by the departments and programs in the College of Arts and Sciences. The remaining 36 credits, to include courses required for the minor, may be taken in courses offered by any academic unit of the University of Vermont.

No more than eight credits of military studies may apply toward the degree. Courses taken on a pass/no pass basis may not be used toward completion of any requirement listed below under sections 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 seven years must comply with the requirements in the catalogue current at the time of readmission. Students readmitted to complete a second degree, or to complete an additional major within the same degree must also comply with this rule.
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 three credits and may not be taken on a pass/no pass basis. Each semester, Special Topics courses and cross-listed courses (095, 096, 195, 196, 295, 296) are offered which may meet general and Distribution Requirements. Contact the dean's office with questions about a specific course.

### General Requirements

**Non-European Cultures:** One course, other than a foreign language, which deals with non-European cultural traditions.

The course selected to satisfy this requirement may also be used to fulfill the Distribution Requirements.<sup>1</sup>

### Distribution Requirements

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

a. **Foreign Language:** Two 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 two semesters of language has satisfied this requirement.<sup>4</sup>

b. **Mathematical Sciences:** One mathematics course at MATH 017 or higher, or STAT 051 or higher, or CS 008 or higher, or PHIL 013.

c. **Fine Arts:** One course in studio art or art history, dance (DNCE), music<sup>5</sup>, theatre<sup>6</sup>, or Film and Television Studies.

d. **Literature:** One course selected from a list of approved offerings in classics, English, French, German, world literature, Greek, Italian, Latin, Russian, and Spanish<sup>7</sup>.

e. **Humanities:** Two 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:** Two courses from a list of approved offerings in anthropology, economics, geography, Global and Regional Studies, linguistics, political science, psychological science, sociology, Vermont Studies, and Gender, Sexuality, and Women's Studies<sup>9</sup>.

g. **Natural Sciences:** Two courses, one of which must include laboratory experience, chosen from: all offerings in astronomy, biology (including BCOR), plant biology, chemistry, geology, physics, plus:

GEOG 040, GEOG 140, GEOG 143, GEOG 148, MMG 065, PSYS 111

PSYS 216, PSYS 217, PSYS 218, and PSYS 219.

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 twelve credits must be at or above the 100-level. Application of credits earned elsewhere to completion of the major is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

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 one common course used to satisfy the requirements for both majors. As with the major, at least one-half of the credits used toward completion of the minor requirements must be taken at the University of Vermont, and application of credits earned elsewhere toward completion of the minor is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of the minor requirements may be taken on a pass/no pass basis.

<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 023, ANTH 024, ANTH 028, ANTH 059, ANTH 104, ANTH 152, ANTH 161, ANTH 162, ANTH 165, ANTH 166, ANTH 172, ANTH 174, ANTH 179, ANTH 180, ANTH 189, ANTH 209, ARTH 008, ARTH 146, ARTH 184, ARTH 185, ARTH 186, ARTH 187, ARTH 188, ARTH 189, ARTH 192, ARTH 285, CLAS 145, CLAS 148, CLAS 149, DNCE 005, DNCE 031, DNCE 033, DNCE 035, DNCE 037, DNCE 155, EC 040, EC 045; ENGS 061, ENGS 179, ENGS 182, GEOG 050, GEOG 150, GEOG 151, GEOG 154, GEOG 156; GRS 001, GRS 200, GSWS 113, HST 009, HST 010, HST 035, HST 036, HST 040, HST 041, HST 045, HST 046, HST 055, HST 062, HST 063, HST 067, HST 106, HST 107, HST 140, HST 141, HST 146, HST 148, HST 150, HST 151, HST 211, HST 240, HST 250, HST 252, MU 007, MU 014, MU 107, PHIL 121, PHIL 221, POLS 157, POLS 168, POLS 174, POLS 175, POLS 176, POLS 177, POLS 266; REL 020, REL 021, REL 023, REL 026, REL 029, REL 030, REL 130, REL 131, REL 132, REL 141, REL 145, REL 163, REL 167, REL 234, SOC 171, SOC 212, SOC 272, WLIT 020, 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 010, 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, and ASL 052 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.
- <sup>5</sup> Dance and Music Performance 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 three.
- <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 037, CLAS 042, CLAS 153, CLAS 155, CLAS 156; all English courses except: ENGS 001, ENGS 004, ENGS 005 (writing courses only), ENGS 050, ENGS 051, ENGS 053, ENGS 081, ENGS 102, ENGS 103, ENGS 104, ENGS 105, ENGS 107, ENGS 108, 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 205, FREN 209, FREN 292, FREN 293, FREN 294; all World Lit courses; all German courses numbered above 100 except: GERM 103, GERM 104, GERM 121, GERM 122, GERM 201, GERM 202, GERM 213; all Greek courses numbered above 200; all Italian courses above 100 except ITAL 101; all Latin courses numbered above 100 except: LAT 211, LAT 212, LAT 255; all Russian courses numbered above 100 except: RUSS 101, RUSS 121, RUSS 122, RUSS 141, RUSS 142, RUSS 161, RUSS 221, RUSS 222, RUSS 251, all Spanish courses numbered SPAN 140 or higher except courses numbered SPAN 201, SPAN 202, SPAN 211, SPAN 212, SPAN 217, or SPAN 290, SPAN 291, SPAN 292, SPAN 293, SPAN 294 or SPAN 299.
- <sup>8</sup> The following courses have been approved for this category: all art history, history, and religion courses; CLAS 021, CLAS 022, CLAS 023, CLAS 024, CLAS 035, CLAS 121, CLAS 122, CLAS 147, CLAS 148, CLAS 149, CLAS 154, CLAS 157, CLAS 158, CLAS 162, CLAS 163, CLAS 221, CLAS 222; DNCE 050; GRK 203, GRK 205; LAT 255; MU 001, MU 005, MU 006, MU 010, MU 011, MU 012, MU 014, MU 015, MU 105, MU 106, MU 111, MU 112; all philosophy courses except PHIL 013; POLS 041, POLS 141, POLS 142, POLS 143, POLS 144, POLS 147, POLS 148, POLS 182, POLS 241, POLS 242, POLS 244, 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; GRS 091; all geography courses except: GEOG 040, GEOG 140, GEOG 143, GEOG 148; all political science courses except: POLS 041, POLS 141, POLS 142, POLS 143, POLS 144, POLS 147, POLS 148, POLS 182, POLS 241, POLS 242, POLS 245, POLS 249; all psychological science courses except: PSYS 111, PSYS 115, PSYS 211, PSYS 215, PSYS 216, PSYS 217, PSYS 218, and PSYS 219; VS 052; GSWs 001.

<sup>10</sup> Only one course may be applied toward completion of both a major and a minor requirement.

<sup>11</sup> The minor grade-point average will be calculated from the first set of courses which satisfy the minor requirements. However, if a student's grade-point average in these courses falls below 2.00, and there are additional courses which are approved for inclusion in the minor, a student may elect to drop for purposes of the grade-point calculation, one course graded below C and to replace this course with an approved alternate.

## REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE

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

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

1. A student must earn a cumulative grade-point average of 2.00 in a program consisting of a minimum of 120 credits for a Bachelor of Music degree with a concentration in performance. Students receiving degrees from the College of Arts and Sciences may apply no more than eight credits of physical education toward the 120 required for graduation. Courses taken on a pass/no pass basis may not be used toward the completion of any requirement listed below under sections 3, 4, and 5.
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. A student must complete the Distribution and General Requirements identical to that required for the Bachelor of Arts degree.
4. A student must complete a major with a concentration in performance by satisfying the requirements specified by the department, and by maintaining a cumulative grade-point average of 2.00 in the major field. Admission is by audition at the end of the first year. At least one-half of the credits used toward the major requirements must be taken at the University of Vermont. Of these, at least twelve credits must be at or above the 100-level.

Application of credits earned elsewhere to completion of the major is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

### 5. Bachelor of Music (with optional minor) Degree

A student electing this degree program must satisfy all of the requirements specified in sections 1, 2, 3, and 4 (above) as well as: A student must complete an approved minor in a field other than the major by satisfying the requirements specified by the department or program supervising the minor and by maintaining a cumulative grade-point average of 2.00 in the minor field. Students electing a minor offered by the college must complete 96 credits in courses offered by departments and programs in the College of Arts and Sciences. The remaining 24 credits may be taken in courses offered by any academic unit at the University of Vermont. Students electing an approved minor offered by another school or college of the university must complete 84 credits in courses offered by the departments and programs in the College of Arts and Sciences. The remaining 36 credits, to include courses required for the minor, may be taken in courses offered by any academic unit of the University of Vermont. At least one-half of the credits used toward completion of the minor requirements must be taken at the University of Vermont, and application of credits earned elsewhere toward completion of the minor is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of the minor requirements may be taken on a pass/no pass basis.

## REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE

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

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

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 eight credits of physical education toward the 120 required for graduation. Of the 120 credits required, 96 credits must be taken in courses offered by departments and programs in the College of Arts and Sciences (except for the B.S. in biological science which requires 84 Arts and Sciences credits). The remaining 24 credits may be taken in courses offered by any academic unit of the University of Vermont, although no more than eight credits of military studies may apply toward the degree. Courses taken on a pass/no pass

basis may not be used toward the completion of any requirement listed below under sections 4, 5, 6 and 7.

- 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 seven 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 three credits and may not be taken on a pass/no pass basis. Each semester, Special Topics and cross-listed courses (095, 096, 195, 196, 295, 296) are offered which may meet General and Distribution Requirements. Contact the dean's office with questions about a specific course.

Non-European Cultures: One course, other than a foreign language, which deals with non-European cultural traditions. (See footnote under Bachelor of Arts Distribution Requirements.)

### 5. Distribution Requirements

A student must complete the Distribution Requirements for the Bachelor of Science degree by completing FIVE of the following SIX categories: (i) fine arts and literature (2 courses - one course in each area), (ii) foreign language (2 courses in the same language at the appropriate level), (iii) humanities (2 courses), (iv) natural sciences (2 courses with lab as defined by the major requirements), (v) mathematical sciences (2 courses as defined by the major requirements), or (vi) social sciences (2 courses). 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.

- A student must complete an approved major in the College of Arts and Sciences by satisfying the requirements specified by the department or program supervising the major, and by maintaining a cumulative grade-point average of 2.00 in the major field. Unless specifically required, no more than 50 credits in courses with the same departmental prefix may be used toward completion of the 120 credits required for graduation. At least one-half of the credits used toward the major requirements must be taken at UVM. Of these, at least twelve credits must be at or above the 100-level. Application of credits earned elsewhere toward completion of the

major is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of major requirements may be taken on a pass/no pass basis.

### 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 minor offered by another school or college of the university must complete 84 credits in courses offered by the departments and programs in the College of Arts and Sciences. The remaining 36 credits, to include courses required for the minor, may be taken in courses offered by any academic unit of the University of Vermont. At least one-half of the credits used toward completion of the minor requirements must be taken at the University of Vermont, and application of credits earned elsewhere toward completion of the minor is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of the minor requirements may be taken on a pass/no pass basis. No more than two of the courses from Distribution Requirements may be applied toward the completion of the minor requirements. Only one course may be applied toward completion of both a major and a minor requirement. The minor grade-point average will be calculated from the first set of courses which satisfy the minor requirements. However, if a student's grade-point average in these courses falls below 2.00 and there are additional courses which are approved for inclusion in the minor, a student may elect to drop, for purposes of the grade-point average calculation, one course graded below C and to replace this course with an approved alternate.

## 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 nine or more such credits in a single semester.

### GOVERNING COLLEGE HONORS

- The College Honors program, designed for the superior student with unusual initiative and intellectual curiosity, provides an opportunity for a student to pursue two semesters (six credits) of

independent research or a creative project under the direction of a faculty sponsor. Students in the College of Arts and Sciences may apply for College Honors if they have a cumulative GPA of 3.40 or higher at the time the application is submitted. The research or project must have been approved by the sponsoring department and by the Honors Committee. All application materials must be turned in to the committee by the deadlines posted on the College Honors website, typically during the first semester of the candidate's senior year. Students must present a satisfactory written report and pass an oral exam upon completion of the Honors project. Students who wish to consider undertaking a College Honors project during the junior year should contact the office of the dean for information concerning the circumstances in which such an exceptional arrangement is possible.

2. Some departments in the college, including economics, English, geography, history, mathematics, and political science, sponsor departmental Honors programs. Participation in these programs is limited to those students who are specifically recommended by their department. Each department will define what is required to earn departmental Honors. A student who successfully completes this program is granted a degree with departmental Honors. These programs are administered directly by the sponsoring department and information concerning them may be obtained from faculty advisors.

## GOVERNING STUDY ABROAD

Students should refer to the general university regulations and procedures pertaining to study abroad. For Arts and Sciences students the following additional policies pertain to the application of credit earned in a study abroad program:

1. Regardless of the number of credits accepted in transfer by the university, a maximum of sixteen credits earned in a one-semester study abroad program will be applied toward satisfaction of degree requirements. For year-long programs, a maximum of thirty-two credits will be applied toward the degree.
2. Students must complete thirty of the last forty-five credits in residence at UVM. One-half of the credits applied toward the satisfaction of major requirements, including twelve credits at the 100-level or higher, must be completed at the University of Vermont. One-half of the credits applied toward the satisfaction of minor requirements must be completed at the University of Vermont.
3. Under no circumstances will a student in the College of Arts and Sciences be permitted to enroll in a university-sanctioned study abroad program while on trial.

## GOVERNING TRANSFER INTO THE COLLEGE

A student who wishes to transfer into the College of Arts and Sciences from another college or school at the university must comply with the Intercollege Transfer policy in the Academic and General Information section of this catalogue. Applications for internal transfer may be submitted to the dean's office at any time, and they will be reviewed on a continuous basis.

## GOVERNING ACADEMIC STANDARDS

The following criteria for academic trial and dismissal, while making allowances for the student in the first semester, are designed to encourage academic work of quality at least equal to the minimum required for graduation.

### Trial

1. A student who earns a semester grade-point average higher than that which merits dismissal but below 2.00 is placed on trial. In order to avoid dismissal from the university, a student who has been placed on trial must in the following semester earn a 2.00 semester average, enroll in all courses for a letter grade, and maintain a program of twelve or more credits. No student will be removed from trial until both the semester and cumulative averages are at least 2.00. A student who is on trial may not enroll in a university-sanctioned study abroad program.
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 trial and must in the following semester satisfy the same probationary requirements as described above. All first-year students who have a cumulative grade-point average which is below 2.00 after completion of the second semester will be placed on trial.

### Dismissal

A student who does not satisfy the conditions of trial, or who earns a semester grade-point average of 1.00 or lower, or who earns failing grades in one-half of the semester credits attempted (excluding courses in physical education and military studies) will be dismissed for low scholarship. The period of dismissal is one year. Dismissed students must receive written approval from the College of Arts and Sciences dean's office before enrolling in any university course.

### Readmission Following Dismissal

A dismissed student who presents evidence of his/her ability to perform satisfactorily may be considered for readmission on trial. A student who has been dismissed for a second time will not be considered for readmission on trial until at least three years have elapsed. Further information regarding readmission may be obtained from the dean's office.

## DEPARTMENT OF ANTHROPOLOGY

<http://www.uvm.edu/~anthro/>

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, 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.

**MAJORS**

**ANTHROPOLOGY MAJOR**

Anthropology B.A. (p. 246)

**MINORS**

**ANTHROPOLOGY MINOR**

Anthropology (p. 247)

**ANTHROPOLOGY B.A.**

All students must meet the University Requirements (p. 396).

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

Thirty-three credits in anthropology:

Core Courses (twelve credits):		12
ANTH 021	D2:SU: Cultural Anthropology	
ANTH 024	D2:SU: Prehistoric Archaeology	
ANTH 026	D2:Biological Anthropology	
ANTH 028	D2: Linguistic Anthropology	
Two 100-level courses in two different subfields (6 credits):		6
Archaeology Subfield:		
ANTH 104	D2:Archaeology of the Americas	
ANTH 134	Prehistory of North America	
ANTH 135	Prehistory of the US Southwest	
ANTH 160	D1: North American Indians	
ANTH 161	D2: Cultures of South America	
ANTH 164	Indians of the NE: Vermont	
ANTH 188	Historical Archaeology	
Biological Anthropology Subfield:		
ANTH 140	Primates and Anthropology	
ANTH 172	D2: Gender, Sex and Culture	
ANTH 174	D2:Culture, Health and Healing	
ANTH 187	D1: Race and Ethnicity	
ANTH 189	D2:Aging in Cross-Cultrl Persp	
Cultural Anthropology Subfield:		
ANTH 102	Anthropology of Sports	
ANTH 103	Political Anthropology	
ANTH 123	Anthropology of Crisis	
ANTH 125	History of Anthropology	

ANTH 127	Modernity & Material Culture	
ANTH 151	Anth of East Europe	
ANTH 152	D2:Chinese Culture	
ANTH 153	Gender in the Middle East	
ANTH 155	Anthropology of Islam	
ANTH 160	D1: North American Indians	
ANTH 161	D2: Cultures of South America	
ANTH 162	D2: Cultures of Africa	
ANTH 165	D2: Peoples of South Asia	
ANTH 166	D2: Peoples of the Middle East	
ANTH 169	D1: Latinos in the US	
ANTH 172	D2: Gender, Sex and Culture	
ANTH 174	D2:Culture, Health and Healing	
ANTH 179	D2: Environmental Anthropology	
ANTH 180	D2: Psychological Anthropology	
ANTH 181	Law, War and Disorder	
ANTH 183	The Anthropology of Genocide	
ANTH 184	Street Children	
ANTH 185	D2:Food and Culture	
ANTH 187	D1: Race and Ethnicity	
ANTH 189	D2:Aging in Cross-Cultrl Persp	
Linguistic Anthropology Subfield:		
ANTH 142	Introduction to Syntax	
ANTH 176	Topics in Linguistic Anthro (may repeat for credit with different content)	
ANTH 178	Sociolinguistics	
Two courses at the 200-level (six credits) - (only three credits of ANTH 200 will count toward this requirement. ANTH 293 will not count toward this requirement)		6
Two additional courses at the 100- or 200-level (6 credits)		6
One additional course at any level (3 credits)		3
Only three credits from the following independent research courses may count toward the major:		
ANTH 190	ISSP Thesis	
ANTH 197	Undergraduate Research	
ANTH 198	Undergraduate Research	
ANTH 297	Undergraduate Research	
ANTH 298	Undergraduate Research	



HON 202	Honors: Anthropology	
HON 203	Honors: Anthropology	
Only three credits of the following practicum courses may count toward the major:		
ANTH 191	Teaching Assistantship	
ANTH 093	Internship	
ANTH 193	Internship	
ANTH 199	Practicum	
ANTH 293	Internship	

All students are strongly recommended to take the proseminars, ANTH 105 and ANTH 205, to assist them in planning for their professional goals.

Courses will only apply toward the major requirements if they are taken as a block of three credits in a single semester.

The department will indicate which subfields ANTH 195/196 courses will fill.

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.

## ANTHROPOLOGY MINOR REQUIREMENTS

Eighteen credits in anthropology, including:

Six 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 twelve additional credits, at least nine 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	ISSP Thesis	3
ANTH 193	Internship	1-18
ANTH 197	Undergraduate Research	1-6
ANTH 198	Undergraduate Research	1-12

ANTH 199	Practicum	1-18
ANTH 293	Internship	1-18
ANTH 297	Undergraduate Research	1-3
ANTH 298	Undergraduate Research	1-3

## DEPARTMENT OF ART AND ART HISTORY

<http://www.uvm.edu/~artdept/>

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. Completion of the Studio Art major leads to the B.A. in Studio 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 or to a minor in Art History

### 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. 248)

Art: Studio Art B.A. (p. 248)

**MINORS**

**ART AND ART HISTORY MINORS**

Art (p. 249)

Art History (p. 249)

**ART HISTORY B.A.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

Thirty credit hours in art history and six credit hours in art studio (36 credit hours total):

Choose two of the following:		6
ARTH 005	Western Art: Ancient - Medieval	
ARTH 006	Western Art: Renaissance-Modern	
ARTH 008	D2: Asian Art	
Twelve credits to include three credits from four of the following five 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 149	Roman Art	
ARTH 155	Topics in Medieval Art	
Early Modern European:		
ARTH 158	Northern European 1400-1600	
ARTH 162	Italian Early Renaissance Art	
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 172	19th-Century European Painting	
ARTH 174	20th-Century Art	
ARTH 177	19th & 20th Cent Arch & Design	
ARTH 180	N American Art 1600-1900	
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 176	Identity Diversity Postmod Art	
ARTH 178	Methods and Theories	
ARTH 179	Issues in Contemporary Art	
ARTH 189	D2: Topics in Non-Western Art	
ARTH 199	Topics: Gender, Race, Ethn in Art	
Twelve additional art history credits, to include at least one course (three credits) ARTH 282 or higher to be taken during the junior or senior year, preferably during the senior year		12
Six 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 three credits from either ARTH 190 or ARTH 191 may count toward requirements for the major.

No more than three credits of ARTH 198 (Readings and Research) may be used toward major requirements.

**ART: STUDIO ART B.A.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

Thirty credit hours in art studio and nine credit hours in art history (39 credit hours total) including the following:

<b>Category A: Studio Art Foundation</b>		
ARTS 001	Drawing	3
ARTS 012	Perspectives on Art Making	3
<b>Category B: Studio Art 100-level (15 credits)</b>		
Choose two of the following (6 credits):		6
ARTS 113	Clay: Hand Building	
ARTS 114	Clay: Wheel Throwing	
ARTS 115	Intermediate Drawing	
ARTS 116	Drawing From the Figure	
ARTS 121	Painting	
ARTS 131	Printmaking: Etching	
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	Motion Picture Production	
ARTH 190	Internship: Art History	
ARTS 195	Intermediate Special Topics	
ARTS 197	Rdgs&Rsch: Tutorial in Studio	
Choose one of the following from Area 1: Photography, Motion Picture and Digital Art (three credits):		3
ARTS 137	Photography	
ARTS 138	Color Photography	
ARTS 139	Animation	
ARTS 144	Digital Art	
ARTS 148	Motion Picture Production	
Choose one of the following from Area 2: Drawing, Painting, Printmaking, Graphic Design (three credits)		3
ARTS 115	Intermediate Drawing	
ARTS 116	Drawing From the Figure	
ARTS 121	Painting	
ARTS 131	Printmaking: Etching	
ARTS 132	Printmaking: Silkscreen	
ARTS 134	Color Structures in Silkscreen	
ARTS 145	Graphic Design	
Choose one of the following from Area 3: Ceramics, Sculpture (three credits)		3
ARTS 113	Clay: Hand Building	
ARTS 114	Clay: Wheel Throwing	
ARTS 141	Sculpture	
<b>Category C: Studio Art 200-level</b>		
Choose two of the following (6 credits):		6
ARTS 213	Advanced Ceramics	
ARTS 215	Advanced Drawing	
ARTS 221	Advanced Painting	
ARTS 230	Projects in Printmaking	
ARTS 237	Advanced Photography	
ARTS 241	Advanced Sculpture	

ARTS 244	Advanced Digital Art	
ARTS 248	Adv Motion Picture Production	
ARTS 281	Advanced Studies in Studio Art	
ARTS 283	Advanced Seminar in Studio Art	
ARTS 295	Special Topics in Studio Art	
One additional studio art course at any level (three credits)		3
<b>Category D: Art History Foundation</b>		
Choose two of the following (six credits):		6
ARTH 005	Western Art: Ancient - Medieval	
ARTH 006	Western Art: Renaissance-Modern	
ARTH 008	D2: Asian Art	
<b>Category E: Art History 100-level (3 credits):</b>		
One of any 100-level ARTH course (except ARTH 190)		3

ARTS 191 does not count toward major requirements. No more than three credits of ARTS 197 (Readings and Research) may be used towards major requirements. No more than three credits of ARTS 297 (Independent Study) may be used towards major requirements.

## ART HISTORY MINOR REQUIREMENTS

Eighteen credits, including:

Choose two of the following:		6
ARTH 005	Western Art: Ancient - Medieval	
ARTH 006	Western Art: Renaissance-Modern	
ARTH 008	D2: Asian Art	
Twelve credits of 100-level courses or above		12

## RESTRICTIONS

Ineligible Major: Art History

The following will not count toward the minor: ARTH 190, ARTH 198

## ART MINOR REQUIREMENTS

Eighteen credits from the disciplines of Studio Art and Art History, including:

ARTS 001	Drawing	3
ARTS 012	Perspectives on Art Making	3
Three 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	
Of the 12 additional credits, at least nine credits must be at the 100-level or above.		12
A minimum of 6 credits in each discipline is required, with a resulting maximum of 12 credits in either studio art or art history used to meet requirements for the minor.		

## RESTRICTIONS

Ineligible majors: Studio Art, Art History

Ineligible minor: Art History

The following courses do not count for the minor: ARTS 190, ARTS 191, ARTS 197, ARTS 283

## DEPARTMENT OF ASIAN LANGUAGES AND LITERATURES

<http://www.uvm.edu/~all/>

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 as well as Arabic language 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. 250)

Japanese B.A. (p. 250)

## MINORS

### ASIAN LANGUAGES AND LITERATURES MINORS

Chinese (p. 250)

Japanese (p. 251)

## CHINESE B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

Fifteen 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 fifteen credits of courses on Chinese history and/or culture, taken in at least two different disciplines, in addition to WLIT 110. Six of those credits must be at the 100-level or higher.		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. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

Fifteen 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 fifteen credits of courses on Japanese history and/or culture taken in at least two disciplines other than Japanese language. Six of those credits must be at the 100-level or higher.		15

All course work should be chosen in consultation with the student's major advisor.

## CHINESE MINOR REQUIREMENTS

Fifteen credits of Chinese, at least nine of those credits at the 100-level, including CHIN 102 or its equivalent		
Three credits at or above the 100-level in Chinese linguistics or literature may be substituted for three credits of language study beyond CHIN 102 or its equivalent		

## OTHER INFORMATION

Additional courses in Chinese may be taken to make a major in Asian Studies and a minor in Chinese possible without more than one course overlap.



## JAPANESE MINOR

### REQUIREMENTS

Fifteen credits of Japanese with at least nine of those credits at the 100-level, including JAPN 102 or its equivalent	
Three credits at or above the 100-level in Japanese linguistics or literature may be substituted for three credits of language study beyond JAPN 102 or its equivalent.	

### OTHER INFORMATION

A major in Asian Studies and a minor in Japanese may be possible if additional courses in Japanese are taken to reduce overlap to one course.

## BIOCHEMISTRY IN THE COLLEGE OF ARTS AND 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 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 (CAL S) and the College of Medicine (COM). It draws upon a broad set of University resources from all three colleges to provide students with a modern science-based education, 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. 251)

### MINORS

#### BIOCHEMISTRY MINOR

Biochemistry (p. 252)

## 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. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

The biochemistry core requires satisfactory completion of:		
BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
MATH 021	Calculus I	4
MATH 022	Calculus II	4
PHYS 051	Fundamentals of Physics I	4
PHYS 152	Fundamentals of Physics II	4
CHEM 035	General Chemistry for Majors 1	4
CHEM 036	General Chemistry for Majors 2	4
CHEM 143	Organic Chemistry for Majors 1	4
CHEM 144	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	2
Choose one of the following:		1
BIOC 284	Biochemistry Senior Seminar	
HON 275 & HON 276	Honors: Biochemistry and Honors: Biochemistry	
BCOR 101	Genetics	3
BCOR 103	Molecular and Cell Biology	4
Nine credits of advanced biochemistry-related electives		9
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	

or BIOL 205	Adv Genetics Laboratory	
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	Elementary Physics and Elementary Physics (with PHYS 021 and PHYS 022 for PHYS 051 and PHYS 152)	
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2 (for CHEM 035 and CHEM 036)	
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2 (for CHEM 143 and CHEM 144)	

Students completing the B.S. in Biochemistry may not also receive the B.A. with a chemistry major in either the Biomolecular or Environmental concentrations.

## BIOCHEMISTRY MINOR

### REQUIREMENTS

Seventeen credits of chemistry and biochemistry course work:

CHEM 143	Organic Chemistry for Majors 1 <sup>1</sup>	4
CHEM 144	Organic Chemistry for Majors 2 <sup>2</sup>	4
BIOC/CHEM/MMG 205	Biochemistry I	3
BIOC/CHEM/MMG 206	Biochemistry II	3
BIOC/CHEM/MMG 207	Biochemistry Lab	2
BIOC 296	Advanced Special Topics	1

<sup>1</sup> CHEM 141 may be substituted for CHEM 143

<sup>2</sup> CHEM 142 may be substituted for CHEM 144

### RESTRICTIONS

Not available to Chemistry majors and minors.

## DEPARTMENT OF BIOLOGY

<http://www.uvm.edu/~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. 252)

Biological Science B.S. (p. 253)

Zoology B.A. (p. 254)

Zoology B.S. (p. 254)

## MINORS

### BIOLOGY MINORS

Biology (p. 255)

Zoology (p. 255)

## 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. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

Choose one of the following sequences: <sup>1</sup>		8
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	

CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
Choose one of the following options:		5
Option A (recommended)		
PHYS 012 & PHYS 022	Elementary Physics and Introductory Lab II	
or PHYS 152	Fundamentals of Physics II	
Option B		
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
or PHYS 051	Fundamentals of Physics I	
MATH 019 & MATH 020	Fundamentals of Calculus I and Fundamentals of Calculus II	6-8
or MATH 021 & MATH 022	Calculus I and Calculus II	
Thirty-three credits of biology including Introductory Biology		33
Choose one of the following options:		8
Option A (recommended)		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
Option B		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
BCOR 101	Genetics	3
BCOR 102	Ecology and Evolution	4
BCOR 103	Molecular and Cell Biology	4
BIOL 255	Comparative Physiology	4
Three additional 200-level biology courses (including at least one with a laboratory). <sup>2</sup>		

<sup>1</sup> CHEM 031/CHEM 032 or CHEM 035/CHEM 036 to be taken the first year if possible.

<sup>2</sup> Of the three additional 200-level biology courses, one course may be taken from outside the department from approved offerings in other departments; consult the Department of Biology office. Neither HON 208, HON 209 nor BIOL 297/BIOL 298 will count toward the required major credits.

Note: Most professional schools (e.g., medicine, dentistry, veterinary, physical therapy) require the equivalent of PHYS 012, PHYS 022, or PHYS 152.

## BIOLOGICAL SCIENCE B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

The Integrated Biological Science B.S. core requires satisfactory completion of:

BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
BCOR 101	Genetics	3
BCOR 102	Ecology and Evolution	4
BCOR 103	Molecular and Cell 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 options:		5
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	
Choose one of the following sequences:		6-8
MATH 019 & MATH 020	Fundamentals of Calculus I and Fundamentals of Calculus II	
MATH 021 & MATH 022	Calculus I and Calculus II	
STAT 141	Basic Statistical Methods	3
or STAT 211	Statistical Methods I	

In consultation with their academic advisor, students will design a course of study that includes an additional twenty-six credits of advanced life science electives. From the advanced-level electives, students are advised to complete twelve credits from courses with a quantitative component, three credits that stress oral communication and three credits that stress written communication.

Within the advanced-level elective courses, and excluding the BCOR courses, no more than eight credits at the 100-level may apply toward the major except with written permission from an advisor and not exceeding three 100-level courses. With an advisor's permission, a biologically relevant 300-level course may be applied toward the advanced-level course requirement.

Up to six credits of undergraduate research in any biological discipline may be applied to the twenty-six credits of advanced electives. Only three of these can be taken for credit at the 100-level, and these will be counted in the eight credits allowed at the 100-level.

In their second year, all students are expected to meet with their advisor to map a plan of study for completing their higher-level courses. The plan will be signed by both the advisor and student and will become a part of the student's record.

Students majoring in the B.S. program in biological science are required to take at least eighty-four credits of course work in the College of Arts and Sciences. This does not apply to CALS students.

## ZOOLOGY B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

Choose one of the following sequences: <sup>1</sup>		8
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
MATH 019	Fundamentals of Calculus I (or higher)	3
At least six additional credits in quantitative disciplines from among mathematics (MATH 020 or higher), physics (PHYS 011 or higher), or statistics (STAT 141 or higher).		6
Choose one of the following options:		8
<b>Option A (recommended)</b>		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
<b>Option B</b>		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
BCOR 101	Genetics	3
BCOR 102	Ecology and Evolution	4
or BCOR 103	Molecular and Cell Biology	
At least fifteen additional credits in zoology or related fields:		15
BCOR 102	Ecology and Evolution (whichever was not taken above)	
or BCOR 103	Molecular and Cell Biology	
Or other courses from the approved list available from the Department of Biology office or department advisors		

<sup>1</sup> CHEM 031/CHEM 032 or CHEM 035/CHEM 036 to be taken the first year if possible.

Students preparing for entry into professional schools, such as veterinary or human medicine or dentistry, should consult with their department advisor to select the proper sequence of electives.

## ZOOLOGY B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

Choose one of the following sequences: <sup>1</sup>		8
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	
CHEM 141	Organic Chemistry 1	4
CHEM 142	Organic Chemistry 2	4
MATH 019	Fundamentals of Calculus I (or higher)	3
At least fifteen credits in quantitative disciplines from among mathematics (MATH 020 or higher), physics (PHYS 011 or higher), or statistics (at least one course is required from STAT 141 or higher).		15
Choose one of the following options:		8
<b>Option A (recommended)</b>		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
<b>Option B</b>		
BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
BCOR 101	Genetics	3
BCOR 102	Ecology and Evolution	4
or BCOR 103	Molecular and Cell Biology	
At least twenty-seven additional credits in zoology or related fields from the approved list available from the Department of Biology office or department advisors.		27

<sup>1</sup> CHEM 031/CHEM 032 or CHEM 035/CHEM 036 to be taken the first year if possible.

Students preparing for entry into professional schools, such as veterinary or human medicine or dentistry, should consult with their department advisor to select the proper sequences of electives.



**BIOLOGY MINOR****REQUIREMENTS**

BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	8
or BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
Three courses at the 100-level or higher chosen from courses acceptable for the biology major, at least one of which must include a laboratory		
One course may be taken from the advanced offerings of other biologically-oriented departments. Consult the Biology department for a list of approved courses.		

**RESTRICTIONS**

Ineligible Majors: Biology (B.A.), Biological Sciences (B.S.), Plant Biology (B.A.), Zoology (B.A., B.S.)

Neither HON 208/ HON 209, BIOL 191/BIOL 192, BIOL 197/ BIOL 198, nor BIOL 297/ BIOL 298 will count toward the required minor credits.

**PRE/CO-REQUISITES**

CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	8
Concurrent with:		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	8

**OTHER INFORMATION**

The following courses may be necessary for advanced offerings:		
CHEM 141	Organic Chemistry 1	
CHEM 142	Organic Chemistry 2	
MATH 019	Fundamentals of Calculus I (or above)	

**ZOOLOGY MINOR****REQUIREMENTS**

BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	8
or BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	
Three courses at the 100-level or above, chosen from courses within the biology department, at least one of which must include a laboratory		

**RESTRICTIONS**

Ineligible Majors: Zoology (B.A., B.S.), Biology (B.A.), Biological Sciences (B.S.), Plant Biology (B.A.)

Neither HON 208/ HON 209, BIOL 191/ BIOL 192, BIOL 197/ BIOL 198, nor BIOL 297/ BIOL 298 will count toward the required minor credits.

**PRE/CO-REQUISITES**

CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	8
Concurrent with:		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	8

**OTHER INFORMATION**

Prerequisites for upper division courses vary.

**DEPARTMENT OF CHEMISTRY**

<http://www.uvm.edu/~chem/>

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. 256)

Chemistry B.S. (p. 257)

**MINORS****CHEMISTRY MINOR**

Chemistry (p. 257)

**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. 396)

All students must meet the College Requirements. (p. 240)

Students choose to concentrate in one of three areas: General, Biomolecular, or Environmental Chemistry. All three are acceptable degrees for continuation to a variety of advanced degree programs in chemistry or other sciences as well as medicine, veterinary science, law, or business.

General Concentration (p. 256)

Biomolecular Concentration (p. 256)

Environmental Concentration (p. 257)

**MAJOR REQUIREMENTS****General Concentration**

Choose one of the following sequences:		8
CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
CHEM 031 & CHEM 036	General Chemistry 1 and General Chemistry for Majors 2	
CHEM 121	Quantitative Analysis	0 or 4
Choose one of the following sequences:		8
CHEM 143 & CHEM 144	Organic Chemistry for Majors 1 and Organic Chemistry for Majors 2	
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2	
CHEM 141 & CHEM 144	Organic Chemistry 1 and Organic Chemistry for Majors 2	
CHEM 146	Advanced Organic Laboratory	2
CHEM 165	Intro Physical Chemistry	3
CHEM 167	Physical Chemistry Preparation	1
CHEM 201	Advanced Chemistry Laboratory	3
CHEM 202	Advanced Chemistry Laboratory	2
CHEM 221	Instrumental Analysis	3

CHEM 231	Advanced Inorganic Chemistry	3
CHEM 260	Advanced Physical Chemistry	3
CHEM 282	Senior Seminar	1
MATH 021	Calculus I	4
MATH 022	Calculus II	4
PHYS 051	Fundamentals of Physics I	0 or 4
PHYS 152	Fundamentals of Physics II	0 or 4

**Biomolecular Concentration<sup>1</sup>**

CHEM 031	General Chemistry 1	0-4
or CHEM 035	General Chemistry for Majors 1	
CHEM 032	General Chemistry 2	0-4
or CHEM 036	General Chemistry for Majors 2	
CHEM 121	Quantitative Analysis	0 or 4
CHEM 141	Organic Chemistry 1	0-4
or CHEM 143	Organic Chemistry for Majors 1	
CHEM 142	Organic Chemistry 2	0-4
or CHEM 144	Organic Chemistry for Majors 2	
CHEM 165	Intro Physical Chemistry	3
CHEM 201	Advanced Chemistry Laboratory	3
CHEM 205	Biochemistry I	3
CHEM 231	Advanced Inorganic Chemistry	3
CHEM 282	Senior Seminar	1
MATH 021	Calculus I	4
MATH 022	Calculus II	4
Choose one of the following:		4-5
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
PHYS 051	Fundamentals of Physics I	
Choose one of the following:		4-5
PHYS 012 & PHYS 022	Elementary Physics and Introductory Lab II	
PHYS 152	Fundamentals of Physics II	
BIOL 001	Principles of Biology	0-4
or BCOR 011	Exploring Biology	
BIOL 002	Principles of Biology	0-4
or BCOR 012	Exploring Biology	
BCOR 103	Molecular and Cell Biology	4

Choose one of the following:		3
BIOC 206	Biochemistry II	
Or one course chosen from a list of approved courses		

**Environmental Concentration<sup>1</sup>**

CHEM 031	General Chemistry 1	0-4
or CHEM 035 General Chemistry for Majors 1		
CHEM 032	General Chemistry 2	0-4
or CHEM 036 General Chemistry for Majors 2		
CHEM 121	Quantitative Analysis	0 or 4
CHEM 141	Organic Chemistry 1	0-4
or CHEM 143 Organic Chemistry for Majors 1		
CHEM 142	Organic Chemistry 2	0-4
or CHEM 144 Organic Chemistry for Majors 2		
CHEM 201	Advanced Chemistry Laboratory	3
CHEM 165	Intro Physical Chemistry	3
CHEM 221	Instrumental Analysis	3
CHEM 231	Advanced Inorganic Chemistry	3
CHEM 282	Senior Seminar	1
MATH 021	Calculus I	4
MATH 022	Calculus II	4
Choose one of the following:		4-5
PHYS 011 & PHYS 021	Elementary Physics and Introductory Lab I	
PHYS 051	Fundamentals of Physics I	
Choose one of the following:		4-5
PHYS 012 & PHYS 022	Elementary Physics and Introductory Lab II	
PHYS 152	Fundamentals of Physics II	
Two courses chosen from a list of approved courses		

<sup>1</sup> Students completing the B.A. with a chemistry major in either the Biomolecular or Environmental concentrations may not also receive the B.S. with the biochemistry major.

**CHEMISTRY B.S.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

Students pursuing a Bachelor of Science degree in chemistry complete an extensive set of courses including research and biochemistry, providing them with a degree that is certified by the

American Chemical Society. The B.S. degree is a particularly good preparation for graduate school in chemistry.

**MAJOR REQUIREMENTS**

Choose one of the following sequences:		8
CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
CHEM 031 & CHEM 036	General Chemistry 1 and General Chemistry for Majors 2	
CHEM 121	Quantitative Analysis	0 or 4
Choose one of the following sequences:		8
CHEM 143 & CHEM 144	Organic Chemistry for Majors 1 and Organic Chemistry for Majors 2	
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2	
CHEM 141 & CHEM 144	Organic Chemistry 1 and Organic Chemistry for Majors 2	
CHEM 146	Advanced Organic Laboratory	2
CHEM 165	Intro Physical Chemistry	3
CHEM 167	Physical Chemistry Preparation	1
CHEM 201	Advanced Chemistry Laboratory	3
CHEM 202	Advanced Chemistry Laboratory	2
CHEM 205	Biochemistry I	3
CHEM 221	Instrumental Analysis	3
CHEM 231	Advanced Inorganic Chemistry	3
CHEM 260	Advanced Physical Chemistry	3
CHEM 282	Senior Seminar	1
Advanced chemistry-related course work, which must include 3 credits of CHEM 291 or equivalent		6
MATH 021	Calculus I	4
MATH 022	Calculus II	4
PHYS 051	Fundamentals of Physics I	0 or 4
PHYS 152	Fundamentals of Physics II	0 or 4

**CHEMISTRY MINOR REQUIREMENTS**

CHEM 031	General Chemistry 1	4
or CHEM 035 General Chemistry for Majors 1		
CHEM 032	General Chemistry 2	4

or CHEM 036	General Chemistry for Majors 2	
Choose one of the following options:		7-10
<b>Option A:</b>		
CHEM 141	Organic Chemistry 1	4
or CHEM 143	Organic Chemistry for Majors 1	
CHEM 142	Organic Chemistry 2	4
or CHEM 144	Organic Chemistry for Majors 2	
and one of the following:		
CHEM 121	Quantitative Analysis	
CHEM 131	Inorganic Chemistry	
CHEM 165	Intro Physical Chemistry	
<b>Option B:</b>		
CHEM 165	Intro Physical Chemistry	3
CHEM 260	Advanced Physical Chemistry	3
and one 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.), Environmental Science Chemistry focus track

## PRE/CO-REQUISITES

(MATH 020, MATH 022, or MATH 023) and (PHYS 011 or PHYS 051) required for CHEM 165.	
PHYS 152, CHEM 165, and (CHEM 167 or MATH 021) required for CHEM 260	

## DEPARTMENT OF CLASSICS

<http://www.uvm.edu/~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. 258)

Greek B.A. (p. 259)

Latin B.A. (p. 259)

## MINORS

### CLASSICS MINORS

Classical Civilization (p. 259)

Greek Language and Literature (p. 259)

Latin Language and Literature (p. 260)

## 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. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

Thirty-six credits consisting of thirty credits in the major discipline and six in related courses. Of the thirty credits in the major discipline, twelve must be at the 100-level or higher.

### Major Discipline

All courses in classics, Latin, Greek, ancient history, and ancient art are applicable, of which:		
One course in ancient art is required:		3
ARTH 146	D2: Egypt & the Ancient Near E	
or ARTH 148	Greek Art	
or ARTH 149	Roman Art	
Two courses in ancient history are required. The two history courses must be in two different cultural areas, chosen from among the following:		6
Greece:		
CLAS 021	Classical Greek Civilization	
or CLAS 121	History of Greece	
Rome:		



CLAS 023	Classical Roman Civilization	
or CLAS 122	History of Rome	
The Near East:		
CLAS 149	D2:Hist of Ancient Near East	
CLAS 221	Seminar in Ancient History (taken when offered and the topic is appropriate)	3
CLAS 222	Seminar in Ancient History (taken when offered and the topic is appropriate)	3

### Related Courses

For a list of approved related courses in fine arts, humanities, social sciences and natural sciences, students should consult with the Department of Classics.

### Foreign Language

Fulfillment of the language Distribution Requirements of the College of Arts and Sciences is required, preferably in Latin or Greek. A list of approved related courses is kept on file in the Department of Classics, reviewed annually, and adjusted to meet the special interests of those intending to major in Classical Civilization.

## GREEK B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Thirty credits in courses above GRK 050 including:

GRK 211	Greek Prose Style	3
GRK 212	Greek Prose Style	3
CLAS 121	History of Greece	3
One course in Literature in Translation above the 100-level and one course in Latin above the 100-level are applicable		
A second foreign language, at least through the intermediate level, is recommended		

## LATIN B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Thirty credits in courses above LAT 050 including:

LAT 211	Latin Prose Style	3
LAT 212	Latin Prose Style	3
CLAS 122	History of Rome	3
One classics course above the 100-level and one course in Greek above the 100-level are applicable		

A second foreign language, at least through the intermediate level, is recommended	
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## CLASSICAL CIVILIZATION MINOR REQUIREMENTS

Eighteen credits from the following (of which at least nine 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
ARTH 149	Roman Art
All special topic 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 and Elementary
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 one course.

## GREEK LANGUAGE AND LITERATURE MINOR

### REQUIREMENTS

Fifteen credits of Greek at GRK 051 or above (including nine at the 100-level or above), which may include one three-credit course at the 100-level or above in Latin or classics	15
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### RESTRICTIONS

Ineligible Major: Greek

### PRE/CO-REQUISITES

Through GRK 002	
HST 009 or CLAS 023 or one course in philosophy, Greek, Greek Culture (classics), literature, history, anthropology, or sociology	

## OTHER INFORMATION

A major in Classical Civilization and a minor in Greek Language and Literature may be possible if additional courses in Greek are taken to reduce overlap to one course.

## LATIN LANGUAGE AND LITERATURE MINOR

### REQUIREMENTS

Fifteen credits including nine at the 100-level or above of LAT 051 or above, which may include one three-credit course at the 100-level or above in Greek or classics	15
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### RESTRICTIONS

Ineligible Major: Latin

### PRE/CO-REQUISITES

Through LAT 002	
HST 009 or CLAS 023, or one course in philosophy, Greek, or Greek Culture (classics)	

## OTHER INFORMATION

A major in Classical Civilization and a minor in Latin Language and Literature may be possible if additional courses in Latin are taken to reduce overlap to one course.

## COMPUTER SCIENCE IN ARTS AND SCIENCES

<http://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 three 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. 261)

## 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. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Core Courses:		
CS 021	Computer Programming I (C- or better) <sup>1</sup>	0 or 3
CS 064	Discrete Structures	3
CS 110	Intermediate Programming (C- or better) <sup>1</sup>	4
CS 120	Advanced Programming	3
CS 121	Computer Organization	3
CS 124	Data Structures & Algorithms	3
CS 125	Computability and Complexity	3
CS 224	Algorithm Design & Analysis	3
or CS 243	Theory of Computation	
CS 292	Senior Seminar	1
Fifteen additional credits of computer science courses, including three credits at the 0xx level, three credits at the 100-level or above and nine credits at the 200-level or above		15
No more than forty-five credits of Computer Science can be applied to this degree		
MATH 021	Calculus I <sup>2</sup>	4
MATH 022	Calculus II <sup>2</sup>	4
STAT 143	Statistics for Engineering	3
STAT 151	Applied Probability	3
It is recommended that the natural sciences Distribution Requirement be fulfilled with a two-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 020 is an acceptable substitute for MATH 021 and MATH 022

## CRITICAL RACE AND ETHNIC STUDIES MINOR REQUIREMENTS

Eighteen credits (six courses) including:

CRES 051	D1:Intr Crit Race & Ethnic Std	3
Fifteen credits to be chosen from the list of CRES approved courses (consult program website or office for list) of which at least nine 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

<http://www.uvm.edu/~econ/>

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. 261)

### MINORS

#### ECONOMICS MINOR

Economics (p. 262)

## ECONOMICS B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Thirty-three credits in economics and three credits in mathematics as follows:

EC 011	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
MATH 019	Fundamentals of Calculus I (students are urged to take MATH 019 early in the program)	3
Three courses from EC 020 - EC 160 or EC 194 - EC 196, two of which must be numbered EC 110 or higher		9
Methods and theory courses in economics:		9
EC 170	Economic Methods	
EC 171	Macroeconomic Theory	

EC 172	Microeconomic Theory	
Three economics courses at the 200-level or higher		9
No more than three credits from the following courses may be applied toward the major:		
HON 218	Honors: Economics	
HON 219	Honors: Economics	
EC 297	Undergraduate Research	
EC 298	Undergraduate Research	

## ECONOMICS MINOR

### REQUIREMENTS

Eighteen credits including:

EC 011	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
Choose one from:		3
EC 171	Macroeconomic Theory	
EC 172	Microeconomic Theory	
Three courses from EC 020-EC 196, two of which must be from EC 110-EC 196		9

Note that MATH 019 is a prerequisite to EC 171 and EC 172.

### RESTRICTIONS

Ineligible Major: Economics

## DEPARTMENT OF ENGLISH

<http://www.uvm.edu/~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.

### 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. 262)

Film and Television Studies B.A. (p. 263)

### MINORS

#### ENGLISH MINORS

English (p. 263)

Film and Television Studies (p. 264)

### GRADUATE

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. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Thirty-three credits to include<sup>1</sup>:

ENGS 085	Introductory Seminar	3
One of the following two-course sequences:		6
ENGS 021 & ENGS 022	British Literature I and British Literature II	
ENGS 023 & ENGS 024	American Literature I and American Literature 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 eighteen credits at or above the 100-level, at least three of which must be from courses numbered ENGS 201- ENGS 282 (senior seminars):		18
Three additional credits in ENGS courses numbered 005 or above		3
Students must complete one of the following concentrations: <sup>2</sup>		
British and Anglophone Literary Traditions: at least nine hours in the following courses including three hours in literature before 1700 (ENGS 110-113, ENGS 133-146, ENGS 158, ENGS 161-162, ENGS 164-165, ENGS 167-169, ENGS 173, ENGS 179, ENGS 180-182, ENGS 189, Senior Seminar [200-level]) <sup>2</sup>		



American Literary Traditions: at least nine hours in the following courses, including at least three hours in literature before 1900 (ENGS 110-113, ENGS 150-153, ENGS 156, ENGS 158, ENGS 159-160, ENGS 163, ENGS 164-169, ENGS 171-172, ENGS 173, ENGS 176-178, ENGS 179, Senior Seminar [200-level]) <sup>2</sup>	
Cultural Studies: at least nine hours in the following courses (FTS 121-198, ENGS 110-113, ENGS 143, ENGS 156, ENGS 160, ENGS 163, ENGS 168-169, ENGS 177, ENGS 179, ENGS 189, Senior Seminar [200-level]) <sup>2</sup>	
Writing: six credits from the following three courses (ENGS 50: Expository Writing; ENGS 51: Topics in Composition; and ENGS 53: Introduction to Creative Writing) and at least six hours in the following courses (ENGS 104-105, ENGS 107-108, ENGS 114, ENGS 117-120, Senior Seminar [200-level]) <sup>3</sup>	
Individually Designed Concentration: At least three courses at the 100-level or above (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	
One world literature (WLIT) course may count toward the major.	
No more than nine credits of Film and Television Studies (FTS) at any level shall count toward the major.	

- <sup>1</sup> Only courses beginning with ENGS 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 110-113, ENGS 158, ENGS 167-169, ENGS 173, ENGS 179, ENGS 189, and the Senior Seminar [200-level]—and ENGS 133-141 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 110-113, ENGS 164-169, ENGS 173, ENGS 179, and the Senior Seminar [200-level]—and the following courses satisfy the requirement for a course in literature before 1900: ENGS 150-153, ENGS 156, ENGS 158-160. Under Cultural Studies, all ENGS courses may count for different Concentrations and for more than one Concentration.
- <sup>3</sup> ENGS 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. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Thirty-three total credits in Film and Television Studies to include:

Two introductory courses from:		6
FTS 007	Dev Motion Pct I:Origin-1930	
FTS 008	Dev Motion Pct II:1930-1960	

FTS 009	History of Television	
FTS 010	Dev Motion Pct III:1960-2000	
Four core intermediate courses:		12
FTS 121	Film/Television Theory	
FTS 122	Film/TV Genre and Auteur	
FTS 123	Global Studies in Film/TV	
One from FTS 130 - FTS 139		
Three additional 100-level or higher courses from the FTS offerings		9
One senior seminar from:		3
FTS 271	Seminar in Film/Television	
FTS 272	Seminar in Film/Television	
One course at any level from the FTS offerings		3

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	Motion Picture Production	3
ARTS 248	Adv Motion Picture Production	3
SOC 043	Survey of Mass Communication	3
SOC 150	Popular Culture	3
SOC 243	Mass Media in Modern Society	3

Only three credits of FTS 191/FTS 192 may count toward the major.

## ENGLISH MINOR

### REQUIREMENTS

Eighteen credits including:

Six credits taken from one of the following sequences:		6
ENGS 021 & ENGS 022	British Literature I and British Literature II	
ENGS 023 & ENGS 024	American Literature I and American Literature II	
ENGS 027 & ENGS 028	Lit Western Trad I: Intg Humn and Lit Western Trad II: Intg Humn	
A minimum of nine credits at the 100-level or above		9

### RESTRICTIONS

Ineligible Major: English

## FILM AND TELEVISION STUDIES MINOR REQUIREMENTS

Eighteen credits including:

At least one from:		3
FTS 007	Dev Motion Pct I:Origin-1930	
FTS 008	Dev Motion Pct II:1930-1960	
FTS 009	History of Television	
FTS 010	Dev Motion Pct III:1960-2000	
All of the following:		9
FTS 121	Film/Television Theory	
FTS 122	Film/TV Genre and Auteur	
FTS 123	Global Studies in Film/TV	
Six credits chosen from:		6
Any other FTS offerings		
ARTH 140	Hist of Optical Media as Art	
ARTH 148	Greek Art	
SOC 043	Survey of Mass Communication	
SOC 150	Popular Culture	
SOC 243	Mass Media in Modern Society	
Or additional courses approved by the Director of Film and Television Studies. (Students should consult the FTS course brochure and the registrar's website each semester for details about available courses.)		

### RESTRICTIONS

Ineligible Majors: Film and Television Studies

Arts and Sciences students only.

## ENVIRONMENTAL SCIENCES IN THE COLLEGE OF ARTS AND SCIENCES

<http://www.uvm.edu/~ensc/>

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 SCIENCE 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 (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 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. 264)

### MINORS

#### ENVIRONMENTAL SCIENCES MINORS

Environmental Sciences: Biology (p. 265)

Environmental Sciences: Geology (p. 266)

### ENVIRONMENTAL SCIENCES B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### 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	Basic Statistical Methods	3-4
or STAT 211	Statistical Methods I	
or NR 140	Applied Environ Statistics	
ENSC 001	SU: Intro Environmental Sci	3
ENSC 130	Global Environmental Assessmnt	3
ENSC 160	Pollutant Mvmt/Air, Land&Water	4
Choose one of the following:		4
BCOR 102	Ecology and Evolution <sup>3</sup>	
CHEM 142	Organic Chemistry 2	
CHEM 144	Organic Chemistry for Majors 2 <sup>4</sup>	
GEOL 110	SU: Earth Materials <sup>2</sup>	
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	8
Choose one of the following sequences:		8
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	
Choose one of the following sequences:		6-8
MATH 019 & MATH 020	Fundamentals of Calculus I and Fundamentals of Calculus II	
MATH 021 & MATH 022	Calculus I and Calculus II	
Choose one of the following sequences (physics is required only for the Environmental Chemistry Focus Track):		8
PHYS 011 & PHYS 012	Elementary Physics and Elementary Physics	
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II	
Fourteen to seventeen credits of advanced course work, chosen in consultation with the student's advisor, in one of the following Focus Tracks: <sup>5</sup>		14-17
Agriculture and the Environment		
Conservation Biology and Biodiversity		
Ecological Design		
Environmental Analysis and Assessment		
Environmental Biology		
Environmental Chemistry		

Environmental Geology	
Environmental Resources	
Water Resources	

- <sup>1</sup> CHEM 141 or CHEM 143 required for Environmental Biology and Environmental Chemistry Focus Tracks.
- <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> CHEM 144 required for Environmental Chemistry Focus Track.
- <sup>5</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 eighty-four credits of course work in the College of Arts and Sciences.

## ENVIRONMENTAL SCIENCES: BIOLOGY MINOR

### REQUIREMENTS

BIOL 001 & BIOL 002	Principles of Biology and Principles of Biology	8
or BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	
BCOR 102	Ecology and Evolution	4
Two additional upper-division non-biology courses chosen in consultation with co-advisor		

### RESTRICTIONS

Ineligible Majors: Biology (B.A.), Biological Sciences (B.S.), Plant Biology (B.A.), Zoology (B.A., B.S.)

### PRE/CO-REQUISITES

CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	8
Concurrent with:		
BCOR 011 & BCOR 012	Exploring Biology and Exploring Biology	8
MATH 019 or MATH 021 required for BCOR 102		3

### OTHER INFORMATION

Prerequisites for upper division courses will vary.

## ENVIRONMENTAL SCIENCES: GEOLOGY MINOR

### REQUIREMENTS

GEOL 055	Environmental Geology	0 or 4
GEOL 101	Field Geology	4
GEOL 110	SU: Earth Materials	0 or 4
Two additional upper-division non-geology courses chosen in consultation with minor advisor		6

### RESTRICTIONS

Ineligible Major: Environmental Sciences: Geology (B.A., B.S.)

### PRE/CO-REQUISITES

GEOL 001 required for GEOL 101	
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## ENVIRONMENTAL STUDIES IN THE COLLEGE OF ARTS AND 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 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 four different colleges, including the College of Agriculture and Life Sciences, the College of Arts and Sciences, the College of Education and Social Services 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 or thesis, usually carried out in the senior year.

## MAJORS

### ENVIRONMENTAL STUDIES MAJOR

Environmental Studies B.A. (p. 266)

## MINORS

### ENVIRONMENTAL STUDIES MINOR

Environmental Studies (p. 266)

## ENVIRONMENTAL STUDIES B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Thirty-eight credits including:

ENVS 001	SU:Intro to Envrnmtl Studies	4
ENVS 002	D2:SU:International Env Stdies	4
ENVS 151	Intermed Environmental Studies	3
Nine credits of senior capstone		9
An Individually Designed program containing eighteen credits of approved environmentally-related courses at the 100-level or higher, including:		18
Three credits at the 200-level		
Six credits of environmental studies courses		
At least one course in each of these areas: environmentally-related natural sciences, humanities, social sciences, and international studies (may be fulfilled by study abroad experience). Students are cautioned that courses approved in these areas by environmental studies are not intended to fulfill the Distribution Requirements in the College of Arts and Sciences.		

### ENVIRONMENTAL STUDIES MINOR REQUIREMENTS

Seventeen credits in Environmental Studies consisting of:

ENVS 001	SU:Intro to Envrnmtl Studies	4
ENVS 002	D2:SU:International Env Stdies	4
Nine credits at the 100-level or above. (Of the nine credits, one non-ENVS course at the appropriate level may be substituted with the approval of the student's advisor and the Environmental Program.)		9

## GENDER, SEXUALITY, AND WOMEN'S STUDIES PROGRAM

<http://www.uvm.edu/~wmst/>

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. 267)

**MINORS**

**GENDER, SEXUALITY, AND WOMEN'S STUDIES MINORS**

Gender, Sexuality, and Women's Studies (p. 267)

Sexuality and Gender Identity Studies (p. 267)

**GENDER, SEXUALITY, AND WOMEN'S STUDIES B.A.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

A total of thirty-six credits (twelve courses) are required for the major:

Core (fifteen credits):		
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	3-6
or GSWS 192	Practicum	
Electives (six credits):		6
One additional race/ethnicity course beyond the college's requirement		
One additional non-European culture course beyond the college's requirement		
Concentration (fifteen credits):		15

Five approved Gender, Sexuality, and Women's Studies electives, at least four 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.	
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**GENDER, SEXUALITY, AND WOMEN'S STUDIES MINOR**

**REQUIREMENTS**

Eighteen credits of course work to include:

Core (nine 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:		
Nine hours; at least six hours must be taken at the 100-level or above.		9

**RESTRICTIONS**

Ineligible Major: Gender, Sexuality, and Women's Studies

No more than three credit hours may come from classes also used to fulfill a major.

**SEXUALITY AND GENDER IDENTITY STUDIES MINOR**

**REQUIREMENTS**

Eighteen credits including:

Core:		
GSWS 001	D2: Gender Sexuality Wmn's Stdy	3
GSWS 105	D2: LGBT Politics and History	3
One 200-level course eligible for SGIS credit		3
Electives:		
Nine hours of courses eligible for SGIS credit; at least six 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 three 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
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No more than nine credits may come from any one department.

No more than three credits may come from classes also used to fulfill a major.

## DEPARTMENT OF GEOGRAPHY

<http://www.uvm.edu/~geograph/>

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. 268)

### MINORS

#### GEOGRAPHY MINORS

Geography (p. 268)

Geospatial Technologies (p. 268)

#### GEOGRAPHY B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Thirty-three credits in geography which must include:

GEOG 040	Weather, Climate & Landscapes	3
GEOG 060	D1:Geography/Race&Ethnic in US	3
GEOG 050	D2:SU:World Regional Geog	3

or GEOG 070	Space, Place and Society	
GEOG 081	Geospatial Cncpt&Visualization	3
At least eighteen credits at or above the 100-level among which six credits must be at the 200-level		18
Three credits at any level		3
Although repeatable, only three credits of GEOG 191 (Internship) can count toward the 100-level requirement		

## GEOGRAPHY MINOR

### REQUIREMENTS

Eighteen credits in geography including:

At least six credits from the following core courses:		6
GEOG 040	Weather, Climate & Landscapes	
GEOG 050	D2:SU:World Regional Geog *	
or GEOG 070	Space, Place and Society	
GEOG 081	Geospatial Cncpt&Visualization	
At least nine credits at the 100-level or above		9
Three credits of an additional geography course		3

### RESTRICTIONS

\*Minors may not take both GEOG 050 and GEOG 070 for credit toward the minor.

Ineligible Major: Geography

The following courses do not meet the "Three credits of an additional geography course" requirement:

GEOG 191	Geography Internship	
GEOG 197	Independent Study	
GEOG 198	Undergraduate Research	
GEOG 297	Independent Study	
GEOG 298	Undergraduate Research	

## GEOSPATIAL TECHNOLOGIES MINOR

### REQUIREMENTS

Five courses (fifteen credits with at least nine credits at 100-level or above) which must include:

<b>One course in Geospatial Technologies:</b>		3-4
GEOG 081	Geospatial Cncpt&Visualization	
CE 010	Geomatics	
ENSC 130	Global Environmental Assessmnt	

GEOL 151/ GEOG 144	Geomorphology	
<b>One course in Geographic Information Systems:</b>		3
GEOG 184	Geog Info:Cncpts & Applic	
or NR 143	Intro to Geog Info Systems	
<b>One course in Remote Sensing:</b>		3
NR 146	Remote Sensing of Natural Res	
or GEOG 185	Remote Sensing	
<b>Any two electives (either two from Group A or one course each from Group A and Group B):</b>		6
<b>Group A:</b>		
NR 243	GIS Practicum	
NR 245	Integrating GIS & Statistics	
GEOG 287	Spatial Analysis	
GEOG 281	Adv Topic:GIS & Remote Sensing (a, Satellite Climatology/Land Surface Applications)	
GEOG 281	Adv Topic:GIS & Remote Sensing (b, Advanced GIS Applications)	
NR 242	Adv Geospatial Techniques	
<b>Group B:</b>		
CS 021	Computer Programming I	
CS 008	Intro to Web Site Development	
CS 148	Database Design for the Web	
CS 189	CS for Geospatial Technologies	
ENGR 002	Graphical Communication	
CDAE 101	Computer Aided Drafting&Design	

## PRE/CO-REQUISITES

Variable, depending on upper level courses chosen.

## OTHER INFORMATION

Geography majors who undertake the Geospatial Technologies minor are required to complete thirty-three credits in geography and fifteen credits towards the Geospatial Technologies minor. GEOG 081 may be used to count towards both the major and the minor. However, students are still required to complete thirty-three credits of geography courses.

## DEPARTMENT OF GEOLOGY

<http://www.uvm.edu/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. 269)

Geology B.S. (p. 270)

## MINORS

### GEOLOGY MINORS

Geology (p. 270)

Geospatial Technologies (p. 271)

## 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. 396)

All students must meet the College Requirements. (p. 240)

## 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 151	Geomorphology	4
or GEOL 153	Stratigraphy & Sedimentology	
or GEOL 116	Glacial Geology	

GEOL 135	Environmental Geochemistry	3-4
or GEOL 235	Geochemistry of Natural Waters	
GEOL 260	Structural Geology	4
or GEOL 161	SU:Field Methods in Geophysics	
or GEOL 231	Petrology	
GEOL 291 & GEOL 292	Seminar in Geology and Senior Seminar	2
Two Geology courses (at least three credits each) at level 100 or higher		6
Two additional courses in geology or approved science, mathematics, engineering, or statistics courses (at least three credits each) at level 100 or higher selected in consultation with a geology advisor		6
Choose one of the following sequences:		
MATH 019 & MATH 020	Fundamentals of Calculus I and Fundamentals of Calculus II	6
MATH 021 & MATH 022	Calculus I and Calculus II	8
Choose one of the following sequences:		
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	
Two 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. 396)

All students must meet the College Requirements. (p. 240)

## 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
Can petition to meet requirements with at least 5 of the following 6 courses listed below due to alternate year offerings:		
GEOL 135	Environmental Geochemistry	
GEOL 151	Geomorphology	

GEOL 153	Stratigraphy & Sedimentology	
GEOL 231	Petrology	
GEOL 240	Tectonics	
GEOL 260	Structural Geology	
Choose one of the following:		3
GEOL 201	Advanced Field Geology	
or GEOL 198	Undergraduate Research	
Or field camp		
GEOL 291 & GEOL 292	Seminar in Geology and Senior Seminar	2
Two additional courses in geology or approved science, mathematics, engineering or statistics courses (at least three credits each) at level 100 or higher selected in consultation with a geology advisor		6
Choose one of the following sequences:		
MATH 019 & MATH 020	Fundamentals of Calculus I and Fundamentals of Calculus II	
MATH 021 & MATH 022	Calculus I and Calculus II	
Choose one of the following sequences:		
CHEM 031 & CHEM 032	General Chemistry 1 and General Chemistry 2	
CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	
Choose one of the following sequences:		
PHYS 011/021/012/022	Elementary Physics	
PHYS 051 & PHYS 152	Fundamentals of Physics I and Fundamentals of Physics II	
Choose either:		
STAT 141	Basic Statistical Methods	3
or STAT 211	Statistical Methods I	

## GEOLOGY MINOR

### REQUIREMENTS

One geology course from:		4
GEOL 001	Earth System Science	
GEOL 005	Mt - Lake:Geol Lake Chmpln Bsn	
or GEOL 055	Environmental Geology	
GEOL 101	Field Geology	4
GEOL 110	SU: Earth Materials	4
Plus six additional credits at the 100-level or above		6



**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**

Five courses (fifteen credits with at least nine credits at 100-level or above) which must include:

<b>One course in Geospatial Technologies:</b>		3-4
GEOG 081	Geospatial Cncpt&Visualization	
CE 010	Geomatics	
ENSC 130	Global Environmental Assessmnt	
GEOL 151/ GEOG 144	Geomorphology	
<b>One course in Geographic Information Systems:</b>		3
GEOG 184	Geog Info:Cncpts & Applic	
or NR 143	Intro to Geog Info Systems	
<b>One course in Remote Sensing:</b>		3
NR 146	Remote Sensing of Natural Res	
or GEOG 185	Remote Sensing	
<b>Any two electives (either two from Group A or one course each from Group A and Group B):</b>		6
<b>Group A:</b>		
NR 243	GIS Practicum	
NR 245	Integrating GIS & Statistics	
GEOG 287	Spatial Analysis	
GEOG 281	Adv Topic:GIS & Remote Sensing (a, Satellite Climatology/Land Surface Applications)	
GEOG 281	Adv Topic:GIS & Remote Sensing (b, Advanced GIS Applications)	
NR 242	Adv Geospatial Techniques	
<b>Group B:</b>		
CS 021	Computer Programming I	
CS 008	Intro to Web Site Development	
CS 148	Database Design for the Web	
CS 189	CS for Geospatial Technologies	
ENGR 002	Graphical Communication	
CDAE 101	Computer Aided Drafting&Design	

**PRE/CO-REQUISITES**

Variable, depending on upper level courses chosen.

**OTHER INFORMATION**

Geography majors who undertake the Geospatial Technologies minor are required to complete thirty-three credits in geography and fifteen credits towards the Geospatial Technologies minor. GEOG 081 may be used to count towards both the major and the minor. However, students are still required to complete thirty-three credits of geography courses.

**DEPARTMENT OF GERMAN AND RUSSIAN**

<http://www.uvm.edu/~grdept/>

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. 271)

Russian B.A. (p. 272)

**MINORS****GERMAN AND RUSSIAN MINORS**

German (p. 272)

Russian (p. 272)

**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. 396)

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

Thirty credits to include:

Twenty-seven credits in German at the 100-level or higher, including:		27
GERM 155	German Lit in Context I	
GERM 156	German Lit in Context II	
GERM 281	Sem in Lit Genre,Period,Theme	
or GERM 282	Sem on Particular Author	
Three credits from German literature in translation:		3
WLIT 017	German Lit in Translation	
or WLIT 117	German Lit in Translation	

## RUSSIAN B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Nine courses (twenty-seven credit hours) of course work in Russian at the 100-level or above		
WLIT 118	Russian Lit in Translation	3
One Russian history course		
One 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

Five courses at the GERM 100- or 200-level, one of which must be:		
GERM 155	German Lit in Context I	
or GERM 156	German Lit in Context II	

### 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 one course.

## RUSSIAN MINOR

### REQUIREMENTS

Twenty credits to include:

RUSS 051	Intermediate Russian	4
RUSS 052	Intermediate Russian (or its equivalent)	4
Four 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 one course.

## GLOBAL AND REGIONAL STUDIES PROGRAM

<http://www.uvm.edu/~global/>

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. 273)

European Studies B.A. (p. 273)

Global Studies B.A. (p. 276)

Latin American and Caribbean Studies B.A. (p. 276)

Russian and East European Studies B.A. (p. 277)

**MINORS**

**GLOBAL AND REGIONAL STUDIES MINORS**

- African Studies (p. 277)
- Asian Studies (p. 277)
- Canadian Studies (p. 278)
- European Studies (p. 278)
- Global Studies (p. 278)
- Latin American and Caribbean Studies (p. 278)
- Middle East Studies (p. 279)
- Russian/East European Studies (p. 279)
- Vermont Studies (p. 279)

**ASIAN STUDIES B.A.**

All students must meet the University Requirements. (p. 396)  
 All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

At least thirty-three credits in courses from the Asian Studies listing to include the following:

Completion of two years' (normally sixteen credits) study of a language of the geographic subarea of concentration (e.g., Chinese, Japanese)	16
No more than sixteen credits of language study may be counted toward the major	
Students who have demonstrated fluency in the language of the subarea of concentration (for instance, native speakers of the language), may substitute other Asian studies courses to fulfill the thirty-three credit requirement	
At least nine credits at the 100-level <sup>1</sup>	9
Three credits at the 200-level <sup>1</sup>	3

<sup>1</sup> Courses outside of language study must be selected from at least three 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 one course as stipulated in the section on Distribution Requirements.

**EUROPEAN STUDIES B.A.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

A total of thirty-three credits in approved European Studies courses, as described below, to include no more than twelve credits from any one discipline. Only fifteen transfer credits may be applied toward the major. Students must consult closely with their European Studies advisor in the development of a coherent program of courses.

<b>European Studies Senior Seminar or Research project</b>		
All seniors must complete a senior project for at least three credits at the 200-level on a subject focused on northern, western, or Mediterranean Europe. The requirement may be fulfilled by taking a 200-level senior seminar (approved by the European Studies academic advisor) or by completing an advanced readings and research project or Honors Thesis (GRS 297/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 one of the college's departments.		3
<b>European Culture and Thought</b>		
Twelve credits from the approved list to include six 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 149	Roman Art	
ARTH 155	Topics in Medieval Art	
ARTH 158	Northern European 1400-1600	
ARTH 162	Italian Early Renaissance Art	
ARTH 163	Italian High and Late Ren Art	
ARTH 165	Topics European Art 1600-1800	
ARTH 170	Topics in Modern Art	
ARTH 172	19th-Century European Painting	
ARTH 174	20th-Century Art	
ARTH 177	19th & 20th Cent Arch & Design	
ARTH 282	Seminar in Western Art (when the content is European)	
or ARTH 179	Issues in Contemporary Art	
CLAS 021	Classical Greek Civilization	
CLAS 023	Classical Roman Civilization	
CLAS 024	Myths/Legends Trojan War	
CLAS 035	The End of the Roman Republic	
CLAS 037	Early Roman Empire: Lit Trans	

CLAS 042	Mythology	
CLAS 153	Greek Drama	
CLAS 154	Stories and Histories	
CLAS 155	Ancient Epic	
CLAS 156	Satiric Spirit	
CLAS 157	Greek Feminism	
CLAS 158	Greco-Roman Political Thought	
CLAS 161	Plato	
ENGS 021	British Literature I	
ENGS 022	British Literature 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 142	18th Century British Novel	
ENGS 143	Topics: 18C, 19C Brit Lit & Cul	
ENGS 144	Topics in Romanticism	
ENGS 145	Topics in Victorian Literature	
ENGS 146	19th Century British Novel	
ENGS 161	20th-Century British Novel	
ENGS 162	20th-Century Irish 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 235	Medieval/Renaissance Topics	
FREN 237	Early French Women Writers	
FREN 247	Power/Desire in Class Fr Drama	

FREN 256	Enlightenment Society Reimagined	
FREN 265	Romanticism and Symbolism	
FREN 266	Rev&React in 19th C Narrative	
FREN 269	La Belle Epoque	
FREN 270	Lyric Poetry: Harmony & Crisis	
FREN 275	20-C Lit - Society and Writers	
FREN 276	Topics in Modern French Lit	
FREN 279	Women's Autobiographies	
FREN 292	Topics in French Culture	
GERM 104	German News Media	
GERM 121	Culture & Civilization to 1900	
GERM 122	20th C Culture & Civilization	
GERM 155	German Lit in Context I	
GERM 156	German Lit in Context II	
GERM 201	Methods Research & Bibliography	
GERM 213	History of the German Language	
GERM 214	Middle Ages	
GERM 225	Goethe	
GERM 226	Schiller	
GERM 237	19th-Century Prose	
GERM 247	German Lit from 1890 to 1945	
GERM 248	Contemporary German Literature	
GERM 251	German Folklore	
GERM 263	German Romanticism	
GERM 271	Proverbs	
GERM 273	German Intellectual Movements	
GERM 275	Fin-de-Siecle	
GERM 276	Brecht & the Modern Drama	
GERM 279	German Short Story after 1945	
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 117	German Literature: Translation	



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 226	Seminar in Modern Europe	
HS 227	Seminar in Modern Europe	
HS 281	Sem:Lit Genre,Period or Theme	
HS 282	Sem:Lit Genre, Period or Theme	
ITAL 121	Issues in Italian Culture	
ITAL 122	History of Italian Cinema	
ITAL 157	Modern Italian Fictions	
ITAL 158	Early Italian Lit in Context	
ITAL 170	Cultures of Women in Italy	
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	
PHIL 105	History of Medieval Philosophy	
PHIL 140	Social & Political Philosophy	
PHIL 160	Continental Philosophy	
POLS 141	History of Political Thought	
POLS 142	History of Political Thought	
REL 027	Integrated Humanities	
REL 028	Integrated Humanities	
REL 111	Western Religious Thought	
REL 116	Judaism	
REL 124	Christianity	
REL 173	Studies in Gender & Religion (when the content is European)	
REL 180	Moral&Rel Persp on Holocaust	
REL 224	Studies in Christianity	
REL 228	Studies in Western Rel Thought	
SPAN 143	Intro Lit & Culture Spain I	
SPAN 144	Intro Lit & Culture Spain II	
SPAN 236	Poetic Voices/Cultural Change	

SPAN 237	Issues in Early Spanish Lit	
SPAN 246	Reading Cervantes	
SPAN 250	Dilemmas of Mdrnty in Span Lit	
SPAN 252	Span Lit:Dictatorshp-Democracy	
SPAN 291	Early Cultures of Spain	
SPAN 292	Modern Cultures of Spain	
THE 150	Hist I:Class/Med/Ren Thtr	
THE 180	Eurotheatre	
WLIT 011	French Lit in Translation	
WLIT 013	Italian Lit in Translation	
WLIT 014	Spanish Lit in Translation	
WLIT 017	German Lit in Translation	
WLIT 024	Myths & Legends of Trojan War	
WLIT 035	The End of the Roman Republic	
WLIT 037	Early Roman Emp:Lit&Translat'n	
WLIT 042	Mythology	
WLIT 111	French Lit in Translation	
WLIT 114	Spanish Lit in Translation	
WLIT 117	German Lit in Translation	
WLIT 122	Dante's Comedy	
WLIT 153	Greek Drama	
WLIT 155	Ancient Epic	
WLIT 156	Greek & Roman Satiric Spirit	
WLIT 157	Greek Feminism	
<b>European History and Society</b>		
Twelve credits from the approved list to include six credits at the 100-level or higher:		12
CLAS 121	History of Greece	
CLAS 122	History of Rome	
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 226	Seminar in Modern Europe	
HS 227	Seminar in Modern Europe	

HST 013	Ideas in the Western Tradition	
HST 014	Ideas in the Western Tradition	
HST 015	Early Europe	
HST 016	Modern Europe	
HST 021	Classical Greek Civilization	
HST 022	Classical Roman Civilization	
HST 109	The British Isles, 1350-1688	
HST 110	Britain Since 1688	
HST 115	History of Poland	
HST 116	Medieval Mystics & Heretics	
HST 117	Medieval Urban Legends	
HST 121	History of Greece	
HST 122	History of Rome	
HST 125	The Renaissance	
HST 126	The Reformation	
HST 127	European Culture&Soc 1914-1945	
HST 128	Eur Soc & Culture 1880-1920	
HST 130	European Intellectual History	
HST 132	Modern Irish History	
HST 139	Modern Germany	
HST 167	London: A Cultural History	
HST 190	The Holocaust	
HST 191	World War II	
HST 221	Seminar in Ancient History	
HST 222	Seminar in Ancient History	
HST 224	Seminar in Medieval Europe	
HST 225	Seminar in Early Modern Europe	
HST 226	Seminar in Modern Europe	
HST 227	Seminar in Modern Europe	
HST 228	Seminar in Popular Culture	
POLS 171	Western European Political Sys	
POLS 276	British Politics	
<b>European Language</b>		
Six credits of a European language other than English at or above the 100-level. Students who fulfill nine or more credits of their Culture and Thought requirement through the study of any one such language must fulfill this requirement in a second European language other than English.		6

### GLOBAL STUDIES B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Thirty credits, including:

GRS 001	D2:SU:Intro to Global Studies	3
GRS 200	D2:Seminar in Global Studies	3
Four core courses drawn from disciplines relevant to Global Studies. To fulfill these core requirements, students should take one course from each of the following three thematic areas, and a fourth core course in the thematic area of their choice:		12
Political-Economic Perspectives on Globalization:		
POLS 051	Intro International Relations	
EC 040	D2:SU:Econ of Globalization	
CDAE 002	D2:SU:World Food,Pop & Develop	
Human and Environmental Perspectives on Globalization:		
ANTH 021	D2:SU: Cultural Anthropology	
GEOG 050	D2:SU:World Regional Geog	
ENVS 002	D2:SU:International Env Stdies	
Humanities Perspectives on Globalization:		
HST 010	D2: Global History Since 1500	
WLIT 020	D2: Literatures of Globalizatn	
Or appropriate intro-level globalization and literature course		
The remaining twelve credits for the major should be drawn from the list of Global Studies electives each semester, study abroad program, or in consultation with the Global Studies advisor. Nine of these elective credits must be at the 100-level or higher. No more than nine credits used toward the major may be taken from any one discipline. In addition, majors must complete either four courses at or above the 100-level in any foreign language or a minor in a foreign language.		12

### LATIN AMERICAN AND CARIBBEAN STUDIES B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Thirty credits including:

SPAN 145	Intro Lit & Culture Lat Am I	3
SPAN 146	Intro Lit & Culture Lat Am II	3
Three courses from:		9
MU 014	D2: Music of Latin Am & Carib	

HST 062	D2: Colonial Latin Amer Hist	
HST 063	D2: Modern Latin Amer History	
ANTH 161	D2: Cultures of South America	
POLS 174	D2: Latin American Politics	
An additional fifteen credits from related courses (see LACS Schedule of Courses) chosen in consultation with an adviser		15
Total Credits		30

\* 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 fifteen of the thirty 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. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

#### Required Courses (30 credits)

<b>Required Courses</b>		
Choose two of the following:		6
ANTH 151	Anth of East Europe	
HST 114	East European Nationalism	
HST 137	History of Russia to 1917	
HST 138	History of Russia since 1917	
EC 011	Principles of Macroeconomics	
or EC 012	Principles of Microeconomics	
POLS 172	Politic&Society in Russian Fed	
WLIT 118	Russian Lit in Translation	
Two courses at the 100-level or higher in Russian		
Six additional courses with Russian and East European content chosen in consultation with an advisor in the major		

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)

Two courses in Russian at the intermediate level	
Four courses in economics including EC 011 or EC 012	
One Russian and East European Studies course other than those in economics	
Two courses in business administration	
Two approved electives at the 100-level or higher	

## AFRICAN STUDIES MINOR

### REQUIREMENTS

A total of eighteen credits (six courses) must be completed. These must include the following:

At least three core courses from the following list:		9-10
ANTH 162	D2: Cultures of Africa (presumes completion of prerequisite)	
ARBC 002	Elementary Arabic II (presumes completion of prerequisite)	
ENGS 061	D2: Intro to African Literature	
GEOG 150	D2: Geography of Africa (presumes completion of prerequisite)	
HST 040	D2: African History to C-1870	
or 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		
Three 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

### OTHER INFORMATION

At least nine credit hours must be completed from courses at or above the 100-level.

No more than six credit hours used toward the minor may be taken from any one discipline.

## ASIAN STUDIES MINOR

### REQUIREMENTS

Eighteen credits in Asian Studies including:

At least two courses in an Asian language	
---	--

At least one course in each of two other academic disciplines	
At least nine credits must be at the 100-level or above	

For students who have demonstrated fluency in an Asian language relevant to the other courses they have chosen for their minor concentration (for instance, native speakers of the language), the language requirement will be waived, and courses from a third academic discipline can be substituted.

**RESTRICTIONS**

Ineligible Major: Asian Studies

**PRE/CO-REQUISITES**

One or two intro level courses may be necessary in order to get into a 100-level Asian Studies course.

**CANADIAN STUDIES MINOR**

**REQUIREMENTS**

Eighteen credits including:

HST 065	History of Canada	3
FREN 051	Intermediate I (or above or its equivalent)	3
Four additional courses from the Canadian Studies listings:		12
No more than three courses may be in any one academic discipline		
Nine 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**

Eighteen credits to include:

Three credits at the 200-level from both European culture and thought and European history and society areas	3
Six 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 two 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 one course.

**GLOBAL STUDIES MINOR**

**REQUIREMENTS**

Eighteen credits, including:

GRS 001	D2:SU:Intro to Global Studies	3
Six credits drawn from list of core courses:		6
ANTH 021	D2:SU: Cultural Anthropology	
CDAE 002	D2:SU:World Food,Pop & Develop	
EC 040	D2:SU:Econ of Globalization	
ENVS 002	D2:SU:International Env Stdies	
GEOG 050	D2:SU:World Regional Geog	
HST 010	D2: Global History Since 1500	
POLS 051	Intro International Relations	
Remaining nine credits should be drawn from the list of Global Studies electives each semester, study abroad program, or in consultation with the Global Studies advisor, and must be at the 100-level or higher		9

**RESTRICTIONS**

Ineligible Major: Global Studies

No more than six credits used toward the minor may be taken from any one discipline.

**LATIN AMERICAN AND CARIBBEAN STUDIES MINOR**

**REQUIREMENTS**

Eighteen credits (six courses)

Six 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 one course in each of two other academic disciplines.	12
At least nine 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 nine of the eighteen 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**

Eighteen credits (six 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 five courses can be chosen from the list of Middle East Studies courses offered each semester. At least three of these five courses should be 100-level (intermediate) or higher		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**

Twenty credits to include:

RUSS 051	Intermediate Russian	4
RUSS 052	Intermediate Russian (or its equivalent)	4
Four courses from the following:		12
ANTH 151	Anth of East Europe	
EC 011	Principles of Macroeconomics	
or EC 012	Principles of Microeconomics	
HST 114	East European Nationalism	
HST 137	History of Russia to 1917	

HST 138	History of Russia since 1917	
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**

Eighteen credits (at least five courses), of which at least nine credits must be at the 100-level or above. As an interdisciplinary minor, it must include at least fifteen credits from departments outside the major.

VS 052	Introduction to Vermont	3
Choose three of the following:		9-10
VS 055	Environmental Geology	
VS 064	D1:Native Americans of Vermont	
VS 092	Vermont Field Studies	
or VS 192	Vermont Field Studies	
VS 123	The Vermont Political System	
VS 158	History of New England	
VS 160	The Literature of Vermont	
VS 184	Vermont History	
Two additional courses from an approved list chosen in consultation with the Vermont Studies advisor		6

**DEPARTMENT OF HISTORY**

<http://www.uvm.edu/~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

<http://www.uvm.edu/histpres/>

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. 280)

## MINORS

### HISTORY MINOR

History (p. 280)

## GRADUATE

History M.A.

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. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

Thirty-three credits to include:

One course at the introductory level (below 100)		3
One history methods course:		3
HST 101	History Methods	
Nine additional credits at the intermediate 100-level		9

Three credits at the advanced 200-level		3
Fifteen credits of concentration in one of the department's three areas of study (the Americas, Europe, Africa/Asia/Middle East/Global) and six credits in each of the others. The fifteen-credit concentration must include one course at the intermediate level and one seminar at the advanced level. (The Americas concentration must include three credits in Canadian or Latin American history.)		15

## HISTORY MINOR

### REQUIREMENTS

Eighteen credits to include:

Three credits in any course at the introductory (below 100) level		3
Plus nine credits at the intermediate (100) or advanced (200) level		9
These must also include six credits in each of two of the Department's areas of study (the Americas; Europe; Africa/Asia/Middle East/Global)		6

### RESTRICTIONS

Ineligible Major: History

## HOLOCAUST STUDIES MINOR

### REQUIREMENTS

Eighteen credits of relevant course work:		18
At least nine of which must be at the 100-level or above		
Must include HST 139 and HST 190		
No more than three credits may come from courses also used to fulfill a major		

### PRE/CO-REQUISITES

HST 016	Modern Europe	3
Two semesters of German at any level (another European language may be substituted after consultation with the director)		

### OTHER INFORMATION

A major in history and a minor in Holocaust Studies may be possible if additional courses in history are taken to reduce overlap to one course.

## 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 three-credit tutorial for which they complete a paper or an equivalent project which demonstrates the essential coherence of the major. A college Honors project (six credits) may be substituted

for the tutorial requirement. Application to pursue an IDM should be approved by the Committee on Honors and Individual Studies before the end of the candidate's junior year. For more information, contact [cas@uvm.edu](mailto:cas@uvm.edu).

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

36 hours and no more than 45 credit hours total to include:	
Core: Eighteen credits at 100 level or above	18
Electives: Eighteen credit hours.	18
In order to accommodate the possibility that selected courses may not be offered at a given time, students should submit one alternate course in the core and two 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.	
Six of these credit hours must be at the 200-level	
Senior Project: At least three and no more than six credit hours of Undergraduate Research in the faculty sponsor's department, at the 100 level or above, leading to a substantial "capstone" research paper or thesis. This requirement may be replaced with six credits of College Honors.	3-6

## RESTRICTIONS

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 one course included in the major can be in the minor.

No more than eighteen credits in the proposed major may be completed or begun at the time of application.

## INDIVIDUALLY DESIGNED MINOR REQUIREMENTS

The ID minor must consist of at least eighteen credits of course work, of which at least nine credits must be at the 100-level or above	18
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An application must be submitted to the Committee on Honors and Individual Studies for approval. For more information, contact [cas@uvm.edu](mailto:cas@uvm.edu).

## RESTRICTIONS

No more than nine credits completed prior to application for the ID minor may be applied to the eighteen credits required for the proposed minor. No courses in the student's Arts and Sciences major department may be applied to the eighteen credits required for the minor.

## OTHER INFORMATION

Minor must be approved prior to the end of the student's junior year.

No more than nine credits of the proposed minor may be complete at the time of the application.

## MATHEMATICS AND STATISTICS IN THE COLLEGE OF ARTS AND SCIENCES

<http://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. 282)

### 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. 396)

All students must meet the College Requirements. (p. 240)

As part of the Bachelor of Arts degree in the College of Arts and Sciences, mathematics majors may choose from two concentrations: Mathematics or Statistics.

### MAJOR REQUIREMENTS

#### Mathematics Concentration

MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 121	Calculus III	4
MATH 052	Fundamentals of Mathematics	3
MATH 124	Linear Algebra	3
Eighteen additional credits in mathematics/statistics courses at the 100-level or higher, with at least twelve credits numbered 200 or higher		18

#### Statistics Concentration

Thirty-three credits of mathematics /statistics courses numbered MATH 021 or higher, including:		33
MATH 121	Calculus III	
MATH 124	Linear Algebra	
STAT 141	Basic Statistical Methods	
or STAT 143	Statistics for Engineering	
or STAT 211	Statistical Methods I	
STAT 151	Applied Probability	
or STAT 251	Probability Theory	
STAT 201	Stat Computing & Data Analysis	
STAT 221	Statistical Methods II	
STAT 241	Statistical Inference	
or STAT 261	Statistical Theory	
STAT 281	Statistics Practicum	
or STAT 293	Undergrad Honors Thesis	
At least twelve credits must be at the 200-level or higher.		

## DEPARTMENT OF MUSIC AND DANCE

<http://www.uvm.edu/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 three undergraduate degrees in music: two 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, Theory/Composition, 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.Mus. degree in Performance prepares advanced students for professional careers in music or for graduate study. Students with a strong background in performance who aspire to performance or private teaching careers are encouraged to seek admission into this program during their sophomore year.

The B.S. degree in Music Education prepares students for careers as licensed public school music teachers.

## DANCE

The University Dance Program is open to both new and experienced dancers and provides students with the opportunity to expand their knowledge of dance as a performing art form. Enhanced by study in many areas of dance, the heart of the Program lies in modern/contemporary dance. Through physical/creative action and engaged inquiry, it is the goal of the Program to facilitate rich and meaningful interaction amongst faculty, guest, and student artists in the areas of technique, composition, performance, and history/theory. The Dance Program also seeks to establish and maintain strong alliances with other art forms on campus, including our colleagues in Music, Theatre, Art, and Film. The desire is to explore and advance interdisciplinary approaches to dance study and performance.

## MAJORS

### MUSIC AND DANCE MAJORS

Music B.A. (p. 282)

Music Performance B.Mus. (p. 284)

## MINORS

### MUSIC AND DANCE MINORS

Dance (p. 284)

Music (p. 284)

Music Technology (p. 285)

Musical Theatre (p. 285)

## MUSIC B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

In the Bachelor of Arts program, music majors may choose from five concentrations:



- Concentration in Music History and Literature (p. 283)
- Concentration in Music Performance (Classical) (p. 283)
- Concentration in Music Technology and Business (p. 283)
- Concentration in Theory and Composition (p. 283)
- Concentration in Jazz Studies (p. 283)

**MAJOR REQUIREMENTS**

All students interested in majoring in music must first pass an entrance (Level II) audition on an instrument or voice. In order to complete the major, all students must attain intermediate level on a single instrument or voice (Level III jury); and must have or acquire piano skills sufficient to pass the piano proficiency examination.

Forty credits in music. Majors in all concentrations except Jazz Studies and Music Technology and Business (see below) must take the following core courses:

History:		
MU 111	Music History & Literature I	3
MU 112	Music History & Literature II	3
Theory:		
MU 054	Harmony and Form Lab I	1
MU 056	Harmony and Form Lab II	1
MU 109	Harmony and Form I	3
MU 110	Harmony and Form II	3
MU 154	Harmony and Form Lab III	1
MU 156	Harmony and Form Lab IV	1
MU 209	Harmony and Form III	3
MU 210	Harmony and Form IV	3
Eight credits of performance study: private lessons MUL 134, MUL 234 (six credits); ensembles MU 117-132 (two credits)		8

**Concentration in Music History and Literature**

Six additional credits at the 100-level or higher in music history and literature		6
Three credits in music concentration other than history and literature		3
MU 211	Senior Music History Project	1

**Concentration in Music Performance (CLASSICAL)**

Six additional credits in private lessons (MUL 134, MUL 234)		6
Three credits in a music concentration other than performance		3
MU 250	Senior Recital	1

Students must appear each year in Student Performance Recitals. Students must pass a Solo Recital (Level IV) Jury prior to their Senior Recital.

**Concentration in Music Technology and Business**

Music History		6
Select one course from the following:		
MU 105	History of Jazz	
MU 106	American Music	
MU 107	D2: World Music Cultures	
Select one course from the following:		
MU 111	Music History & Literature I	
MU 112	Music History & Literature II	
Music Theory (8 credits)		
MU 054	Harmony and Form Lab I	1
MU 056	Harmony and Form Lab II	1
MU 109	Harmony and Form I	3
MU 110	Harmony and Form II	3
Performance Study (private lessons: MUL 134, MUL 234; and/or ensembles MU 117-132)		8
Music Technology and Business (19 credits):		
MU 060	Intro to Music Technology	3
MU 061	Creating Music for Video	3
MU 161	Studio Production I	2
MU 162	Studio Production II	2
MU 172	Arts Management	3
MU 185	Music Business and Copyright	3
MU 261	Studio Production III	2
MU 262	Senior Project in Music Tech	1
or MU 291	Music Technology Internship	
Total Credits		41

**Concentration in Theory and Composition**

Six additional credits at the 100-level or higher in theory and composition		
Three credits in a music concentration other than theory and composition		
MU 260	Sr Theory/Composition Project	1

**Concentration in Jazz Studies**

Theory: (8 credits)		
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MU 054	Harmony and Form Lab I	1
MU 056	Harmony and Form Lab II	1
MU 109	Harmony and Form I	3
MU 110	Harmony and Form II	3
History:		3
MU 111	Music History & Literature I	
or MU 112	Music History & Literature II	
Three additional credits selected from the following offerings:		3
MU 106	American Music	
MU 107	D2: World Music Cultures	
MU 113	Seminar in Ethnomusicology	
MU 201	Composer Seminar	
MU 203	Genre Seminar	
MU 205	Period Seminar	
Eleven credits of performance study, of which at least two credits must be in the "classical" idiom: private lessons MUL 134, MUL 234 (at least six credits); ensembles MU 117-132 (at least two credits)		11
Additional required courses: (15 credits)		
MU 024	Group Jazz Piano I	1
MU 025	Group Jazz Piano II	1
MU 105	History of Jazz	3
MU 159	Theory/Prac Jazz Improv I	3
MU 257	Jazz Composition and Arranging	3
MU 259	Thry & Prac of Jazz Improv II	3
MU 250	Senior Recital	1

Additionally, students must appear each year in Student Performance Recitals. Students must pass a Solo Recital (Level IV) Jury prior to their Senior Recital.

### MUSIC PERFORMANCE B.MUS.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

The Bachelor of Music program, with a concentration in Performance, is designed for talented students who wish to pursue a career in music as a performer. To earn the degree, students must demonstrate technical competence, and a broad knowledge of musical style and literature. Performance as a soloist and in ensembles is key. Admission is through audition at the end of the first year.

Students must complete the degree requirements (forty credits) for the Bachelor of Arts with concentration in performance (see Music - B.A.), and these additional forty credits:

Ensembles, MU 117-132	14
Private Lessons, MUL 134, MUL 234	4
Secondary instrument or voice, MUL 034; four semesters of half-hour private lessons	4
Sophomore Recital/Performance Seminar, MU 149	1
Junior Recital, MU 150	1
Senior Recital, MU 250	1
World Music Cultures, MU 107	3
MU 060 Intro to Music Technology or MU 061 Creating Music for Video	3
Music electives	9
(pedagogy and conducting courses strongly recommended)	

### DANCE MINOR REQUIREMENTS

Eighteen credits in dance (DNCE). Nine credits must be at the 100-level or above.

Three credits in dance history:		3
DNCE 050	Dance History & Legends	
Five - six 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	
Three credits in dance composition:		3
DNCE 060	Movement & Improvisation	
or DNCE 160	Dance Composition	
Six - seven additional credits from remaining DNCE courses		6-7

### MUSIC MINOR REQUIREMENTS

Eighteen credits in music composed of:

Six credits in music history/literature from the following:		6
MU 001	Intro to Classical Music	
MU 004	Sound, Sense, and Ideas	
MU 005	D1: Intro to Jazz History	
MU 006	American Music	

MU 007	D2: Intro World Music Cultures	
MU 010	D1: Blues & Related Traditions	
MU 011	D1: Chasing the Blues	
MU 012	D1: Music & Culture: New Orleans	
MU 015	History of Rock and Roll	
MU 019	D1: Latin Jazz Immersion	
MU 105	History of Jazz	
MU 106	American Music	
MU 107	D2: World Music Cultures	
MU 111	Music History & Literature I	
MU 112	Music History & Literature II	
MU 113	Seminar in Ethnomusicology	
Three credits in music theory/composition from the following:		3
MU 109	Harmony and Form I	
or MU 159	Theory/Prac Jazz Improv I	
or MU 159	Theory/Prac Jazz Improv I	
Three additional credits in music theory/composition from the following:		3
MU 009	Music Theory Fundamentals	
MU 054	Harmony and Form Lab I	
MU 056	Harmony and Form Lab II	
MU 060	Intro to Music Technology	
MU 061	Creating Music for Video	
MU 075	Exploring Songwriting	
MU 109	Harmony and Form I	
MU 110	Harmony and Form II	
MU 157	Composition	
MU 257	Jazz Composition and Arranging	
MU 258	Advanced Jazz Comp and Arr	
MU 259	Thry & Prac of Jazz Improv II	
Six credits in private lessons or performing ensemble (in any combination):		6
Choose from the following:		
MUL 133	Private Lessons: Music Minors (may be repeated for credit; lab fee required)	
MU 117-132 Ensembles (may be repeated for credit)		

Nine credits must be at the 100-level above.

### RESTRICTIONS

Ineligible Majors: Music (B.A., B.Mus.)

### MUSIC TECHNOLOGY MINOR

#### REQUIREMENTS

Eighteen credit hours, including:

One three credit course at any level in Music History or Music Literature		3
One three credit Music Theory from the following:		3
MU 009	Music Theory Fundamentals	
MU 109	Harmony and Form I	
MU 159	Theory/Prac Jazz Improv I	
Two required courses in Music Technology and Music Business:		
MU 060	Intro to Music Technology	3
MU 185	Music Business and Copyright	3
Six credits from the following:		6
MU 061	Creating Music for Video	
MU 161	Studio Production I	
MU 162	Studio Production II	
MU 261	Studio Production III	
MU 172	Arts Management	
Nine credits must be at the 100-level or above.		

### RESTRICTIONS

Ineligible majors: Music (BA,B.Mus.)

### MUSICAL THEATRE MINOR

#### REQUIREMENTS

Twenty 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 109 with instructor permission )	3
THE 190	Theatre Practicum (non-performance/no Teaching Assistant)	1
Two of the following:		2

MU 119	Jazz Vocal Ensemble	
MU 122	University Concert Choir	
MUL 133	Private Lessons: Music Minors (Students should register for Voice)	

## RESTRICTIONS

Ineligible major: Music

## OTHER INFORMATION

THE 010 is the prerequisite for THE 119; DNCE 021, or DNCE 022 or DNCE 121 are prerequisite for DNCE 116

## NEUROSCIENCE IN THE COLLEGE OF ARTS AND SCIENCES

<http://www.uvm.edu/~nsmajor/>

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. 286)

## MINORS NEUROSCIENCE MINOR

Neuroscience (p. 287)

## 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. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

Twenty-five credits of fundamental courses including:		
BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
MATH 019	Fundamentals of Calculus I	3
MATH 020	Fundamentals of Calculus II	3
PSYS 001	Intro to Psychological Science	3
Fourteen credits of foundation courses including:		
NSCI 111	Exploring Neuroscience	3
NSCI 112	Exploring Neurosci Laboratory	1
BCOR 101	Genetics	3
CHEM 141	Organic Chemistry 1	4
Choose one of the following:		
PSYS 111	Learning, Cognition & Behavior	
or CSD 281	Intro Cognitive Neuroscience	
Experimental design and statistics courses out of one of the following categories:		6-9
<b>Category A</b>		
PSYS 053	Research Methods	



PSYS 054	Statistics for Psych Sci	
<b>Category B</b>		
STAT 141	Basic Statistical Methods	
or STAT 211	Statistical Methods I	
STAT 221	Statistical Methods II	
STAT 231	Experimental Design	
<b>Category C</b>		
PSYS 053	Research Methods	
BIOL 202	Quantitative Biology	
Advanced Core neuroscience courses:		12-13
NSCI 270	Diseases of the Nervous System	
Choose nine credits from the following:		
BIOL 261	Neurobiology	
PSYS 214	Adv Cognitive Neuroscience	
NSCI 225	Human Neuroanatomy	
PSYS 215	Physiological Psychology	
Twelve credits of optional neuroscience courses, with at least one from each of the following categories:		12
<b>Category A</b>		
CSD 101	Speech & Hearing Science	
CSD 208	Cognition & Language	
PSYS 211	Learning	
PSYS 217	Animal Behavior	
PSYS 218	Hormones and Behavior	
PSYS 219	Sel Topics Behavioral Neurosci	
PSYS 252	Emotional Devlmt & Temperament	
<b>Category B</b>		
BCOR 103	Molecular and Cell Biology	
BIOL 266	Neurodevelopment	
NSCI 255	Neuroregeneration	
PHRM 201	Introduction to Pharmacology	
PHRM 290	Topics Molecular&Cell Pharm	
STAT 256	Neural Computation	
PSYS 216	Psychopharmacology	
<b>Category C</b>		
BIOL 262	Neurobiology Techniques	
CSD 262	Measurement of Comm Processes	

NSCI 197	Intrmd Readings & Research	
NSCI 198	Intrmd Readings & Research	
NSCI 297	Advanced Readings & Research	
NSCI 298	Advanced Readings & Research	
No more than six credits of Category C may be counted toward the major.		
NSCI 3XX courses may be accepted as Advanced Course Options with prior approval from the Neuroscience Director. These courses are often open to upper level undergraduate students with instructor permission.		
Students completing the B.S. in Neuroscience may not also receive the B.A. in Psychological Science.		

## NEUROSCIENCE MINOR

### REQUIREMENTS

Eighteen credits including:

NSCI 111	Exploring Neuroscience	3
PSYS 053	Research Methods	0 or 3
Four courses from either of the following lists; at least one 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 217	Animal Behavior	
PSYS 218	Hormones and Behavior	
PSYS 219	Sel Topics Behavioral Neurosci	
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**

<http://www.uvm.edu/~phildept/>

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. 288)

**MINORS****PHILOSOPHY MINOR**

Philosophy (p. 288)

**PHILOSOPHY B.A.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

Thirty credits in philosophy including:

PHIL 013	Introduction to Logic	3
PHIL 101	History of Ancient Philosophy	3
PHIL 102	History of Modern Philosophy	3
At least four 200-level courses (twelve credits) in philosophy		12
Two additional courses at/above the 100-level (six credits)		6
One additional course at any level		3

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.

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.

**PHILOSOPHY MINOR****REQUIREMENTS**

Eighteen credits in philosophy including:

Choose one of the following:		3
PHIL 101	History of Ancient Philosophy	
PHIL 102	History of Modern Philosophy	
PHIL 140	Social & Political Philosophy	
One additional course at/above the 100-level		3
One course at the 200-level		3
Three courses at any level		9

**RESTRICTIONS**

Ineligible Major: Philosophy

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.

## DEPARTMENT OF PHYSICS

<http://www.uvm.edu/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. 289)

Physics B.S. (p. 289)

### MINORS

#### PHYSICS MINORS

Astronomy (p. 290)

Physics (p. 291)

### GRADUATE

Physics AMP

Physics M.S.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate>) for more information.

## PHYSICS B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Choose one 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 201	Experimental Physics I	3

or PHYS 202	Experimental Physics II	
PHYS 211	Classical Mechanics	3
PHYS 213	Electricity & Magnetism	3
PHYS 273	Quantum Mechanics I	3
Nine additional credits of approved physics electives at the 100-level or higher		9
Mathematics through MATH 121		
Three credits of approved mathematical electives		3
An additional laboratory science is strongly recommended		

## PHYSICS B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

All courses in core and all courses in one of the listed options.

<b>Core</b>		
Choose one 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 214	Electromagnetism	3
or PHYS 274	Applctns of Quantum Mechanics	
MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 121	Calculus III	4
MATH 271	Adv Engineering Mathematics	3
or MATH 230	Ordinary Differential Equation	
MATH 124	Linear Algebra	3
or MATH 272	Applied Analysis	
CHEM 031	General Chemistry I	4
One additional course in chemistry (CHEM 032 recommended)		4
CS 021	Computer Programming I <sup>1</sup>	3
or PHYS 256	Computational Physics	

<b>Options</b>		
Pure Physics:		21
PHYS 201	Experimental Physics I	
PHYS 202	Experimental Physics II <sup>1</sup>	
PHYS 265	Thermal & Statistical Physics	
Twelve credits of approved physics electives		
Mechanical Engineering:		29
ME 012	Dynamics	
ME 014	Mechanics of Solids	
ME 040 & ME 044	Thermodynamics and Heat Transfer	
ME 042	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 150	Environmental Engineering	
CE 170	Structural Analysis	
CE 173	Reinforced Concrete	
ME 012	Dynamics	
ME 040 & ME 044	Thermodynamics and Heat Transfer	
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	
Choose one of the following:		
EE 276	Image Processing & Coding	
EE 277	Image Anyl&Pattern Recognition	
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 163	Solid State Phys Electronics I	
EE 183	Electronics Laboratory	
EE 184	Electronics Design Project	
EE 221	Prin VLSI Digital Circuit Des	
Astrophysics:		27
PHYS 257	Modern Astrophysics	
PHYS 201	Experimental Physics I	
PHYS 214	Electromagnetism	
PHYS 265	Thermal & Statistical Physics	
Nine 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

Sixteen credits in astronomy including:

ASTR 005	Exploring the Cosmos	3
ASTR 023	Astr Lab I:Measuring the Sky	1
or ASTR 024	Astronomy Lab II:Imaging Sky	
Choose three of the following:		9
ASTR 153	Moons & Planets	
ASTR 155	The Big Bang	
ASTR 157	Stars & Galaxies	
ASTR 177	Spacecraft Astronomy	



Three additional credits in ASTR	3
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Three credits of Special Topics in ASTR may count towards the minor with departmental approval.

## PHYSICS MINOR

### REQUIREMENTS

Select one of the following options:	8	
<b>Option A</b>		
PHYS 051	Fundamentals of Physics I	
PHYS 152	Fundamentals of Physics II	
<b>Option B</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
Three additional credits at the PHYS 200-level excluding PHYS 201 and PHYS 202	3	

### RESTRICTIONS

Ineligible Majors: Physics (B.A., B.S.)

### PRE/CO-REQUISITES

MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 121	Calculus III	4

## PLANT BIOLOGY IN THE COLLEGE OF ARTS AND SCIENCES

<http://www.uvm.edu/~plantbio/>

The Bachelor of Arts in Plant Biology is offered by the College of Arts and Sciences. A Bachelor of Science is also available through the College of Agriculture and Life Sciences.

### 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. Most students also 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.A. (p. 291)

## MINORS

### PLANT BIOLOGY MINOR

Plant Biology (p. 292)

## 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.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

This page includes specific requirements for the three Plant Biology concentrations:

General Plant Biology Concentration (p. 292)

Ecology and Evolutionary Biology of Plants Concentration (p. 292)

Plant Molecular Biology Concentration (p. 292)

## MAJOR REQUIREMENTS

BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
BCOR 101	Genetics	3
PBIO 104	Plant Physiology	4
CHEM 031	General Chemistry 1 <sup>1</sup>	4
CHEM 032	General Chemistry 2 <sup>1</sup>	4
CHEM 141	Organic Chemistry 1 <sup>1</sup>	4
CHEM 142	Organic Chemistry 2 <sup>1</sup>	4
Choose one of the following sequences:		6-8
MATH 019 & MATH 020	Fundamentals of Calculus I and Fundamentals of Calculus II	
MATH 021 & MATH 022	Calculus I and Calculus II	
Choose one of the following:		3

STAT 141	Basic Statistical Methods	
STAT 211	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	

<sup>1</sup> Students desiring an especially strong foundation in chemistry may enroll in the equivalent courses for chemistry majors: CHEM 035, CHEM 036, CHEM 143, CHEM 144 instead of taking CHEM 031, CHEM 032, CHEM 141, CHEM 142.

Students must also complete the requirements for one of the following concentrations:

### General Plant Biology Concentration

BCOR 102	Ecology and Evolution	4
or BCOR 103	Molecular and Cell Biology	
PBIO 108	Morph & Evo of Vascular Plants	4
or PBIO 109	Plant Systematics	
At least eighteen credits of courses relevant to plant biology, (at least two must be PBIO courses and at least two must be 200-level courses) selected in consultation with the student's advisor		18

### Ecology and Evolutionary Biology of Plants Concentration

BCOR 102	Ecology and Evolution	4
PBIO 108	Morph & Evo of Vascular Plants	4
PBIO 109	Plant Systematics	4
At least fifteen credits of courses relevant to plant biology, including at least one ecology course, (at least two must be PBIO courses and at least two must be 200-level courses ) selected in consultation with the student's advisor		15

### Plant Molecular Biology Concentration

BIOC 205	Biochemistry I <sup>1</sup>	3
BIOC 206	Biochemistry II <sup>1</sup>	3
BIOC 207	Biochemistry Lab <sup>1</sup>	2
BCOR 103	Molecular and Cell Biology	4
PBIO 108	Morph & Evo of Vascular Plants	4
or PBIO 109	Plant Systematics	
At least twelve credits of courses relevant to plant biology (at least two must be PBIO courses and at least two must be 200-level courses) selected in consultation with the student's advisor		12

<sup>1</sup> PBIO 185 and PBIO 187 may be substituted for BIOC 205, BIOC 206, and BIOC 207 with instructor permission.

An up-to-date list of approved courses for each concentration may be found on the departmental website.

## PLANT BIOLOGY MINOR

### REQUIREMENTS

At least fifteen credits of course work in Plant Biology including:

Choose one introductory semester course:		4
PBIO 004	Intro to Botany	
BIOL 001	Principles of Biology	
BIOL 002	Principles of Biology	
BCOR 011	Exploring Biology	
BCOR 012	Exploring Biology	
Two courses at or above the 100-level		
At least one course at the 200-level		

### RESTRICTIONS

Ineligible Majors: Plant Biology, Biology, Biological Sciences

### PRE/CO-REQUISITES

The required introductory course is likely to be the prerequisite for all the remaining courses. There are no implicit requirements.

## DEPARTMENT OF POLITICAL SCIENCE

<http://www.uvm.edu/~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. 293)

**MINORS**

**POLITICAL SCIENCE MINOR**

International Politics (p. 293)

Political Science (p. 293)

**POLITICAL SCIENCE B.A.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

Thirty credits in political science and completion of the additional skill requirement:

Core Courses:		
POLS 021	American Political System	3
POLS 041	Intro to Political Theory	3
POLS 051	Intro International Relations	3
POLS 071	Comparative Political Systems	3
At least fifteen credits at the advanced 100- or 200-level in political science subject to the following restrictions:		15
Three credits must be at the 200 level		
Students must complete at least one advanced 100- or 200-level course in three of the four subfields (American politics; political theory; international relations; comparative politics)		
Twelve of those fifteen credits, including the three credits at the 200-level, must be in UVM political science courses (excluding study abroad, transfer credit, readings and research)		
Three additional credits in political science at any level (can include transfer credit)		3
At least fifteen of the thirty 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 one of five areas, as described below:		
Statistics and Methodology - STAT 051 plus POLS 181 or one other statistics course above the STAT 051 level. (POLS 181 may be reused for requirements within the major)		
Political Economy - EC 011 and EC 012		
Language - one 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	
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Note: Internships will not count toward the thirty credits required for the major.

**INTERNATIONAL POLITICS MINOR**

**REQUIREMENTS**

Eighteen credits in international Political Science courses including:

POLS 051	Intro International Relations	3
POLS 071	Comparative Political Systems	3
At least twelve 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 twelve credits, students must complete at least six credits in UVM Political Science courses.		12

At least nine of the total of eighteen 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**

Eighteen credits in political science, including:

At least six 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 Political Systems	
At least nine credits at the level of 100 or above. Of the nine credits at the 100-level or above, students must complete at least six credits in UVM political science courses		9

At least nine of the eighteen 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 eighteen credits required for the minor.

Only three credits of readings and research may count toward the minor.

## DEPARTMENT OF PSYCHOLOGICAL SCIENCE

<http://www.uvm.edu/~psych/>

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 comprehensive study of the interplay between the actual, imagined, or implied presence of others and people's thoughts, feelings, behaviors, physiology, and health. Research interests include stigma and mental health, the self, interpersonal and intergroup processes, healthcare disparities, and prosocial behavior.
- **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 includes widely published experts, several holding leadership positions within their professional associations.

### MAJORS

#### PSYCHOLOGICAL SCIENCE MAJORS

Psychological Science B.A. (p. 294)

Psychological Science B.S. (p. 294)

### MINORS

#### PSYCHOLOGICAL SCIENCE MINOR

Psychological Science (p. 295)

### GRADUATE

Psychology M.A. (earned as prerequisite to the Psychology Ph.D)

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. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Thirty-four credits of psychological science including:

PSYS 001	Intro to Psychological Science	3
PSYS 053	Research Methods	3
PSYS 054	Statistics for Psych Sci	4
PSYS 111	Learning, Cognition & Behavior	3
PSYS 115	Biopsychology	3
PSYS 130	Social Psychology	3
PSYS 150	Developmental Psych: Childhood	3
PSYS 170	Abnormal Psychology	3
Two courses (three or four credits each) at the 200-level		6-8
One additional course at/above the 100-level		3
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. 396)

All students must meet the College Requirements. (p. 240)

### MAJOR REQUIREMENTS

Choose one of the following sequences:		6-8
MATH 019 & MATH 020	Fundamentals of Calculus I and Fundamentals of Calculus II	
MATH 021 & MATH 022	Calculus I and Calculus II	
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	
At least three additional credits in an approved science or in statistics. For a list of approved offerings, consult the Department of Psychological Science website.		3
Forty-three credits of psychology including:		46
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 three courses from at least two of the following categories:		9-10
<b>Category A</b>		
PSYS 211	Learning	
PSYS 212	Cognition	
PSYS 213	Motivation	
PSYS 215	Physiological Psychology	
PSYS 216	Psychopharmacology	
PSYS 217	Animal Behavior	
PSYS 218	Hormones and Behavior	
PSYS 219	Sel Topics Behavioral Neurosci	
<b>Category B</b>		
PSYS 230	Advanced Social Psychology	
PSYS 232	Self and Social Cognition	
PSYS 240	Organizational Psychology	
PSYS 252	Emotional Devlmt & Temperament	
PSYS 253	Cognitive Development	
PSYS 254	Social Development	
PSYS 255	Psychology of Gender	
PSYS 256	Infant Development	
PSYS 257	Adolescence	
PSYS 258	Psyc of Adult Develmt & Aging	
PSYS 259	Psychology of Families	
<b>Category C</b>		
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 279	Intro to Health Psychology	
Nine additional credits at or above the 100-level		9

## PSYCHOLOGICAL SCIENCE MINOR REQUIREMENTS

Eighteen credits including:

PSYS 001	Intro to Psychological Science	3
PSYS 053	Research Methods	3
Choose three 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	
One course (three or four credits) at the 200-level		3-4
Psychological Science minors with a major in the College of Arts and Sciences must complete at least one 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

<http://www.uvm.edu/~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. 296)

**MINORS**

**RELIGION MINOR**

Religion (p. 297)

**RELIGION B.A.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

Thirty-two 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; no more than 9 credits of REL 000-level classes may count toward the Religion major):

<b>Category A: Introduction to Religion</b>		
Choose one of the following: (This course may be reused in category B or C below)		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 027	Integrated Humanities	
REL 028	Integrated Humanities	
REL 029	D2:Religion and Globalization	
REL 030	D2: Introducing Islam	
REL 080	Religion & Race in America	
REL 085	On the Meaning of Life	
REL 086	Phil Questions & Rel Responses	
REL 095	Intro Special Topics	
REL 096	Intro Special Topics	
<b>Category B: Investigating Traditions and Cultures</b>		
Choose three of the following (only one REL 000-level course can count toward this requirement):		9
REL 021	D2: Religions in Asia	
REL 023	D2: What is the Bible?	
REL 026	D2:Religions in Africa	
REL 111	Western Religious Thought	
REL 114	Hebrew Scriptures	
REL 116	Judaism	
REL 124	Christianity	
REL 125	Women in Christianity to 1500	

REL 128	Religion in America	
REL 129	Religion&Pop Culture in the US	
REL 130	D2: Islam	
REL 131	D2:Studies in Hindu Traditions	
REL 132	D2: Buddhist Traditions	
REL 141	D2: Religion in Japan	
REL 145	D2: Religion in China	
REL 163	D2:Women & Religion in Africa	
REL 167	D2:Christianity in Africa	
REL 214	Studies in Judaica	
REL 224	Studies in Christianity	
REL 230	Studies in Islam	
REL 234	D2:Buddhism in Sri Lanka	
<b>Category C: Analyzing Problems in Religion</b>		
Choose two of the following (only one REL 000-level course can count toward this requirement):		6
REL 020	D2: Comparing Religions	
REL 029	D2:Religion and Globalization	
REL 080	Religion & Race in America	
REL 085	On the Meaning of Life	
REL 086	Phil Questions & Rel Responses	
REL 103	Sacred Sounds	
REL 104	Mysticism,Shamanism & Possessn	
REL 107	Rel Perspectives on Death	
REL 108	Myth, Symbol & Ritual	
REL 109	Ritualization:Rel,Body,Culture	
REL 173	Studies in Gender & Religion	
REL 180	Moral&Rel Persp on Holocaust	
REL 291	Tpcs in Hist & Phenom of Rel	
REL 292	Tpcs in Hist & Phenom of Rel	
<b>Category D: Theories and Research in Religion</b>		
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
<b>Category E: Advanced Seminars in Religion</b>		
Choose two of the following:		6

REL 214	Studies in Judaica	
REL 224	Studies in Christianity	
REL 228	Studies in Western Rel Thought	
REL 230	Studies in Islam	
REL 234	D2:Buddhism in Sri Lanka	
REL 240	Studies in Asian Religions	
REL 259	Religion and Secular Culture	
REL 291	Tpcs in Hist & Phenom of Rel	
REL 292	Tpcs in Hist & Phenom of Rel	
REL 297	Interdisciplinary Seminar	
REL 298	Interdisciplinary Seminar	

## RELIGION MINOR REQUIREMENTS

Eighteen credits in religion, including the following (no more than 9 credits of REL 000-level classes may count toward the Religion minor):

<b>Category A: Introduction to Religion</b>		
Choose one of the following: (This course may be reused in category B or C below)		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 027	Integrated Humanities	
REL 028	Integrated Humanities	
REL 029	D2:Religion and Globalization	
REL 030	D2: Introducing Islam	
REL 080	Religion & Race in America	
REL 085	On the Meaning of Life	
REL 086	Phil Questions & Rel Responses	
REL 095	Intro Special Topics	
REL 096	Intro Special Topics	
<b>Category B: Investigating Traditions and Cultures</b>		
Choose one of the following:		3
REL 021	D2: Religions in Asia	
REL 023	D2: What is the Bible?	
REL 026	D2:Religions in Africa	

REL 111	Western Religious Thought	
REL 114	Hebrew Scriptures	
REL 116	Judaism	
REL 124	Christianity	
REL 125	Women in Christianity to 1500	
REL 128	Religion in America	
REL 129	Religion&Pop Culture in the US	
REL 130	D2: Islam	
REL 131	D2:Studies in Hindu Traditions	
REL 132	D2: Buddhist Traditions	
REL 141	D2: Religion in Japan	
REL 145	D2: Religion in China	
REL 163	D2:Women & Religion in Africa	
REL 167	D2:Christianity in Africa	
REL 214	Studies in Judaica	
REL 224	Studies in Christianity	
REL 230	Studies in Islam	
REL 234	D2:Buddhism in Sri Lanka	
<b>Category C: Analyzing Problems in Religion</b>		
Choose one of the following:		3
REL 020	D2: Comparing Religions	
REL 029	D2:Religion and Globalization	
REL 080	Religion & Race in America	
REL 085	On the Meaning of Life	
REL 086	Phil Questions & Rel Responses	
REL 103	Sacred Sounds	
REL 104	Mysticism,Shamanism & Possessn	
REL 107	Rel Perspectives on Death	
REL 108	Myth, Symbol & Ritual	
REL 109	Ritualization:Rel,Body,Culture	
REL 173	Studies in Gender & Religion	
REL 180	Moral&Rel Persp on Holocaust	
REL 291	Tpcs in Hist & Phenom of Rel	
REL 292	Tpcs in Hist & Phenom of Rel	
<b>Category D: Theories in Religion</b>		
REL 100	Interpretation of Religion	3

Category E: Advanced Seminars in Religion		
Choose one of the following:		3
REL 214	Studies in Judaica	
REL 224	Studies in Christianity	
REL 228	Studies in Western Rel Thought	
REL 230	Studies in Islam	
REL 234	D2:Buddhism in Sri Lanka	
REL 240	Studies in Asian Religions	
REL 259	Religion and Secular Culture	
REL 291	Tpcs in Hist & Phenom of Rel	
REL 292	Tpcs in Hist & Phenom of Rel	
REL 297	Interdisciplinary Seminar	
REL 298	Interdisciplinary Seminar	

## RESTRICTIONS

Ineligible Major: Religion

## DEPARTMENT OF ROMANCE LANGUAGES AND LINGUISTICS

<http://www.uvm.edu/~romlang/>

The Department of Romance Languages and Linguistics houses UVM's programs in French, Italian, and Spanish, and Linguistics. 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, and on the form and meaning of human language itself.

The department offers undergraduate majors and minors in French, Italian Studies, Linguistics, 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 LINGUISTICS MAJORS

French B.A. (p. 298)

Italian Studies B.A. (p. 298)

Linguistics B.A. (p. 299)

Spanish B.A. (p. 300)

## MINORS AND CERTIFICATES ROMANCE LANGUAGES AND LINGUISTICS MINORS AND UNDERGRADUATE CERTIFICATES

French (p. 301)

Italian (p. 301)

Italian Studies (p. 301)

Linguistics (p. 301)

Spanish (p. 302)

Teaching English to Speakers of Other Languages (p. 302) - Undergraduate Certificate

## FRENCH B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

## MAJOR REQUIREMENTS

Thirty-three credits in French numbered 100 or higher of which fifteen credits must be at the 200-level.

<b>Required Courses</b>		6
FREN 101	Writing Workshop	
FREN 141	French Lit in Context I	
or FREN 142	French Lit in Context II	
<b>Literature Requirement</b>		12
Twelve credits including:		
FREN 141	French Lit in Context I	
or FREN 142	French Lit in Context II	
<b>Culture Requirement</b>		3
Choose one of the following:		
FREN 131	French Civilization	
FREN 132	Contemporary France	
FREN 292	Topics in French Culture	
FREN 293	Quebec Culture	

Note: Only three 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. 396)

All students must meet the College Requirements. (p. 240)



### MAJOR REQUIREMENTS

Thirty credits chosen from the categories below. Among the courses taught in English, no more than twelve credits may be applied from any one academic discipline. Students should consult with their Italian advisor to assist in selecting a program of courses. Other equivalent courses may be accepted with permission of an Italian advisor and the chair of the Department of Romance Languages and Linguistics.

<b>Category A - Courses in Italian</b>		
At least fifteen credits in courses taught in Italian at the 100-level or higher		15
One 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		
<b>Category B - Significant Italian Content</b>		
Up to fifteen credits from among the following courses:		15
ARTH 149	Roman Art	
ARTH 162	Italian Early Renaissance Art	
ARTH 163	Italian High and Late Ren Art	
CLAS 023	Classical Roman Civilization	
CLAS 035	The End of the Roman Republic	
CLAS 037	Early Roman Empire: Lit Trans	
CLAS 042	Mythology	
CLAS 122	History of Rome	
Up to six credits of Latin language/literature at any level		
ENGS 163	Topics:20C American Studies (if significant Italian content)	
HST 125	The Renaissance	
MU 128	Opera Workshop	
MU 228	Opera Workshop	
PHIL 105	History of Medieval Philosophy	
REL 124	Christianity	
THE 150	Hist I:Class/Med/Ren Thtr	
WLIT 013	Italian Lit in Translation	
WLIT 113	Italian Lit in Translation	
WLIT 122	Dante's Comedy	
A college Honors Thesis may be applied to this category if written in English		

<b>Category C - Partial Italian Content</b>		
Up to nine 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)	
CLAS 154	Stories and Histories	
CLAS 155	Ancient Epic	
CLAS 156	Satiric Spirit	
GEOG 159	Europe	
HST 009	D2: Global History to 1500	
HST 010	D2: Global History Since 1500	
HST 013/014	Ideas in the Western Tradition	
HST 015	Early Europe	
HST 016	Modern Europe	
HST 127	European Culture&Soc 1914-1945	
HST 130	European Intellectual History	
MU 111	Music History & Literature I	
MU 112	Music History & Literature II	
MU 205	Period Seminar (if some Italian content)	
POLS 141/142	History of Political Thought (if some Italian content)	
REL 173	Studies in Gender & Religion (if topic pertinent to Italian culture)	

### LINGUISTICS B.A.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

This page also includes specific requirements for the four Linguistics concentrations:

- Sociolinguistics Concentration (p. 300)
- Psycholinguistics Concentration (p. 300)
- Language Studies Concentration (p. 300)
- Formal Linguistics Concentration (p. 300)

### MAJOR REQUIREMENTS

Thirty-three credits, including:

LING 080	Introduction to Linguistics	3
Choose three of the following:		9

LING 165	Phonetic Theory and Practice	
LING 166	Introduction to Syntax	
LING 168	Introduction to Pragmatics	
LING 169	Phonology & Morphology	
Twelve credits of linguistics electives		12
Nine credits of concentration courses		9

At least one course must be at the 200-level. The first three credits of an undergraduate thesis may count toward the major and, if it is a 200-level thesis, toward the 200-level course requirement. No more than three credits may come from classes also used to fulfill the student's minor or a second major.

**Sociolinguistics Concentration**

LING 084	Language & Arabic Culture	3
LING 135	D1: Language & Ethnicity	3
LING 162	American English Dialects	3
LING 176	D1: African American English	3
LING 178	Sociolinguistics	3

**Psycholinguistics Concentration**

CSD 094	Dev of Spoken Language	3
CSD 208	Cognition & Language	3
CSD 281	Intro Cognitive Neuroscience	3
LING 171	Intro to Psycholinguistics	3
LING 177	Second Language Acquisition	3

**Language Studies Concentration**

Two foreign languages courses beyond the two required for a B.A. plus one course in the linguistics of a foreign language. Selection varies according to the language pursued.

**Formal Linguistics Concentration**

To be planned with a linguistics advisor.

Additional concentration courses may be substituted with the approval of a linguistics faculty member.

**SPANISH B.A.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

A minimum of thirty-three credits including:

SPAN 101	Composition & Conversation	3
SPAN 140	Analyzing Hispanic Literatures	3

Nine credits from:		9
SPAN 143	Intro Lit & Culture Spain I	
SPAN 144	Intro Lit & Culture Spain II	
SPAN 145	Intro Lit & Culture Lat Am I	
SPAN 146	Intro Lit & Culture Lat Am II	
Three credits in literature from:		3
SPAN 236	Poetic Voices/Cultural Change	
SPAN 237	Issues in Early Spanish Lit	
SPAN 246	Reading Cervantes	
SPAN 250	Dilemmas of Mdrnty in Span Lit	
SPAN 252	Span Lit:Dictatorshp-Democracy	
SPAN 259	20-21 Cent. Poetry of Spain	
SPAN 260	Gender in Hispanic Literatures	
SPAN 261	Hispanic Writing from Margins	
SPAN 264	Border Literatures	
SPAN 273	Latin American Short Story	
SPAN 274	Latin American Poetry	
SPAN 279	Performance and Politics	
SPAN 281	Contemp Latin Amer Fiction	
SPAN 286	Writing Revolution-Latin Amer	
SPAN 287	Early Span Narratives Americas	
Or Special Topics		
Three credits in Hispanic Linguistics from:		3
SPAN 212	Intro to Hispanic Linguistics	
SPAN 217	Spanish Dialectology	
Or Special Topics		
Three credits in culture or the arts from:		3
SPAN 260	Gender in Hispanic Literatures	
SPAN 261	Hispanic Writing from Margins	
SPAN 264	Border Literatures	
SPAN 268	Hispanic Folklore	
SPAN 269	Latin Amer City in Lit/Film	
SPAN 290	Hispanic Films in Context	
SPAN 291	Early Cultures of Spain	
SPAN 292	Modern Cultures of Spain	
SPAN 293	Early Latin American Cultures	

SPAN 294	Modern Latin American Cultures	
Or Special Topics		
Three additional credits at the 200-level:		3
Six additional credits at the 100 or 200-level		6
Total Credits		33

<sup>1</sup> Only three 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

Eighteen credits in French at the 100-level or above including:

FREN 101	Writing Workshop	3
FREN 131	French Civilization (one 100-level culture course)	3
or FREN 132	Contemporary France	
FREN 141	French Lit in Context I (one 100-level literature course)	3
or FREN 142	French Lit in Context II	
Six of the eighteen credits must be in courses at the 200-level		

### 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 one course.

## ITALIAN MINOR

### REQUIREMENTS

Eighteen 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 one course.

## ITALIAN STUDIES MINOR

### REQUIREMENTS

Eighteen credits of which at least nine credits must be at the 100-level or above from the following categories:

Category A - Courses in Italian:	
At least six credits in courses taught in Italian at the 100-level or above	
Category B - Significant Italian content:	
Up to twelve credits from among the courses listed under Category B in the description of the Italian Studies major	
Category C - Partial Italian content:	
Up to three credits from among the courses listed under Category C in the description of the Italian Studies major. Among the courses taught in English, no more than six credits may be applied from any one academic discipline	

### 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 one course.

## LINGUISTICS MINOR

### REQUIREMENTS

Eighteen credits, to include:

LING 080	Introduction to Linguistics	3
Six credits of Linguistics core courses chosen from the following:		6
LING 165	Phonetic Theory and Practice	
LING 166	Introduction to Syntax	
LING 168	Introduction to Pragmatics	
LING 169	Phonology & Morphology	
Nine additional credits of Linguistics courses		9
Other relevant courses may be chosen with the consultation of a Linguistics minor advisor		
Of these fifteen credits, at least nine credits must be at the 100-level or above		
No more than three credits may come from courses also used to fulfill the student's major		

### 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	
In addition, GERM 155 or GERM 156 and one other 100-level German course are required for GERM 213	
SPAN 140 is required for SPAN 211	

### SPANISH MINOR REQUIREMENTS

A minimum of eighteen credits, including:

SPAN 101	Composition & Conversation	3
SPAN 140	Analyzing Hispanic Literatures	3
Six credits from:		6
SPAN 143	Intro Lit & Culture Spain I	
SPAN 144	Intro Lit & Culture Spain II	
SPAN 145	Intro Lit & Culture Lat Am I	
SPAN 146	Intro Lit & Culture Lat Am II	
Six credits in SPAN at the 200-level in courses numbered from 211-296, 299, or Special Topics		6
Total Credits		18

### RESTRICTIONS

Ineligible Major: Spanish

May not be counted toward the minor:

SPAN 197	Independent Study	1-6
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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 one course.

### TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES UNDERGRADUATE CERTIFICATE

#### REQUIREMENTS

Sixteen credits, including:

LING 080	Introduction to Linguistics	3
LING 170	TESOL and Applied Linguistics	3
LING 177	Second Language Acquisition	3
LING 270	Techniques & Procedures in ESL	4
EDTE 057	US Citizenship and Education	3
No more than 6 credits may overlap between the TESOL certificate and the ELL Endorsement (CESS)		

### DEPARTMENT OF SOCIOLOGY

<http://www.uvm.edu/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. 303)

**MINORS**

**SOCIOLOGY MINORS**

Gerontology (p. 303)

Sociology (p. 304)

**SOCIOLOGY B.A.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

Specific requirements for an optional concentration is included on this page:

Concentration in Social Gerontology (p. 303)

**MAJOR REQUIREMENTS**

Thirty-one credits in sociology including:

SOC 001	SU: Introduction to Sociology <sup>1</sup>	3
SOC 100	Fund of Social Research <sup>1</sup>	4
SOC 101	Developm't Sociological Theory <sup>1</sup>	3
STAT 051	Probability With Statistics (or higher which is required as a prerequisite for taking SOC 100)	3
Nine additional credits at the 100-level		9
Nine credits at the 200-level		9
Students planning to focus in a particular area of study are strongly encouraged to take an additional 200-level course in that area		
Students planning postgraduate training in sociology or related areas are strongly encouraged to take at least two courses from the advanced Theory/Methods area:		
SOC 274	Qualitative Research Methods	
SOC 275	Meth of Data Anyl in Soc Rsch	
SOC 279	Contemporary Sociological Thry	
Only three credits of the following courses may count toward the 200-level requirements:		
SOC 285	Internship	
SOC 286	Internship	
SOC 288	Teaching Assistantship	
SOC 289	Teaching Assistantship	

<sup>1</sup> SOC 001 and one of SOC 090, SOC 100, or SOC 101 or Instructor permission are prerequisites for enrollment in any 200-level course.

**Concentration in Social Gerontology**

Twelve credits in Social Gerontology including:

SOC 020	Aging: Change & Adaptation	3
SOC 120	Aging in Modern Society	3
SOC 220	Internship in Gerontology	3
or SOC 222	Aging & Ethical Issues	
SOC 154	Social Org of Death & Dying	3
or SOC 254	Sociology of Health & Medicine	
or SOC 255	Soc of Mental Health	

Students interested in completing the Social Gerontology concentration are encouraged to consult their faculty advisor early in their program.

**GERONTOLOGY MINOR**

**REQUIREMENTS**

The minor in gerontology consists of eighteen credits.

Required courses (twelve credits):		12
SOC 020	Aging: Change & Adaptation	
or HDFS 020	Aging:Change & Adaptation	
SOC 120	Aging in Modern Society	
SOC 220	Internship in Gerontology	
SOC 222	Aging & Ethical Issues	
Electives (six credits):		6
ANTH 189	D2:Aging in Cross-Cultrl Persp	
HDFS 266	Seminar in Human Development	
HDFS 152	Biology of Aging	
SOC 154	Social Org of Death & Dying	
SOC 224	Health Care and Aging	
SOC 254	Sociology of Health & Medicine	

**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 forty-five credit major rule.

A major in sociology and a minor in gerontology may be possible if additional courses in sociology are taken in order to reduce overlap to one course.

**SOCIOLOGY MINOR****REQUIREMENTS**

Eighteen credits in sociology including:

SOC 001	SU: Introduction to Sociology	3
SOC 090	Intro to Soc Theory/Methods	3
Nine credits at the 100-level or above		9
Three credits at any level		3

**RESTRICTIONS**

Ineligible Major: Sociology

**PREREQUISITES**

SOC 001 and either SOC 090, SOC 100 or SOC 101, or Instructor permission, are prerequisites for enrollment in any 200-level course

**DEPARTMENT OF THEATRE**

<http://www.uvm.edu/~theatre/>

The Department of Theatre 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 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.

**MAJORS****THEATRE MAJOR**

Theatre B.A. (p. 304)

**MINORS****THEATRE MINORS**

Musical Theatre (p. 285)

Speech and Debate (p. 305)

Theatre (p. 305)

**THEATRE B.A.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 240)

**MAJOR REQUIREMENTS**

A total of forty-two 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	0 or 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
THE 190	Theatre Practicum	3
Twelve additional credits (four courses, two of which must be at the 100-level or above)		12

**MUSICAL THEATRE MINOR****REQUIREMENTS**

Twenty 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 109 with instructor permission )	3
THE 190	Theatre Practicum (non-performance/no Teaching Assistant)	1
Two of the following:		2
MU 119	Jazz Vocal Ensemble	
MU 122	University Concert Choir	
MUL 133	Private Lessons: Music Minors (Students should register for Voice)	

**RESTRICTIONS**

Ineligible major: Music

**OTHER INFORMATION**

THE 010 is the prerequisite for THE 119; DNCE 021, or DNCE 022 or DNCE 121 are prerequisite for DNCE 116

**SPEECH AND DEBATE MINOR****REQUIREMENTS**

Eighteen credits to include:

Choose nine credits from:		9
SPCH 011	Effective Speaking	
SPCH 031	Argument & Decision	
SPCH 051	Persuasion	
SPCH 071	Fundamentals of Debate	
SPCH 072	Citizen Advocacy & Debate	
SPCH 082	African American Rhetoric	
SPCH 083	Rhetoric of Reggae Music	
Nine 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 two 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 three credit course above level 100		3
THE 190	Theatre Practicum	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. GSB faculty create impact through teaching, research, and scholarship.

### LEARNING GOALS AND OBJECTIVES

The faculty and staff are committed to developing leaders prepared for a dynamic, global workplace. The GSB curriculum is designed to support the following learning outcomes:

The specific Goals and Objectives defined for the undergraduate program are:

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 their 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 sophomore year. Generally, students complete Business Field courses and Interdisciplinary Theme courses in their junior year, and Interdisciplinary Theme and Business Concentration courses in their junior and senior years.

The Grossman School of Business cooperates with the College of Engineering and Mathematical Sciences in offering 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 Grossman School of Business provides course offerings that satisfy requirements for this minor.

The undergraduate and graduate programs offered by the School are accredited by AACSB International: the International Association to Advance Collegiate Schools of Business.

The offices of the Grossman School of Business are located in Kalkin 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 advisor to discuss curriculum sequence and program options.

### MAJORS

- Business Administration B.S.BA. (p. 307)

### MINORS

- Accounting (p. 310)
- Business Administration (p. 310)
- Sports Management (p. 311)

### GRADUATE

Accountancy MAcc

Sustainable Entrepreneurship 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 readmission.

A minimum of 120 approved credits is required for the degree of Bachelor of Science in Business Administration. A cumulative grade-point average of 2.00 is required. At least 30 credits of course work must be taken in subjects other than business. Students must complete 30 of the last 45 credits in residence at UVM as a matriculated student.

A Basic Business Core grade-point average of 2.25 with no one grade lower than a C- is required by the completion of 75 credits after



matriculation in order to remain enrolled in the Grossman School of Business.

The Business Field requirements, the Interdisciplinary Theme courses, and the Business Concentration courses must be filled with at least 50 percent of business courses taken at UVM. The Business Field courses, the Interdisciplinary Theme courses, and the Business Concentration courses must be completed with a 2.00 grade-point average or higher in each respective category. Other UVM courses may be used towards these requirements if approved by the Undergraduate Studies Committee (UGSC) of the Grossman School of Business.

## 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 applicants into the Grossman School of Business must complete MATH 019 or MATH 021 (Calculus) and EC 011 and EC 012 (Macro and Micro Economics) and STAT 141 (Basic Statistical Methods or an approved equivalency), each with a grade of C- or higher and an overall GPA of 2.25. In addition, a cumulative GPA of at least a 2.50 is required for admission. Students may apply through the on-line request to transfer through the Registrar's website or through their myUVM portal. Applications are evaluated twice per year, in January and July.

## 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. Students on trial will be given a target semester grade-point average to achieve by the end of the following semester.

Students shall be dismissed from the university in the following situations:

1. failure to achieve the target grade-point average while on trial;

2. failure of at least half their course credits in any semester while maintaining a cumulative grade-point average of less than 2.00.

First-year students who have just completed their first semester will be dismissed if they earn a grade-point average of 1.00 or less and fail at least half their semester course credits.

A student may appeal a dismissal in writing to the Undergraduate Studies Committee (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 Student Services in the Grossman School of Business.

## 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 on trial will be required to participate in the Learning @ UVM 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 prior written approval from Student Services in the Grossman School of Business before enrolling in any university course.

### 3. READMISSION FOLLOWING DISMISSAL

A dismissed student who presents evidence of his/her ability to perform satisfactorily may be considered for readmission on trial. A student who has been dismissed for a second time will not be considered for readmission on trial until at least two years have elapsed. Further information regarding readmission may be obtained from Student Services in the Grossman School of Business.

## BUSINESS ADMINISTRATION B.S.BA.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 306)

## 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-three to thirty-four credits. To be completed by the end of the sophomore year or the completion of 75 credits after matriculating into the Grossman School of Business, with a grade-point average of at least 2.25 and no grade lower than C-. If a student does not successfully meet these criteria s/he will be required to transfer out of the Grossman School of Business.

BSAD 010	The Business Enterprise	3
EC 011	Principles of Macroeconomics	3
MATH 019	Fundamentals of Calculus I	3-4
or MATH 021	Calculus I	
BSAD 015	Business Communications	3
BSAD 040	Information Technology & Mgmt	3
EC 012	Principles of Microeconomics	3
BSAD 025	Sustainable Bus Strategies	3
BSAD 060	Financial Accounting	3
STAT 141	Basic Statistical Methods	3
BSAD 030	Decision Analysis	3
BSAD 061	Managerial Accounting	3

## BUSINESS FIELD REQUIREMENTS

Fifteen credits. Students must successfully complete the Basic Business Core before enrolling in Business Field courses. All Business Field Courses require junior standing with the exception of BSAD 180 which requires sophomore standing and can be completed concurrent to BSAD 061. The Business Field Courses must be completed with an overall grade-point average of at least a 2.00.

BSAD 120	Leadership & Org Behavior	3
BSAD 141	Info, Technology & Bus Systems	3
BSAD 150	Marketing Management	3

BSAD 173	Operations Management	3
BSAD 180	Managerial Finance	3

## BUSINESS INTERDISCIPLINARY THEME REQUIREMENTS

12 credits. All students must choose one of the following interdisciplinary themes by the end of their sophomore year:

- Entrepreneurship
- Global Business
- Sustainable Business

All students must complete four (4) courses (12 credits) within their chosen theme, including one interdisciplinary “capstone” course in the fourth year. Students are required to earn an overall grade-point average of at least 2.00 in these four courses.

## BUSINESS CONCENTRATION REQUIREMENTS

15 credits. All students must choose one of the following concentrations by the end of their sophomore year:

- Accounting
- Business Analytics
- Finance
- Marketing

All students must successfully complete five courses (15 credits) within their chosen concentration, with an overall grade-point average of at least 2.00 in these five courses. Students may be permitted to double-dip one course between their selected interdisciplinary theme and selected concentration.

### Accounting Concentration Requirements

A student who plans to become a Certified Public Accountant (CPA) may complete an Accounting undergraduate concentration plus the Master’s of Accountancy (MAcc) in a fifth year. The MAcc fulfills the 150 credit requirement of the American Institute of Certified Public Accountants (see the Graduate Catalogue for additional information on the MAcc). The specific requirements to sit for the CPA examination vary among states. Students who plan to sit for the CPA exam are advised to contact the Board of Accountancy for the state in which they plan to work.

The Accounting concentration consists of fifteen credits of accounting course work:

BSAD 161	Intermediate Accounting I	3
BSAD 162	Intermediate Accounting II	3
Three other accounting courses to be selected in consultation with the student’s accounting faculty advisor		9

## PROFESSIONAL DEVELOPMENT SERIES

Students are required to complete a total of 3 credits of Professional Development Series:

- Professional Development Series (Soph) (BSAD 002 - 1 credit)
- Professional Development Series (Junior) (BSAD 102 - 1 credit)
- Professional Development Series (Senior) (BSAD 202 - 1 credit)

## 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	Written Expression	
Or the First Year Honors College Seminar (HCOL 085)		
Social Science: select from Anthropology, Economics, Environmental Studies, Geography, Political Science, Psychological Science, Sociology, and Gender, Sexuality, & Women's Studies		3-4
Natural Science (lab optional): select from Anatomy & Physiology, Astronomy, 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, Music, Philosophy, Religion, Theatre, World Literature		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).

## REQUIRED MINOR

A student must complete a minor in a discipline outside the Grossman School of Business by fulfilling the requirements specified by the department or program supervising the minor. Most minors average 18 credit hours. A student must earn a cumulative grade-point average of 2.00 in the courses used to complete the minor and half of these courses must be completed at UVM. Courses from the Basic General Education Core requirements may be used toward the completion of the minor.

The student must contact the appropriate department to obtain more specific information. To declare a minor, students submit a major-minor request online through the UVM registrar's website. 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 minor in Film and Television Studies is restricted to students enrolled in the College

of Arts and Sciences. The following minors through Community Development and Applied Economics are restricted: Consumer and Advertising, Consumer Affairs, Community Entrepreneurship, and Public Communications. Up to two minor courses are permitted to double-dip Business Core/Field/Theme/Concentration requirements. Please consult with your faculty advisor or Student Services to select an appropriate minor.

## DIVERSITY COURSE REQUIREMENT

Beginning with the class entering during the fall 2008 semester, all undergraduates must successfully complete the University Approved Diversity courses: one three-credit course from Category One (Race and Racism in the U.S.) and a second three-credit course from either Category One or Category Two (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.) Courses that meet the University Diversity Requirement can double-dip the Business and/or general education requirements.

## FOUNDATIONAL WRITING AND INFORMATION LITERACY REQUIREMENT

Beginning with the entering first-year class in fall 2014, all undergraduates are required to successfully complete a three-credit course which provides instruction and practice with foundational writing and information literacy. Any of the three following courses will satisfy this requirement: ENGS 001, HCOL 085, and TAP seminars in the College of Arts and Sciences. Courses that meet the University Foundational Writing and Information Literacy Requirement can double-dip the English General Education Core Requirement.

## SUSTAINABILITY REQUIREMENT

Beginning with the entering first-year class in fall 2015, all undergraduates 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.) Courses that meet the University Sustainability Requirement can double-dip the Business and/or general education requirements.

## ELECTIVES

Students need to take at least 30 credits outside of the Grossman School of Business. The rest of their electives can be taken from either inside or outside of the School. 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. No credit will be granted for PEAC (physical education activity courses).
2. No credit will be granted for a course that substantially duplicates material in courses offered in business administration or in other previously completed courses. For example, credit cannot be earned for both EC 170 and STAT 141.
  - Students cannot receive credit for both CS 014 and BSAD 142.
  - Students cannot receive credit for a course that is prerequisite knowledge for a course already completed, for example FREN 001 after FREN 002.
  - Students cannot receive credit for a course offered in another department that substantially duplicates material in business administration.
  - Students cannot earn credit for both CDAE 127 and BSAD 153.
  - Students cannot earn credit for both CDAE 128 and BSAD 155.
  - Credit cannot be received for CDAE 167 if taken after BSAD 180.
  - Credit cannot be received for CDAE 168 if taken after BSAD 150.
  - Credit cannot be received for CDAE 169 or CDAE 266.

- 2 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.
- 3 BSAD 060 and BSAD 061 must each be completed with a grade of C or higher.

**ACCOUNTING MINOR REQUIREMENTS**

BSAD 161	Intermediate Accounting I	3
BSAD 162	Intermediate Accounting II	3
An additional two accounting courses of at least three credits each numbered above BSAD 162		6
Students are approved to overlap one course between two minors.		

**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	Fundamentals of Calculus I <sup>1</sup>	3-4
or MATH 021	Calculus I	
STAT 141	Basic Statistical Methods <sup>1,2</sup>	3
BSAD 060	Financial Accounting <sup>3</sup>	3
BSAD 061	Managerial Accounting <sup>3</sup>	3

<sup>1</sup> EC 011, EC 012, MATH 019 or MATH 021, and STAT 141 (or an approved equivalent) must be completed with an overall GPA of 2.00 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
Choose one of the following:		3
BSAD 120	Leadership & Org Behavior	
BSAD 132	Political Envir of Business	
BSAD 141	Info,Technology & Bus Systems	
BSAD 150	Marketing Management	
BSAD 173	Operations Management	
BSAD 180	Managerial Finance	
Three (3) additional BSAD courses, at least three credits each. These BSAD electives may be selected from any BSAD course numbered 100 or above, whether or not they are in the preceding requirement list. Business Administration minors who choose to study abroad may use one upper-level business course taken abroad towards their minor requirements.		9
Students are approved to overlap one course between two minors.		

**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	Fundamentals of Calculus I <sup>1</sup>	3-4
or MATH 021	Calculus I	



STAT 141	Basic Statistical Methods <sup>1,2</sup>	3
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- <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 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**

The courses for the minor include three required courses and at least three elective courses, one from each category, for a minimum of 18 required credits. 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 courses for the minor include:

Required Courses:		
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 055	Special Topics I (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	Marketing: Comm 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	
BSAD 138	Entrepreneurship: Bus Planning	
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.

## THE COLLEGE OF EDUCATION AND SOCIAL SERVICES

<http://www.uvm.edu/~cess/>

The College of Education and Social Services (CESS) offers undergraduate programs in Human Development and Family Studies (HDFS), 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.

Enrolled UVM students wanting to transfer to CESS must complete the online transfer form available on the UVM Registrar's Office website. Students enrolled in appropriate programs in other academic units may apply to complete additional teacher licensure requirements for Secondary Education while they remain in their home college/school.

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. Non-teacher education programs (HDFS and Social Work) require an overall grade-point-average of 2.00 or above to be considered eligible for transfer.

### MAJORS

- Human Development and Family Studies B.S. (p. 329)
- Social Work B.S. (p. 330)
- Teacher Education: Art Education (PreK-Grade 12) B.S.AE. (p. 314)
- Teacher Education: Early Childhood Education (Birth-Grade 3) B.S. (p. 315)
- Teacher Education: Early Childhood Special Education (Birth-Age 6) B.S. (p. 316)
- Teacher Education: Elementary Education (K-Grade 6) B.S.Ed. (p. 318)
- Teacher Education: Middle Level Education (Grades 5-9) B.S.Ed. (p. 320)
- Teacher Education: Music Education (Pre-K- Grade 12) B.S.MS. (p. 321)
- Teacher Education: Physical Education (Pre-K- Grade12) B.S.Ed. (p. 322)
- Teacher Education: Secondary Education (Grades 7-12) B.S.Ed. (p. 324)

### MINORS AND CERTIFICATES

- Coaching (p. 326)
- Human Development and Family Studies (p. 330)

- Special Education (p. 326)
- Sports Management (p. 328)
- Teaching English to Speakers of Other Languages (<http://catalogue.uvm.edu/undergraduate/educationandsocialservices/education/tesolcertificate>) - 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 National Council for the Accreditation of Teacher Education (NCATE), and the Vermont Agency of Education.

### 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 and Social Work 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, at least in the case of most social work organizations, typically requires a criminal background check as does employment in an ever-increasing number of human service agencies.

### 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.

## 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.

## 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. A list of the options based on program and the requirements are available through the CESS Student Services Office website. Students are required to meet with a faculty advisor to determine academic concentration.

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 file 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)**

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.

**Approved Alternatives to PRAXIS Core Academic Skills Test for Educators (PRAXIS Core)**

The CESS will accept PRAXIS I, SAT, GRE, or ACT scores for tests taken prior to August 31, 2014 as approved by the Vermont Agency of Education. If the student has one of the aforementioned test scores taken prior to August 31, 2014, 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**

Teacher Education: Art Education (PreK-12) B.S.AE. (p. 314)

Teacher Education: Early Childhood Education (Birth-Grade 3) B.S. (p. 315)

Teacher Education: Early Childhood Special Education (Birth-Age 6) B.S. (p. 316)

Teacher Education: Elementary Education (K- Grade 6) B.S.Ed. (p. 318)

Teacher Education: Middle Level Education (Grades 5-9) B.S.Ed. (p. 320)

Teacher Education: Music Education (Pre-K-Grade 12) B.S.MS. (p. 321)

Teacher Education: Physical Education (Pre-K-Grade 12) B.S.Ed. (p. 322)

Teacher Education: Secondary Education (Grades 7-12) B.S.Ed. (p. 324)

**MINORS AND CERTIFICATES****EDUCATION MINORS**

Coaching (p. 326)

Special Education (p. 326)

Sports Management (p. 328)

Teaching English to Speakers of Other Languages (<http://catalogue.uvm.edu/undergraduate/educationandsocialservices/education/tesolcertificate>) - Undergraduate Certificate

**GRADUATE**

Post-Baccalaureate Teacher Preparation (p. 327)

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 M.Ed.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate>) for more information.

**TEACHER EDUCATION / ART EDUCATION (GRADES PREK-12) B.S.AE.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 312)

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 121 approved credits is required for the degree.

Students are responsible for obtaining information regarding teacher licensure and degree requirements from the CESS Student Services office, 528 Waterman, or the CESS website.

**PLAN OF STUDY**  
**A POSSIBLE CURRICULUM IN ART EDUCATION**

First Year	Credits	
	Fall	Spring
HDFS 005 Human Development	3	
ARTS 001 Drawing (Studio Art Foundation)	3	
ARTH 005 Western Art: Ancient - Medieval (Art History)	3	
General Education Courses	6	6
ARTS 012 Perspectives on Art Making		3
ARTH 006 Western Art: Renaissance-Modern (Art History)		3
EDSP 005 D2: Iss Aff Persons W/Disabil		3
Year Total:	15	15
<b>Sophomore</b>		
	<b>Fall</b>	<b>Spring</b>
Studio Art	6	6
General Education Courses	9	6
Art History Elective		3
Year Total:	15	15
<b>Junior</b>		
	<b>Fall</b>	<b>Spring</b>
EDAR 177 Curriculum & Pract in Elem Art	4	
Elective or General Education Course <sup>1</sup>	3	
EDAR 178 Curriculum&Pract Middle/HS Art	4	
Studio Art	6	6
EDAR 283 Current Issues in Art & Ed		3
EDAR 284 Current Issues in Art & Ed		3
Art History Elective		3
Year Total:	17	15

Senior	Credits	
	Fall	Spring
EDFS 203 Soc, Hst & Phil Found of Educ	3	
Studio Art <sup>2</sup>	6	
Electives <sup>1</sup>	6	
EDSC 226 Teaching Internship		12
EDSC 230 Teaching for Results		3
Year Total:	15	15
<b>Total Credits in Sequence:</b>		
		122

<sup>1</sup> The number of electives depends on the degree of course overlap in the general education, major, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

<sup>2</sup> Studio Art during the Senior year consists of a 100-level course in 3-D and a 100-level course in digital media.

**TEACHER EDUCATION / EARLY CHILDHOOD EDUCATION (BIRTH- GRADE 3) B.S.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 312)

The Early Childhood program provides students with a supportive, yet rigorous, learning environment, in which they develop the perspectives, knowledge and skills necessary to work effectively with families, co-professionals and children, from birth through grade 3, in a variety of classroom and community-based settings. The course of study is divided into six categories:

1. Professional Preparation Sequence
2. Content Concentration focusing on the disciplines of Language Arts, Mathematics, Science and Social Studies
3. General Education Courses
4. Diversity Courses: Two University required courses (D1 & D2) and two Teaching For Diversity (TFD) courses
5. Sustainability Course: EDTE 074-Science of Sustainability
6. Electives: A minimum of three

The program involves substantial field-based experiences and makes significant use of the UVM Campus Children’s School and area public schools as practicum sites. Graduates of the program who successfully complete all requirements are eligible for Initial Teacher Licensure, Birth – Grade 3, from the State of Vermont. The Birth-Grade 3 Professional Preparation sequence involves three components.

**Component One**

The first component is foundational and goes in-depth into to the education of children and includes the following courses: EDEC 001, EDEC 063 , HDFS 060, and EDEC 122. This component also emphasizes the important link between a child's family, cultural identity, and school experiences.

**Component Two**

The second component introduces students to the rationale, practices, strategies and pedagogical frameworks used in the provision of meaningful, engaging and inclusive learning experiences for young children. Alongside observation and documentation skills, as well as approaches to curriculum development. Courses specific to this component include: EDEC 101, EDEC 103, EDEC 139, EDEC 140, EDEC 179, EDEC 181, and EDEC 182.

**Component Three**

The third component includes two student teaching experiences via EDEC 179 in the UVM Campus Children’s School; Then EDEC 187 and EDEC 188 in a local public school.

A minimum of 120 credits are required for successful program completion.

**PLAN OF STUDY**

**A POSSIBLE CURRICULUM IN EARLY CHILDHOOD EDUCATION:**

First Year	Credits	
	Fall	Spring
EDEC 001 Intro Early Care & Education	4	
EDSP 005 D2:Iss Aff Persons W/Disabil	3	
ENGS 001 Written Expression	3	
EDEC 063 Child Development	3	
General Education Course	3	
Content Concentration		3
HDFS 060 Family Context of Development		3
General Education Courses		3
EDTE 056 D1:Lang Policy Issues,Race&Sch		3
EDEC 122 Fundamentals of EC Education		3
Year Total:	16	15
<b>Sophomore</b>		
	Credits	
	Fall	Spring
EDEC 101 Multiple Roles of Tcher in ECE	3	
EDEC 103 Early Childhood Practicum	4	

General Education Course	3	
Content Concentration	3	
TFD Course	3	
EDEC 139 Early Childhood Internship		9
EDEC 140 Early Childhood Seminar		3
EDTE 074 SU: Science of Sustainability		3
Year Total:	16	15

Junior	Credits	
	Fall	Spring
EDEL 156 Teaching Math for Meaning	3	
EDEC 181 K-3 Inquiry	3	
EDEC 182 K-3 Literacy	3	
EDEC 179 K-3 Interdisciplinry Practicum	4	
Electives	3	3
General Education Courses		9
Content Concentration		3
Year Total:	16	15

Senior	Credits	
	Fall	Spring
General Education	3	
Content Concentration	3	
TFD Course	3	
Electives	3	
EDEC 187 K-3 Studnt Teachng Internship		12
EDEC 188 K-3 Seminar		3
Year Total:	12	15
<b>Total Credits in Sequence:</b>		
		120

**TEACHER EDUCATION / EARLY CHILDHOOD SPECIAL EDUCATION (BIRTH-AGE 6) B.S.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 312)

The Early Childhood Special Education (ECSP) program is designed to provide students with the perspectives and skills necessary to

work with all young children from birth through kindergarten and their families in a range of family-centered, culturally responsive, inclusionary and developmentally appropriate settings. These include the abilities to:

- Promote children's learning and development within natural environments and/or inclusive settings;
- Recognize and respect the diversity of family structures, preferences, and participation levels;
- Offer instructional practices that are guided by and sensitive to the family and child, supported by meaningful assessment information, and linked to developmentally and/or individually appropriate curricula;
- Foster collaborative relationships with family members, peers of the same discipline, and individuals across disciplines.

The ECSP program builds upon the early childhood competencies obtained through the Birth-Gr3 Early Childhood program and involves a large field-based component which makes significant use of the wide array of early intervention and early childhood services and supports within the campus community (UVM Campus Children's Center and Trinity Children's Center) as well as throughout the local community and region.

## MAJOR REQUIREMENTS

ECSP students complete both a sequence of professional courses related to early childhood and early childhood special education as well as an academic major concentration in an arts and science discipline.

The ECSP Professional Preparation sequence begins with a series of course work that build the foundation and skills for any educator working with young children and/or their families. This sequence begins with two foundation courses followed by a series of professional courses. The two foundation courses are HDFS 060 and EDEC 063. HDFS 060 examines the context of development and in so doing establishes the foundation for recognizing that development is an interdependent and intertwined process. EDEC 063 serves to introduce students to the basic principles and research findings in the discipline of child development and how this knowledge can form the basis for educational practice.

The first professional course (EDEC 001) provides the theoretical rationale for the ECSP approach to early childhood special education as well as considerable opportunity to practice techniques for observing young children's development. Observational skills are an essential component of the ECSP program since an awareness of children's interests and investigations forms the basis for the development and provision of appropriate educational experiences for young children.

Next students take a three course block (EDEC 101, EDEC 122, and EDEC 103). EDEC 101 allows students to develop strategies for the observation, documentation and development of curriculum in early education from a social-constructivist perspective. During EDEC 122, students explore the process of curriculum development and documentation in Early Childhood Education and the role of

teacher, peer, and classroom on children's development. EDEC 103 provides students with an internship experience combined with two seminars.

The next professional course (EDEC 139) is a full semester full-time student teaching experience in either one of the rooms of the UVM Campus Children's Center or in a community placement. Over the course of the semester, students, under the supervision and mentorship of the classroom teachers, gradually assume more responsibility for all aspects of the curriculum as well as contact with families.

Once students complete EDEC 139, their 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, toddlers, preschoolers and kindergarten children who have disabilities and their families. The course reviews the nature of these disabilities and the strategies that are used for interventions. ECSP 211 covers the various assessment strategies that are used in early childhood special education to help determine eligibility, priorities, resources, 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; and includes a 30 hour field placement at Trinity Children's Center which is an inclusive program that includes children with disabilities and English language learners. ECSP 210 focuses on curriculum planning to meet the needs of young children with disabilities and their families within home, center, and/or other settings (play groups) and includes a 30 hour field placement at Trinity Children's Center.

The ECSP Professional Preparation sequence is completed with ECSP 187, a student teaching experience working with young children with diverse abilities (ages 0-6) and their families. ECSP 220 is a seminar that accompanies ECSP 187 and provides students further support as they complete their student teaching experience.

The 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
- Major Concentration (student must consult advisor for options)
- Diversity Courses
- Electives<sup>1</sup>

<sup>1</sup> The number of electives depends on the degree of course overlap in the general education, major, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

**PLAN OF STUDY  
A POSSIBLE CURRICULUM IN EARLY  
CHILDHOOD SPECIAL EDUCATION**

First Year	Credits	
	Fall	Spring
EDEC 001 Intro Early Care & Education	4	
EDSP 005 D2:Iss Aff Persons W/Disabil	3	
ENGS 001 Written Expression	3	
EDEC 063 Child Development	3	
General Education Courses	3	3
EDEC 122 Fundamentals of EC Education		3
EDTE 056 D1:Lang Policy Issues,Race&Sch		3
HDFS 060 Family Context of Development		3
Major Concentration		3
Year Total:	16	15
<b>Sophomore</b>		
	Fall	Spring
EDEC 101 Multiple Roles of Tcher in ECE	3	
EDEC 103 Early Childhood Practicum	4	
General Education Course	3	
Major Concentration	6	3
EDEC 139 Early Childhood Internship		9
EDEC 140 Early Childhood Seminar		3
Year Total:	16	15
<b>Junior</b>		
	Fall	Spring
ECSP 202 D2:Introduction to EI/ECSE (D2)	3	
ECSP 211 Assessment in EI/ECSE	4	
Major Concentration	6	3
General Education Courses	3	6
ECSP 210 Curriculum in EI/ECSE		4
Year Total:	16	13

Senior	Credits	
	Fall	Spring
Major Concentration	12	
Elective <sup>1</sup>	3	
ECSP 220 Seminar in EI/ECSE		3
EDEC 187 K-3 Studnt Teachng Internship		12
Year Total:	15	15
<b>Total Credits in Sequence:</b>		
		121

<sup>1</sup> The number of electives depends on the degree of course overlap in the general education, major, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

**TEACHER EDUCATION / ELEMENTARY  
EDUCATION (GRADES K-6) B.S.ED.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 312)

The Elementary Education program prepares teachers for an endorsement in grades kindergarten through six. The Bachelor of Science in Education is awarded upon satisfactory completion of the approved program, which includes a planned sequence of professional courses, field experiences, and a full-semester internship experience.

The Elementary Education program is a designed sequence of professional course work that achieves coherence from its theme “Teaching All Children Strategically in Diverse Communities.” Embedded in a state known for its progressive schooling traditions, Elementary Education students have ample opportunity to learn about and practice the art and science of teaching. Through a web of unique interactions with area schools, Elementary Education majors build relationships with a diverse variety of children beginning in the second year of their professional program.

Several features distinguish the program:

**CONTENT/PEDAGOGY PROFESSIONAL  
COURSE WORK**

Grounded in a theoretical orientation that seeks to integrate theoretical constructs with authentic experience, the faculty of the program have designed pedagogy courses in the content areas of the curriculum and paired them with field experiences. These pedagogy courses focus on literacy, mathematics, inquiry-based science, and social studies. The final capstone professional internship (student teaching) is accompanied by a seminar emphasizing behavior management, reflective teaching and portfolio development.



**INTEGRATED FIELDWORK**

Elementary Education majors have multiple opportunities to connect their on-campus learning to authentic classroom experiences. The required pedagogy courses are linked to clinical field experiences. 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 special challenges in the regular classroom setting. Elementary Education majors learn about and practice the application of instructional adaptations for learners with special 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.

**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 must consult their advisors to develop a plan to complete course work in all four disciplines.

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 (student must consult advisor for options)

**PLAN OF STUDY**

**A POSSIBLE CURRICULUM IN ELEMENTARY EDUCATION**

**Sophomore Year:** During the sophomore year, students must complete an Application to Teacher Education form which is available in 533 Waterman Building. Students will follow the requirements specified in this application. Students will not be permitted to enroll in advanced education courses until they have been accepted to Teacher Education and have passed the PRAXIS Core exam.

**Junior Year:** Students are required to complete an Application to Student Teaching in their junior year before being assigned a placement as seniors. Students will be notified by the Elementary Education program 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.

**Sample Plan of Study**

First Year	Credits	
	Fall	Spring
EDEL 024 Learners and Learning Process	3	
EDSP 005 D2:Iss Aff Persons W/Disabil	3	
ENGS 001 Written Expression	3	
Content Area Coursework	3	3
General Education Courses	3	6
EDFS 002 School and Society		3
EDTE 056 D1:Lang Policy Issues,Race&Sch		3
Year Total:	15	15
Sophomore	Credits	
	Fall	Spring
EDEL 178 Mtg Needs of Diverse Learners	3	
EDEL 056 Teachers&the Teaching Process	3	
Content Area Coursework	6	6
General Education Courses	3	6
EDTE 074 SU: Science of Sustainability		3
Year Total:	15	15
Junior	Credits	
	Fall	Spring
EDEL 157 Social Educ and Social Studies	3	
EDEL 158 Teaching Science for Meaning	3	
EDEL 155 Lab Experience in Inquiry	3	
Content Area Coursework	6	
EDEL 156 Teaching Math for Meaning		3
EDEL 177 Children's Lit & Literacy		3
General Education Course		3
EDEL 175 Lab Experience in Literacy		3
EDEL 176 Language Arts&Literacy Skills		3

Year Total:	15	15
<b>Senior</b>		
	<b>Fall</b>	<b>Spring</b>
EDEL 187 Plan, Adapt, Deliv Lit Instruct <sup>1</sup>	3	
Content Area Coursework	12	
EDEL 188 Principles of Classroom Mgmt <sup>2</sup>		3
EDEL 185 Student Teaching Internship <sup>2</sup>		12
Year Total:	15	15
Total Credits in Sequence: 120		

<sup>1</sup> EDEL 187 must be taken after completion of EDEL 176 and prior to student teaching.

<sup>2</sup> Courses taken concurrently

## TEACHER EDUCATION / MIDDLE LEVEL EDUCATION (GRADES 5-9) B.S.ED.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 312)

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, IDIMC, 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. Studies of young adolescent learning and development, teachers and teaching, literature for young adult readers and special education are taken in the first two years as pre-professional requirements. These courses include a minimum of one field placement with a middle level team of teachers. More heavily field-linked courses in curriculum, pedagogy, assessment, team organization, literacy, mathematics, and evaluation and assessment are taken the last two years.

### INDIVIDUALLY DESIGNED INTERDISCIPLINARY MAJOR CONCENTRATION (IDIMC)

Students in Middle Level Education complete an IDIMC which consists of 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. Four courses (EDML 024, EDML 261, EDML 171, EDML 285) are primarily field-based and, while taking these courses, students will enjoy working with teachers on four different teaching teams. Emphasis is placed on high levels of integration between campus-based learning and field experience to ensure that students are sufficiently oriented and prepared for the real work of exemplary middle level schools.

The Middle Level Education program promotes collaboration through the use of a cohort model. Cooperation and collaboration among teachers is a hallmark of middle level teaching teams. That same spirit is given emphasis through building a cohort of middle level teacher education students who take courses together, and who participate in professional activities such as school events and professional conferences. Additionally, the Middle Level Education program includes a Teacher Advisory committee composed of exemplary middle level teachers from area schools who consult with students and faculty about the program, field placements, job searches and other issues related to advancing one’s professional development and beginning career.

Finally, like all teacher education students at UVM, participants in this program use authentic assessment to demonstrate their growth over time. In their first year, students are introduced to the process of documenting and preserving samples of their professional work and development. These samples are maintained in individual portfolios that grow cumulatively semester by semester. A final Professional Portfolio is assembled during the student teaching semester to more fully define the professional background and aspirations of the novice teacher. This final portfolio constitutes completion of the program, and it is valuable to seniors reflecting on their preparation and accomplishments as well as beginning a job search. This full portfolio is drawn upon to create a more succinct “presentation portfolio” for use in interviews. Seniors also receive faculty guidance in creating resumes and applying and interviewing for teaching positions. The demand for teachers well prepared for teaching middle level schools

is such that the portfolio is an excellent and comprehensive way to present one’s candidacy.

**PLAN OF STUDY  
A POSSIBLE CURRICULUM IN MIDDLE LEVEL  
EDUCATION**

First Year	Credits	
	Fall	Spring
EDML 056 Teachers & Teaching Process (If not offered during semester, will take during Sophomore year)	3	
EDSP 005 D2:Iss Aff Persons W/Disabil	3	
General Education Courses	9	9
EDML 024 Foundations of Middle Level Ed (If not offered during semester, will take during Sophomore year)		3
EDFS 002 School and Society		3
EDTE 056 D1:Lang Policy Issues,Race&Sch		3
Year Total:	15	18
<b>Sophomore</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
EDML 177 Young Adolescent ELA Methods	3	
IDIMC Courses	6	6
Electives <sup>1</sup>	3	6
General Education Courses		6
Year Total:	12	18
<b>Junior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
EDML 171 Mid Level Teaching Practicum I	3	
EDML 270 Middle School Org & Pedagogy	3-6	
IDIMC Courses	3-6	12
Methods Course	0-3	
General Education Course		3
Year Total:	9-18	15
<b>Senior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
IDIMC Course	3	

EDML 260 Teaching Young Adolescents	3-6	
EDML 261 Mid Lev Teaching Practicum II	3	
EDML 287 Content Literacy in Mid Grades	3	
EDML 286 Internship Support Seminar		3
EDML 285 Middle Level Student Teaching		12
Year Total:	12-15	15
<b>Total Credits in Sequence:</b>		
		114-126

<sup>1</sup> The number of electives depends on the degree of course overlap in the general education, IDIMC, and University requirements. It is possible to have one course fulfill two requirements but the credits only count once.

**TEACHER EDUCATION / MUSIC  
EDUCATION (GRADES PREK-12) B.S.MS.**

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 312)

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 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) are offered on a rotating schedule. Consult your advisor for available courses per semester.

**PLAN OF STUDY  
A POSSIBLE CURRICULUM IN MUSIC  
EDUCATION**

First Year	Credits	
	Fall	Spring
HDFS 005 Human Development	3	
MU 109 Harmony and Form I	3	

Ensemble	1	1
MUL 134 Private Lessons: Music Majors	1-2	1-2
Techniques	2	4
MU 041 Piano Proficiency 1	1	
MU 054 Harmony and Form Lab I	1	
MU 085 Intro to Music Education	3	
Elective <sup>1</sup>	1	
MU 110 Harmony and Form II		3
MU 056 Harmony and Form Lab II		1
MU 042 Piano Proficiency 2		1
General Education Course		3
Diversity Course		3
Year Total:	16-17	17-18
<b>Sophomore</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
MU 060 Intro to Music Technology	3	
Ensemble	1	1
MUL 134 Private Lessons: Music Majors	1-2	1-2
Techniques	2	2
MU 111 Music History & Literature I	3	
MU 209 Harmony and Form III	3	
MU 154 Harmony and Form Lab III	1	
MU 043 Piano Proficiency 3	1	
MU 112 Music History & Literature II		3
MU 210 Harmony and Form IV		3
MU 156 Harmony and Form Lab IV		1
MU 181 Conducting		3
Year Total:	15-16	14-15
<b>Junior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
Choose one of the following:	3	
MU 281 Advanced Conducting		
MU 272 Choral Music Methods & MU 273 Choral Music Practicum		
EDSP 005 D2:Iss Aff Persons W/Disabil	3	

MUL 034 Required Secondary Lessons	1-2	1-2
MUL 234 Private Lessons: Music Majors	1-2	1-2
Ensemble	1	1
General Education Courses	6	3
MU 270 General Music Methods		3
MU 271 General Music Practicum		1
MU 159 Theory/Prac Jazz Improv I		3
Year Total:	15-17	13-15
<b>Senior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
MU 250 Senior Recital	1	
MUL 234 Private Lessons: Music Majors	1-2	
MU 274 Instrumental Music Methods	2	
MU 275 Instrumental Music Practicum	1	
Choose one of the following:	3	
MU 281 Advanced Conducting		
MU 272 Choral Music Methods & MU 273 Choral Music Practicum		
EDFS 203 Soc, Hst & Phil Found of Educ	3	
Ensemble	1	
Elective <sup>1</sup>	3	
MU 290 Teaching Internship <sup>2</sup>		12
Year Total:	15-16	12
<b>Total Credits in Sequence:</b>		
		117-126

<sup>1</sup> The number of electives depends on the degree of course overlap in the general education, major concentration and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

<sup>2</sup> Students are required to complete a student teaching internship application before being assigned a placement.

### TEACHER EDUCATION: PHYSICAL EDUCATION (GRADES PREK-12) B.S.ED.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 312)

The Sports Leadership and Physical Education program contains the Physical Education licensure major. 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.

- General Education Courses
- Professional Preparation Sequence
- Major Concentration (student must consult advisor for options)
- Diversity Courses
- Electives<sup>1</sup>

<sup>1</sup> The number of electives depends on the degree of course overlap in the general education, major, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

## PLAN OF STUDY A POSSIBLE CURRICULUM IN PHYSICAL EDUCATION

First Year	Credits	
	Fall	Spring
HDFS 005 Human Development	3	
ENGS 001 Written Expression	3	
EDSP 005 D2:Iss Aff Persons W/Disabil	3	
Elective: Proof of American Red Cross Basic Emergency Response Certification or completion of EDPE 023	3	
EDPE 055 Special Topics I	3	
EDHE 046 Personal Health		3
RMS 157 Prevention & Care Athletic Inj		3
General Education Courses		6
EDTE 056 D1:Lang Policy Issues,Race&Sch		3

Year Total:	15	15
<b>Sophomore</b>		
	<b>Fall</b>	<b>Spring</b>
ANPS 019 Ugr Hum Anatomy & Physiology	4	
EDPE 055 Special Topics I (Fitness Education)	3	
ARC Emergency Response Requirement: Proof of American Red Cross Basic Emergency Response Certification or completion of EDPE 023		
Major Concentration	9	6
EDPE 166 Kinesiology		3
ANPS 020 Ugr Hum Anatomy & Physiology		4
EDPE 104 Phys Educ Teaching Experience		5
Year Total:	16	18
<b>Junior</b>		
	<b>Fall</b>	<b>Spring</b>
EDPE 167 Exercise Physiology	4	
EDPE 220 Sport in Society	3	
EDPE 105 Phys Educ Teaching Experience	5	
EXMS 260 Adapted Physical Activity	3	
General Education Courses	3	3
EXMS 240 Motor Skill Learning & Control		3
Diversity Course		3
Major Concentration		3
EDPE 155 Phys Educ in Secondary Schl		3
Year Total:	18	15
<b>Senior</b>		
	<b>Fall</b>	<b>Spring</b>
Students are required to complete a student teaching application before being assigned a placement.		
EDFS 203 Soc, Hst & Phil Found of Educ (or EDFS Elective) <sup>1</sup>	3	
EDPE 055 Special Topics I (Methods of Dance & Gymnastics)	3	
Major Concentration	6	
EDSC 215 Reading in Secondary Schools or EDML 177 Young Adolescent ELA Methods or EDLT 236 Multicultural Children's Lit	3-4	

EDPE 181 Student Teaching		12
EDPE 182 Student Teaching Seminar		2
Year Total:	15-16	14
Total Credits in Sequence:		126-127

<sup>1</sup> The number of electives depends on the degree of course overlap in the general education, major concentration and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.

## TEACHER EDUCATION / SECONDARY EDUCATION (GRADES 7-12) B.S.ED.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 312)

### 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 major (ranging from thirty credits to fifty-one depending on the discipline) and a minor (strongly encouraged but not required), a professional education component, and electives.

A minimum of 120 approved semester credits is required for the degree. Specific requirements, including PRAXIS information, as approved by the State Department of Education, may be obtained from the CESS Student Services Office, 528 Waterman. Program information is also available from the Secondary Education program, 411 Waterman.

Professional coursework is offered throughout the program, alongside general education and major and minor requirements. This allows our candidates to build their understanding of teaching over time.

### General Education Component

The general education courses must include the following:

- English Composition and English Literature
- Science
- Mathematics
- U.S. History
- American Government (Political Science)
- Psychology or Human Development and Family Studies
- Humanities

### Academic Major and Minor Components

Students who successfully complete their teacher education program are recommended for licensure with a first endorsement in their academic major. Students must consult their faculty advisor in the selection of an academic major. 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 major 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, EDTE 056, EDFS 002, EDSP 005, EDSC 011, EDSC 207. EDTE 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 academic major
- 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 major, 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 academic major
- 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 or OPI for World Languages
- a minimum overall GPA of 3.00
- a minimum GPA of 3.00 in both their academic major 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.

**PLAN OF STUDY**

**A POSSIBLE CURRICULUM IN SECONDARY EDUCATION**

First Year	Credits	
	Fall	Spring
EDTE 001 Teaching to Make a Difference	3	

EDSP 005 D2:Iss Aff Persons W/Disabil	3	
General Education Courses	9	3
EDFS 002 School and Society		3
Academic Major		6
EDTE 056 D1:Lang Policy Issues,Race&Sch		3
Year Total:	15	15

Sophomore	Credits	
	Fall	Spring
EDSC 011 Ed Tech in Sec Ed Classroom	3	
Academic Major	3	6
Academic Major or Minor	3	3
General Education Courses	6	3
EDSC 207 Development:Theory & Applctn		4
Year Total:	15	16

Junior	Credits	
	Fall	Spring
EDSC 209 Practicum in Teaching	4	
EDSC 216 Curr,Instr&Assmt Sec Schl T chr	3	
Academic Major	6	6
Academic Major or Minor	3	3
EDSC 215 Reading in Secondary Schools		4
Special Methods		3
Year Total:	16	16

Senior	Credits	
	Fall	Spring
EDSC 226 Teaching Internship	12	
EDSC 230 Teaching for Results	3	
Academic Major		6
Academic Major or Minor		6
Year Total:	15	12

Total Credits in Sequence:		120
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## COACHING MINOR

### REQUIREMENTS

Completion of fifteen (or up to sixteen) credits from the following tracks is required for the Coaching minor:

Core courses:		
EDPE 197	Readings & Research (Coaching Practicum)	3
EDPE 200	Contemporary Issues (Coaching Ethics & Legal Issues)	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 266	Ex Prescrip:Sprt,Hlth,Fit,Perf	
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.

## SPECIAL EDUCATION MINOR

### REQUIREMENTS

#### Option 1: Open to ALL University students

Required prior to admission into Minor:			3
EDSP 005	D2:Iss Aff Persons W/Disabil		
Select at least two of the following EDSP Core Courses/200-level courses:			6
EDSP 217	Behavior Analysis in SpecialEd		
EDSP 224	Meeting Inst Needs/All Stdnts		
EDSP 280	Assessment in Special Ed		
EDSP 290	Early Lit and Math Curriculum		
EDSP 297	Adolescent Lit & Math Curric		
EDSP 202	Severe Disabil Char&Intervent		

EDSP 274	D2:Culture of Disability	
EDSP 295	Laboratory Exp in Education (Practicum)	
Select three additional courses from the list above or from the following options:		9
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 195	Intermediate Special Topics (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	
ECSP 202	D2:Introduction to EI/ECSE	
ECSP 210	Curriculum in EI/ECSE	
ECSP 211	Assessment in EI/ECSE	
EDHE 050	D2: Bullying & Discrimination	
EDTE 201	Developing Curriculum for ELLs	
EXMS 260	Adapted Physical Activity	
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 270	Behav Disorders of Childhood	



EDSP 200	Contemporary Issues (PBIS in Schools)	
EDSP 200-level Elective		

### Option 2: Dual Certification (Teacher Licensure students only).

Students pursuing Dual Certification are required to take a prescribed sequence of courses that will be outlined in the student's minor program plan.

### OTHER INFORMATION

The minor in Special Education offers 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 November 1; 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 options:

#### Option 1: University Special Education Minor

The 18-hour University 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 one of the following specialty pathways or a combination of one or more specialty pathways: Special Education and Behavioral Mental Health, Special Education and Communication Sciences, Special Education and Early Childhood Special Education, Special Education and Psychology.

#### Option 2: Dual Certification (Teacher Licensure students only)

The 21-24 credit hour dual certification pathway allows future pre-k-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 as a full year of student teaching in both special education and general education in one school. Students must complete an additional application into the Dual Certification program during the fall of their Junior year, but should begin planning with their advisor as soon as they are accepted into the Special Education minor in their first or second year. Acceptance into the Dual Certification option 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.

## 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
- Grades 5-9: Middle Level - English, Math, Science, Social Studies
- Grades 7-12: Secondary - English, Foreign Language (French, German, Latin, Spanish), Mathematics, Science (Animal Sciences<sup>1</sup>, Biological Science, Chemistry, Earth Science, and Physics), Social Studies (Economics, Geography, History, and Political Science)

<sup>1</sup> Animal Sciences is an alternate route for the Biology Endorsement.

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.
7. For Middle Level candidates: Previous coursework must include two approved areas of concentration, with eighteen credits in each area.
8. For Secondary candidates: Previous course work must include a minimum of thirty semester credits with a minimum GPA of 3.00 in one of the academic areas listed above to meet Vermont state licensure requirements for the major academic concentration.

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.

Requests for further information about the Middle Level and Secondary Education PBTP program and application process may be obtained by contacting the Middle Level or Secondary Education program, 411 Waterman Building, (802) 656-1411. Middle Level and Secondary Education also have a Master of Arts in Teaching degree option offered jointly by the College of Education and Social Services and the Graduate College.

Requests for further information about the Physical Education PBTP program and application forms may be obtained by contacting the Physical Education program, 208 Patrick Gymnasium, (802) 656-4456.

Requests for further information about the Elementary Education PBTP program and application forms may be obtained by contacting the Elementary Education program, 533 Waterman Building, (802) 656-3356.

Requests for further information about the Art PBTP program and application forms may be obtained by contacting the 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.

## SPORTS MANAGEMENT MINOR REQUIREMENTS

The courses for the minor include three required courses and at least three elective courses, one from each category, for a minimum of 18 required credits. 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 courses for the minor include:

Required Courses:		
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 055	Special Topics I (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	Marketing: Comm 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	
BSAD 138	Entrepreneurship: Bus Planning	

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.

## DEPARTMENT OF LEADERSHIP AND DEVELOPMENTAL SCIENCES

<http://www.uvm.edu/~dlds/>

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.

## MAJORS

### LEADERSHIP AND DEVELOPMENTAL SCIENCES MAJOR

Human Development and Family Studies B.S. (p. 329)

## MINORS

### LEADERSHIP AND DEVELOPMENTAL STUDIES MINOR

Human Development and Family Studies (p. 330)

## 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.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 312)

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 available as a major concentration for students in the Early Childhood Education, Early Childhood Special Education, and Physical Education licensure programs, and as a minor available to students across the university.

### MAJOR REQUIREMENTS

Students in the Human Development and Family Studies program are required to complete a minimum of 120 credits including General Education requirements in diversity, sustainability, writing and information literacy, 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 four core courses in Human Development and Family Studies (HDFS). The first, “Introduction to Human Development and Family Studies and Academic Service-Learning” (HDFS 001), provides majors with an introduction to the discipline and practice of HDFS, with special emphasis on preparing students for more advanced course work and professional practice. The other three courses in the introductory block introduce students to core topics in the field, including individual development across the life span: “Human Development” (HDFS 005), “Family Context of Development” (HDFS 060), and “Human Relationships and Sexuality” (HDFS 065). These courses also introduce students to typical experiences, changes and challenges at different points in the life course and to factors that influence individual development, such as gender, race and social class. These introductory courses are designed to examine how questions are pursued from a human development perspective, how they 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 analyze critically 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 in context (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 six-credit field experience. All majors take at least three advanced seminar courses selected in consultation with an advisor. The field experience is the final professional requirement and serves as a capstone senior year experience. Taken for a minimum of six credits and typically completed over the course of one semester, students engage in direct field work (for a minimum of 12 hours per week) and related academic work (approximately 6 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. Field placement sites have included legal aid, the court system, battered women’s shelters, centers for abused and neglected children, city and state government agencies, public and private schools, group homes, rehabilitation centers, local business and industry, childcare settings, hospitals, senior-citizen centers, and other human service agencies and social justice organizations.

### PLAN OF STUDY

#### A POSSIBLE CURRICULUM FOR THE HUMAN DEVELOPMENT AND FAMILY STUDIES PROGRAM

First Year	Credits	
	Fall	Spring
HDFS 001 Int Hum Dev&Fam Std for Majors	4	
HDFS 005 Human Development	3	
ENGS 001 Written Expression	3	
Diversity Courses	3	3
Electives	3	3
HDFS 060 Family Context of Development		3
HDFS 065 Human Relationships&Sexuality		3
General Education Courses		3
Year Total:	16	15
<b>Sophomore</b>		
	<b>Fall</b>	<b>Spring</b>
HDFS 141 D1:Interrogatng White Identity	3	
HDFS 161 Social Context of Development	3	
General Education Courses	6	6

Electives	3	3
HDFS 189 Theories of Human Development		3
HDFS 101 The Helping Relationship		3
Year Total:	15	15
<b>Junior</b>		
	<b>Fall</b>	<b>Spring</b>
HDFS Upper Level Courses/Seminars	3	3
Electives	3	3
General Education Courses	9	9
Year Total:	15	15
<b>Senior</b>		
	<b>Fall</b>	<b>Spring</b>
HDFS Upper Level Course/Seminar	3	
Electives	12	9
HDFS 296 Field Experience		6
Year Total:	15	15
<b>Total Credits in Sequence:</b>		
		121

HDFS majors are encouraged [but not required] to complete a minor in a field of interest.

## 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
<b>Track A</b>		
Complete any three 100 level HDFS courses		
<b>Track B</b>		
HDFS 161	Social Context of Development	
HDFS 189	Theories of Human Development	

One approved 200-level HDFS course (except HDFS 200, HDFS 265, HDFS 291, HDFS 296)	
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### RESTRICTIONS

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. (p. 330)

#### GRADUATE

Social Work M.S.W.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate>) for more information

### SOCIAL WORK B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 312)

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 work practice based on a liberal arts education in the social sciences and humanities. The program is fully accredited by the Council on Social Work Education. Throughout the program of study, students develop the values, knowledge, skills and competencies necessary to provide a wide range of social work services. Many program graduates go on to pursue a Master's degree in Social Work (MSW), and are often qualified for "advanced standing" which reduces the credit hours and time required to complete a MSW.

### MAJOR REQUIREMENTS

The BSW program requires a minimum of 120 approved credits comprised of:

1. General Education/Liberal Arts Courses: 27-credits of which are fulfilled through specific course requirements
  - Students must complete the required liberal arts courses with a grade of C- or better.
2. Electives Courses: The student, in consultation with an advisor, selects elective courses, in areas such as humanities, social



sciences, communications, ethics, diversity, and STEM, which will provide the opportunity to develop individual interests.

3. Social Work Coursework: Earning course specific minimum grades as outlined below:
- Complete all Social Work courses (SWSS) with no more than two grades below a "B"; neither of these grades can be below a "C"
  - Have an overall social work grade point average of 3.00
  - Complete all liberal arts courses with a minimum grade of "C-" or higher.

If students do not meet these minimum requirements, they may be disenrolled from the Program or be placed on conditional status.

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.

### PLAN OF STUDY A POSSIBLE CURRICULUM FOR THE SOCIAL WORK PROGRAM

**Junior Year:** Students apply for SWSS 173 Field Experience in the spring of junior year. Application for the field experience requires consultation with the student's advisor to determine that all introductory and intermediate professional and required courses have been successfully completed. The process includes a written statement by the student describing his/her interests and qualifications. The advisor and Field Education Coordinator also review professional readiness issues, including strengths, conduct, maturity, and areas to strengthen. When there are concerns about a student's field readiness, these concerns will be reviewed by the Undergraduate Field Committee, and recommendations will be made.

First Year	Credits	
	Fall	Spring
SWSS 002 Foundations of Social Work	3	
PSYS 001 Intro to Psychological Science	3	
SOC 001 SU: Introduction to Sociology	3	
Humanities Course	3	
Electives	3	9
POLS 021 American Political System		3
SWSS 003 Human Needs & Social Services		3
Year Total:	15	15

Sophomore	Credits	
	Fall	Spring
SWSS 060 D1: Racism & Contemporary Issue (Diversity Courses-6 credits required) (Fulfilled through required Social Work courses.)	3	
ENGS 001 Written Expression	3	
PSYS 170 Abnormal Psychology	3	
Electives	6	6
Non-European/Non-Western Culture Course		3
BIOL 003 Human Biology or SWSS 005 Biosociopolitical Issues SW		3
EC 011 Principles of Macroeconomics		3
Year Total:	15	15

Junior	Credits	
	Fall	Spring
SWSS 147 D2: Theories in Social Work I	3	
SWSS 164 Intro Social Work Research	3	
SWSS 165 Iss & Pol in Social Welfare I	3	
Electives	6	6
SWSS 148 D2: Theories in Social Work II		3
SWSS 163 Theory & Integration Prep Sem		3
SWSS 166 Iss & Pol in Social Welfare II		3
Year Total:	15	15

Senior	Credits	
	Fall	Spring
SWSS 168 Social Work Practice I	3	
SWSS 171 Field Experience Seminar I	3	
SWSS 173 Field Experience I	6	
Electives	3	3
SWSS 169 Social Work Practice II		3
SWSS 172 Field Experience Seminar II		3
SWSS 174 Field Experience II		6
Year Total:	15	15

Total Credits in Sequence:	120	
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In the senior year, students spend approximately fifteen hours/week over two semesters (450 total hours) as interns in a public or private social service agency. In the fall semester, students must enroll concurrently in:

SWSS 168	Social Work Practice I	3
SWSS 171	Field Experience Seminar I	3
SWSS 173	Field Experience I	6

In the spring semester, students must enroll concurrently in:

SWSS 169	Social Work Practice II	3
SWSS 172	Field Experience Seminar II	3
SWSS 174	Field Experience II	6

## 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.

### HONORS THESIS PROGRAM

The undergraduate Honors Thesis program, designed for the superior student with unusual initiative and intellectual curiosity, provides an opportunity to pursue a special program without the restrictions of classroom routine. The Honors Thesis program consists of reading, research, design, or creation in a curricular area of the student's choice, leading to a written thesis. At the time of graduation, the student's transcript and the graduation program will be appropriately denoted with "Honors Thesis" and the title of the thesis, provided that Honor's level performance has been demonstrated.

The student must be matriculated in the college at the time of application for the program and have a cumulative grade-point average of at least 3.00 for sophomore and junior work.

A thesis committee consists of at least three UVM faculty members, at least two of whom are from the offering area. The chair of the committee, a permanent UVM faculty member, is also from the offering area. The thesis proposal must be approved by the student's thesis committee prior to the Add/Drop deadline of the student's first semester of matriculation into the Honor's Thesis Program. The thesis committee advises the student, approves of the thesis proposal, and approves of the oral defense of the thesis. The course grade is assigned by the committee chair based on consultation with the thesis committee. Six credits of effort are expected for the thesis, usually apportioned evenly over two semesters. Some programs within the

college require senior projects as part of their prescribed curricula. Such projects can provide alternative opportunities to students interested in a design or research challenge.

### MAJORS

- Biomedical Engineering B.S.BME. (p. 346)
- Civil Engineering B.S.CE. (p. 349)
- Computer Science B.S.CS. (p. 334)
- Computer Science and Information Systems B.S. (p. 335)
- Data Science B.S. (p. 336)
- Electrical Engineering B.S.EE. (p. 351)
- Engineering B.A.E. (p. 352)
- Engineering B.S.E. (p. 353)
- Engineering Management B.S.EM. (p. 355)
- Environmental Engineering B.S.EV. (p. 358)
- Mathematics B.S.MS (p. 340)
- Mechanical Engineering B.S.ME. (p. 359)
- Statistics B.S.MS. (p. 343)

### MINORS

- Computer Science (p. 336)
- Electrical Engineering (p. 361)
- Geospatial Technologies (p. 361)
- Mathematics: Pure (p. 344)
- Statistics (p. 344)

## 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.

### CURRICULA

At the undergraduate level, UVM Computer Science offers three bachelor's degrees, an accelerated M.S. degree, a minor, and a non-degree Certificate in Computer Software:

- **BS 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 BS CS is offered through the College of Engineering & Mathematical Sciences.

- **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 and Mathematical Sciences, in cooperation with the School of Business Administration.
- **BA CS:** The Bachelor of Arts, major 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 a mathematics, biology, music, etc. The BA is offered through the College of Arts and Sciences, and information for this program can be found under the Arts and Sciences portion of the Undergraduate Catalog Website.
- **AMP:** The Accelerated Masters Program is open to academically strong CS juniors in any of our 3 undergraduate majors. The AMP allows students to apply two CS upper division courses towards both a bachelor's and master's degree, enabling completion of the Master of Science in CS in as little as one additional year beyond their Bachelor's degree. Information on the AMP can be found under the Graduate Catalog Website.
- **CS 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 CS:** 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.

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.

## ACADEMIC STANDARDS

In order to continue as a major in the Department of Computer Science in CEMS, a student must achieve a 2.00 cumulative grade-point average at the end of the semester in which 60 cumulative credits have been attempted. No more than three repeated course enrollments are allowed during this 60-credit period. In the case of transfer students, applicable transfer credits will be included in determining the 60 credits, but grades in these courses will not be included in the grade-point average.

Students who receive a cumulative or semester grade-point average of less than 2.00 will be placed on trial. Students who have failed half their course credits for any semester, or who have had two successive semester averages below 2.00, or three successive semesters in which their cumulative grade-point average falls below 2.00, are eligible for dismissal.

To receive a degree, students must have a minimum cumulative average of 2.00. Students must complete 30 of the last 45 hours of

credit in residence at UVM as matriculated students in the College of Engineering and Mathematical Sciences.

No more than three grades of D+, D, or D- in computer science courses numbered CS 124 and higher may be applied to the Bachelor of Science in Computer Science. No more than three grades of D+, D, or D- in computer science courses numbered CS 124 and higher or BSAD courses numbered 100 and higher may be applied to the Bachelor of Science with a major in Computer Science & Information Systems.

## MAJORS

### COMPUTER SCIENCE MAJORS

Computer Science B.S.CS. (p. 334)

Computer Science and Information Systems B.S. (p. 335)

Data Science B.S. (p. 336)

## MINORS

### COMPUTER SCIENCE MINOR

Computer Science (p. 336)

## 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.S.CS.

All students must meet the University Requirements (p. 396).

A minimum of 120 credits are required and must include the following:

Computer Science (minimum fifty credits)		
Recommended:		1
CS 050	Seminar for New CS Majors	1
Core:		29
CS 021	Computer Programming I <sup>1</sup>	3
CS 064	Discrete Structures	3
CS 110	Intermediate Programming <sup>1</sup>	4
CS 120	Advanced Programming	3
CS 121	Computer Organization	3
CS 124	Data Structures & Algorithms	3
CS 125	Computability and Complexity	3
CS 201	Operating Systems	3



CS 224	Algorithm Design & Analysis	3
or CS 243	Theory of Computation	
CS 292	Senior Seminar	1
Twenty-one additional credits in CS, including three at the 0XX-level (or above), three at the 1XX-level (or above), and fifteen credits at the 2XX-level (or above)		21
<b>Mathematics (fourteen credits)</b>		
MATH 021	Calculus I <sup>2</sup>	4
MATH 022	Calculus II <sup>2</sup>	4
Choose two of the following courses:		6-7
MATH 121	Calculus III	
MATH 122	Applied Linear Algebra	
or MATH 124	Linear Algebra	
MATH 173	Basic Combinatorial Theory	
MATH 271	Adv Engineering Mathematics	
<b>Probability &amp; Statistics (six credits)</b>		
STAT 143	Statistics for Engineering	3
CS 128	Probability Models & Inference (preferred)	3
or STAT 151	Applied Probability	
<b>Natural Science (twelve credits)</b>		
Choose two of the following courses:		
BIOL 001	Principles of Biology <sup>3</sup>	
BIOL 002	Principles of Biology <sup>3</sup>	
CHEM 031	General Chemistry 1 <sup>4</sup>	
CHEM 032	General Chemistry 2 <sup>4</sup>	
PHYS 051	Fundamentals of Physics I <sup>5</sup>	
PHYS 152	Fundamentals of Physics II <sup>5</sup>	

No more than three grades of D+, D, or D- in computer science courses numbered CS 124 and higher.

<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> BCOR 011 and BCOR 012 are acceptable substitutions for BIOL 001 and BIOL 002.

<sup>4</sup> CHEM 035 and CHEM 036 are acceptable substitutions for CHEM 031 and CHEM 032.

<sup>5</sup> PHYS 031 and PHYS 125 (& PHYS 022) are acceptable substitutions for PHYS 051 and PHYS 152.

## COMPUTER SCIENCE AND INFORMATION SYSTEMS B.S.

All students must meet the University Requirements (p. 396).

A minimum of 120 credits are required and must include the following:

<b>Computer Science (minimum forty-four credits)</b>		
Recommended:		1
CS 050	Seminar for New CS Majors	1
Core:		26
CS 008	Intro to Web Site Development	3
CS 021	Computer Programming I <sup>1</sup>	3
CS 064	Discrete Structures	3
CS 110	Intermediate Programming <sup>1</sup>	4
CS 120	Advanced Programming	3
CS 121	Computer Organization	3
CS 124	Data Structures & Algorithms	3
CS 148	Database Design for the Web	3
CS 292	Senior Seminar	1
Eighteen additional CS credits: Three credits at the 1XX-level or above (CS 125 recommended for students who wish to pursue graduate study in CS); Fifteen credits at the 2XX-level or above		18
<b>Business Administration (twenty-four credits)</b>		
BSAD 060	Financial Accounting	3
BSAD 061	Managerial Accounting	3
BSAD 120	Leadership & Org Behavior	3
BSAD 141	Info, Technology & Bus Systems	3
BSAD 150	Marketing Management	3
BSAD 173	Operations Management	3
BSAD 180	Managerial Finance	3
Three additional BSAD credits at the 1XX-level or above		3
<b>Economics (six credits)</b>		
EC 011	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
<b>Mathematics (eight credits)</b>		
MATH 021	Calculus I <sup>2</sup>	4
MATH 022	Calculus II <sup>2</sup>	4
<b>Probability &amp; Statistics (six credits)</b>		
STAT 143	Statistics for Engineering	3

CS 128	Probability Models & Inference (preferred)	3
or STAT 151	Applied Probability	
<b>Natural Science (eight credits)</b>		
Choose two of the following courses:		8
BIOL 001	Principles of Biology <sup>3</sup>	
BIOL 002	Principles of Biology <sup>3</sup>	
CHEM 031	General Chemistry 1 <sup>4</sup>	
CHEM 032	General Chemistry 2 <sup>4</sup>	
PHYS 031	Physics for Engineers I <sup>5</sup>	
PHYS 125	Physics for Engineers II <sup>5</sup>	

No more than three grades of D+, D, or D- in computer science courses numbered CS 124 and higher or BSAD courses numbered 100 and higher.

<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> BCOR 011 and BCOR 012 are acceptable substitutions for BIOL 001 and BIOL 002.

<sup>4</sup> CHEM 035 and CHEM 036 are acceptable substitutions for CHEM 031 and CHEM 032.

<sup>5</sup> PHYS 031 and PHYS 125 (& PHYS 022) are acceptable substitutions for PHYS 051 and PHYS 152.

## 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.

## DATA SCIENCE B.S.

All students must meet the University Requirements. (<http://catalogue.uvm.edu/undergraduate/academicinfo/degree requirements>)

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. 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.

### ACADEMIC STANDARDS

In order to continue as a major in Data Science in CEMS, a student must achieve a 2.00 cumulative grade-point average at the end of the semester in which 60 cumulative credits have been attempted. No more than three repeated course enrollments are allowed during this 60-credit period. In the case of transfer students, applicable transfer credits will be included in determining the 60 credits, but grades in these courses will not be included in the grade-point average.

Students who receive a cumulative or semester grade-point average of less than 2.00 will be placed on trial. Students who have failed half their course credits for any semester, or who have had two successive semester averages below 2.00, or three successive semesters in which their cumulative grade-point average falls below 2.00, are eligible for dismissal.

To receive a degree, students must have a minimum cumulative average of 2.00. Students must complete 30 of the last 45 hours of credit in residence at UVM as matriculated students in the College of Engineering and Mathematical Sciences.

### PLAN OF STUDY

#### THE CURRICULUM FOR THE B.S. IN DATA SCIENCE

CS 064	Discrete Structures	3
or MATH 052	Fundamentals of Mathematics	
STAT 151	Applied Probability	3
or STAT 251	Probability Theory	
or CS 128	Probability Models & Inference	
<b>CS Core</b>		22
CS 008	Intro to Web Site Development	3
CS 021	Computer Programming I	3
CS 110	Intermediate Programming	4
CS 124	Data Structures & Algorithms	3
CS 204	Database Systems	3
100-Level (or above) CS Elective <sup>1</sup>		3
200-Level (or above) CS Elective <sup>1</sup>		3
<b>STAT Core</b>		21
STAT 087	Introduction to Data Science	3
STAT 141	Basic Statistical Methods	3

or STAT 143	Statistics for Engineering	
or STAT 211	Statistical Methods I	
STAT 221	Statistical Methods II	3
STAT 201	Stat Computing & Data Analysis	3
STAT 223	Applied Multivariate Analysis	3
STAT 229	Survival/Logistic Regression	3
STAT 287	Data Science I	3
<b>MATH Core</b>		20
MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 122	Applied Linear Algebra	3
or MATH 124	Linear Algebra	
Choose 3 MATH Electives at the 100-Level or above <sup>1</sup>		9
<b>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):</b> <sup>2</sup>		12
CS 120	Advanced Programming	
CS 148	Database Design for the Web	
CS 205	Software Engineering	
CS 224	Algorithm Design & Analysis	
CS 228	Human-Computer Interaction	
CS/MMG 231	Programming for Bioinformatics	
CS 251	Artificial Intelligence	
CS 254	Machine Learning	
CS/CSYS/STAT 256	Neural Computation	
CS/CSYS 302	Modeling Complex Systems <sup>3</sup>	
CS 332	Data Mining <sup>3</sup>	
CS/CSYS 352	Evolutionary Computation <sup>3</sup>	
MATH 121	Calculus III	
MATH 173	Basic Combinatorial Theory	
MATH 235	Mathematical Models & Analysis	
MATH 237	Intro to Numerical Analysis	
MATH 266	Chaos,Fractals&Dynamical Syst	
MATH 268	Mathematical Biology&Ecology	
MATH/CSYS 300	Principles of Complex Systems <sup>3</sup>	

MATH/CSYS 303	Complex Networks <sup>3</sup>	
STAT 183	Statistics for Business	
STAT 224	Stats for Quality&Productivity	
STAT 225	Applied Regression Analysis	
STAT 231	Experimental Design	
STAT 233	Survey Sampling	
STAT 235	Categorical Data Analysis	
STAT 241	Statistical Inference	
STAT 330	Bayesian Statistics <sup>3</sup>	
STAT 387	Data Science II <sup>3</sup>	
NR 143	Intro to Geog Info Systems	
CE/CSYS 359	Appld Artificial Neural Ntwrks <sup>3</sup>	
CE/CSYS/STAT 369	Applied Geostatistics <sup>3</sup>	
<b>Choose one 2-course Natural Science (w/ lab) sequence:</b>		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	
<b>University Requirements</b> <sup>4</sup>		12
Foundational Writing & Information Literacy		3
Diversity Category 1		3
Diversity Category 1 or 2		3
Sustainability		3
<b>Free electives</b> <sup>5</sup>		19

- <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.
- <sup>4</sup> See University Requirements section of this catalogue for additional information.
- <sup>5</sup> Students are encouraged to use free elective credits to complete a minor in an area of application (e.g., biology, social sciences).

**GRADUATE**

Complex Systems and Data Science AMP

Complex Systems and Data Science M.S.

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate>) for more information

## 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 curriculum leads to the Bachelor of Science degree in Mathematical Sciences with a major in either mathematics or statistics.

Accelerated Master's Programs in mathematics, statistics, and biostatistics are also offered. These programs allow students to earn both a bachelor's and master's degree in as little as five years. Details are given in the following sections for 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.

The following outlines the curriculum for the Bachelor of Science in Mathematical Sciences. Candidates for these degrees must meet the Core Curriculum and Requirements A, B, C and D. The requirements for the two available majors (mathematics or statistics) are listed separately where they differ.

### ACADEMIC STANDARDS

In order to continue as a major in the Department of Mathematics and Statistics in CEMS, a student must achieve a 2.00 cumulative grade-point average at the end of the semester in which 60 cumulative credits have been attempted. No more than three repeated course enrollments are allowed during this 60-credit period. In the case of transfer students, applicable transfer credits will be included in determining the 60 credits, but grades in these courses will not be included in the grade-point average.

Students who receive a cumulative or semester grade-point average of less than 2.00 will be placed on trial. Students who have failed half their course credits for any semester, or who have had two successive semester averages below 2.00, or three successive semesters in which their cumulative grade-point average falls below 2.00, are eligible for dismissal.

To receive a degree, students must have a minimum cumulative average of 2.00. Students must complete 30 of the last 45 hours of credit in residence at UVM as matriculated students in the College of Engineering and Mathematical Sciences.

No more than three grades of D, D+, or D– at the 200/300 level mathematics and statistics courses used to satisfy the “Core Curriculum” and “Major Courses” requirements will be acceptable.

### CORE CURRICULUM

<b>Mathematics</b>		
MATH 021	Calculus I <sup>1</sup>	4
MATH 022	Calculus II	4
MATH 052	Fundamentals of Mathematics	3
MATH 121	Calculus III	4
MATH 122	Applied Linear Algebra	3
or MATH 124	Linear Algebra	
MATH 241	Anyln in Several Real Vars I	3
MATH 251	Abstract Algebra I	3
CS 021	Computer Programming I	3
<b>Statistics</b>		
MATH 021	Calculus I <sup>1</sup>	4
MATH 022	Calculus II	4
MATH 121	Calculus III	4
MATH 122	Applied Linear Algebra	3
or MATH 124	Linear Algebra	
CS 021	Computer Programming I	3
STAT 201	Stat Computing & Data Analysis	3
STAT 221	Statistical Methods II	3
Choose one of each of the following:		12
STAT 141	Basic Statistical Methods	
or STAT 143	Statistics for Engineering	
or STAT 211	Statistical Methods I	
STAT 151	Applied Probability	
or STAT 251	Probability Theory	
STAT 241	Statistical Inference	
or STAT 261	Statistical Theory	
STAT 281	Statistics Practicum	
or STAT 293	Undergrad Honors Thesis	
Students may substitute an advisor-approved 200-level STAT course for STAT 281/STAT 293 requirement		



<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.

## A. Major Courses

### MATHEMATICS

A minimum of twenty-one additional credits in mathematics, statistics, or computer science courses numbered 100 or above. At least twelve credits must be in courses numbered 200 or above and no more than twelve credits can be taken in computer science.

### STATISTICS

An additional six credits of statistics, so that the total credits earned in statistics is at least twenty-four. A minimum of two additional credits in mathematics, statistics, or computer science courses numbered 100 or above, so that a total of at least forty-five credits in the core and major courses are earned. A total of eighteen credits in the combined core and major courses must be taken at the 200-level and no more than twelve credits can be taken in computer science.

## B. Allied Field Courses

Twenty-four credits selected from the following Allied Fields:

1. Physical Sciences
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 A above may not be used to satisfy this requirement.

## C. Humanities and Social Science Courses

(Courses used to satisfy requirement B above may not be used to satisfy this requirement.)

ENGS 001 and twenty-one credits of courses selected from categories I, II, and III listed below. These twenty-one credits must be

distributed over at least two categories, and at least six credits must be taken in each of the two categories chosen. Statistics majors must take SPCH 011.

I. Language and Literature	II. Fine Arts, Philosophy and Religion	III. Social Sciences
Arabic	Art History	ALANA U.S. Ethnic Studies
Chinese	Dance	Anthropology
Classics	Film and Television Studies	Communication Sciences and Disorders
English	Music	Economics
French	Philosophy	Gender, Sexuality and Women's Studies
German	Religion	Geography
Greek	Speech	Global and Regional Studies
Hebrew	Studio Art	History
Italian	Theatre	Holocaust Studies
Japanese		Human Development and Family Studies
Latin		Political Science
Linguistics		Psychology
Portuguese		Sociology
Russian		Vermont Studies
Spanish		
World Literature		

## D. Total Credits

A minimum of 120 credits is required. Students must include two courses that satisfy the University's Diversity requirements (one three-credit course in Diversity Category 1 and a second three-credit course in Diversity Category 1 or 2). Students must also choose one course that meets the University's Sustainability requirement.

## 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. 336)

Mathematics B.S.MS. (p. 340)

Statistics B.S.MS. (p. 343)

## MINORS

### MATHEMATICAL SCIENCES AND STATISTICS MINOR

Mathematics: Pure (p. 344)

Statistics (p. 344)

## 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

## MATHEMATICS B.S.MS.

All students must meet the University Requirements. (p. 396)

## MATHEMATICS MAJOR

The mathematics curriculum is quite flexible. It is designed to provide a sound basic training in mathematics that allows a student to experience the broad sweep of mathematical ideas and techniques, to utilize the computer in mathematics, and to develop an area of special interest in the mathematical sciences.

A Bachelor of Arts with a major in mathematics is offered and supervised by the College of Arts and Sciences. Students opting for this degree require an advisor from the Department of Mathematics and Statistics. Refer to the CAS section of this catalogue for more information.

Concentrations that provide suggested preparation for a student's career plans are listed in the next section, along with the courses recommended for each concentration.

## Recommendations for Major Courses

In consultation with their advisor, students should choose an area of interest within the mathematics major and plan a coherent program that addresses their interests in mathematics and its applications. This area might be one of those listed below, or it might be another area suggested by the student. As a guide, students interested in one of the areas would typically take at least three courses in that area, including all of the courses marked with an asterisk (\*). In addition, students should take courses from at least two other areas. Because of its centrality in mathematics, students should make sure that they take at least one course listed under Classical Mathematics. In following these recommendations, a course listed in more than one area is meant to be counted only once.

### 1. CLASSICAL MATHEMATICS

Classical mathematics encompasses those areas having their roots in the great traditions of mathematical thought, such as geometry and topology, mathematical analysis, algebra and number theory, and discrete mathematics. Courses in this area include the following:

MATH 141	Real Analysis in One Variable	3
MATH 151	Groups and Rings	3
MATH 173	Basic Combinatorial Theory	3
MATH 236	Calculus of Variations	3
MATH 240	Fourier Series&Integral Trans	3
MATH 241	Anyl in Several Real Vars I *	3
MATH 242	Anyl Several Real Variables II	3
MATH 251	Abstract Algebra I *	3
MATH 252	Abstract Algebra II	3
MATH 255	Elementary Number Theory	3
MATH 257	Topics in Group Theory	3
MATH 260	Foundations of Geometry	3
MATH 264	Vector Analysis	3
MATH 273	Combinatorial Graph Theory	3
MATH 331	Theory of Func of Complex Var	4
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	Ordinary Differential Equation *	3
MATH 236	Calculus of Variations	3
MATH 237	Intro to Numerical Analysis *	3
MATH 238	Applied Computational Methods	3
MATH 240	Fourier Series&Integral Trans	3
MATH 272	Applied Analysis	3
MATH 273	Combinatorial Graph Theory	3
MATH 274	Numerical Linear Algebra	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	Basic Combinatorial Theory	3
MATH 230	Ordinary Differential Equation	3
MATH 237	Intro to Numerical Analysis *	3
MATH 238	Applied Computational Methods	3
MATH 274	Numerical Linear Algebra	3
STAT 201	Stat Computing & Data Analysis	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	Basic Combinatorial Theory	3
MATH 273	Combinatorial Graph Theory	3
CS 224	Algorithm Design & Analysis *	3

CS 243	Theory of Computation	3
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### 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	Basic Combinatorial Theory	3
MATH 221	Deterministic Modls Oper Rsch *	3
MATH 222	Stochastic Models in Oper Rsch	3
MATH 230	Ordinary Differential Equation	3
MATH 236	Calculus of Variations	3
MATH 273	Combinatorial Graph Theory	3
STAT 141	Basic Statistical Methods	3
or STAT 211	Statistical Methods I	
STAT 151	Applied Probability	3
or MATH 207	Probability Theory	
STAT 224	Stats for Quality&Productivity	3
STAT 241	Statistical Inference	3
STAT 253	Appl Time Series & Forecasting	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

<b>Calculus</b>		
MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 121	Calculus III	4
<b>Linear Algebra</b>		
MATH 124	Linear Algebra	3
<b>Introductory Accounting</b>		
BSAD 060	Financial Accounting	3
BSAD 061	Managerial Accounting	3
<b>Mathematical Statistics</b>		
STAT 261	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

<b>Economics</b>		
EC 011	Principles of Macroeconomics	3
EC 012	Principles of Microeconomics	3
<b>Corporate Finance</b>		
BSAD 180	Managerial Finance	3
BSAD 181	Intermediate Financial Mgmt	3
<b>Applied Statistical Methods</b>		
STAT 221	Statistical Methods II	3
STAT 253	Appl Time Series & Forecasting	3

Candidates will demonstrate proficiency in these subjects by submitting transcripts.

### Preliminary Examinations

<b>Exam P - Probability</b>		
STAT 151	Applied Probability	3
STAT 251	Probability Theory	3
<b>Exam FM - Mathematics of Finance</b>		
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	Stat Computing & Data Analysis	3
STAT 225	Applied Regression Analysis	3
STAT 229	Survival/Logistic Regression	3
STAT 235	Categorical Data Analysis	3
STAT 237	Nonparametric Statistical Mthd	3
MATH 173	Basic Combinatorial Theory	3
MATH 221	Deterministic Modls Oper Rsch	3
MATH 222	Stochastic Models in Oper Rsch	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 222	Stochastic Models in Oper Rsch	3
MATH 241	Anyl in Several Real Vars I	3
MATH 242	Anyl Several Real Variables II	3
MATH 207	Probability Theory *	3
or STAT 151	Applied Probability	
STAT 241	Statistical Inference *	3
STAT 252	Appl Discr Stochas Proc Models (a)	1
STAT 252	Appl Discr Stochas Proc Models (b)	1
STAT 261	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.

## STATISTICS B.S.MS.

All students must meet the University Requirements (p. 396).

The statistics major offers two concentrations:

Pre-Medical Concentration (p. 343)

Quality Concentration (p. 343)

## MAJOR REQUIREMENTS

Students receiving the B.S. in Mathematical Sciences may select statistics as their major. In addition, students receiving a Bachelor of Arts from the College of Arts and Sciences may concentrate in statistics as a part of their mathematics major. Statistics is a mathematical science extensively used in a wide variety of fields. Indeed, every discipline which gathers and interprets data uses statistical concepts and procedures to understand the information implicit in their data. Statisticians become involved in efforts to solve real world problems by designing surveys and experimental plans, constructing and interpreting descriptive statistics, developing and applying statistical inference procedures, and developing and investigating stochastic models or computer simulations. To investigate new statistical procedures requires a knowledge of mathematics and computing as well as statistical theory. To apply concepts and procedures effectively also calls for an understanding of the field of application.

The curriculum is designed for students who plan to enter business, industry, or government as statisticians; to become professional actuaries; or to continue on to graduate school in statistics/biostatistics or another field where 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.

Statistics majors may also minor in mathematics by completing:

MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 052	Fundamentals of Mathematics	3
MATH 121	Calculus III	4
Credits in mathematics at the 100-level		6

Since statistics majors normally take MATH 021, MATH 022, MATH 121 and MATH 122 or MATH 124, they just need two additional mathematics courses at the 100-level or above.

Students may earn a double major in mathematics and statistics by meeting the requirements of the statistics major and earning an additional fifteen credits in mathematics, to include:

MATH 052	Fundamentals of Mathematics	3
Choose two of the following:		6
MATH 230	Ordinary Differential Equation	
MATH 237	Intro to Numerical Analysis	
MATH 241	Any1 in Several Real Vars I	
MATH 251	Abstract Algebra I	

Further details on the statistics major and minor curricula may be obtained from the Director of the Statistics program. The Handbook for Mathematics and Statistics majors, available from the Department of Mathematics and Statistics office, also provides a wealth of useful information.

## PRE-MEDICAL CONCENTRATION IN STATISTICS

Each student electing the Pre-Medical concentration in statistics will fulfill the general requirements for the statistics major. STAT 200 is recommended as an important elective for students interested in medicine or allied health. In addition, the pre-medical concentration should include, at a minimum:

Two 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 035 & CHEM 036	General Chemistry for Majors 1 and General 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	Physics for Engineers I and Physics for Engineers 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	

## CONCENTRATION IN QUALITY

Students interested in methods of quality control and quality improvement are encouraged to develop a concentration in Quality. Regularly offered courses include STAT 224 and related courses

in business administration such as BSAD 178 and others in the Production and Operations Management and Quantitative Method areas. Project experience in industrial quality control or in health care quality can be gained in STAT 191 and STAT 281, or STAT 293 - STAT 294.

## MATHEMATICS: PURE MINOR REQUIREMENTS

Choose one of the following sequences:		8
MATH 021 & MATH 022	Calculus I and Calculus II	
MATH 019 & MATH 023	Fundamentals of Calculus I and Transitional Calculus	
Choose one of the following:		3-4
MATH 052	Fundamentals of Mathematics	
MATH 121	Calculus III	
Nine 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 REQUIREMENTS

Choose one course in calculus:		3-4
MATH 019	Fundamentals of Calculus I	
MATH 021	Calculus I	
Or equivalent		
Total of fifteen credits of statistics courses		
One introductory statistics course such as:		3-4
STAT 051	Probability With Statistics	
STAT 111	Elements of Statistics	
STAT 141	Basic Statistical Methods	
STAT 143	Statistics for Engineering	
STAT 211	Statistical Methods I	
EC 170	Economic Methods <sup>1</sup>	
No more than seven credits of introductory courses may count towards the required fifteen credits		
STAT 201 or a computer programming course such as CS 020 or CS 021 (or higher) <sup>2</sup>		3

<sup>1</sup> EC 170 counts toward the fifteen credits of statistics course work.

<sup>2</sup> STAT 201 counts toward the fifteen credits of statistics coursework. CS 020 and CS 021 fulfill programming requirement for statistics minor, but do not count toward required fifteen credits of statistics course work.

## RESTRICTIONS

Ineligible Majors: Statistics major in CEMS (within B.S. Mathematical Sciences degree); Statistics Concentration in CAS (within Mathematics major)

## THE SCHOOL OF ENGINEERING

<http://www.uvm.edu/~cems/soe/>

## ENGINEERING CURRICULA

The College of Engineering and Mathematical Sciences offers ABET-accredited B.S. degrees in Civil, Electrical, Environmental, and Mechanical Engineering. Beginning in the Fall 2016 term, the College is also offering a B.S. in Biomedical Engineering, which was designed to satisfy ABET-accreditation requirements. (ABET-accreditation for the B.S. in Biomedical Engineering will be sought when the first student(s) complete the degree requirements. Accreditation will be retroactive to all B.S. in Biomedical Engineering degree recipients).

In addition, the College offers three interdisciplinary engineering degrees: the B.S. in Engineering, the B.S. in Engineering Management (offered in conjunction with the School of Business Administration), and the B.A. in Engineering (offered in conjunction with the College of Arts and Sciences).

## LAPTOP REQUIREMENTS

Engineering is a professional field that leverages mathematics and the sciences to design and implement solutions to problems faced by society. The practicing Engineer utilizes not only the fundamentals related to mathematics and the sciences but also computational tools to accomplish his or her tasks. With the latter reality in mind, the School of Engineering (SoE) requires all incoming engineering students to have a laptop computer. The laptop requirement enables instructors to incorporate computational analysis and numerical examples in the classroom for an immediate and powerful praxis of engineering theory. The laptop requirement is platform agnostic (Windows, Mac or Linux). The suggested minimum configuration is available on the School of Engineering website. The laptop must be able to run MATLAB® (a high-level programming language and interactive computational environment). The SoE also recommends that students have word processing, presentation and spreadsheet software on their laptop. Note that current netbooks will not have sufficient computational resources to meet the requirements.

## GENERAL EDUCATION REQUIREMENTS

The SoE General Education requirement is consistent with University-wide General Education Requirements, as well as the vision and mission of the University and the program objectives of the Civil, Electrical, Environmental and Mechanical Engineering programs. The Gen Ed requirement is designed to complement the technical content of the engineering curriculum and encourages the exploration of the humanities, social sciences, health, sustainability

and diversity. Gen Ed electives may not be taken on a pass/no pass basis. A list of approved Gen Ed electives is available through the Office of Student Services.

Students' Gen Ed electives must include two three-credit University Approved Diversity courses. One three-credit course must be from Category 1 (Race and Racism in the U.S.) and the second three-credit course can be from either Category 1 or Category 2 (Human and Societal Diversity). See the Diversity course listing in this catalogue. Diversity courses have a D1 or D2 prefix.

Students in programs that do not already require a course that meets the University's Sustainability requirement should use one of their Gen Ed elective slots to meet that requirement.

## ACADEMIC STANDARDS FOR ENGINEERING

To continue as a major in the School of Engineering, a student must achieve a 2.30 cumulative grade-point average at the end of the semester in which thirty cumulative credits have been attempted. Note that this academic standard is more stringent than that of the rest of the college and some of the other colleges and schools within the university. No more than three repeated course enrollments are allowed during this thirty-credit period. In the case of transfer students, applicable transfer credits will be included in determining the thirty credits, but grades in these courses will not be included in the grade-point average.

Students who receive a cumulative or semester grade-point average of less than 2.30 will be placed on trial. Students who have failed half their course credits for any semester, or who have had two successive semester grade-point averages below 2.30, or three successive semesters in which their cumulative grade-point average falls below 2.30, are eligible for dismissal.

To receive a degree, students must have a minimum cumulative average of 2.30. Students must complete thirty of the last forty-five credits in residence at UVM as matriculated students in the College of Engineering and Mathematical Sciences. Additional degree requirements are specified for each major.

No more than one grade of D, D+, or D- will be acceptable in any engineering (CE, EE, EMGT, ENGR and ME) courses. Requirements in each program are specified by the respective program curriculum committees.

A course may not be taken for credit if it is a prerequisite to one for which credit has already been granted, except by permission of the student's advisor.

## PRE-ENGINEERING TECHNICAL (PET) REQUIREMENT

The Pre-Engineering Technical (PET) requirement consists of nineteen credits to be completed nominally by the end of the student's first year with no grade lower than C-. Students who do not successfully complete the PET by the end of the first year are put on notice. Students must complete the PET by the end of the third semester of enrollment in order to continue in engineering (CE, EE,

EMGT, ENGR, ME) coursework. Students who haven't completed the PET will be disenrolled from engineering courses.

MATH 021	Calculus I	4
MATH 022	Calculus II	4
CHEM 031	General Chemistry I	4
CS 020	Programming for Engineers	3
PHYS 031	Physics for Engineers I	4

## ACCELERATED MASTER'S PROGRAMS IN ENGINEERING

Qualified undergraduate students who plan to earn a master's degree in Civil and Environmental, Electrical, or Mechanical Engineering may enroll in the Accelerated Master's program, which enables a student to begin working on a master's degree while still an undergraduate. Students apply for the Accelerated Master's program in the second semester of their junior year. Upon entering the Accelerated Master's program, a student may take up to nine credits of courses for graduate credit while still an undergraduate. Of these, up to six credits of 200-level or higher courses can be counted toward both the B.S. and the M.S. degrees, subject to approval of the student's graduate advisor. Students in the Accelerated Master's program typically begin work toward their master's thesis starting in the summer following their junior year. To apply for the Accelerated Master's program, students must have a cumulative grade-point average of at least 3.20 at the time of application, must submit a letter of application to the graduate program coordinator naming a faculty member who has agreed to serve as their graduate advisor, and must complete the Graduate College application.

The Accelerated Master's program is only available for Electrical Engineering and Mechanical Engineering students who are planning a thesis-based degree. Those pursuing a M.S. degree in Civil and Environmental Engineering may choose either a thesis-based or non-thesis based program.

## MAJORS ENGINEERING MAJORS

Biomedical Engineering B.S.BME. (p. 346)

Civil Engineering B.S.CE. (p. 349)

Electrical Engineering B.S.EE. (p. 351)

Engineering B.A.E. (p. 352)

Engineering B.S.E. (p. 353)

Engineering Management B.S.EM. (p. 355)

Environmental Engineering B.S.EV. (p. 358)

Mechanical Engineering B.S.ME. (p. 359)

**MINORS****ENGINEERING MINOR**

Electrical Engineering (p. 361)

Geospatial Technologies Minor (p. 361)

**GRADUATE**

Bioengineering Ph.D.

Civil and Environmental Engineering AMP

Civil and Environmental Engineering M.S.

Civil and Environmental Engineering Ph.D.

Electrical Engineering AMP

Electrical Engineering M.S.

Electrical Engineering Ph.D.

Mechanical Engineering AMP

Mechanical Engineering M.S.

Mechanical 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 two phases: Foundational and Specialization.

The Foundational Phase establishes a core of math and science, builds a solid foundation in quantitative engineering methods and biomedical sciences, and exposes students to opportunities in biomedical engineering. In the Specialization Phase, students focus their studies in one of three areas:

- Biosensing & Instrumentation
- Cell, Tissue & Organ Biomechanics
- Systems & Network Biology

Specializations involve technical electives that focus on the application of engineering methods to biomedical problems in their specialization area of study.

The B.S. in Biomedical Engineering leverages strong ties between UVM's College of Engineering & Mathematical Sciences and its College of Medicine. This collaboration will provide students unique biomedical opportunities in a professional setting.

**BIOMEDICAL ENGINEERING PROGRAM  
EDUCATIONAL OBJECTIVES**

Graduates of the program are expected to:

1. Succeed in careers as practicing biomedical engineers in a wide range of industrial, governmental, and educational work environments;
2. Participate as active and effective members of engineering teams (possibly multi-disciplinary), which may be composed of people of diverse educational and cultural backgrounds;
3. Lead engineering teams in an effective, fair, and responsible manner;
4. Communicate effectively, in both written and oral forms, about their engineering activities and the results of those activities;
5. Educate themselves throughout their careers about advancements within their discipline and the role of their discipline in society in general;
6. Practice their profession in an ethically, socially, and environmentally responsible manner.

**PLAN OF STUDY****THE CURRICULUM FOR THE B.S. IN  
BIOMEDICAL ENGINEERING****BIOSENSING & INSTRUMENTATION  
SPECIALIZATION**

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1 <sup>1</sup>	4	
CS 020 Programming for Engineers <sup>1</sup>	3	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar	1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
BME 001 Intro to Biomedical Eng Design <sup>2</sup>		2
CHEM 032 General Chemistry 2		4
MATH 022 Calculus II <sup>1</sup>		4
MLRS 034 Human Cell Biology		4
PHYS 031 Physics for Engineers I <sup>1</sup>		4
Year Total:	17	18
<b>Sophomore</b>		
	<b>Fall</b>	<b>Spring</b>
ANPS 019 Ugr Hum Anatomy & Physiology	4	



CE 001 Statics	3	
EE 100 Electrical Engr Concepts	4	
MATH 121 Calculus III	4	
PHYS 125 Physics for Engineers II	3	
ANPS 020 Ugr Hum Anatomy & Physiology		4
BME 081 Biomedical Eng Lab I		2
EE 004 Linear Circuit Analysis II		3
EE 082 Linear Circuits Laboratory II		2
EE 101 Digital Control w/Embedded Sys		4
MATH 271 Adv Engineering Mathematics		3
Year Total:	18	18
<b>Junior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
BME 151 Fall BME Workshop	1	
EE 120 Electronics I	4	
EE 171 Signals & Systems	4	
MATH 122 Applied Linear Algebra	3	
STAT 151 Applied Probability	3	
Gen Ed Elective <sup>3</sup>	3	3
BME 152 Spring BME Workshop		1
Choose 4 Biosensing & Instrumentation (BI) Electives <sup>4</sup>		12
Year Total:	18	16
<b>Senior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
BME 181 Biomedical Eng Lab II	2	
BME 187 Capstone Design I	3	
Gen Ed Elective <sup>3</sup>	3	
Choose 2 BME BI Technical Electives <sup>5</sup>	6	6
Choose 2 Gen Ed Electives <sup>3</sup>		6
BME 188 Capstone Design II		3
Year Total:	14	15
<b>Total Credits in Sequence:</b>		
		134

- <sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.
- <sup>2</sup> First-Year Design Experience: Transfer students without applicable transfer credit have the option of either taking BME 001 or replacing the credits with engineering course work at the 100-level or higher.
- <sup>3</sup> General Education: Fifteen credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2) and the University sustainability requirement (SU).
- <sup>4</sup> Biosensing & Instrumentation Electives: Any 100-level or higher EE course. CE, ENGR, ME, CS, MATH, STAT and life sciences courses with approval of BME advisor. At least 6 hours must be 100-level or above engineering courses.
- <sup>5</sup> BME BI Technical Electives: BIOC 212, CE 359\*, CS 256, CS 302\*, CS 352\*, EE 207, EE 210, EE 213, EE 227, EE 228, EE 275, EE 278, EXMS 240, HLTH 135, MATH 300\*, MATH 303\*, ME 201, ME 208, ME 209, ME 285, ME 312\*, MLRS 140, MLRS 175, MPBP 323\*, PATH 101, RMS 213, RMS 250, STAT 200 & STAT 211. Other courses may be pre-approved by advisor and program head. At least 9 credits must be at the 200-level or above. Note that 300-level courses (\*) require instructor permission for undergraduate enrollment.

### CELL, TISSUE & ORGAN BIOMECHANICS SPECIALIZATION

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1 <sup>1</sup>	4	
CS 020 Programming for Engineers	3	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar	1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
BME 001 Intro to Biomedical Eng Design <sup>2</sup>		2
CHEM 032 General Chemistry 2		4
MATH 022 Calculus II <sup>1</sup>		4
MLRS 034 Human Cell Biology		4
PHYS 031 Physics for Engineers I <sup>1</sup>		4
Year Total:	17	18
<b>Sophomore</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
ANPS 019 Ugr Hum Anatomy & Physiology	4	

CE 001 Statics	3	
EE 100 Electrical Engr Concepts	4	
MATH 121 Calculus III	4	
PHYS 125 Physics for Engineers II	3	
ANPS 020 Ugr Hum Anatomy & Physiology		4
BME 081 Biomedical Eng Lab I		2
MATH 271 Adv Engineering Mathematics		3
ME 012 Dynamics		3
ME 014 Mechanics of Solids		3
ME 040 Thermodynamics		3
Year Total:	18	18
<b>Junior</b>		
	<b>Fall</b>	<b>Spring</b>
BME 151 Fall BME Workshop	1	
MATH 122 Applied Linear Algebra	3	
ME 101 Materials Engineering	3	
ME 143 Fluid Mechanics	3	
STAT 143 Statistics for Engineering	3	
Gen Ed Elective <sup>3</sup>	3	3
BME 152 Spring BME Workshop		1
Choose 4 Cell, Tissue & Organ (CTO) Biomechanics Electives <sup>4</sup>		12
Year Total:	16	16
<b>Senior</b>		
	<b>Fall</b>	<b>Spring</b>
BME 181 Biomedical Eng Lab II	2	
BME 187 Capstone Design I	3	
Gen Ed Elective <sup>3</sup>	3	
Choose 2 BME CTO Technical Electives <sup>5</sup>	6	6
Choose 2 Gen Ed Electives <sup>3</sup>		6
BME 188 Capstone Design II		3
Year Total:	14	15
<b>Total Credits in Sequence:</b>		
		132

- <sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.
- <sup>2</sup> First-Year Design Experience: Transfer students without applicable transfer credit have the option of either taking BME 001 or replacing the credits with engineering course work at the 100-level or higher.
- <sup>3</sup> General Education: Fifteen credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2) and the University sustainability requirement (SU).
- <sup>4</sup> Cell, Tissue & Organ Biomechanics Electives: Any 100-level or higher ME course. CE, EE, ENGR, CS, MATH, STAT and life sciences courses with approval of BME advisor. At least 6 hours must be 100-level or above engineering courses.
- <sup>5</sup> BME CTO Technical Electives: CS 256, EXMS 240, HLTH 135, ME 201, ME 207, ME 208, ME 209, ME 285, ME 312\*, MLRS 140, MLRS 175, MMG 223, MMG 231, MMG 232, MMG 233, MPBP 323\*, PATH 101, PHRM 201, PHRM 240, PHRM 272, RMS 213, RMS 250, STAT 200 & STAT 211. Other courses may be pre-approved by advisor and program head. At least 9 credits must be at the 200-level or above. Note that 300-level courses (\*) require instructor permission for undergraduate enrollment.

### SYSTEMS & NETWORK BIOLOGY SPECIALIZATION

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1 <sup>1</sup>	4	
CS 020 Programming for Engineers <sup>1</sup>	3	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar	1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
BME 001 Intro to Biomedical Eng Design <sup>2</sup>		2
CHEM 032 General Chemistry 2		4
MATH 022 Calculus II <sup>1</sup>		4
MLRS 034 Human Cell Biology		4
PHYS 031 Physics for Engineers I <sup>1</sup>		4
Year Total:	17	18
<b>Sophomore</b>		
	<b>Fall</b>	<b>Spring</b>
ANPS 019 Ugr Hum Anatomy & Physiology	4	

CE 001 Statics	3	
EE 100 Electrical Engr Concepts	4	
MATH 121 Calculus III	4	
PHYS 125 Physics for Engineers II	3	
ANPS 020 Ugr Hum Anatomy & Physiology		4
BME 081 Biomedical Eng Lab I		2
CS 064 Discrete Structures		3
CS 110 Intermediate Programming		4
MATH 271 Adv Engineering Mathematics		3
Year Total:	18	16
<b>Junior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
BME 151 Fall BME Workshop	1	
CS 124 Data Structures & Algorithms	3	
EE 171 Signals & Systems	4	
MATH 122 Applied Linear Algebra	3	
STAT 143 Statistics for Engineering	3	
Gen Ed Elective <sup>3</sup>	3	3
BME 152 Spring BME Workshop		1
Choose 4 Systems & Network Biology (SNB) Electives <sup>4</sup>		12
Year Total:	17	16
<b>Senior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
BME 181 Biomedical Eng Lab II	2	
BME 187 Capstone Design I	3	
Gen Ed Elective <sup>3</sup>	3	
Choose 2 BME SNB Technical Electives <sup>5</sup>	6	6
Choose 2 Gen Ed Electives <sup>3</sup>		6
BME 188 Capstone Design II		3
Year Total:	14	15
<b>Total Credits in Sequence:</b>		
		131

<sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.

- <sup>2</sup> First-Year Design Experience: Transfer students without applicable transfer credit have the option of either taking BME 001 or replacing the credits with engineering course work at the 100-level or higher.
- <sup>3</sup> General Education: Fifteen credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2) and the University sustainability requirement (SU).
- <sup>4</sup> Systems & Network Biology Electives: CE, EE, ENGR, ME, CS, MATH, STAT and life/physical sciences courses with the approval of BME advisor. At least 9 hours must be 100-level or above engineering courses.
- <sup>5</sup> BME SNB Technical Electives: BIOC 212, CE 359\*, CS 256, CS 302\*, CS 352\*, EE 207, EE 210, EE 213, MATH 266, MATH 268, MATH 300\*, MATH 303\*, ME 201, ME 208, ME 209, ME 285, ME 312\*, MMG 223, MMG 231, MMG 232, MMG 233, MPBP 323\*, PATH 101, PHRM 201, PHRM 240, PHRM 272, STAT 200 & STAT 211. Other courses may be pre-approved by advisor and program head. At least 9 credits must be at the 200-level or above. Note that 300-level courses (\*) require instructor permission for undergraduate enrollment.

## CIVIL ENGINEERING B.S.CE.

All students must meet the University Requirements. (p. 396)

The curriculum in civil engineering provides a strong foundation in mathematics, and physical, natural and engineering sciences. Instruction in civil engineering disciplines includes structural, geotechnical, environmental, 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, integrated information technology content, development of communication skills, and a sense of community between students and the faculty.

The B.S. in Civil Engineering requires a minimum of 128 credits. Students are encouraged to pursue minors or focus areas in other disciplines that complement their engineering experience. International education and work experiences are also encouraged. Students should consult their advisors early in their program in order to plan accordingly.

**CIVIL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES**

Graduates of the program are expected to:

1. Practice civil engineering, use their program knowledge in other avenues, or enter graduate school;
2. Apply engineering principles and an understanding of civil engineering issues to analysis, design, construction, management, or preservation of natural and engineered systems;
3. Actively participate in professional and/or community-based service (local, national, or global) that benefit the profession and the public;
4. Demonstrate leadership, effective communication, and teamwork;
5. Demonstrate capacity to obtain professional licensure, and engage in further study and professional development;
6. Consider sustainability as part of the problem definition and engineering solution.

**PLAN OF STUDY  
THE CURRICULUM FOR THE B.S. IN CIVIL ENGINEERING**

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1 <sup>1</sup>	4	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar	1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
Gen Ed Elective <sup>2</sup>	3	3
CE 003 SU: Intro to Civil & Envir Engr		2
CS 020 Programming for Engineers <sup>1</sup>		3
MATH 022 Calculus II <sup>1</sup>		4
PHYS 031 Physics for Engineers I <sup>1</sup>		4
PHYS 030 Physics Problem Solving I (Optional)		0-1
Year Total:	17	16-17

Sophomore	Credits	
	Fall	Spring
CE 001 Statics	3	
CE 010 Geomatics	4	
MATH 121 Calculus III	4	
STAT 143 Statistics for Engineering	3	
Gen Ed Elective <sup>2</sup>	3	
CE 132 SU: Environmental Systems		3
EE 075 Electrical Circuits & Sensors		4
MATH 122 Applied Linear Algebra		3
MATH 271 Adv Engineering Mathematics		3
ME 012 Dynamics		3
Year Total:	17	16

Junior	Credits	
	Fall	Spring
CE 100 Mechanics of Materials	3	
CE 133 Transportation Systems	3	
CE 160 Hydraulics	3	
CE 162 Hydraulics Lab	2	
GEOL 001 Earth System Science or BIOL 001 Principles of Biology or BIOL 002 Principles of Biology	4	
CE 101 Materials and Structures Lab		3
CE 151 SU: Water & Wastewater Engr		3
CE 170 Structural Analysis		3
CE 180 Geotechnical Principles		3
CE 182 Geotechnical Principles Lab		2
Gen Ed Elective <sup>2</sup>		3
Year Total:	15	17

Senior	Credits	
	Fall	Spring
CE 172 Structural Steel Design or CE 173 Reinforced Concrete	3	
CE 185 SU: Capstone Design I	3	
CE Technical Elective <sup>3</sup>	3	
Gen Ed Elective <sup>2</sup>	3	



CE Design Elective <sup>4</sup>	3	3
Choose three CE Electives <sup>5</sup>		9
CE 186 Capstone Design II		3
Year Total:	15	15
Total Credits in Sequence:	128-129	

- <sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.
- <sup>2</sup> General Education: Fifteen credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2).
- <sup>3</sup> CE Tech Electives: All 100 level or above courses in engineering (CE, EE, ENGR or ME).
- <sup>4</sup> CE Design Electives: CE 241, CE 256, CE 261, CE 262, CE 265, CE 273, CE 281, CE 284, CE 285, CE 286, CE 288 and some CE 295 (Special Topics) courses (consult advisor). CE 173 is a design elective if CE 172 has also been taken.
- <sup>5</sup> CE Electives: Any 200-level CE course.

## ELECTRICAL ENGINEERING B.S.EE.

All students must meet the University Requirements (p. 396).

The curriculum leading to the degree of Bachelor of Science in Electrical Engineering includes instruction in electrical and electronic circuits, electromagnetics, semiconductor devices, signal and system analysis, communications, digital systems, as well as in physical and life sciences, humanities, and social sciences. The degree requires a minimum of 129 credits.

Engineering design is developed and integrated into each student’s program and culminates in a required major design experience which draws upon prior course work and which focuses on the issues and expectations of professional practice.

## ELECTRICAL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

The Electrical Engineering program is based on a solid foundation of the mathematical and physical sciences, engineering science and design, principles of professional engineering practice, and liberal education which together prepare graduates to:

1. Succeed in careers as practicing electrical engineers in a wide range of industrial, governmental, and/or educational work environments;
2. Participate as active and effective members of engineering teams (possibly multi-disciplinary), which may be composed of people of diverse educational and cultural backgrounds;
3. Lead engineering teams in an effective, fair, and responsible manner;

4. Communicate effectively, in written, oral and graphical forms, about their engineering activities and the results of those activities;
5. Educate themselves throughout their careers about advancements within their discipline and the role of their discipline in society in general;
6. Practice their profession in an ethically, socially, and environmentally responsible manner.

## PLAN OF STUDY THE CURRICULUM FOR THE B.S. IN ELECTRICAL ENGINEERING

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1 <sup>1</sup>	4	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar	1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
General Education Elective <sup>2</sup>	3	3
CS 020 Programming for Engineers <sup>1</sup>		3
EE 001 EE Principles and Design		3
MATH 022 Calculus II <sup>1</sup>		4
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I <sup>1</sup>		4
Year Total:	17	17-18
Sophomore	Credits	
	Fall	Spring
CS 031 C Programming	1	
EE 003 Linear Circuit Analysis I	3	
EE 081 Linear Circuits Laboratory I	2	
EE 131 Fundamentals of Digital Design	3	
MATH 121 Calculus III	4	
PHYS 123 Physics Problem Solving II (Optional)	0-1	
PHYS 125 Physics for Engineers II	3	
EE 004 Linear Circuit Analysis II		3
EE 082 Linear Circuits Laboratory II		2
EE 134 Microcontroller Systems		4
MATH 122 Applied Linear Algebra		3

MATH 271 Adv Engineering Mathematics		3
Year Total:	16-17	15
<b>Junior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
EE 120 Electronics I	4	
EE 141 Electromagnetic Field Theory	4	
EE 171 Signals & Systems	4	
EE 183 Electronics Laboratory	2	
STAT 151 Applied Probability	3	
EE 121 Electronics II		4
EE 174 Communication Systems		4
EE 184 Electronics Design Project		3
EE Technical Elective <sup>5</sup>		3
General Education Elective <sup>2</sup>		3
Year Total:	17	17
<b>Senior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
EE 187 Capstone Design I	3	
General Education Elective <sup>2</sup>	3	3
Choose two EE Electives <sup>4</sup>	6	6
EE Technical Elective <sup>5</sup>	3	3
EE 188 Capstone Design II		3
Year Total:	15	15
Total Credits in Sequence:	129-131	

<sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.

<sup>2</sup> General Education: Fifteen credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2). Students who don't meet the University sustainability requirement (SU) by taking an EE elective approved for SU should meet the SU requirement with an SU approved Gen Ed Elective.

<sup>3</sup> First-Year Design Experience: Transfer students without applicable transfer credit have the option of either taking EE 001 or replacing the credits with engineering course work at the 100-level or higher.

<sup>4</sup> EE Electives: EE 113, EE 193, EE 194 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).

<sup>5</sup> EE Technical Electives:  
Option 1 - All EE Electives<sup>4</sup> and CS 064, ME 014, ME 040; MATH 052, ANPS 019, ANPS 020, BSAD 180, CHEM 032, CHEM 042 and all 100-level and above courses in engineering (CE, EE, ENGR, ME), CS, MATH, CHEM and PHYS courses except for practicum and seminars. All 200-level or above courses in STAT.

Option 2 - Advisor Approved Advanced (AAA) Electives: EE students may use their nine required credits of technical electives to pursue advanced interests. Plans may include pursuing a minor in a technical or non-technical area or a concentration of courses in curricular areas such as economics, business administration, etc. Pursuit of the AAA option must be pre-approved by both the student's advisor and the EE Program Head. Students must follow through completely on their AAA plan or will need to meet the Option 1 requirements. Once all AAA courses have been approved, students will submit course substitution forms (signed by their advisor and the EE Program Head) to the Office of Student Services.

## ENGINEERING B.A.E.

All students must meet the University Requirements (p. 396).

The Bachelor of Arts in Engineering degree is intended to provide an engineering background for students who desire more educational breadth in the liberal arts than is possible with the various engineering B.S. degrees. Students graduating with this degree might pursue more advanced studies in engineering, or they might go on to advanced studies in fields such as business, law, environmental science, medicine, etc. The degree is not ABET-accredited and is not intended to produce students prepared to work as practicing engineers immediately upon graduation. The degree requires 123-126 credits.

Engineering B.A. students declare a primary concentration of study in engineering and a minor in liberal arts. The primary concentration can be within one of the following four areas of engineering: civil, electrical, environmental, or mechanical systems. Alternatively, students may request to develop their own tailored primary concentration in engineering. The required course work for each primary concentration area will be determined by a committee of SoE faculty with research and teaching interests in areas relevant to the concentration topic. The minor must be selected from the liberal arts minors offered by the College of Arts and Sciences (natural science and mathematical science minors may not be selected). Engineering B.A. students complete a specified set of course work in the mathematics and basic sciences and in engineering, as well as complete the B.A. distribution requirements of the College of Arts and Sciences.

## PLAN OF STUDY THE CURRICULUM FOR THE B.A. IN ENGINEERING

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1 <sup>1</sup>	4	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar (Optional)	0-1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
Distribution (Social Science) <sup>2</sup>	3	3
CS 020 Programming for Engineers <sup>1</sup>		3
MATH 022 Calculus II <sup>1</sup>		4
ME 001 First-Year Design Experience or EE 001 EE Principles and Design or CE 003 SU: Intro to Civil & Envir Engr		2-3
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I <sup>1</sup>		4
Year Total:	16-17	16-18
<b>Sophomore</b>		
	<b>Fall</b>	<b>Spring</b>
EE 003 Linear Circuit Analysis I or EE 100 Electrical Engr Concepts	3-4	
MATH 121 Calculus III	4	
PHYS 123 Physics Problem Solving II (Optional)	0-1	
PHYS 125 Physics for Engineers II	3	
Choose two Distribution (Humanities) courses <sup>2</sup>	6	
CE 001 Statics		3
MATH 271 Adv Engineering Mathematics		3
ME 040 Thermodynamics		3
Engineering Science Elective <sup>3</sup>		3
Distribution (Fine Arts) <sup>2</sup>		3
Year Total:	16-18	15
<b>Junior</b>		
	<b>Fall</b>	<b>Spring</b>
Choose two Engineering Science Electives <sup>3</sup>	6	6

Minor <sup>4</sup>	3	3
Free Elective	3	3
Distribution (Foreign Language) <sup>2</sup>	3	3
Year Total:	15	15
<b>Senior</b>		
	<b>Fall</b>	<b>Spring</b>
ME 185 Capstone Design I or EE 187 Capstone Design I or CE 185 SU: Capstone Design I	3	
Engineering Science Elective <sup>3</sup>	3	
Distribution (Literature) <sup>2</sup>	3	
Choose two Minor courses <sup>4</sup>	6	6
ME 186 Capstone Design II or EE 188 Capstone Design II or CE 186 Capstone Design II		3
Choose two Engineering Science Electives <sup>3</sup>		6
Year Total:	15	15
<b>Total Credits in Sequence:</b>		
		123-128

<sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.

<sup>2</sup> Distribution requirements: Consult the College of Arts & Sciences portion of this catalog for courses approved to meet the Bachelor of Arts distribution requirements. BAE students should use distribution or minor requirements to satisfy the University diversity requirement (three credits of D1 and three additional credits of D1 or D2) and the University sustainability requirement (SU).

<sup>3</sup> Engineering Science Electives: All CE, EE, ME and ENGR courses (except ENGR 010). Must have a minimum of 9 credits at the 200-level.

<sup>4</sup> Minor: BAE students must complete a minor in a liberal arts field. BAE students should use distribution or minor requirements to satisfy diversity requirement (three credits of D1 and three additional credits of D1 or D2).

## ENGINEERING B.S.E.

All students must meet the University Requirements (p. 396).

The College of Engineering and Mathematical Sciences offers instruction leading to the Bachelor of Science in Engineering degree. This degree is designed for those students desiring a program with a strong engineering science base in preparation for an interdisciplinary engineering specialty. Each student will be expected to declare a concentration before completing the first four semesters of

study. At that time, the student and advisor will plan an integrated series of courses directed towards the concentration. Among the possible engineering concentrations are: aeronautical engineering, bioengineering, chemical engineering, computer engineering, power engineering, traffic engineering, geological engineering, etc. Other concentrations may be approved upon application to the College of Engineering and Mathematical Sciences Studies Committee.

Candidates for this degree must fulfill the following requirements, which include the core program, and present a total of 123-126 credits. Any substitutions in the engineering core program require the approval of the College’s Studies Committee.

### PLAN OF STUDY THE CURRICULUM FOR THE B.S. IN ENGINEERING

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry I <sup>1</sup>	4	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar (Optional)	0-1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
Gen Ed Elective <sup>2</sup>	3	3
CS 020 Programming for Engineers <sup>1</sup>		3
MATH 022 Calculus II <sup>1</sup>		4
ME 001 First-Year Design Experience or EE 001 EE Principles and Design or CE 003 SU: Intro to Civil & Envir Engr		2
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I <sup>1</sup>		4
Year Total:	16-17	16-17
<b>Sophomore</b>		
	<b>Fall</b>	<b>Spring</b>
EE 003 Linear Circuit Analysis I or EE 100 Electrical Engr Concepts	3-4	
MATH 121 Calculus III	4	
PHYS 123 Physics Problem Solving II (Optional)	0-1	
PHYS 125 Physics for Engineers II	3	
Gen Ed Elective <sup>2</sup>	3	
Free Elective	3	3
CE 001 Statics		3

MATH 271 Adv Engineering Mathematics		3
ME 040 Thermodynamics		3
STAT 143 Statistics for Engineering or STAT 151 Applied Probability		3
Year Total:	16-18	15
<b>Junior</b>		
	<b>Fall</b>	<b>Spring</b>
BSE Technical Elective <sup>3</sup>	3	
Gen Ed Elective <sup>2</sup>	3	3
Choose three Engineering Science Electives <sup>4</sup>	9	9
Free Elective		3
Year Total:	15	15
<b>Senior</b>		
	<b>Fall</b>	<b>Spring</b>
ME 185 Capstone Design I or EE 187 Capstone Design I or CE 185 SU: Capstone Design I	3	
Choose two BSE Technical Electives <sup>3</sup>	6	
Choose two Engineering Science Electives <sup>4</sup>	6	6
ME 186 Capstone Design II or EE 188 Capstone Design II or CE 186 Capstone Design II		3
BSE Technical Elective <sup>3</sup>		3
Free Elective		3
Year Total:	15	15
<b>Total Credits in Sequence:</b>		
		123-127

- <sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.
- <sup>2</sup> General Education: Fifteen credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2) and the University sustainability requirement (SU). BSE students may not double count BSAD courses as both BSE Tech Electives and Gen Ed Electives.
- <sup>3</sup> BSE Technical Electives: Any 100-level or higher course in CEMS or BSAD; natural or physical sciences courses with advisor approval. BSE students may not double count BSAD courses as both BSE Tech Electives and Gen Ed Electives.



<sup>4</sup> Engineering Science Electives: All CE, EE, ME and ENGR courses (except ENGR 010). Must include a minimum of 9 credits at the 200-level.

## ENGINEERING MANAGEMENT B.S.EM.

All students must meet the University Requirements (p. 396).

The curriculum leading to the degree of Bachelor of Science in Engineering Management is offered in cooperation with the School of Business Administration. Engineering management is a broad discipline concerned with the art and science of planning, organizing, directing, and controlling activities that have 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 an engineering discipline with the study of management concepts and techniques. The curriculum also includes the study of economics, along with coursework in other social science and/or humanities fields. Candidates for this degree must earn a minimum of 123 credits.

### PLAN OF STUDY

The Engineering Management major offers three concentrations:

Civil and Environmental Engineering Concentration (p. 355)

Electrical Engineering Concentration (p. 356)

Mechanical Engineering Concentration (p. 357)

## CIVIL AND ENVIRONMENTAL ENGINEERING CONCENTRATION

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1 <sup>1</sup>	4	
EC 011 Principles of Macroeconomics	3	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar (Optional)	0-1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
CE 003 SU: Intro to Civil & Envir Engr		2
CS 020 Programming for Engineers <sup>1</sup>		3
EC 012 Principles of Microeconomics		3
MATH 022 Calculus II <sup>1</sup>		4
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I <sup>1</sup>		4
Year Total:	16-17	16-17

Sophomore	Credits	
	Fall	Spring
BSAD 060 Financial Accounting	3	
CE 001 Statics	3	
CE 010 Geomatics	4	
MATH 121 Calculus III	4	
MATH 122 Applied Linear Algebra	3	
BSAD 061 Managerial Accounting		3
CE 132 SU: Environmental Systems		3
MATH 271 Adv Engineering Mathematics		3
STAT 143 Statistics for Engineering or STAT 211 Statistical Methods I		3
Gen Ed Elective <sup>2</sup>		3
Year Total:	17	15

Junior	Credits	
	Fall	Spring
BSAD 180 Managerial Finance	3	
CE 100 Mechanics of Materials	3	
CE 133 Transportation Systems	3	
CE 160 Hydraulics	3	
CE 162 Hydraulics Lab	2	
BSAD 120 Leadership & Org Behavior		3
BSAD 141 Info, Technology & Bus Systems		3
BSAD 173 Operations Management		3
CE 151 SU: Water & Wastewater Engr		3
CE 170 Structural Analysis		3
Year Total:	14	15

Senior	Credits	
	Fall	Spring
CE 185 SU: Capstone Design I	3	
STAT 224 Stats for Quality & Productivity	3	
Choose three CE Concentration Electives <sup>3</sup>	9	
CE 186 Capstone Design II		3
BSAD 270 Quant Anyl for Managerial Dec		3

Choose 2 EMGT Electives <sup>4</sup>		6
Gen Ed Elective <sup>2</sup>		3
Year Total:	15	15
Total Credits in Sequence:	123-125	

- <sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.
- <sup>2</sup> General Education: Nine credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2). EMGT students may not double count required BSAD courses as Gen Ed Electives.
- <sup>3</sup> CE Concentration Electives: CE 172, CE 173, CE 180, any 200-level CE course.
- <sup>4</sup> Engineering Management Electives: BSAD 138, BSAD 143, BSAD 144, BSAD 145, BSAD 192, BSAD 268; and STAT 221, STAT 223, STAT 225, STAT 229, STAT 231, STAT 233, STAT 237, STAT 253. (Additional course options with advisor approval).

**ELECTRICAL ENGINEERING CONCENTRATION**

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry I <sup>1</sup>	4	
EC 011 Principles of Macroeconomics	3	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar (Optional)	0-1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
CS 020 Programming for Engineers <sup>1</sup>		3
EC 012 Principles of Microeconomics		3
EE 001 EE Principles and Design		2
MATH 022 Calculus II <sup>1</sup>		4
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I <sup>1</sup>		4
Year Total:	16-17	16-17
Sophomore	Credits	
	Fall	Spring
BSAD 060 Financial Accounting	3	

CS 031 C Programming	1	
EE 003 Linear Circuit Analysis I	3	
EE 081 Linear Circuits Laboratory I	2	
MATH 121 Calculus III	4	
PHYS 123 Physics Problem Solving II	0-1	
PHYS 125 Physics for Engineers II	3	
BSAD 061 Managerial Accounting		3
EE 004 Linear Circuit Analysis II		3
EE 082 Linear Circuits Laboratory II		2
MATH 122 Applied Linear Algebra		3
MATH 271 Adv Engineering Mathematics		3
Year Total:	16-17	14

Junior	Credits	
	Fall	Spring
BSAD 141 Info,Technology & Bus Systems	3	
EE 120 Electronics I	4	
EE 131 Fundamentals of Digital Design	3	
STAT 143 Statistics for Engineering or STAT 211 Statistical Methods I	3	
Gen Ed Elective <sup>2</sup>	3	3
BSAD 173 Operations Management		3
BSAD 180 Managerial Finance		3
EE 121 Electronics II		4
EE 134 Microcontroller Systems		4
Year Total:	16	17

Senior	Credits	
	Fall	Spring
BSAD 120 Leadership & Org Behavior	3	
EE 171 Signals & Systems	4	
EE 187 Capstone Design I	3	
STAT 224 Stats for Quality&Productivity	3	
Gen Ed Elective <sup>2</sup>	3	
BSAD 270 Quant Anyl for Managerial Dec		3
EE 188 Capstone Design II		3
Choose two EE Concentration Electives <sup>3</sup>		6

EMGT Elective <sup>4</sup>		3
Year Total:	16	15
Total Credits in Sequence:	126-129	

- <sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.
- <sup>2</sup> General Education: Nine credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2). Students who don't meet the University sustainability requirement (SU) by taking an EE elective approved for SU should meet the SU requirement with an SU approved Gen Ed Elective. EMGT students may not double count required BSAD courses as Gen Ed Electives.
- <sup>3</sup> EE Concentration Electives: EE 113, EE 141, EE 163 (if not used to fulfill another requirement), EE 171 (if not used to fulfill another requirement), EE 174, both EE 183 & EE 184, any 200-level EE course. (At least 3 credits must be at the 200 level or higher).
- <sup>4</sup> Engineering Management Electives: BSAD 138, BSAD 143, BSAD 144, BSAD 145, BSAD 192, BSAD 268; and STAT 221, STAT 223, STAT 225, STAT 229, STAT 231, STAT 233, STAT 237, STAT 253; EMGT 175. (Additional course options with advisor approval).

### MECHANICAL ENGINEERING CONCENTRATION

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry <sup>1</sup>	4	
EC 011 Principles of Macroeconomics	3	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar (Optional)	0-1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
CS 020 Programming for Engineers <sup>1</sup>		3
EC 012 Principles of Microeconomics		3
MATH 022 Calculus II <sup>1</sup>		4
ME 001 First-Year Design Experience		2
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I <sup>1</sup>		4
Year Total:	16-17	16-17

Sophomore	Credits	
	Fall	Spring
BSAD 060 Financial Accounting	3	
CE 001 Statics	3	
MATH 121 Calculus III	4	
ME 081 Mech Engr Shop Experience	1	
PHYS 123 Physics Problem Solving II (Optional)	0-1	
PHYS 125 Physics for Engineers II	3	
BSAD 061 Managerial Accounting		3
MATH 271 Adv Engineering Mathematics		3
ME 012 Dynamics		3
ME 014 Mechanics of Solids		3
ME 040 Thermodynamics		3
ME 083 Computational Mech Engr Lab		1
Year Total:	14-15	16

Junior	Credits	
	Fall	Spring
EE 100 Electrical Engr Concepts	4	
MATH 122 Applied Linear Algebra or MATH 124 Linear Algebra	3	
ME 111 System Dynamics	3	
STAT 143 Statistics for Engineering or STAT 211 Statistical Methods I	3	
Gen Ed Elective <sup>2</sup>	3	3
BSAD 141 Info,Technology & Bus Systems		3
BSAD 173 Operations Management		3
BSAD 180 Managerial Finance		3
ME 161 Modern Manufacturing Processes		3
Year Total:	16	15

Senior	Credits	
	Fall	Spring
BSAD 120 Leadership & Org Behavior	3	
ME 101 Materials Engineering	3	
ME 185 Capstone Design I	3	
STAT 224 Stats for Quality&Productivity	3	

Gen Ed Elective <sup>2</sup>	3	
BSAD 270 Quant Anyl for Managerial Dec		3
ME 171 Design of Elements		3
ME 186 Capstone Design II		3
ME Concentration Elective <sup>3</sup>		3
EMGT Elective <sup>4</sup>		3
Year Total:	15	15
Total Credits in Sequence:	123-126	

<sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.

<sup>2</sup> General Education: Nine credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2) and the University sustainability requirement (SU). EMGT students may not double count required BSAD courses as Gen Ed Electives.

<sup>3</sup> ME Concentration Electives: All 200-level or higher ME courses.

<sup>4</sup> Engineering Management Electives: BSAD 138, BSAD 143, BSAD 144, BSAD 145, BSAD 192, BSAD 268; and STAT 221, STAT 223, STAT 225, STAT 229, STAT 231, STAT 233, STAT 237, STAT 253; EMGT 175. (Additional course options with advisor approval).

## ENVIRONMENTAL ENGINEERING B.S.EV.

All students must meet the University Requirements. (p. 396)

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, integrated information technology content, development of communication skills and a sense of community between students and the faculty.

The B.S. in Environmental Engineering requires a minimum of 128 credits. Students are encouraged to pursue minors or focus areas in other disciplines that complement their engineering experience. International education and work experiences are also encouraged. Students should consult their advisors early in their program in order to plan accordingly.

## ENVIRONMENTAL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

Graduates of the program are expected to:

1. Practice environmental engineering, use their program knowledge in other avenues, or enter graduate school;
2. Apply engineering principles and an understanding of environmental engineering issues to analysis, design, construction, management, or preservation of natural and engineered systems;
3. Actively participate in professional and/or community-based service (local, national, or global) that benefit the profession and the public;
4. Demonstrate leadership, effective communication, and teamwork;
5. Demonstrate capacity to obtain professional licensure, and engage in further study and professional development;
6. Consider sustainability as part of the problem definition and engineering solution.

## PLAN OF STUDY

### THE CURRICULUM FOR THE B.S. IN ENVIRONMENTAL ENGINEERING

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1 <sup>1</sup>	4	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar	1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
Gen Ed Elective <sup>2</sup>	3	
CHEM 032 General Chemistry 2		4
CE 003 SU: Intro to Civil & Envir Engr		2
CS 020 Programming for Engineers <sup>1</sup>		3



MATH 022 Calculus II <sup>1</sup>		4
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I <sup>1</sup>		4
Year Total:	17	17-18
<b>Sophomore</b>		
	<b>Fall</b>	<b>Spring</b>
BIOL 001 Principles of Biology or BIOL 002 Principles of Biology	4	
CE 010 Geomatics	4	
MATH 121 Calculus III	4	
STAT 143 Statistics for Engineering	3	
CE 001 Statics		3
CE 132 SU: Environmental Systems		3
ME 040 Thermodynamics		3
MATH 122 Applied Linear Algebra		3
MATH 271 Adv Engineering Mathematics		3
Year Total:	15	15
<b>Junior</b>		
	<b>Fall</b>	<b>Spring</b>
CE 100 Mechanics of Materials	3	
CE 133 Transportation Systems	3	
CE 151 SU: Water & Wastewater Engr	3	
CE 160 Hydraulics	3	
CE 162 Hydraulics Lab	2	
Gen Ed Elective <sup>2</sup>	3	
CE 180 Geotechnical Principles		3
CE 182 Geotechnical Principles Lab		2
CE 254 Environmental Quantitative Anyl		4
EE 075 Electrical Circuits & Sensors		4
GEOL 001 Earth System Science or PSS 161 SU:Fundmntls of Soil Science		4
Year Total:	17	17

<b>Senior</b>	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
CE 185 SU: Capstone Design I	3	
Env Engr HydroGeoPhys Design Elective <sup>3</sup>	3	
Env Engr Science/Tech Elective <sup>4</sup>	3	
Env Engr Elective <sup>5</sup>	3	3
Gen Ed Elective <sup>2</sup>	3	6
Env Engr BioGeoChem Design Elective <sup>6</sup>		3
CE 186 Capstone Design II		3
Year Total:	15	15
<b>Total Credits in Sequence:</b>		
	128-129	

- <sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.
- <sup>2</sup> General Education: Fifteen credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2).
- <sup>3</sup> Env Engr HydroGeoPhys Design Electives: CE 261, CE 262, CE 265, CE 284, CE 285, CE 288 and some CE 295 (Special Topics) courses (consult advisor).
- <sup>4</sup> Env Engr Science/Tech Elective: ME 042 or any 100-level or higher course in Engineering (CE, EE, ENGR, ME) or science (BIOL, CHEM, GEOL, PHYS) or PSS 161, PSS 264, PSS 266, PSS 268 or PSS 269.
- <sup>5</sup> Env Engr Electives: CE 218, CE 220, CE 226, CE 250, CE 259, CE 260, all HydroGeoPhys<sup>3</sup> and BioGeoChem<sup>6</sup> Design Electives and some CE 295 (Special Topics) courses (consult advisor).
- <sup>6</sup> Env Engr BioGeoChem Design Electives: CE 247, CE 251, CE 253, CE 255, CE 256 and some CE 295 (Special Topics) courses (consult advisor).

## MECHANICAL ENGINEERING B.S.ME.

All students must meet the University Requirements. (p. 396)

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.

The Mechanical Engineering program offers four concentration areas for students interested in focusing their engineering and technical elective course work. The concentration areas include: Aerospace Engineering; Bioengineering; Mechanics of Materials & Structures; and Sustainable Energy.

Engineering design is developed and integrated into each student's program and culminates in a required major design experience which

draws upon prior course work and which focuses on the issues and expectations of professional practice.

In the curricular listings that follow, students should make note that MATH 271 is an implicit prerequisite for all 100+ level courses in mechanical engineering.

### MECHANICAL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

The Mechanical Engineering program provides a modern mechanical engineering education with focus in engineering decision-making; foundations of mathematics, physical science, engineering science and design; and an appreciation of societal impact of engineering practice, which prepares graduates to:

1. Excel as practicing mechanical engineers in a wide range of careers in industry, government service, and consulting;
2. Participate in continuous learning throughout their careers, both in more advanced engineering and in other areas of study;
3. Communicate and work effectively with teams of people with diverse educational and cultural backgrounds;
4. Take on leadership roles in their profession;
5. Practice their profession in an ethically, socially, economically, and environmentally responsible manner.

### PLAN OF STUDY

#### THE CURRICULUM FOR THE B.S. IN MECHANICAL ENGINEERING

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1 <sup>1</sup>	4	
ENGR 002 Graphical Communication	2	
ENGR 050 First Year Engineering Seminar (Optional)	0-1	
MATH 021 Calculus I <sup>1</sup>	4	
Foundational Writing & Information Literacy	3	
Gen Ed Elective <sup>2</sup>	3	
CS 020 Programming for Engineers <sup>1</sup>		3
MATH 022 Calculus II <sup>1</sup>		4
ME 001 First-Year Design Experience <sup>3</sup>		2
PHYS 030 Physics Problem Solving I (Optional)		0-1
PHYS 031 Physics for Engineers I <sup>1</sup>		4
General Education Elective <sup>2</sup>		3
Year Total:	16-17	16-17

Sophomore	Credits	
	Fall	Spring
CE 001 Statics	3	
MATH 121 Calculus III	4	
ME 040 Thermodynamics	3	
ME 081 Mech Engr Shop Experience	1	
PHYS 123 Physics Problem Solving II (Optional)	0-1	
PHYS 125 Physics for Engineers II	3	
ME 012 Dynamics		3
ME 014 Mechanics of Solids		3
ME 042 Applied Thermodynamics		3
ME 083 Computational Mech Engr Lab		1
MATH 271 Adv Engineering Mathematics		3
General Education Elective <sup>2</sup>		3
Year Total:	14-15	16

Junior	Credits	
	Fall	Spring
EE 100 Electrical Engr Concepts	4	
MATH 122 Applied Linear Algebra or MATH 124 Linear Algebra	3	
ME 101 Materials Engineering	3	
ME 111 System Dynamics	3	
ME 123 Thermo-Fluid Lab	2	
ME 143 Fluid Mechanics	3	
EE 101 Digital Control w/Embedded Sys		4
ME 124 Materials and Mechanics Lab		2
ME 144 Heat Transfer		3
ME 171 Design of Elements		3
STAT 143 Statistics for Engineering		3
Year Total:	18	15

Senior	Credits	
	Fall	Spring
ME 185 Capstone Design I	3	
ME Technical Elective <sup>4</sup>	3	3
General Education Elective <sup>2</sup>	3	3

Choose 2 ME Electives <sup>5</sup>	6	6
ME 186 Capstone Design II		3
Year Total:	15	15
Total Credits in Sequence:	125-128	

- <sup>1</sup> Pre-Engineering Technical (PET) requirement: PET courses must be completed with C- or better by the third semester of enrollment in order to continue in engineering coursework.
- <sup>2</sup> General Education: Fifteen credits of approved Gen Ed Electives, including the University diversity requirement (three credits of D1 and three additional credits of D1 or D2) and the University sustainability requirement (SU).
- <sup>3</sup> First-Year Design Experience: Transfer students without applicable transfer credit have the option of either taking ME 001 or replacing the credits with engineering course work at the 100-level or higher.
- <sup>4</sup> ME Technical Electives: All 100-level (or higher) courses in ENGR, EE, ME, CS and MATH; STAT 151 or higher; CS 021; or natural sciences with approval of advisor.
- <sup>5</sup> ME Electives: ME 161 and all 200-level (or above) ME courses.

## ELECTRICAL ENGINEERING MINOR REQUIREMENTS

Eighteen credits in Electrical Engineering consisting of:

Choose one of the following sequences:		
EE 003 & EE 081 & EE 004 & EE 082	Linear Circuit Analysis I and Linear Circuits Laboratory I and Linear Circuit Analysis II and Linear Circuits Laboratory II	
EE 100 & EE 101	Electrical Engr Concepts and Digital Control w/Embedded Sys	
Select remaining credits from EE courses numbered above 101		9

## PRE/CO-REQUISITES

MATH 021	Calculus I	4
MATH 022	Calculus II	4
MATH 121	Calculus III	4
MATH 271	Adv Engineering Mathematics	3
or MATH 230	Ordinary Differential Equation	
PHYS 031	Physics for Engineers I	4
or PHYS 051	Fundamentals of Physics I	
PHYS 125	Physics for Engineers II	3-4
or PHYS 152	Fundamentals of Physics II	

## OTHER INFORMATION

Students must obtain a co-advisor from the EE program.

## GEOSPATIAL TECHNOLOGIES MINOR REQUIREMENTS

Five courses (fifteen credits with at least nine credits at 100-level or above) which must include:

<b>One course in Geospatial Technologies:</b>		3-4
GEOG 081	Geospatial Cncpt&Visualization	
CE 010	Geomatics	
ENSC 130	Global Environmental Assessmnt	
GEOG 151/ GEOG 144	Geomorphology	
<b>One course in Geographic Information Systems:</b>		3
GEOG 184	Geog Info:Cncpts & Applic	
or NR 143	Intro to Geog Info Systems	
<b>One course in Remote Sensing:</b>		3
NR 146	Remote Sensing of Natural Res	
or GEOG 185	Remote Sensing	
<b>Any two electives (either two from Group A or one course each from Group A and Group B):</b>		6
<b>Group A:</b>		
NR 243	GIS Practicum	
NR 245	Integrating GIS & Statistics	
GEOG 287	Spatial Analysis	
GEOG 281	Adv Topic:GIS & Remote Sensing (a, Satellite Climatology/Land Surface Applications)	
GEOG 281	Adv Topic:GIS & Remote Sensing (b, Advanced GIS Applications)	
NR 242	Adv Geospatial Techniques	
<b>Group B:</b>		
CS 021	Computer Programming I	
CS 008	Intro to Web Site Development	
CS 148	Database Design for the Web	
CS 189	CS for Geospatial Technologies	
ENGR 002	Graphical Communication	
CDAE 101	Computer Aided Drafting&Design	

## PRE/CO-REQUISITES

Variable, depending on upper level courses chosen.

**OTHER INFORMATION**

Geography majors who undertake the Geospatial Technologies minor are required to complete thirty-three credits in geography and fifteen credits towards the Geospatial Technologies minor. GEOG 081 may be used to count towards both the major and the minor. However, students are still required to complete thirty-three credits of geography courses.



## THE COLLEGE OF NURSING AND HEALTH SCIENCES

<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 Athletic Training; Exercise and Movement Science; Medical Laboratory Science; Medical Radiation Sciences; and Nursing. In Physical Therapy, an entry-level doctoral degree program is offered. Communication Sciences and Disorders offers a Bachelor of Science degree and an entry-level master's degree program. Nursing also offers an on-line RN-BS curriculum for RNs with an Associate Degree in Nursing and a direct entry-level degree program (DEPN) for non-nurse college graduates. Graduates of the entry-level professional programs are eligible to sit for the appropriate licensure examination and enter practice or other health-related fields. All of the professional programs needing accreditation and/or state approval for licensure eligibility have achieved and maintained such status.

Nursing offers a graduate program leading to the Master of Science degree - Clinical Nurse Leader. The Master of Science in Nursing - Nurse Practitioner program is transitioning to the Doctor of Nursing Practice (DNP) program. The Post-M.S. DNP program offers RNs with a graduate degree in nursing a route to the DNP in Primary Care (Adult Gerontology Nurse Practitioner, Family Nurse Practitioner) or Executive Nurse Leader. The nursing graduate program is designed to enhance the clinical and academic background of licensed registered nurses and prepare them for advanced practice, nursing leadership, and/or clinical expertise.

In Medical Laboratory Science, a post-baccalaureate certificate program that prepares students to sit for the National Certification Exam is offered through Continuing and Distance Education. An online Bachelor of Science in Health Sciences degree is also offered through the Department of Medical Laboratory and Radiation Sciences. In Communication Sciences and Disorders, a post-baccalaureate certificate program 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 are offered through Continuing and Distance Education.

### MAJORS

- Athletic Training Education B.S. (p. 375)

- Communication Sciences and Disorders B.S. (p. 364)
- Exercise and Movement Science B.S. (p. 376)
- Health Sciences B.S. (p. 367)
- Medical Laboratory Science B.S. (p. 367)
- Medical Radiation Sciences B.S. (p. 370)
- Nursing B.S. (p. 373)
- Nursing (for Registered Nurses) B.S. (p. 374)

### MINORS

- Communication Sciences and Disorders (p. 366)

### 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.

## DEPARTMENT OF COMMUNICATION SCIENCES AND DISORDERS

<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 are introduced to the discipline through a series of courses dealing with linguistics, cognitive science, and the typical processes of speech, language, and hearing. These courses deal with the physical, neurophysiological, cognitive, and linguistic bases of normal speaking, hearing, and language use; the acoustics of sound and of speech; the development of language in children; and how communication develops from infancy to adulthood. Other courses introduce the types of communication disorders that occur and how they impact people's lives, from childhood to adulthood. Students 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
- 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. Special opportunities include guided observations in the Eleanor M. Luse Center for Communication and access to selected graduate disorders courses prior to graduation.

### 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. 364)

### MINORS

#### COMMUNICATION SCIENCES AND DISORDERS MINOR

Communication Sciences and Disorders (p. 366)

### GRADUATE

Communication Sciences and Disorders M.S.

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. 396).

All students must meet the College Requirements. (p. 363)

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 a variety of communication disorders and the work of speech-language

pathologists and audiologists. 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 major.

Students with a semester and/or cumulative grade point average below 2.5 will be placed on trial for one semester. Students who fail to raise both their semester and cumulative grade point averages to at least 2.5 during the trial semester will be discontinued from the program. Students who earn a grade of C-, D, or F in any CSD, LING, or PSYS course twice, or once in two separate courses, will be discontinued from the program. 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.

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 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
LING 080 Introduction to Linguistics or CSD 023 Linguistics for Clinicians	3	
CSD 094 Dev of Spoken Language	3	
PSYS 001 Intro to Psychological Science	3	
NH 050 App to Hlth: From Pers to Syst	1	
Elective/Distribution/Minor/Diversity	6	6
Physical Science Course <sup>1</sup>		3-4
CSD 020 Intro to Disordered Comm		3
ENGS 001 Written Expression		3
Year Total:	16	15-16

Sophomore	Credits	
	Fall	Spring
CSD 101 Speech & Hearing Science	4	
NH 120 Health Care Ethics	3	
Elective/Distribution/Minor/Diversity	3	3
ANPS 019 Ugr Hum Anatomy & Physiology or BIOL 004 (offered in spring)	4	
PSYS 150 Developmental Psych: Childhood	3	
BIOL 004 The Human Body or ANPS 019 (offered in fall)		3
Human Biology Lab (recommended)		0-1
CSD 199 Clin Intro to Audiology & SLP (Clinical Intro to Audiology & Speech Language Pathology)		3
CSD 022 Introduction to Phonetics or LING 165 Phonetic Theory and Practice		3
STAT 111 Elements of Statistics or STAT 141 Basic Statistical Methods		3
Year Total:	17	15-16
Junior	Credits	
	Fall	Spring
LING 081 Structure of English Language or LING 166 Introduction to Syntax	3	
CSD 271 Introduction to Audiology	3	
CSD 262 Measurement of Comm Processes (can be taken in either semester)	4	4
Elective/Distribution/Minor/Diversity	6	6
CSD 208 Cognition & Language		3
CSD 272 Hearing Rehabilitation or Elective/Distribution/Minor/Diversity		3
Year Total:	16	16
Senior	Credits	
	Fall	Spring
CSD 281 Intro Cognitive Neuroscience	3	
Recommended for Fall: CSD 295 Advanced Special Topics or CSD 287 D2: Mindfulness & Helping Skills	3	
Elective/Distribution/Minor/Diversity	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 295 Advanced Special Topics		
Year Total:	15	12
Total Credits in Sequence: 122-124		

<sup>1</sup> Physical Science course optimally should be any course with the subject prefix of CHEM or PHYS.

Minimum of 120 semester credit hours including 6 credit hours of diversity courses and a GPA of 2.5 is required for graduation

Distribution courses include the following: Fine Arts (3 credits); Foreign Language (6-8 credits); Literature (3 credits); Humanities (6 credits)

University minor required

Must meet University sustainability requirement prior to graduation

Minors, concentrations, or majors: cannot count both CSD 022 and LING 165; cannot count both CSD 023 and LING 080. (You may only count one toward the required course work)

## 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 (This course is accepted as a course at the 100-level)	3
Two courses at the 100-level or above, from the following list:		6
CSD 022	Introduction to Phonetics (This course accepted as a course at the 100 level)	
Any LING course(s), except LING 081 or LING 165, as noted in restrictons below		
ANTH 176	Topics in Linguistic Anthro	
PSYS 115	Biopsychology	
PSYS 130	Social Psychology	
PSYS 150	Developmental Psych: Childhood	
One LING or CSD course at the 200-level or above		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		

## DEPARTMENT OF MEDICAL LABORATORY AND RADIATION SCIENCES

<http://www.uvm.edu/~cnhs/mlrs/>

Students in the Department of Medical Laboratory and Radiation 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 an online degree in 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 two concentrations: a clinical track in Radiation Therapy and a non-clinical track focused on general radiation science.

The B.S. in Health Sciences is an online program and offered as an option for students who have previously earned at least one year of college credit (30 credit hours).

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 MEDICAL LABORATORY AND RADIATION SCIENCES MAJORS

Health Sciences B.S. (p. 367)



Medical Laboratory Science B.S. (p. 367)

Medical Radiation Sciences B.S. (p. 370)

## HEALTH SCIENCES B.S.

All students must meet the University Requirements (p. 396).

All students must meet the College Requirements. (p. 363)

Students selecting this option must have earned 30 credits in an accredited college or university with a minimum cumulative GPA of 2.7. Courses in which students have earned a C- or less will not be counted for transfer credit, however, if the cumulative GPA is 2.7 or better, admission may be granted.

The Health Sciences degree completion program is designed for students who have completed at least one year of college or an associate's degree but who have not previously completed a baccalaureate degree. Graduates of the program will be prepared by rigorous courses relevant to a variety of non-clinical roles in the health care field. Depending on the electives or minor chosen, students may continue health-related interests in a wide variety of fields. Jobs available to Health Sciences graduates include health care analysts, community health workers, program planners or evaluators, workers for non-governmental organizations such as the American Red Cross, medical and public health writers, health promotion educators, patient and family liaisons, and administrators of health care organizations. Graduates are also competitively positioned for advanced education in public health, health sciences, journalism or health professions.

There is only one limitation to this degree completion program; all courses must be taken online. This major is not currently available to students in residence at UVM.

### MAJOR REQUIREMENTS

HSCI 101	Issues in Cont. Public Health	3
HSCI 102	Epidemics in Hist & Imaginatr	3
HLTH 103	D2: Intro to Global Health	3
STAT 111	Elements of Statistics	3
or STAT 141	Basic Statistical Methods	
NH 120	Health Care Ethics	3
HSCI 130	Health Promotion	3
HSCI 140	Struct & Finan of US Hlthcare	3
HSCI 290	Internship <sup>1</sup>	3-6
HLTH 105	D2:Cultural Health Care <sup>2</sup>	3
Reading and Evaluating Research in Health and Human Services		3
Topics in One Health		3
Project Planning and Evaluation in Health and Human Services <sup>2</sup>		3

Writing for Health Professionals <sup>2</sup>	3
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Total Requirements: 60 credits in distribution requirements (may be transferred to UVM), including 6 credits diversity requirements (3 credits in D1, 3 credits D2 or 6 credits D1) and 3 credits sustainability credits. Thirty six (36) credits in major; (18) credits in a health-related concentration or minor; (6) free credits.

A sample full-time curricular plan is available.

<sup>1</sup> 6 internship credits required

<sup>2</sup> Elective course

## MEDICAL LABORATORY SCIENCE B.S.

All students must meet the University Requirements (p. 396).

All students must meet the College Requirements. (p. 363)

A minimum of 121 semester credit hours, minimum GPA per program requirement, and University sustainability and diversity fulfillment are required for graduation.

### PLAN OF STUDY

The Medical Laboratory Science major offers two concentrations:

Clinical Laboratory Science Concentration (p. 367)

Public Health Laboratory Science Concentration (p. 368)

## 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 affiliate outside of Burlington, Vermont, which will require additional room, meals, and 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.

### Clinical Affiliations

Beth Israel Deaconess Medical Center, Boston, MA

Brigham and Women's Hospital, Boston, MA

Catholic Medical Center, Manchester, NH

Champlain Valley Physicians Hospital, Plattsburgh, NY

Elliot Hospital, Manchester, NH

Glens Falls Hospital, Glens Falls, NY

St. Peter's Hospital, Albany, NY

Yale New Haven Hospital, New Haven, CT

Note: Clinical affiliations subject to change.

**A Model Curriculum in Medical Laboratory Science / Clinical Laboratory Science Concentration**

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1	4	
ENGS 001 Written Expression	3	
HLTH 003 Medical Terminology	2	
MATH 019 Fundamentals of Calculus I (or higher)	3	
NH 050 App to Hlth: From Pers to Syst	1	
Elective/Diversity Course	3	
CHEM 032 General Chemistry 2		4
MLRS 034 Human Cell Biology		4
Electives/Diversity Courses		6
Year Total:	16	14
<b>Sophomore</b>		
	<b>Fall</b>	<b>Spring</b>
ANPS 019 Ugr Hum Anatomy & Physiology	4	
STAT 111 Elements of Statistics or STAT 141 Basic Statistical Methods	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
MMG 222 Clinical Microbiology I <sup>1,2</sup>		4
Elective		4
Year Total:	14	16
<b>Junior</b>		
	<b>Fall</b>	<b>Spring</b>
PBIO 185 Biochem for Life & Health Sci	3	
MLRS 297 Leadership & Mgt in Hlth Care <sup>1</sup>	3	
PATH 101 Intro to Human Disease	3	
MLRS 281 Applied Molecular Biology <sup>1</sup>	3	
MLRS 282 Applied Molecular Biology Lab <sup>1</sup>	1	

Elective	3	
MMG 222 Clinical Microbiology I <sup>1,2</sup>		4
Choose one of the following courses:		3
MLRS 242 Immunology <sup>1</sup>		
MMG 223 Immunology <sup>1</sup>		
MLRS 244 Immunology Lab <sup>1</sup>		1
MLS 221 Clinical Chemistry I <sup>1</sup>		4
MLRS 110 Phlebotomy		1
Elective Course		3
Year Total:	16	16
<b>Senior</b>		
	<b>Fall</b>	<b>Spring</b>
MLS 222 Clinical Chemistry II <sup>1</sup>	3	
MLS 231 Hematology <sup>1</sup>	4	
MLS 255 Clinical Microbiology II <sup>1</sup>	3	
MLS 262 Immunoematology <sup>1</sup>	4	
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:Immunoematolog <sup>1</sup>		3
Year Total:	14	15
<b>Total Credits in Sequence:</b>		
		121

<sup>1</sup> Professional course

<sup>2</sup> Course offered every other year

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.

**CLINICAL Affiliations**

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**

First Year	Credits	
	Fall	Spring
CHEM 031 General Chemistry 1	4	
ENGS 001 Written Expression	3	
NH 050 App to Hlth: From Pers to Syst	1	
MATH 019 Fundamentals of Calculus I (or higher)	3	
NH 003 Medical Terminology	2	
Elective/Diversity Course <sup>3</sup>	3	
CHEM 032 General Chemistry 2		4
MLRS 034 Human Cell Biology		4
Electives/Diversity Courses <sup>3</sup>		6
Year Total:	16	14
<b>Sophomore</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 141 Basic Statistical Methods	3	
Elective Course <sup>3</sup>	3	4
ANPS 020 Ugr Hum Anatomy & Physiology		4
CHEM 042 Intro Organic Chemistry		4
MMG 222 Clinical Microbiology I <sup>1,2</sup>		4
Year Total:	17	16

Junior	Credits	
	Fall	Spring
BCOR 102 Ecology and Evolution	4	
PATH 101 Intro to Human Disease	3	
PBIO 185 Biochem for Life & Health Sci	3	
STAT 200 Med Biostatistics&Epidemiology	3	
Electives <sup>3</sup>	3	
MMG 222 Clinical Microbiology I <sup>1,2</sup>		4
Choose one of the following courses:		3
MLRS 242 Immunology <sup>1</sup>		
MMG 223 Immunology <sup>1</sup>		
MLRS 244 Immunology Lab <sup>1</sup>		1
BCOR 101 Genetics		3
Elective Course <sup>3</sup>		3
Year Total:	16	14
<b>Senior</b>		
	<b>Fall</b>	<b>Spring</b>
BIOL 254 Population Genetics	4	
MLRS 297 Leadership & Mgt in Hlth Care <sup>1</sup>	3	
NFS 295 Advanced Special Topics	3	
MLS 255 Clinical Microbiology II <sup>1</sup>	3	
Choose one of the following:		3
MLS 250 Clin Practicum:Microbiology <sup>1</sup>		
Elective Course <sup>3</sup>		
MLS 282 Public Health Lab Practicum <sup>1</sup>		12
Year Total:	13	15
<b>Total Credits in Sequence:</b>		
		121

- <sup>1</sup> Professional course
- <sup>2</sup> Course offered every other year
- <sup>3</sup> For the public health science concentration, students must take six credits of department-approved electives, including three credits in the area of Public Health and three credits of advanced medical laboratory science. Students must obtain a list of approved elective courses 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. 396).

All students must meet the College Requirements. (p. 363)

A minimum of 121 semester credit hours, minimum GPA per program requirement, and University sustainability and diversity fulfillment are required for graduation.

### PLAN OF STUDY

The Medical Radiation Sciences major offers two concentrations:

Nuclear Medicine Technology Concentration (p. 370)

Radiation Therapy Concentration (p. 371)

### NUCLEAR MEDICINE TECHNOLOGY CONCENTRATION

At this time, only transfer applications to the Nuclear Medicine Technology concentration are being accepted.

This four-year curriculum leading to the baccalaureate degree is accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology.

Clinical education takes place at one of the college's clinical affiliates. The initial experience is obtained at the University of Vermont Medical Center. The entire final semester consists of a clinical practicum at an affiliate outside of Burlington, which will require additional room, meals, and transportation expenses.

### Clinical Affiliations

- Catholic Medical Center, Manchester, NH\*
- Dartmouth-Hitchcock Medical Center, Hanover, NH\*
- University of Vermont Medical Center, Burlington, VT\*
- Hartford Hospital, Hartford, CT\*
- Massachusetts General Hospital, Boston, MA\*
- Pharmalogic, LTD, Williston, VT

Note: Clinical affiliations subject to change.

\*Indicates affiliate is used for clinical internships.

### A Model Curriculum in Medical Radiation Sciences / Nuclear Medicine Technology Concentration

First Year	Credits	
	Fall	Spring
CHEM 023 Outline of General Chemistry	4	
MATH 019 Fundamentals of Calculus I (or higher)	3	

ENGS 001 Written Expression	3	
NH 050 App to Hlth: From Pers to Syst	1	
NH 003 Medical Terminology	2	
Elective/Diversity courses	3	3
CHEM 026 Outline of Organic & Biochem or CHEM 042 Intro Organic Chemistry		4
MLRS 034 Human Cell Biology		4
PSYS 001 Intro to Psychological Science		3
Year Total:	16	14

Sophomore	Credits	
	Fall	Spring
ANPS 019 Ugr Hum Anatomy & Physiology <sup>1</sup>	4	
MLRS 140 Radiation Science <sup>1</sup>	3	
NH 120 Health Care Ethics	3	
STAT 111 Elements of Statistics or STAT 141 Basic Statistical Methods	3	
Electives	3	3
ANPS 020 Ugr Hum Anatomy & Physiology <sup>1</sup>		4
MLRS 141 Advanced Radiation Science <sup>1</sup>		3
NMT 162 Introduction to Clinical NMT <sup>1</sup>		1
PHYS 013 Conceptual Physics		3
Year Total:	16	14

Junior	Credits	
	Fall	Spring
MLRS 175 Medical Imaging <sup>1</sup>	3	
PATH 101 Intro to Human Disease	3	
NMT 163 Nuclear Med Clin Practicum I <sup>1</sup>	1	
NMT 153 Nuclear Med Clin Procedures I <sup>1</sup>	3	
NMT 152 Radiopharmaceuticals <sup>1</sup>	4	
Elective		3
NMT 164 Nuclear Med Clin Practicum II <sup>1</sup>		3
NMT 160 Patient Care Seminar		1
NMT 174 Nuclear Cardiology <sup>1</sup>		3
NMT 155 Instrumentation I <sup>1</sup>		3
MLRS 215 CT Procedures		3



Year Total:	14	16
<b>Senior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
MLRS 297 Leadership & Mgt in Hlth Care <sup>1</sup>	3	
NMT 154 Nuclear Med Clin Procedures II <sup>1</sup>	3	
NMT 156 Instrumentation II <sup>1</sup>	3	
NMT 252 Senior Seminar	2	
NMT 263 Adv Nuclear Med Clin Pract III <sup>1</sup>	3	
Elective	3	
NMT 264 Clinical Practicum IV <sup>1</sup>		14
Year Total:	17	14
Total Credits in Sequence: 121		

<sup>1</sup> Professional course

A minimum of 121 semester credit hours, minimum GPA per program requirement, and University sustainability and diversity fulfillment are required for graduation.

### 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 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 for the baccalaureate degree are CHEM 023 (or CHEM 031 and CHEM 032), PHYS 013, PATH 101, NH 120, and twelve credits in the concentration areas of dosimetry, topographical anatomy, patient care, treatment planning, and quality assurance. These independent studies will be coordinated with the student's advisor.

This four-year curriculum leading to the baccalaureate degree is accredited by the Joint Review Committee on Education in Radiologic Technology.

Clinical education takes place at one of the college's clinical affiliates. The initial experience is obtained at the University of Vermont Medical Center. The entire final semester consists of a clinical practicum at an affiliate outside of Burlington, which will require additional room, meals, and transportation expenses. Site selection for the clinical semester is determined by a lottery system.

### Clinical Affiliations

Albany Medical Center, Albany, NY  
 Central VT Hospital (National Life Cancer Treatment Center), Berlin, VT  
 Eastern Maine Medical Center, Bangor, ME  
 Dartmouth-Hitchcock Medical Center, Hanover, NH  
 Elliot Hospital, Manchester, 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 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
MLRS 034 Human Cell Biology		4
MATH 019 Fundamentals of Calculus I		3
NFS 043 Fundamentals of Nutrition		3
Elective, Diversity or Sustainability Course <sup>2</sup>		3
Year Total:	16	16
<b>Sophomore</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
ANPS 019 Ugr Hum Anatomy & Physiology <sup>1</sup>	4	
MLRS 140 Radiation Science <sup>1</sup>	3	
SOC 001 SU: Introduction to Sociology	3	
STAT 111 Elements of Statistics or STAT 141 Basic Statistical Methods	3	
Elective, Diversity or Sustainability Course <sup>2</sup>	3	
ANPS 020 Ugr Hum Anatomy & Physiology <sup>1</sup>		4
MLRS 141 Advanced Radiation Science <sup>1</sup>		3
PHYS 013 Conceptual Physics <sup>1</sup>		3
RADT 152 Prin of Radiation Therapy <sup>1</sup>		3
Year Total:	16	13

Junior	Credits	
	Fall	Spring
RADT 270 Dosimetry Concepts <sup>1</sup>	3	
PATH 101 Intro to Human Disease	3	
MLRS 175 Medical 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
MLRS 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
MLRS 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	
Elective Course <sup>3</sup>	3	
Elective <sup>2</sup>	1	
RADT 274 Clinical Practicum IV <sup>1</sup>		14
RADT 280 Qual Assurance&Treatment Plan <sup>1</sup>		3
Year Total:	14	17
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 fulfillment 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 academic advisor. Students completing a double major, minor, or certificate, or fulfilling requirements for graduate school, should also discuss their plans with their advisor.

## DEPARTMENT OF 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 and is approved by the Vermont State Board of Nursing and the Commission on Collegiate Nursing Education. Graduates of the program are eligible to apply for registered nurse licensure.

### PROGRESSION POLICY

1. Cumulative GPA of 2.5 or better in the first year is required to progress in the program. First year, first semester students who do not meet the requirement are placed on academic trial for one semester. Failure to raise the GPA to 2.5 upon completion of the first year is grounds for discontinuation from the major.
2. Cumulative GPA of 2.8 or better for students thereafter is required to progress in the program. Students who do not meet the requirement are placed on academic trial for one semester. Failure to raise the GPA to 2.8 in the next semester is grounds for discontinuation from the major.
3. A "C" or better is required in all nursing prerequisite courses. Exceptions include a C+ requirement in ANPS 019, ANPS 020, and MMG 065. If the standard is not met, the course must be repeated. Progression to the next semester will be affected.
4. A "C+" or better is required in all PRNU nursing courses and NURS 120. If the standard is not met, the course must be repeated. Progression to the next semester will be affected.
5. Receiving a C, D, F, or W in ANPS 019, ANPS 020, MMG 065, PRNU courses, and NURS 120 in the same course twice or in two different courses is grounds for discontinuation. Receiving a C-, D, F, or W in the same prerequisite nursing courses twice or in two different courses is grounds for discontinuation.

### 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-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.

## MAJORS

### NURSING MAJORS

Nursing B.S. (p. 373)

Nursing (for Registered Nurses) B.S. (p. 374)

### GRADUATE

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 Doctor of Nursing Practice

See the online Graduate Catalogue (<http://catalogue.uvm.edu/graduate>) for more information

**NURSING B.S.**

All students must meet the University Requirements (p. 396).

All students must meet the College Requirements. (p. 363)

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 127 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 127 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:

Major nursing courses	67
Required non-nursing courses	48
Elective courses	12
Courses meeting university-approved Diversity requirements must be met through select required non-nursing and elective courses	6

**PLAN OF STUDY**

**A MODEL CURRICULUM IN NURSING (127 CREDITS)**

First Year	Credits	
	Fall	Spring
CHEM 023 Outline of General Chemistry	4	
ENGS 001 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

Sophomore	Credits	
	Fall	Spring
ANPS 019 Ugr Hum Anatomy & Physiology	4	
MMG 065 Microbiology & Pathogenesis	4	
STAT 111 Elements of Statistics	3	
PRNU 110 Art & Science of Nursing	3	
Elective/Sustainability	3-4	
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:	17-18	16

Junior	Credits	
	Fall	Spring
NURS 120 Pathophysiology	3	
PRNU 121 Gerontology	3	
PRNU 128 Pharmacology	4	
PRNU 129 Women & Newborn Nurs: Thy&Ptm	4	
Elective	3	3
PRNU 131 Health Alterations		3
PRNU 134 Adlt Hlth Nursing I Thy & Ptm		6
PRNU 132 Child & Adoles Nurs:Thry & Ptm or PRNU 235 Psych/MH Nurs: Thy & Ptm		5
Year Total:	17	17

Senior	Credits	
	Fall	Spring
PRNU 231 Chronic & Palliative Care Nurs	3	
PRNU 234 Adlt Hlth Nurs II: Thy & Ptm	6	
PRNU 132 Child & Adoles Nurs:Thry & Ptm or PRNU 235 Psych/MH Nurs: Thy & Ptm	5	

PRNU 240 Iss & Ldrs Prf Nurs Thr & Ptm		6
PRNU 241 Public Hlth Nurs: Thry & Prctm		6
PRNU 243 Transition to Prof Practice		1
Elective		3
Year Total:	14	16
Total Credits in Sequence:		127-128

<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 University sustainability requirement prior to graduation

## NURSING (FOR REGISTERED NURSES) B.S.

All students must meet the University Requirements (p. 396).

All students must meet the College Requirements. (p. 363)

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
Environmental Studies or Science Elective		3
STAT 111	Elements of Statistics	3
or STAT 141	Basic Statistical Methods	
HDFS 005	Human Development	3
Philosophy, Religion, or Ethics		3
English Elective		3
Psychology Elective		3
Sociology Electives		6
General Education Electives		18
Diversity courses (3 credits D1 designation and 3 credits D2 designation or 6 credits D1 designation)		6

## DEPARTMENT OF REHABILITATION AND MOVEMENT SCIENCE

<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 comprises undergraduate majors in Athletic Training Education and in Exercise and Movement Science, and a doctoral degree in Physical Therapy. Graduates of these programs influence individuals across the life span by fostering wellness, preventing injuries and disease, facilitating high levels of skill, maintaining or restoring fitness, and rehabilitating individuals with injuries, diseases, chronic conditions, and disabilities.

Requirements for admission are the same as the general university requirements, with the addition that applicants must have taken high school biology, mathematics through trigonometry or precalculus, and chemistry; physics is highly recommended.

## MAJORS REHABILITATION AND MOVEMENT SCIENCE MAJORS

Athletic Training Education B.S. (p. 375)

Exercise and Movement Science B.S. (p. 376)

## GRADUATE

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. 396).

All students must meet the College Requirements. (p. 363)

The purpose of the Athletic Training Education Program (ATEP) is to provide students with the knowledge and practical skills needed to enter the profession of athletic training. Athletic Training is an academic major at UVM and provides students with an all-encompassing education fitting of a health care profession. The undergraduate program at the University of Vermont is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The ATEP is designed to provide the undergraduate student with professional preparation and eligibility to sit for the Board of Certification (BOC) examination. Certified athletic trainers are highly trained health care professionals qualified to work in a number of settings to enhance the quality of health care for athletes and those engaged in physical activity. Working closely with physicians and other health professionals, their expertise includes the prevention, recognition, management, and rehabilitation of injuries incurred due to physical activity.

First year 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

First Year	Credits	
	Fall	Spring
CHEM 023 Outline of General Chemistry	4	
AT 155 Emergency Med. Response in AT <sup>1</sup>	3	
AT 168 Directed Obsv. in Athl Trng <sup>1,2</sup>	1	

ENGS 001 Written Expression <sup>2</sup>	3	
MATH 009 College Algebra (or higher) <sup>2</sup>	3	
NH 050 App to Hlth: From Pers to Syst	1	
AT 158 Fundamentals of Athletic Trng <sup>1</sup>		4
NFS 043 Fundamentals of Nutrition <sup>2</sup>		3
HLTH 003 Medical Terminology <sup>2</sup>		2
PSYS 001 Intro to Psychological Science (or higher) <sup>2</sup>		3
RMS 095 Special Topics (Movement Science)		2
Year Total:	15	14

Sophomore	Credits	
	Fall	Spring
ANPS 019 Ugr Hum Anatomy & Physiology	4	
AT 159 Practicum in Athletic Trng I <sup>1</sup>	1	
AT 169 Clinical Experience in AT I <sup>1</sup>	1	
AT 184 Injury Eval & Recognition I <sup>1</sup>	4	
NFS 163 Sports Nutrition <sup>2</sup>	3	
RMS 213 Biomechanics of Human Movement	3	
ANPS 020 Ugr Hum Anatomy & Physiology		4
AT 160 Practicum in Athletic Trng II <sup>1</sup>		1
AT 170 Clinical Experience in AT II <sup>1</sup>		1
AT 185 Injury Eval & Recognition II <sup>1</sup>		4
RMS 244 Patient Mgmt Therapeutic Modal <sup>1</sup>		3
Humanities or Diversity Elective		3
Year Total:	16	16

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	
EXMS 242 Exercise and Sport Psychology	3	
STAT 111 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
RMS 220 Research Methods I <sup>2</sup> or SURG 200 Emergency Medicine Research I		3
RMS 250 Exercise Physiology <sup>2</sup>		4
Elective (if necessary)		3
Year Total:	17	15
<b>Senior</b>		
	<b>Fall</b>	<b>Spring</b>
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>	8	
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:	16	14
<b>Total Credits in Sequence:</b>		
		123

<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 abbreviation ANTH, HST, LANG, PHIL, POLS, PSYC, REL,SOC, THE

6 credits of diversity requirements must be taken prior to graduation (3 cr. D1 and 3 cr. D1 or D2)

Must meet University sustainability requirement prior to graduation

122 total credit hours required for graduation

## EXERCISE AND MOVEMENT SCIENCE B.S.

All students must meet the University Requirements. (p. 396)

All students must meet the College Requirements. (p. 363)

The Exercise and Movement Science (EXMS) major comprises in-depth study of the theory and applications of Exercise and Movement Science in health, fitness and illness prevention in diverse populations. Students can tailor their educational experience

to individual goals, including mentored internship and research experiences. Graduates of the EXMS major may pursue careers in related areas of fitness and health, such as health promotion, adapted physical activity, and fitness business ventures. They may also pursue one of several professional certifications, such as ACSM Exercise Specialist, or NSCA certified Strength and Conditioning Specialist. Finally, students graduating from this program may be qualified for graduate work in Exercise and Movement Sciences, Physical Therapy, and 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; physics is highly recommended.

Students in Exercise and Movement Science must achieve a cumulative GPA of 2.50 or better by the end of their first year and maintain a 2.50 cumulative GPA thereafter to remain in good standing in the program.

### PLAN OF STUDY A MODEL CURRICULUM IN EXERCISE AND MOVEMENT SCIENCE

First Year	Credits	
	Fall	Spring
CHEM 023 Outline of General Chemistry or CHEM 031 General Chemistry 1	4	
RMS 157 Prevention & Care Athletic Inj	3	
Elective	3	
NH 050 App to Hlth: From Pers to Syst	1	
NFS 043 Fundamentals of Nutrition	3	
PSYS 001 Intro to Psychological Science		3
BIO (any 3-credit Biology course)		3
ENGS 001 Written Expression		3
EXMS 150 Intro to Exercise Science		1
Electives and/or Sustainability Credits		6
Year Total:	14	16
<b>Sophomore</b>		
	<b>Fall</b>	<b>Spring</b>
ANPS 019 Ugr Hum Anatomy & Physiology	4	
EXMS 244 Nutrition for Health & Fitness	3	
STAT 111 Elements of Statistics or STAT 141 Basic Statistical Methods	3	
EXMS 242 Exercise and Sport Psychology	3	

Diversity 1 or Human/Behav Sci Elective <sup>1</sup>	3	3
ANPS 020 Ugr Hum Anatomy & Physiology		4
RMS 095 Special Topics (Movement Science)		3
PHYS 013 Conceptual Physics		3
Elective or Sustainability Credits		3
Year Total:	16	16
<b>Junior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
Elective or Human/Behav Sci Elective <sup>1</sup>	3	
EXMS 240 Motor Skill Learning & Control	3	
EXMS 260 Adapted Physical Activity	3	
RMS 213 Biomechanics of Human Movement	3	
RMS 250 Exercise Physiology (or Elective) <sup>2</sup>	3-4	3-4
Elective or Sustainability Credits		3
RMS 188 D2:Org&Ldrship in AthTrn&Ex Sc		3
RMS 220 Research Methods I		3
Elective		3
Year Total:	15-16	15-16
<b>Senior</b>		
	<b>Credits</b>	
	<b>Fall</b>	<b>Spring</b>
EXMS 245 Evaluation & Prescription	3	
EXMS 263 Fitness for Spec Populations	3	
NH 120 Health Care Ethics	3	
Choose one of the following:	6	6
EXMS 272 Senior Capstone Experience (taken in either semester)		
Electives (taken in the semester when not taking EXMS 272)		
EXMS 264 Certified Exerc Physiologist		3
EXMS 262 Human Perf & Ergogenic Aids		3
EXMS 268 Exercise Program Design		3
Year Total:	15	15
<b>Total Credits in Sequence:</b>		
		122-124

<sup>1</sup> 6 credits of Human/Behav Science: any course with the abbreviations ANTH, HST, LANG, PHIL, POLS, PSYC, REL, SOC, THE

<sup>2</sup> Course may be taken in spring or fall semester

RMS 280 Senior Research Experience is available as a variable (1-4) credit elective under faculty mentorship.

6 credits meeting diversity requirements must be taken prior to graduation (3 cr. D1 and 3 cr. D1 or D2)

Must meet University sustainability requirement prior to graduation

Minimum of 123 credits required for degree completion

## 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. Course-based student development is facilitated through support of faculty and community partners as they create and implement community-based courses and research projects. At the heart of our work is a demonstrated commitment to student and faculty development and collaborative problem-solving between the school, the university, and the local, national, and international community.

The OEL works directly with the Community-University Partnerships and Service Learning office and the UVM Career Services office.

The curriculum in RSENr relies heavily on Vermont's natural landscapes – its mountains, lakes, fields, and forests - to provide students hands-on experience studying ecology and ecosystem processes. In addition, RSENr offers a variety of intensive field courses during vacation breaks and summer session that provide students special opportunities to study outside of Vermont. Past field explorations have included: study of the wildlife of Florida or south Texas, exposure to the arid ecosystems and water resource issues in Israel, participation in environmental research in the Chesapeake Bay region, introduction to ecotourism and environmental interpretation in Costa Rica, experience with regional examples of sustainable forest management and practices, and the study of aquatic ecology in Lake Champlain from the deck of the *Melosira*, UVM's research vessel.

### MAJORS

- Environmental Sciences B.S. (p. 380)
- Environmental Studies B.S. (p. 382)
- Forestry B.S. (p. 382)
- Natural Resources B.S. (p. 383)
- Parks, Recreation and Tourism B.S. (p. 385)
- Wildlife and Fisheries Biology B.S. (p. 387)

### MINORS

- Environmental Studies (p. 382)
- Forestry (p. 383)
- Geospatial Technologies (p. 388)
- Parks, Recreation, and Tourism (p. 386)
- Sports Management (p. 386)
- Wildlife Biology (p. 387)

### GRADUATE

Ecological Design CGS

Ecological Economics CGS

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. 396)
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 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 & Field Ecology <sup>1</sup>	4
NR 002	Nature & Culture <sup>1</sup>	3
NR 006	D1:Race & Culture in NR <sup>2</sup>	2
NR 103	Ecology, Ecosystems & Environ	3
NR 104	Social Proc & the Environment	3
NR 205	Ecosys Mgt:Integ 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 095, 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	Written Expression	3
or ENGS 050	Expository Writing	
or HCOL 085	Honors College First Year Sem	
<b>Speaking</b>		
SPCH 011	Effective Speaking	2-3
or NR 021	Speaking and Listening	
or CALS 183	Communication Methods	
<b>Race and Culture</b> <sup>3</sup>		
NR 006	D1:Race & Culture in NR	2
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	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	Elements of Statistics	

or STAT 141	Basic Statistical Methods	
or STAT 211	Statistical Methods I	
<b>Self-Designed General Education Sequence</b>		
Each student defines a personal learning objective and selects at least nine credits from departments outside RSENR to meet that objective. This sequence of courses must be approved in advance. <sup>4</sup>		9

<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 050, 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.

<sup>4</sup> The Self-Designed General Education Sequence must be approved before completion of four semesters or 60 credits; the time-frame may be extended for transfer students.

## 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.

## 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 Chemistry
- 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 SCIENCE MAJOR

Environmental Sciences B.S. (p. 380)

### ENVIRONMENTAL SCIENCES B.S.

All students must meet the University Requirements (p. 396).

All students must meet the College Requirements. (p. 379)

## MAJOR REQUIREMENTS

A total of 120 credits is required for the degree.

BCOR 011	Exploring Biology	4
BCOR 012	Exploring Biology	4
CHEM 031	General Chemistry 1	4
CHEM 032	General Chemistry 2	4
CHEM 042	Intro Organic Chemistry <sup>1</sup>	4
GEOL 055	Environmental Geology	4
or PSS 161	SU: Fundmntls of Soil Science	
MATH 019	Fundamentals of Calculus I <sup>2</sup>	3
MATH 020	Fundamentals of Calculus II <sup>2</sup>	3
NR 140	Applied Environ Statistics <sup>2</sup>	3-4
or STAT 141	Basic Statistical Methods	
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
<b>Fourteen to seventeen credits in one of the following concentrations:</b>		14-17
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		
Water Resources		

<sup>1</sup> Students interested in areas 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.

Up-to-date course requirements for each concentration are available online or from the student's advisor or the dean's office; students may elect to petition to develop a self-design concentration.

## 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. Students may select from one of the six concentrations to focus their academic plan. 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 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 four different colleges, including the College of Agriculture and Life Sciences, the College of Arts and Sciences, the College of Education and Social Services 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 or thesis, usually carried out in the senior year.

## MAJORS ENVIRONMENTAL STUDIES MAJOR

Environmental Studies B.S. (p. 382)

**MINORS**

**ENVIRONMENTAL STUDIES MINOR**

Environmental Studies (p. 382)

**ENVIRONMENTAL STUDIES B.S.**

All students must meet the University Requirements (p. 396).

All students must meet the College Requirements. (p. 379)

**MAJOR REQUIREMENTS**

A total of 120 credits is required for the degree.

ENVS 001	SU:Intro to Envmmntl Studies	4
ENVS 002	D2:SU:International Env Stdies	4
ENVS 151	Intermed Environmental Studies	3
Nine credits of a senior capstone		9
Thirty credits of approved environmentally-related courses at the 100- or 200-level, including: <sup>1</sup>		30
Three credits at the 200-level		
At least one environmentally-related course in each of the following areas: natural sciences, humanities, social sciences, and international studies (may be fulfilled with study abroad experience)		

<sup>1</sup> The thirty 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**

Seventeen credits in Environmental Studies consisting of:

ENVS 001	SU:Intro to Envmmntl Studies	4
ENVS 002	D2:SU:International Env Stdies	4
Nine credits at the 100-level or above. (Of the nine credits, one non-ENVS course at the appropriate level may be substituted with the approval of the student's advisor and the Environmental Program.)		9

**FORESTRY PROGRAM**

<http://www.uvm.edu/rsenr/?Page=undergraduate/forestry.html&SM=undergradmenu.html>

The Forestry Major trains students to meet the needs of the 21st century, which include managing forests for resilience, adaptation, and climate mitigation. Guided by the Green Forestry Education Initiative principles (<http://www.uvm.edu/rsenr/greenforestry/>), students learn how to tackle the ever increasing demands and pressures placed on the world's forests while sustaining the many services forest ecosystems provide. 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. 382)

**MINORS**

**FORESTRY MINOR**

Forestry (p. 383)

**FORESTRY B.S.**

All students must meet the University Requirements (p. 396).

All students must meet the College Requirements. (p. 379)

**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 twelve 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 124 credits is required for the degree.

PBIO 004	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	Basic Mathematics <sup>3</sup>	3
NR 140	Applied Environ Statistics <sup>3</sup>	4
FOR 195	Special Topics (Nat Res Ecol and Assessment 1)	4
FOR 195	Special Topics (Nat Res Ecol and Assessment 2)	4



PSS 161	SU:Fundmntls of Soil Science	4
A course in economics or ecological economics		
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 235	Forest Ecosystem Health	4
FOR 182	Advanced Forestry Seminar	1
FOR 272	SU:Sustain Mgmt Forest Ecosys	4
FOR 295	Advanced Special Topics (Management of Forest Woodlots)	3
Twelve additional credits in the area of concentration		12

- <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 nine 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.

## 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 195	Special Topics (Nat Res Ecol and Assessment 1)	4
FOR 223	Multi-Resource Silviculture	4
Additional forestry courses to total sixteen credits		4

## 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)

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. 383)

### 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. 396).

All students must meet the College Requirements. (p. 379)

There are three concentrations available under the Natural Resources major:

Integrated Natural Resources Concentration (p. 383)

Resource Ecology Concentration (p. 384)

Resource Planning Concentration (p. 384)

### 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.

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	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	
FOR 195	Special Topics (Nat Res Ecol and Assessment 1)	4
NR 143	Intro to Geog Info Systems	3
or NR 146	Remote Sensing of Natural Res	
Students select twenty-seven additional credits in upper-level courses (Option Electives) from an approved list in consultation with their academic advisors. This list of approved courses is available on the RSENR website.		27

<sup>1</sup> MATH 019 and NR 140 also fulfill RSENR general education requirements.

Any course substitution request should be approved prior 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.

A total of 120 credits is required for the degree.

#### Required Courses

ANTH 021	D2:SU: Cultural Anthropology	3
or GEOG 050	D2:SU:World Regional Geog	
CDAE 002	D2:SU:World Food,Pop & Develop	3-4
or ENVS 002	D2:SU:International Env Studies	
EC 011	Principles of Macroeconomics	3
or EC 012	Principles of Microeconomics	
or CDAE 061	Principles of Comm Development	
PHIL 010	Introduction to Philosophy (Ethics or Ethics of Eating)	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 select twenty-seven additional credits in upper-level courses (Option Electives) from an approved list in consultation with their academic advisors. This list of approved courses is available on the RSENR website.		27

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>

Perennial interest in recreation and the outdoors makes the work of the Rubenstein School's Parks, Recreation and Tourism (PRT) Program increasingly important. PRT provides outstanding learning opportunities for students interested in the world of outdoor recreation and tourism with an emphasis on practices that are economically and environmentally sustainable. PRT includes a suite of courses that blend study of both society and the environment. The goal of the PRT Program is to educate the next generation of leaders in environmentally sustainable parks, recreation and tourism. Students take a balance of Public Outdoor Recreation and Private Outdoor Recreation and Tourism courses and, through projects and internships, can focus their learning towards the public or private sector. Public recreation resources include parks, forests, wilderness areas, and other outdoor recreation areas at the local, regional, state, and federal government levels and non-profit organizations. Private recreation and tourism studies include ski and mountain resorts, hotels and hospitality, and other natural resource-based recreation and tourism facilities.

### MAJORS

#### PARKS, RECREATION AND TOURISM MAJOR

Parks, Recreation and Tourism B.S. (p. 385)

### MINORS

#### PARKS, RECREATION AND TOURISM MINOR

Parks, Recreation and Tourism (p. 386)

Sports Management (p. 386)

## PARKS, RECREATION AND TOURISM B.S.

All students must meet the University Requirements (p. 396).

All students must meet the College Requirements. (p. 379)

### MAJOR REQUIREMENTS

A total of 120 credits is required for the degree.

### PRT FOUNDATION COURSES

One three-credit course in humanities (classics, history, philosophy, religion)	3
One three-credit course in communications (art, art history, English literature, foreign language, music, theatre, world literature)	3
One three-credit course in social sciences (anthropology, economics, geography, political science, psychology, sociology)	3
One four-credit laboratory course in natural sciences (biology, chemistry, geology, physics, plant biology, plant and soil science, zoology)	4

The PRT curriculum encompasses a balanced mix of classes appropriate to Public Outdoor Recreation, as well as Private Outdoor Recreation and Tourism, as shown in the lists that follow. Courses provide students with the educational tools necessary to enter the field in either the public domain or private enterprise. Students take all 12 of the courses listed below, including the mandatory internship, plus three professional electives.

Complete the following Parks, Recreation, and Tourism (PRT) courses and internship requirements:

### REQUIRED COURSES

PRT 001	Intro to Recreation & Tourism	3
PRT 191	Parks, Rec & Tourism Practicum <sup>1</sup>	3-6
Nine credits (3 courses) of professional electives chosen in consultation with an advisor.		9
Private Outdoor Recreation Courses:		
PRT 050	Tourism Planning	3
PRT 157	Ski Area Management	4
PRT 158	Resort Mgmt & Marketing	3
PRT 230	SU: Ecotourism	3
PRT 258	Entrepreneurship Rec&Tourism	3
Public Outdoor Recreation Courses:		
PRT 138	Landsc. Arch for Parks & Rec	4
PRT 149	Wilderness Educ & Leadership	3
PRT 235	Outdoor Recreation Planning	3
PRT 240	Park and Wilderness Management	3

PRT 255	Environmental Interpretation	3
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<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 nine semester credits are required from the following:		9
PRT 001	Intro to Recreation & 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 six semester credits to be selected from the following:		6
PRT 230	SU: 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

The courses for the minor include three required courses and at least three elective courses, one from each category, for a minimum of 18 required credits. 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 courses for the minor include:

Required Courses:		
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 055	Special Topics I (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	Marketing: Comm 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	
BSAD 138	Entrepreneurship: Bus Planning	
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.

## WILDLIFE AND FISHERIES BIOLOGY PROGRAM

<http://www.uvm.edu/rsenr/?Page=undergraduate/wildlife.html&SM=undergradmenu.html>

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. All Wildlife and Fisheries Biology majors complete the same core of courses during the first year. As sophomores, students elect either the Wildlife Biology or the Fisheries Biology option.

### MAJORS

#### WILDLIFE AND FISHERIES BIOLOGY MAJOR

Wildlife and Fisheries Biology B.S. (p. 387)



**MINORS****WILDLIFE AND FISHERIES BIOLOGY MINOR**

Wildlife Biology (p. 387)

**WILDLIFE AND FISHERIES BIOLOGY B.S.**

All students must meet the University Requirements (p. 396).

All students must meet the College Requirements. (p. 379)

There are two concentrations available under the Wildlife and Fisheries Major:

Fisheries Biology Concentration (p. 387)

Wildlife Biology Concentration (p. 387)

**MAJOR REQUIREMENTS**

A total of 120 credits is required for the degree.

Courses required for both concentrations:

MATH 019	Fundamentals of Calculus I <sup>1</sup>	3
or MATH 021	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 195	Special Topics ( 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 261	Fisheries Management	3
WFB 232	Ichthyology	3
NR 250	Limnology	4
NR 280	Stream Ecology	4

Choose two of the following:		
WFB 271	Wetlands Wildlife	
or NR 260	Wetlands Ecology & Mgmt	
WFB 279	Marine Ecology & Conservation	
BIOL 264	Community Ecology	
WFB 195	Intermediate Special Topics (Herpetology / Field Herpetology)	
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	Wldlf Habitat & Pop Measrmt <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 195	Intermediate Special Topics (Herpetology / Field Herpetology)	
WFB 271	Wetlands Wildlife <sup>2</sup>	
WFB 283	Terrestrial Wildlife <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 195 (Herpetology/Field Herpetology), WFB 271 and WFB 283 are laboratory courses.

**WILDLIFE BIOLOGY MINOR****REQUIREMENTS**

Fifteen credits including:

Required Courses:		
WFB 130	Ornithology	3
WFB 174	Prin of Wildlife Management	3
WFB 271	Wetlands Wildlife	4
or WFB 283	Terrestrial Wildlife	

Elective Courses:		5
WFB 131	Field Ornithology	
WFB 150	Wldlf Habitat & Pop Measrmnt	
WFB 176	Florida Ecology Field Trip	
WFB 177	Texas Wildlife Field Trip	
WFB 187	Undergraduate Research	
WFB 191	Internship	
WFB 192	Independent Study	
WFB 195	Intermediate Special Topics	
WFB 224	Conservation Biology	
WFB 271	Wetlands Wildlife	
WFB 275	Wildlife Behavior	
WFB 279	Marine Ecology & Conservation	
WFB 283	Terrestrial Wildlife	
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	Ecology and Evolution	

**GEOSPATIAL TECHNOLOGIES MINOR REQUIREMENTS**

Five courses (fifteen credits with at least nine credits at 100-level or above) which must include:

<b>One course in Geospatial Technologies:</b>		3-4
GEOG 081	Geospatial Cncpt&Visualization	
CE 010	Geomatics	
ENSC 130	Global Environmental Assessmnt	
GEOL 151/ GEOG 144	Geomorphology	
<b>One course in Geographic Information Systems:</b>		3
GEOG 184	Geog Info:Cncpts & Applic	
or NR 143	Intro to Geog Info Systems	

<b>One course in Remote Sensing:</b>		3
NR 146	Remote Sensing of Natural Res	
or GEOG 185	Remote Sensing	
<b>Any two electives (either two from Group A or one course each from Group A and Group B):</b>		6
<b>Group A:</b>		
NR 243	GIS Practicum	
NR 245	Integrating GIS & Statistics	
GEOG 287	Spatial Analysis	
GEOG 281	Adv Topic:GIS & Remote Sensing (a, Satellite Climatology/Land Surface Applications)	
GEOG 281	Adv Topic:GIS & Remote Sensing (b, Advanced GIS Applications)	
NR 242	Adv Geospatial Techniques	
<b>Group B:</b>		
CS 021	Computer Programming I	
CS 008	Intro to Web Site Development	
CS 148	Database Design for the Web	
CS 189	CS for Geospatial Technologies	
ENGR 002	Graphical Communication	
CDAE 101	Computer Aided Drafting&Design	

**PRE/CO-REQUISITES**

Variable, depending on upper level courses chosen.

**OTHER INFORMATION**

Geography majors who undertake the Geospatial Technologies minor are required to complete thirty-three credits in geography and fifteen credits towards the Geospatial Technologies minor. GEOG 081 may be used to count towards both the major and the minor. However, students are still required to complete thirty-three credits of geography courses.

## THE HONORS COLLEGE

<http://www.uvm.edu/honorscollege>

The Honors College (HC) offers an intensely focused, academically challenging environment for some of the university's most outstanding undergraduate students. The Honors College involves a broad cross-section of the university community, existing not as a cloistered academic enclave but as a vital part of that larger community. The Honors College is above all a community of scholars — students and faculty — committed to the ideals of excellence in scholarship, academic rigor, and intellectual inquiry and engagement.

### ADMISSION TO THE HONORS COLLEGE

Admission to the Honors College is based on prior academic performance and is gained through one of two avenues. First-year students may be invited to the HC based on the strength of their application to the university; no additional application is required. Approximately 200 first-year students comprise each year's class. Because the college exists to recognize and encourage academic excellence, it also welcomes applications for admission from sophomores who were not in the HC in their first year, but were among the top performers as first-year students at UVM. Sophomore admission requires an application form, a 3.40 grade-point average at the end of the first year, a letter of recommendation from a UVM faculty member, and a brief essay. Over 100 sophomores are admitted annually. Students transferring into their first or second year at UVM should contact the Honors College office to express their interest.

### CURRICULUM

Honors College students have "dual citizenship": they are members of both the HC and one of the seven undergraduate degree granting schools and colleges. The Honors College supplements and enriches degree offerings with 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. The course is supplemented by plenary lectures by professionals, visiting faculty and university faculty; the entire university community is invited to these lectures. 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. First-year and sophomore students whose cumulative GPA falls below 3.20 will be given one semester to raise it to at least a 3.2. Failure to do so will make them subject to dismissal from the HC. 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. If a student does not have a cumulative GPA of 3.40 at the time they submit their thesis proposal, they will be subject to dismissal from the Honors College. The student must maintain a GPA of 3.40 or higher to graduate as an Honors College Scholar.

Students are subject to dismissal from the Honors College if they receive grades of C- or below for more than eight credits of coursework, or if they fail an Honors College seminar, or if they are not making satisfactory progress toward the completion of Honors College requirements. Students who fall below a 3.4 in their senior year will be subject to dismissal from the Honors College. The Dean may take personal considerations into account prior to dismissal for low achievement. Students with a serious academic integrity offense, determined by standard university procedures, will be subject to dismissal from the Honors College.

### 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 Office of Undergraduate Research advises undergraduates interested in pursuing research under the mentorship of a faculty member by maintaining a database of research opportunities and administering funding programs. The Office of Fellowships Advising, also housed in the Honors College, 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 Honors College 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	



## COLLEGE OF MEDICINE

As the 7th oldest medical school in the nation, the 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 students, the College of Medicine 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. 391)
- Pharmacology (p. 391)

## 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

Fifteen 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	Advanced Pharmacology Research	
PHRM 305	Milestones in Pharmacology	
PHRM 372	Special Topics	
PHRM 373	Readings in Pharmacology	
PHRM 381	Seminar	
One extra-departmental course, approved by the designated minor advisor, can be used for credit towards the minor. Potential choices for the one allowed extra-departmental course include:		
NSCI 323	Neurochemistry	
BIOC 212	Biochemistry of Human Disease	
BIOL 288	Seminar in Forensic Biology	
CHEM 205	Biochemistry I	
MPBP 301	Human Physiology & Pharm I	

NFS 263	Nutritional Biochemistry	
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
or CHEM 035 & CHEM 036	General Chemistry for Majors 1 and General Chemistry for Majors 2	
CHEM 141 & CHEM 142	Organic Chemistry 1 and Organic Chemistry 2 (or equivalent)	8

## 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

Fifteen credits are required for the minor, including:

COMU 001	Healthy Brains, Healthy Bodies	3
Additional courses (must include at least three 100-level courses) may be selected from:		12
COMU 021	Your Brain on Drugs	
COMU 022	The Science of Happiness	
COMU 096	Special Topics	
COMU 122	Family Wellness Coaching	
COMU 123	The Effects of Adversity	
COMU 151	Developmental Psychopathology	
COMU 152	Intro. to Child Psychiatry	
COMU 191	Consequences of Concussion	
COMU 197	Teaching Assistantship	
COMU 198	Undergraduate Research	



## ACADEMIC INFORMATION

This section of the undergraduate catalogue includes academic policies, procedures and related information.

- Academic Honors (p. 393)
- Academic Internships (p. 393)
- Academic Minors (p. 395)
- Alternative Methods for Earning Academic Credit (p. 396)
- Degree Requirements (p. 396)
- Directory Information Exclusion (p. 397)
- Exams and Grading (p. 397)
- FERPA Rights Disclosure (p. 399)
- Graduate Course Enrollment for Undergraduate Students (p. 400)
- Independent Study Courses (p. 400)
- Repeated Courses (p. 401)
- Student Rights and Responsibilities (p. 401)
- Transcripts (p. 402)
- Undergraduate Certificates (p. 402)
- University Policies and Responsibility (p. 403)

## 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 dean.

#### “On Trial”

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

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

This policy applies in the following instances:

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

#### Separation

Students are dismissed from UVM if they receive grades below passing in one-half or more of their semester credits in any semester,

unless they are allowed to continue by action of the designated committee.

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

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

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

## 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)

## ALIVE - CREDIT FOR ACADEMIC LEARNING INTEGRATED WITH VOLUNTEER EXPERIENCE

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

## 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, six, or eight 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 (<http://www.uvm.edu/~rgweb>) 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.

#### 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. Beginning with the class of 1984, the minimum grade-point

average for graduation is 2.00. Grades in courses accepted for transfer credit are excluded in computing this average.

### 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

Beginning with the class entering during the fall 2008 semester, all undergraduates must successfully complete the University Approved Diversity courses: one three-credit course from Category One (Race and Racism in the U.S.) and a second three-credit course from either Category One or Category Two (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

Beginning with the entering first-year class in fall 2014, all undergraduates are required to successfully complete a three-credit course which provides instruction and practice with foundational writing and information literacy. Any of the three following courses will satisfy this requirement: ENGS 001, HCOL 085, and TAP seminars in the College of Arts and Sciences.

### Sustainability Requirement

Beginning with the entering first-year class in fall 2015, all undergraduates 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, in writing, to have the request removed.

Directory information includes the following student information:

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

Students who do not wish to have the above information released should request a directory exclusion via myUVM.

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 Conference and 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
XF	Failure resulting from academic dishonesty. <sup>1</sup>	

<sup>1</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)
M	Missing (grade not turned in by the instructor)
W	Withdrawn

AU: Students wishing to regularly attend a course, but not receive credit, may register as an auditor, with the approval of the dean and the instructor. Auditors have no claim on the time or service of the



instructor. Students must meet minimum levels of performance set by the instructor at the time of registration in order to receive an audit grade. Tuition is charged at the applicable rate. Under no circumstances will changes be made after the add/drop period to allow credit for courses audited.

**INC:** This grade may be assigned when course work is not completed for reasons beyond the student's control. Incompletes require the approval of the student's college/school dean. The incomplete course requirement will be satisfied at the earliest possible date, but not longer than the beginning of the corresponding semester of the next academic year. In cases of laboratory assignments, the student must complete all work the first time that the laboratory experience is offered again.

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, and dean of the college/school in which the course is offered (in that order) to discuss the matter.

The following deadline must be observed by the student who wishes to appeal a grade (though extensions may be granted by the dean of the college / 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 semester following the assignment of the grade in question. No grade can be appealed after the student has graduated.

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 the student's education records within 45 days of the day the university receives a request for access. Students should submit to the registrar, dean, the head of the academic department, or other appropriate official written requests that identify the record(s) they wish to inspect. The university official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the university official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
2. The right to request an amendment of the student's education records that the student believes to be inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA. Students may write the university official responsible for

the record to ask that it be amended and should clearly identify the part of the record they want changed specifying why it is inaccurate, misleading, or otherwise in violation of their privacy rights under FERPA. If the university decides not to amend the record as requested by the student, the university will notify the student in writing of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to provide written consent prior to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent. One exception which permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the university in an administrative, supervisory, academic, research, or support staff position (including law enforcement unit personnel and health staff); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official also may include a volunteer or contractor outside the university who performs an institutional service or function for which the university would otherwise use its own employees and who is under the direct control of the university with respect to the use and maintenance of personally identifiable information from education records, such as an attorney, auditor, or collection agent. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility. The University may also disclose education records without consent to officials of another school in which the student seeks or intends to enroll.
4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University of Vermont to comply with the requirements of FERPA. The name and address of the office that administers FERPA:

Family Policy Compliance Office

U.S. Department of Education

400 Maryland Avenue, SW

Washington, DC 20202-5920

## GRADUATE COURSE ENROLLMENT FOR UNDERGRADUATE STUDENTS

Senior undergraduates may enroll for up to six graduate credits at UVM under the following circumstances: courses must be available for graduate credit; 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 in writing by the dean of the undergraduate college/school in which the student is enrolled. 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. The transfer is credit only (not grade) and does not count towards the minimum graded credit required after matriculation into the graduate program.

## 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

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

## STUDENT RIGHTS AND RESPONSIBILITIES

### ACADEMIC INTEGRITY

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

Each student is responsible for knowing and observing this code. Please refer to the Code of Academic Integrity (<http://www.uvm.edu/~uvmppg/ppg/student/acadintegrity.pdf>) policy webpage.

### ATTENDANCE POLICY

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

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

The instructor has the right to disenroll any student from a course if that student

1. does not meet the prerequisites of the course, or
2. fails to attend a scheduled course by the third instructional day of a semester or the second scheduled class session of a course, whichever comes later, unless the student has notified the instructor and has been excused.

To disenroll a student, the instructor must notify the registrar by the add/drop deadline. Upon such notification, the registrar shall

remove the student's name from the class list and the course from the student's schedule. The student is responsible for determining whether she or he is enrolled in a class.

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

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

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

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

## 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).

## 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 (including Certificates of Graduate Study), Continuing Education Academic Certificates, and Continuing Education Professional Certificates.

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. For more information, visit the UVM Orientation (<http://www.uvm.edu/orientation>) website. Students enrolling in the spring semester are strongly encouraged to attend January orientation held prior to the start of spring semester.

### HOUSING

All students entering as first-time, first-year students are required to live on campus for two years (i.e., first four semesters). Transfer students do not have an on-campus residency requirement. Transfer students who are under the age of 20 the first day of classes are guaranteed housing, but must submit an on-campus housing request. Transfer students 20 years old and older the first day of classes may also request on-campus housing, but it is not guaranteed. For more information, visit the ResLife (<http://reslife.uvm.edu>) website.

### CLASS REGISTRATION

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

### IMMUNIZATION AND HEALTH HISTORY FORMS

Pre-matriculation health requirements must be completed and submitted to the UVM Center for Health and Wellbeing Student Health Services before a student's first term at UVM. These requirements are presented in both paper and online forms. New students will receive detailed instructions regarding the immunizations required by Vermont state law. More about the health requirements can be found on the Student Health Services (<http://www.uvm.edu/~CHWB/health>) 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, a student must complete the online Change of Major/College form and obtain the approval of the Dean's Office 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. 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 semester and cumulative GPA of at least 2.30 is required for transfer admission into all engineering programs in the College of Engineering & Mathematical Sciences. To transfer into the Grossman School of Business, a student must complete EC 011, EC 012, MATH 019 or MATH 021, and STAT 141 (or an approved equivalency), each with a grade of C- or higher and an overall GPA of a 2.25. In addition, a cumulative GPA of at least a 2.50 is required for transfer admission.

College of Nursing and Health Sciences' 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.

#### Readmission to the University

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

#### Withdrawal from the University

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

#### Medical Withdrawal

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

#### Leave of Absence

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

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

## 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.

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

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

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

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

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

All non-degree students who would like assistance in planning educational programs and selecting courses should contact Continuing and Distance Education.

## REGISTRATION

Degree students must register for the next semester at the designated time, unless excused in advance by their dean. Registration instructions are on the Office of the Registrar (<http://www.uvm.edu/>

~rgweb) website. Approval of the student's dean is required to register for more than eighteen credits.

Students with disabilities, who are in receipt of appropriate medical certification from the Director of the Student Health Center, will be approved to enroll for a course load of less than twelve credits (FTE). Such students will be afforded full-time status in accordance with Section 504 of the Rehabilitation Act of 1973.

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

## 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 courses(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 (A-F) in accordance with the same criteria applied to all other students in the course(s).

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

## 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.

## RETROACTIVE ACADEMIC ADJUSTMENT

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

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

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

Questions regarding refunds should be directed to Student Financial Services.



**ACADEMIC CALENDAR****FALL 2016**

First Day of Classes	August 29	Monday
Last Day to Add Classes without Instructor Permission	September 2	Friday
Labor Day Holiday	September 5	Monday
Add/Drop, Pass/No Pass, Audit Deadline	September 12	Monday
Fall Recess	October 10	Monday
Last Day to Withdraw	October 31	Monday
Thanksgiving Recess	November 21-25	Monday - Friday
Last Day of Classes	December 9	Friday
Exam Period	December 12-16	Monday - Friday
Exam Days	December 12, 13, 14, 15, 16	Mon., Tues., Wed., Thurs., Fri.

**WINTER 2017**

First Day of Classes	December 26	Monday
Last Day of Classes	January 13	Friday

**SPRING 2017**

Martin Luther King Holiday	January 16	Monday
First Day of Classes	January 17	Tuesday
Last Day to Add Classes without Instructor Permission	January 23	Monday
Add/Drop, Pass/No Pass, Audit Deadline	January 30	Monday
President's Day Holiday	February 20	Monday
Town Meeting Day Recess	March 7	Tuesday
Spring Recess	March 13-17	Monday - Friday
Last Day to Withdraw	April 3	Monday
Honors Day	April 21	Friday
Last Day of Classes	May 5	Friday
Exam Period	May 8 - 12	Monday - Friday
Exam Days	May 8, 9, 10, 11, 12	Mon., Tues., Wed., Thurs., Fri.
Graduate Commencement	May 20	Saturday
Undergraduate Commencement	May 21	Sunday
Medical College Commencement	May 21	Sunday

**SUMMER 2017**

First Day of Classes	May 22	Monday
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Memorial Day Holiday	May 29	Monday
Fourth of July Holiday	July 4	Tuesday
Last Day of Classes	August 11	Friday

Academic Calendar information for upcoming years is available on the Office of the Registrar (<http://www.uvm.edu/~rgweb/calendar>) website.

Refer to the Student Rights and Responsibilities (p. 401) section of the Catalogue for the policy on class attendance and for information regarding observance of religious holidays and participation in intercollegiate athletics.

Refunds related to dropping or withdrawing from courses vary. Contact Student Financial Services for more information.

## 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, class standing and grades, standardized test results, and trends in performance are considered. Essays, a letter of recommendation, and other evidence of each student's life experience 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.

### 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 Athletic Training, Exercise and Movement Science, 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 UVM.

#### 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 UVM course work and has met all entrance requirements, no proof of high school graduation is required.

### APPLICATION AND SUPPORTING MATERIALS FOR UNDERGRADUATES

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

**Application for Admission:** Candidates may apply online using the Common Application at The Common Application (<http://www.commonapp.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 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 email) 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 3290 and 4322 for the ACT. Standardized test scores are considered official only if submitted directly from the testing agency. For further information regarding these tests, contact a high school college counseling office or visit the CollegeBoard (<http://www.collegeboard.org>) and ACT (<http://www.act.org>) websites.

**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.

**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. These materials become property of UVM and will not be returned. More information is available at the Department of Music and Dance (<http://www.uvm.edu/~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 (UVM) and State Agricultural College 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 non-custodial or joint custodial parent is domiciled in Vermont and has contributed more than 50 percent of financial support for at least one year prior to the semester for which in-state status is sought.
10. The burden of proof as to eligibility for in-state status rests with the student. Eligibility must be established by clear and convincing evidence.

## RESIDENCY RULES FOR MEMBERS OF THE ARMED FORCES AND THEIR FAMILY MEMBERS

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

A member of the armed forces who is on active duty for a period of more than 30 days and whose domicile or permanent duty station is in Vermont, or his or her spouse or dependent children, will be charged tuition at the in-state rate.

The member of the armed forces or his or her family member eligible for in-state tuition under this paragraph will continue to be eligible for in-state tuition as long as the individual is continuously enrolled, even



if there is a subsequent change in the permanent duty station of the member to a location outside of the state of Vermont.

For purposes of this Rule for members of the armed forces the following definitions apply:

- “Armed Forces” means the Army, Navy, Air Force, Marine Corps, and Coast Guard.
- “Active duty for a period of more than 30 days” means active duty under a call or order that does not specify a period of 30 days or less.
- “Active duty” means full-time duty in the active military service of the United States and includes full-time training duty, annual training duty, and attendance, while in the active military service, at a school designated as a service school by law or by the Secretary of the military department concerned. Such term does not include full-time National Guard duty.

## RESIDENCY RULES FOR V.A. BENEFICIARIES

In compliance with section 702 of the Veterans Access, Choice, and Accountability Act of 2014, individuals will be charged tuition at the in-state rate if the individual:

- Is a veteran using educational assistance under either chapter 30 (Montgomery G.I. Bill-Active Duty Program) or chapter 33 (Post-9/11 G.I. Bill), of title 38 United States Code, who lives in Vermont and enrolls in the University within three years of discharge from a period of active duty service of ninety days or more;
- Is anyone using a veteran’s transferred Post-9/11 GI Bill benefits (38 U.S.C. § 3319), who lives in Vermont and enrolls in the University within three years of the transferor veteran’s discharge from a period of active duty service of ninety days or more; or
- Is anyone using benefits under the Marine Gunnery Sergeant John David Fry Scholarship (38 U.S.C. § 3311(b)(9)), who lives in Vermont and enrolls in the University within three years of the Service Member’s death in the line of duty following a period of active duty service of ninety days or more.

After the expiration of the three year period following discharge or death as described in 38 U.S.C. § 3679(c), a student who initially qualifies under this subsection will continue to be charged tuition at the in-state rate as long as he or she remains continuously enrolled (other than during regularly scheduled breaks between courses, semesters or terms) at the University, even if he/she enrolls in multiple programs.

## IN-STATE STATUS CLASSIFICATION DOCUMENTATION

1. The student must submit with the Application for In-State Status all relevant information.
2. The classification decision shall be made by the Residency Officer based upon information furnished by the student, information requested of the student, and other relevant information available consistent with University policies and procedures and legal guidelines.

3. Additional documents and/or verification may be requested.
4. The student’s failure to produce information requested may adversely affect the decision for in-state status.
5. A student or others furnishing information may request the deletion of irrelevant private data from documents.
6. A determination of in-state status is valid only if a student actually enrolls for the semester in question. If a student does not enroll, they must submit a new and timely Application for In-State Status for subsequent semesters.

## APPEAL OF IN-STATE STATUS CLASSIFICATION

The decision of the Residency Officer must be appealed in writing to the Residency Appellate Officer within thirty (30) calendar days of the date of the Residency Officer’s written decision. Appeal to the Residency Appellate Officer is the final internal appeal at UVM.

## IN-STATE STATUS RECLASSIFICATION

1. A student who does not qualify for in-state status classification may reapply for such classification once each semester by submitting the Application for In-State Status to the Residency Officer.
2. In-state status reclassification becomes effective for the semester 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 the end of March. Early Action candidates may also be denied admission and do not have the option of reapplying for entry to the same semester.

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

**Spring Admission for Early Action or Regular Decision applicants** Selected students who apply for fall admission but are offered the wait list may be offered admission beginning in 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 once the fall wait list has been cleared. Spring admission students may enroll in up to two courses in the fall. Students offered spring admission from the fall wait list 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.

UVM bachelor's degree programs offered for the 2015-16 academic year are:

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

For a full listing of 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 (HC) is based on prior academic performance and students are admitted in one of two ways. First-year students are invited to the HC based on the strength of their application for admission to the university; no additional application is required. Approximately 200 first-year students comprise each year's class. The Honors College recognizes and encourages academic excellence; it also welcomes applications for sophomore admission from students who were not in the HC in the first year, and are among the top performers as first-year students at UVM. Sophomore admission requires an application form, a 3.40 grade-point average at the end of the first year, a letter of recommendation from a UVM faculty member, and a brief essay. More than 100 sophomores are admitted annually. Students transferring into the first or second year

at UVM should contact the Honors College 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 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 mid-March. A \$495 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.

April 15 — Transfer candidates. Notification is on a rolling basis. Payment of a \$495 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, and no later than the first day of classes of the semester of enrollment.

International students should adhere to all application and payment deadlines listed above. Notification is on a rolling basis. International candidates must confirm their enrollment by early December for spring enrollment, and by July 1 for fall enrollment.

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

## COLLEGE CREDIT FOR HIGH SCHOOL CLASSES

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 ([http://www.uvm.edu/~rgweb/?Page=transferringcredit/t\\_2015\\_ap.html&SM=t\\_menu.html](http://www.uvm.edu/~rgweb/?Page=transferringcredit/t_2015_ap.html&SM=t_menu.html)) 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.

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

College-level courses taken through high school cooperatives, such as **Syracuse University Project Advance (SUPA)**, may transfer to UVM if they meet the standards set forth above by the Office of Transfer Affairs. Credit may also be obtained through a nationally standardized exam to demonstrate college-level subject mastery. Advanced Placement Examinations (AP), which can be taken while still in high school, or College Level Examination Placement (CLEP) would serve as recognized standardized exams. More information about UVM's CLEP policy is available on the Getting Credit for AP, IB, and CLEP (<http://www.uvm.edu/admissions/undergraduate/applying/?Page=other.html>) website. A third option is the UVM Credit by Exam. Contact the Office of Transfer Affairs for more information.

## ARTICULATION AGREEMENTS

### CCV/COLLEGE OF ARTS AND SCIENCES

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

- Students must complete a minimum of sixty transferable academic credits, thirty of those taken at CCV, pre-approved by UVM's Office of Transfer Affairs.
- Students must present a CCV grade-point average of 2.70 (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.

### CCV/COLLEGE OF EDUCATION AND SOCIAL SERVICES

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

programs in Art, Early Childhood Education, Elementary Education, and Secondary Education.

- Students must present a CCV grade-point average of 2.50 (on a 4.00 scale) or better.
- Candidates 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 completion of their courses at CCV.
- CCV transfer students will be held to policies that are in effect at the time they are admitted to UVM.

### CCV/DEPT. OF COMMUNICATION SCIENCES AND DISORDERS (COLLEGE OF NURSING AND HEALTH SCIENCES)

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

- Students must complete a minimum of sixty transferable academic credits, 30 of those taken at CCV, pre-approved by UVM's Office of Transfer Affairs.
- Students must present a CCV grade-point average of 2.70 (on a 4.00 scale) or better. The minimum grade to transfer credits is a C or higher.
- 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.

Co-advisement by the appropriate College of Nursing and Health Services and CCV advisors is essential.

A two-year A.A. Early Childhood Education or A.S. Human Services degree from CCV will be accepted as equivalent to a UVM minor for the purposes of the CSD minor requirement. The CSD major will be required to graduate.

Acceptance into the CSD major will be contingent upon capacity in the major. In the event that fewer slots are available within the major than students who are requesting to transfer into the major, CCV students will be given equal consideration with all non-UVM students who have requested to transfer into the major.

The ability for a student to complete a degree program at UVM within 2 years will be determined by how transfer courses apply to majors, minors and degree requirements at UVM. In addition, course capacities may impact a student's ability to complete the degree within 2 years.

- CCV associate degree students will be held to the policies that are in effect at the time they are admitted to UVM.



## CCV/RUBENSTEIN SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES

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, thirty of those taken at CCV, pre-approved by UVM's Office of Transfer Affairs.
- Students must present a CCV grade-point average of 2.70 (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.

**The Process Starts at CCV** Current or prospective CCV students interested in this option should review the minimum entrance requirements, as listed on the Admissions (<http://www.uvm.edu/admissions>) website.

**Admissions Process at UVM** CCV articulation candidates are encouraged to meet with the Coordinator of Transfer Admissions in the UVM Admissions office with questions about the admissions process under the UVM/CCV articulation agreement. Contact the Office of Transfer Affairs with questions about course transferability. Candidates are required to submit a Common Application, all supporting credentials and all financial aid forms by the stated UVM deadlines.

CCV students who apply under the CCV/UVM Articulation Agreement do not pay UVM's application fee. Articulation candidates should include a brief statement in the additional information section of the Common Application indicating they are applying under this option.

Candidates for UVM admission must submit official copies of all college course work attempted for credit, including the Community College of Vermont transcript. An official high school transcript is required.

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

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

For a current list of transferable CCV courses and UVM equivalents, contact a CCV advisor or the UVM Office of Transfer Affairs

at [transfer@uvm.edu](mailto:transfer@uvm.edu). Students may also check the Transfer Guide on the Office of the Registrar (<http://www.uvm.edu/~rgweb>) website.

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

CCV graduates interested in UVM programs outside the College of Arts and Sciences, the College of Education and Social Services, the Rubenstein School of Environment and Natural Resources and the Department of Communication Sciences and Disorders are encouraged to meet with the UVM Coordinator of Transfer Admissions to discuss their academic history and potential for transfer admission.

## SAINT MICHAEL'S COLLEGE/UVM ENGINEERING 3+2

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

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

1. Initial application to the program will be made to SMC.
2. Students will enroll in the program by declaring a pre-engineering major at the time of admission to SMC to permit them to complete all prerequisites in a reasonable time (see SMC catalogue for pre-engineering program).
3. Students may register for any of the options in the Civil, Environmental, Electrical or Mechanical Engineering, Engineering, or Engineering Management programs.
4. Students enrolling under this program will be considered SMC students throughout the duration of the program. Once admitted to UVM according to the policies of this Agreement, they also become UVM students for the remainder of the program.
5. For the first three years the host institution for students in the program will be SMC, and for the last two years the host institution will be UVM. Tuition and fees will be paid to the host institution according to its normal policies (including residence status, financial aid, etc.). Tuition for courses taken at the other institution will be paid by the host institution transferring funds based on an agreed upon amount per credit.
6. While students are enrolled at a host institution they will be independently responsible for applicable fees at the other institution according to the other institution's policies (at UVM this includes but is not limited to the admission fee and the comprehensive fee). Each institution will communicate the applicable fees for the upcoming academic year to the other institution (Dean of CEMS at UVM; VPAA at SMC) by June 1



or as soon as the fees are determined for the upcoming academic year, whichever is later.

7. Students in the program will make a formal application to UVM by April 15 in the spring semester of their third year at SMC and pay the application fee.
8. To become a matriculated student at UVM, St. Michael's articulation students must pay an acceptance fee by the date stipulated in the admission letter.
9. Students will matriculate at UVM and will be accepted to the appropriate engineering program at UVM once they have met the following requirements: (a) completion of at least sixty credits at SMC with appropriate courses, in good standing; (b) completion of Part 1 of the required pre-engineering courses at SMC, as specified in the Agreement (see SMC catalogue); and (c) completion of the credits of UVM engineering courses, including the following list of courses, with a minimum GPA of 2.30 in these courses:

<b>BS Engineering</b>		
ENGR 002	Graphical Communication	2
EE 003	Linear Circuit Analysis I	3
or EE 100	Electrical Engr Concepts	
CE 001	Statics	3
ME 040	Thermodynamics	3
CS 020	Programming for Engineers	3
<b>Civil Engineering</b>		
CE 001	Statics	3
CE 010	Geomatics	4
CE 132	SU: Environmental Systems	3
CS 020	Programming for Engineers	3
ENGR 002	Graphical Communication	2
ME 012	Dynamics	3
<b>Environmental Engineering</b>		
CE 001	Statics	3
CE 010	Geomatics	4
CE 132	SU: Environmental Systems	3
CHEM 032	General Chemistry 2	4
CS 020	Programming for Engineers	3
ENGR 002	Graphical Communication	2
ME 012	Dynamics	3
<b>Electrical Engineering</b>		
EE 003	Linear Circuit Analysis I	3
EE 004	Linear Circuit Analysis II	3

EE 081	Linear Circuits Laboratory I	2
EE 082	Linear Circuits Laboratory II	2
EE 131	Fundamentals of Digital Design	3
ENGR 002	Graphical Communication	2
CS 020	Programming for Engineers	3
<b>Mechanical Engineering</b>		
ME 012	Dynamics	3
ME 014	Mechanics of Solids	3
ME 040	Thermodynamics	3
ME 042	Applied Thermodynamics	3
ME 081	Mech Engr Shop Experience	1
ME 083	Computational Mech Engr Lab	1
ENGR 002	Graphical Communication	2
CE 001	Statics	3
CS 020	Programming for Engineers	3
<b>Engineering Management</b>		
CE option:		18
ENGR 002	Graphical Communication	
CE 001	Statics	
CE 010	Geomatics	
CE 132	SU: Environmental Systems	
CS 020	Programming for Engineers	
ME 012	Dynamics	
EE option:		18
ENGR 002	Graphical Communication	
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 131	Fundamentals of Digital Design	
CS 020	Programming for Engineers	
ME option:		17
ENGR 002	Graphical Communication	
CE 001	Statics	
ME 012	Dynamics	
ME 040	Thermodynamics	

ME 081	Mech Engr Shop Experience	
ME 083	Computational Mech Engr Lab	
CS 020	Programming for Engineers	

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

## VERMONT TECHNICAL COLLEGE/UVM ENGINEERING

Vermont Technical College and the University of Vermont have an articulation agreement in engineering. This agreement provides a structured sequence of courses at VTC that, if completed successfully, would guarantee acceptance as a transfer student in an engineering discipline in UVM's College of Engineering and Mathematical Sciences. Upon successful completion of the Associate in Engineering Technology degree and with the clear recommendation of VTC's academic dean or his/her assignee, the student would then spend a minimum of two years at the University of Vermont. While studying at UVM, the student will complete the major course requirements that will lead to a baccalaureate degree from UVM. Students must earn a grade of "C" or better in any VTC course for the course to be accepted for transfer credit. Students presenting with less than a 3.00 grade-point average will be considered on a case-by-case basis. UVM will guarantee the acceptance of VTC graduates who have a grade-point average of 3.00 or better from the following programs:

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

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

to register for additional courses. This agreement will be reviewed every third academic year, starting in 2006-2007, in order to modify the program requirements as necessary.

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

For more information, please contact UVM's College of Engineering and Mathematical Sciences Student Services office at (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 University of Vermont (UVM) and Vermont Law School (VLS) offer a joint program, The UVM-VLS 3+2 Program, that 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 either five or six years. The program is available to undergraduate students enrolled in certain 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 or three years of approved coursework for the J.D. degree from VLS. The credits from the first year at VLS are transferred back to UVM to allow completion of the undergraduate degree from UVM. Qualified students will initially enroll in a Bachelor Degree program at UVM in approved majors that will meet the requirements set forth in this Agreement and will be enrolled in residence as full-time students at UVM for three years. Students who meet the eligibility requirements of The UVM-VLS 3+2 Program shall then be admitted to VLS and will be enrolled in residence as full-time students at VLS for two years. Students who meet all requirements of The UVM-VLS 3+2 Program will be awarded a Bachelor's Degree from UVM and a JD Degree from VLS.

**Admission after year one at UVM:** Candidates may seek admission to the Program at the conclusion of their first year of study at UVM.

Candidates for regular admission must have completed a minimum of 30 credit hours in two semesters of full-time study with a minimum GPA of 3.4. 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. Candidates must be enrolled in a major that has been approved by UVM for inclusion in this program in order to be eligible for consideration to this Program. Candidates must have a strong recommendation from one full-time UVM faculty member. Candidates must also complete an essay detailing the reasons for their interest in the study of law and in participating in the Program. The approved majors for this program in the 2016-17 school year are found at 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)).

**Review Process and Acceptance of Participants:** A Review Committee consisting of a minimum of 2 full-time faculty of UVM, a pre-law advisor, and two designees from VLS shall review applicant materials and select the best-qualified candidates to admit to the Program. Each year, UVM and VLS will identify the number of students eligible for acceptance into the Program.

#### **Application Process:**

Students should submit the application by mid-April at the end of their first year. The application process includes:

- Application form (available beginning March 1)
- 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/ 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 COLLEGE, 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 College, 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 optional for transfer candidates.

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

For transfer candidates who have earned fewer than twenty-one college-level semester credits, the quality of the high school record and course rigor 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 requires transfer applicants 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 GPA of 2.50 or better. AP credits are acceptable. Transfer applicants who do not meet this requirement will only be considered for their second major choice outside the Grossman School of Business.

Upper-level business transfer credit must come from an AACSB-accredited institution to be considered for equivalent transfer credit.

### College of Engineering and Mathematical Sciences

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

### Honors College

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

## TRANSFER CREDIT POLICY

Students seeking to transfer academic credit may do so only for courses that are taken at a regionally accredited degree granting

institution and are comparable in content, nature, and intensity to courses taught in the corresponding discipline at the University of Vermont. Credit is not given for transfer courses with grades lower than C. To ensure transferability of courses to be taken elsewhere, degree students must secure prior approval for each course in writing from the Office of Transfer Affairs. Questions regarding credit transfer should be directed to the Office of Transfer Affairs, 339 Waterman, (802) 656-0867 or email: [transfer@uvm.edu](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.

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

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.

## TRANSFER STUDENT DIVERSITY REQUIREMENT

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

A detailed syllabus of the transferred course in question. Additional supporting documentation may be requested if the committee deems it necessary.

An essay of approximately one page that explicitly states which requirement (D1 or D2) the transferred course is attempting to fulfill and how the transferred course meets the diversity criteria, as outlined for each category.

Information about what is required to be addressed in each category can be found on the Office of the Registrar ([http://www.uvm.edu/~rgweb/?Page=transferringcredit/t\\_diversity.html&SM=t\\_menu.html](http://www.uvm.edu/~rgweb/?Page=transferringcredit/t_diversity.html&SM=t_menu.html)) website.

Further questions regarding transfer credit should be addressed to:



University of Vermont  
Office of Transfer Affairs  
360 Waterman Building  
Burlington, VT 05405-0160  
(802) 656-0867

or email: [transfer@uvm.edu](mailto:transfer@uvm.edu).

## 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. Information regarding certified translation services can be obtained at the applicant's embassy. All arrangements for translation must be made directly with the translation option of the applicant's choice.

**Standardized Tests:** Students applying as first-year candidates must present official scores from either the SAT or the ACT (with writing). Students who have attended another post secondary institution and who are applying as transfer students are not required to submit SAT or ACT scores. For information about test dates and sites:

For SAT exams, visit <http://www.collegeboard.org>

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

**English Proficiency:** International students for whom English is not their first language must demonstrate English proficiency. The University of Vermont requires a minimum iBT score of 90 (577 paper-based TOEFL) or a minimum band IELTS scores of 6.5. Official score reports must be sent from the testing agency to UVM. For TOEFL, visit <http://www.ets.org>. For IELTS, go to <http://www.ielts.org>. If an international student has attended a U.S. institution for three or more years, or attends an international or American 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 TOEFL or IELTS scores on a case-by-case basis.

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

**Form I-20:** International students requiring an F-1 student visa to begin studies at the University of Vermont must complete an I-20 request form and submit it to UVM's Office of International

Education. The I-20 form can only be issued when a student has been formally admitted to UVM and has provided proof of sufficient financial support to cover educational expenses for one full academic year. The student must provide documentation for all sources of financial support. Financial documents must be submitted in English, state an exact currency amount (preferably in U.S. dollars) and be less than six months old at the point of submission for I-20 issuance.

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

### TRANSFER CREDIT FOR INTERNATIONAL STUDENTS

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

### UVM GLOBAL GATEWAY PROGRAM

The University of Vermont offers a pathway program for academically prepared international students, combining English Language coursework with UVM undergraduate courses, and leading to matriculation into a degree program upon successful completion. The one-term Global Gateway Program (GGP) is designed for students with a higher level of English proficiency and who will matriculate into the second semester of a degree program with 14-15 credits upon completion of the GGP, assuming that they meet all program standards. The two-term Global Gateway Program (GGP) is designed to prepare students for the progression to the second year of degree status with 28-30 credits, assuming that they meet all program standards. The three-term pathway program sequence is designed to begin with a one-term intensive English Language program followed by the two-term 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. Students seeking admission to the one-term GGP should have an iBT score of 80-89, an IELTS of 6.5 or a Password Test score of 6.5 on both sections. Students seeking admission to the two-term GGP should have an iBT score of 65-79, an IELTS of 6.0 or a Password Test score of 6.0 on both sections. Students seeking admission to the three-term GGP will have a iBT score of

55-64, an IELTS of 5.5 or a Password Test of 5.5 on both sections. Eligible students can also enroll in the Embassy English program and successfully complete the program to demonstrate English language proficiency.

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 3.2, 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>. For more information, contact the UVM Global Gateway Program Office at [naadmissions@studygroup.com](mailto:naadmissions@studygroup.com).

## US PATHWAY PROGRAM

The US Pathway Program (USPP) is a partnership between the Consortium of North American Universities (CNAU), comprising Baylor University, DePaul University, Marist College, Northeastern University, and the University of Vermont, and global education service provider Kaplan International. The program provides a pathway for talented Chinese and Nigerian students to pursue undergraduate studies in the U.S. at one of the CNAU partner institutions.

USPP students begin the program with a full year of college-level course work in China or in Nigeria. Students who select UVM as their destination institution then enter a ten-week Summer Bridge program on the Northeastern University campus. Successful completion of the Summer Bridge program will lead to matriculation in the fall semester with second-year status. Students are offered conditional admission to UVM on the basis of their performance in the credit-bearing courses taken during the fall and spring semesters in China or Nigeria with at least a 3.0 cumulative grade-point average. Final admission is granted on the basis of grades earned in the Northeastern Summer Bridge program. USPP students must meet the minimum entrance requirements for the college or school they choose. Students who matriculate into UVM through the US Pathway Program are considered for merit-based scholarship assistance. For more details, visit the following website: <http://www.uvm.edu/sfs/scholarships>.

## INTERNATIONAL HORIZONS COLLEGE

Qualified students enrolled at the International Horizons College (IHC) in the United Arab Emirates can transfer to UVM through the arrangements established in the agreement of collaboration between the two institutions. Students who successfully complete the full IHC program with a cumulative GPA of 2.7 or above, with no course grade below 2.0, will be granted transfer admission to the University of Vermont. (Some programs at UVM may have specific curricular requirements or be closed to transfer admissions. IHC

student services staff and/or the student(s) should communicate with Undergraduate Admissions prior to applying.) The student applying for transfer credit must:

1. apply for transfer admission via the Common Application and provide an official IHC transcript, an official secondary school transcript;
2. provide certification of financial resources (non-U.S. citizens);
3. pay the application fee.

IHC students who apply for admission with less than 60 credit hours in the IHC may do so under the following parameters:

1. IHC students with 12 or more college credits are eligible for consideration as transfer students;
2. minimum grade point average of 2.7 on a US 4.0 scale from IHC courses;
3. only courses in which an IHC student has received a grade of C or higher are considered toward eligibility for transfer;
4. demonstration of English proficiency meeting UVM minimum entrance requirements (TOEFL or IELTS);
5. demonstration that UVM minimum entrance curricular requirements have been met;
6. certification of the student's financial resources;
7. the University will evaluate all IHC courses for which transfer credit is sought and determine whether transfer credit applies for that course.

For more information about the IHC agreement with the University of Vermont, contact the International Admissions staff at [admissions@uvm.edu](mailto:admissions@uvm.edu) or at the IHC website at <http://www.ihc-dubai.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&bannerId=clep>) website.

Nontraditional applicants who completed college-level courses during high school should refer to the "College Credit for High School Classes" (p. 412) section of this catalogue.

## **REAPPLYING TO THE UNIVERSITY AS AN UNDERGRADUATE**

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.

## **READMISSION TO UVM**

A former degree student at the University of Vermont who withdrew for any reason must meet with the student services office staff of the student's former UVM college or school to request re-entry. The admissions office does not readmit former degree students.

## FINANCIAL INFORMATION

### TUITION AND FEES

The student expenses outlined in the following paragraphs are anticipated charges for the 2016-2017 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 2016 board meeting please visit the Student Financial Services (<http://catalogue.uvm.edu/undergraduate/financialinformation/%20http://www.uvm.edu/sfs>) website.

#### Acceptance Fee

To reserve a space in the class or semester admitted, students must submit an acceptance fee of \$495 using the Student/Faculty Information System (<http://www.uvm.edu/admissions/appstatus>) online (preferred payment method), or send a check, payable to the University of Vermont, to the Office of Admissions. See the Paying Your Acceptance Fee at UVM ([http://univ-vermont1.custhelp.com/app/answers/detail/a\\_id/98](http://univ-vermont1.custhelp.com/app/answers/detail/a_id/98)) website for more information. Payment of the acceptance fee is required prior to the start of the semester of enrollment, and no later than the first day of classes of the semester of enrollment.

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

#### Estimated Yearly Expenses

**Estimated costs are subject to change until approved by the Board of Trustees in May 2016.**

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	\$15,096	\$38,160
Average Housing and Meals	\$11,578	\$11,578
Comprehensive Student Fee	\$2,000	\$2,000
Inter-Residence Association Fee	\$30	\$30
Student Government Association Fee	\$174	\$174
Textbooks and Supplies (Estimated)	\$1,200	\$1,200
Optional Student Health Insurance Plan ('15 - '16 cost)	\$2,822 <sup>1</sup>	\$2,822 <sup>1</sup>

<sup>1</sup> This reflects the UVM Student Health Insurance Plan for the 2015-2016 school year. For 2016-2017 premium information, visit the Health Fee, Insurance and Billing (<http://www.uvm.edu/~chwb/insurance>) website.

#### Tuition

**Estimated costs are subject to change until approved by the Board of Trustees in May 2016.**

**In-State Students:** \$629 per credit through 11.5 credits. From twelve-eighteen credits — \$7,548 per semester plus \$629 per credit for each credit in excess of eighteen credits.

**Out-of-State Students:** \$1,590 per credit through 11.5 credits. From twelve-eighteen credits — \$19,080 per semester plus \$1,590 per credit for each credit in excess of eighteen credits.

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

#### Housing Charges

**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.

For information related to housing, visit the ResLife (<http://reslife.uvm.edu>) website.

For information related to meal plans, visit the University Dining Services (<https://uvm dining.sodexomyway.com/dining-plans>) website.

#### Comprehensive Student Fee

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

#### Health Insurance

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

For additional information please visit Health Fee, Insurance and Billing (<http://www.uvm.edu/health/insurance>) website.

#### Inter-Residence Association Fee

A per semester fee is charged to each resident to be used for activities within the residence hall system. For more specific information related to fee amount, please refer to the ResLife ([https://reslife.uvm.edu/content/paying\\_for\\_housing/interresidence\\_association\\_fee](https://reslife.uvm.edu/content/paying_for_housing/interresidence_association_fee)) website.

#### Student Government Association Fee

Undergraduate degree students enrolled in four or more credits are charged the Student Government Fee each semester. This fee



is allocated by the Student Government Association toward the support of student organizations and student activities. For students enrolled in twelve or more credits in a semester, this fee is included in the Comprehensive Student Fee. For additional information on specific fee amounts, please visit the Tuition and Fees website for Student Financial Services (<http://www.uvm.edu/~stdfinsv/?Page=undergrad-tuition.html&SM=tuitionsubmenu.html>).

### 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

### ADDITIONAL FEES FOR SPECIAL COURSES

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

### 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 \$25 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 \$375. These fees are included with the usual tuition bills.

## DIAGNOSTIC EVALUATION

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

## FEES FOR COURSES IN MUSIC PERFORMANCE STUDY

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

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

## LOCKER-TOWEL FEE

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

## RUBENSTEIN SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES SUMMER FIELD COURSES

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

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

## 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 (<http://www.uvm.edu/business/?Page=info/technology.html>) 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.

## PART-TIME STUDENT FEES

**Estimated costs are subject to change until approved by the Board of Trustees in May 2016**

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

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

Credits Enrolled/Semester	Fee
5	\$423
6	\$472
7	\$531
8	\$590
9 to 11.5	\$647

## PAYMENTS

By registering for courses, students are entering into a financial arrangement with UVM and accept responsibility for charges billed to their UVM account. The online registration system will generate charges based on enrolled credits. All tuition, fees, and housing and meal charges are payable in full upon billing. 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.

Students who have not satisfactorily completed financial arrangements by the announced due date will be assessed a late payment fee and a hold preventing access to registration, grades, and transcripts and may have their enrollment cancelled. 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.

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.

## BUDGETED PAYMENT

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

## LATE PAYMENT FEE

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

## REFUND AND BILL ADJUSTMENT POLICIES

### REFUNDING ACCEPTANCE FEE AND ADVANCE PAYMENTS FOR NEW STUDENTS

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

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

### 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 (<http://www.uvm.edu/policies/student/billadjust.pdf>) web page.

## FINANCIAL AID AND SCHOLARSHIPS

The university has many programs to help finance a UVM education. These include financial aid awards for students with a demonstrated need for financial assistance and scholarship awards for students whose academic achievements and other accomplishments and qualities promise to enrich the university in exceptional ways. For more information, visit the Student Financial Services (<http://www.uvm.edu/sfs>) website.

### 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 a permanent resident. To be considered for aid, a student must also be enrolled at least half-time (six credits) in a degree program. Audited credits or Credits by Exam cannot be considered as part of the credits in determining financial aid eligibility. Students enrolling as non-degree (through Continuing Education) may be eligible for limited financial aid. Visit the Student Financial Services (<http://www.uvm.edu/sfs>) website for more information.

### FINANCIAL AID APPLICATION PROCEDURES

#### FAFSA and VSAC

Incoming first-year students who wish to apply for aid may do so by submitting the free application found on the Federal Student Aid (<http://www.fafsa.ed.gov>) website after January 1 and before February 10th and by providing any verification information requested by UVM Student Financial Services. Incoming transfer students and returning UVM students should submit their FAFSA online between January 1st and March 1st. Applications submitted after these dates will be processed in chronological order, subject to the availability of funds. In addition to following the procedures listed above, all students should apply to their state financial aid grant agency for assistance. Vermont residents should apply for a Vermont grant online on the Vermont Student Assistance Corporation (VSAC) (<http://services.vsac.org/wps/wcm/connect/vsac/VSAC/Pay+for+College/Funding+Sources/Grants>) website as soon as possible, as funds are limited. Residents of other states should contact their state grant agency for more information. To learn more about financial aid available from your home state visit [ed.gov/sgt](http://ed.gov/sgt), and click on the link for your state.

### 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 Stafford Loans. To be considered, however, a student must APPLY for aid. After a determination of eligibility has been made by Student Financial Services, students will be notified if they qualify for "need-based" aid or for a Federal Direct Unsubsidized Stafford Loan.

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

### SATISFACTORY ACADEMIC PROGRESS STANDARD FOR FINANCIAL AID RECIPIENTS

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 ([http://www.uvm.edu/~stdfinsv/?Page=fa\\_handbook\\_current.html#SAP](http://www.uvm.edu/~stdfinsv/?Page=fa_handbook_current.html#SAP)) 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. For more information, including important deadlines visit here (<http://www.uvm.edu/~stdfinsv/?Page=veterans.html>).

Student veterans may also go directly to the Federal Student Aid (<http://www.fafsa.ed.gov>) website to apply. Students involved in the Veterans program should contact the university in the event of any change in credit load, dependency status, address, or major. The phone number is (802) 656-0581.

### 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 are offered exclusively on the basis of academic achievements and potential for success at UVM. For more information, visit the Scholarship Information (<http://www.uvm.edu/~stdfinsv/?Page=scholarships.html>).

[www.uvm.edu/sfs/scholarships](http://www.uvm.edu/sfs/scholarships)) website. 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 earned at least a 3.10 cumulative grade-point average in all prior college work. For students who earned less than twenty-one college credits, both the college and high school records are reviewed to determine eligibility. Dean's Merit Scholars receive a merit scholarship for four years (eight semesters) or until graduation (whichever comes first) providing that they maintain a cumulative 2.8 grade-point average at the end of the first academic year and a 3.0 in subsequent years, and full-time enrollment, and continue to make satisfactory academic progress toward the completion of their degree requirements. Award amounts are \$3,000/year for Vermont residents, and \$5,000/year for out-of-state residents.

### Green and Gold Scholars Program

Recognizes the highest-achieving Vermont resident at each eligible high school with 4-year, full tuition scholarships, currently valued at over \$58,000. At the end of the academic year, the principal of each school submits a nominee who has completed the 11<sup>th</sup> grade. Selection criteria will be determined by each high school, and should not be limited to standardized testing. Green and Gold nominees are awarded four-year full tuition scholarships upon admission to the university. The scholarships are renewable annually providing that the recipient maintains a minimum cumulative grade point average of a 2.8 in the first year and a 3.0 in subsequent years along with full-time enrollment.

### International Scholarships

Several scholarships are available for qualified international students who are admitted to the University of Vermont, including US Pathway Program (USPP) and UVM Global Gateway (GGP) students. Applicants for admission are automatically considered for these scholarships based on their application materials. Eligibility for the scholarships is based on academic merit. More information about available international scholarships is available on the Merit Scholarships for International Undergraduate Students ([http://www.uvm.edu/~stdfinsv/?Page=international\\_scholars.html&SM=scholarshipmenu.html](http://www.uvm.edu/~stdfinsv/?Page=international_scholars.html&SM=scholarshipmenu.html)) web page.

### Justin Morrill Scholarship

This scholarship is awarded to Vermont residents of strong academic achievement who typically rank within the top 25% of their graduating high school class and have a 1650 or higher SAT CR/M/W or 24 or higher ACT composite. The award amount is \$2,000 annually for four years (eight semesters). A minimum cumulative 2.8 grade-point average in the first year and a 3.0 in subsequent years, and enrollment in twelve or more credits per semester is required for renewal.

### Patrick Scholarship

The Patrick Scholarship is awarded to academically deserving Vermonters in the amount of \$4,000 per year for four years. This

scholarship is awarded to Vermont residents who typically rank within the top 25% of their graduating high school class and have an 1800 or higher SAT CR/M/W or 26 or higher ACT composite. A minimum cumulative 2.8 grade-point average in the first year and a 3.0 in subsequent years, and enrollment in twelve 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 four years (eight semesters) or until graduation (whichever comes first) providing they maintain a minimum cumulative 2.8 grade-point average in the first year and a 3.0 in subsequent years, and full-time enrollment, and continue to make satisfactory progress toward the completion of their degree requirements. Scholarship recipients are awarded a four year (eight semester) merit scholarship, ranging from \$15,000 to \$17,000 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 four years (eight semesters) or until graduation (whichever comes first) providing they maintain a minimum cumulative 2.8 grade-point average in the first year and a 3.0 in subsequent years, and full-time enrollment. Scholarship values range from \$6,000-\$12,000 per year.

### UVM Community Service Scholarship

Vermont and out-of-state residents who have demonstrated an exceptional commitment to community and public service may apply for the UVM Community Service Scholarship. Community Service Scholars are awarded \$2,500 annually. Recipients must maintain at least a 2.50 cumulative grade-point average, enroll in 12 or more credits per semester, perform 80 hours of community service annually while at the university, and enroll in two one-credit seminars across each of the first and second academic years. First-year Community Service Scholars live and participate in the Dewey House for Community Engagement. Community Service Scholars will be selected by the UVM Community Service Scholarship Program committee.

### Vermont Scholars

The Vermont Scholars award is awarded to outstanding Vermont high school students in the amount of \$6,000 per year for four years. This scholarship is awarded to Vermont students who generally rank in the top 15% percent of their graduating class and have an 1800 or higher SAT CR/M/W or 26 or higher ACT composite. Recipients are selected based upon review of the admission application. A minimum cumulative 2.8 grade-point average in the first year and a 3.0 in subsequent years, and enrollment in twelve 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 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/sfs/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://services.vsac.org/wps/wcm/connect/vsac/VSAC>) 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 the UVM registrar's office and to visit the Information for Veterans (<http://www.uvm.edu/sfs/veterans>) website regarding G.I. Bill benefits for education, including the Yellow Ribbon Program.
- Many organizations within home communities offer a wide range of scholarships to needy and deserving students. Check with schools and communities for these opportunities.

## 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 Degree Programs (p. 428)

Continuing and Distance Education (p. 428)

Exchange Programs with New England State Universities (p. 429)

Living/Learning Center (p. 429)

Military Studies (p. 430)

Pre-Professional Options for Undergraduate Students (p. 430)

Research Opportunities for Undergraduate Students (p. 431)

Residential Learning Communities (p. 431)

Study Abroad (p. 431)

## ACCELERATED 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. This option is available for admission to the following graduate programs:

- Accountancy
- Animal Science
- Biochemistry
- Biology
- Biostatistics
- Chemistry
- Civil Engineering
- Complex Systems and Data Science
- Computer Science
- Counseling
- Curriculum and Instruction
- Electrical Engineering
- Environmental Engineering
- Food Systems
- History
- Materials Science
- Mathematics
- Mechanical Engineering
- Pharmacology
- Physics
- Public Administration
- Public Health
- Statistics

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

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

## 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, online, and at designated off-campus locations (regionally, nationally, and internationally), 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, more than four hundred credit courses are offered at times most convenient for non-degree students. Early morning, late afternoon, evening, weekend and online courses provide greater access for the almost 3,000 non-degree students who enroll annually at the University of Vermont. 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.

## LIVING/LEARNING CENTER

For over 40 years, the Living/Learning Center has served as an academic resource whose mission is to create an environment for students to integrate their academic studies and their residential experiences. To expand the intellectual horizons of students, the center encourages faculty, staff, and student programs that foster innovative and interdisciplinary academic experiences that bring the intellectual life of the university in close alliance with the students' lives outside the classroom. Every program sponsors educational activities to which the entire UVM community is invited, making the Living/Learning Center a focus of campus cultural, intellectual and artistic activity. An evening's activities might include international tea tasting, conversational German, artistic performances, gallery exhibits, faculty lectures, or a presentation by one of the center's programs. In addition to being an academic and student support unit, the Living/Learning Center is also a residence, housing 576 students, as well as faculty and administrative offices, including ACCESS, Career Services, the Office of International Education, and the Learning Cooperative.

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

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

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

## MILITARY STUDIES

### ARMY RESERVE OFFICER'S TRAINING CORPS (ROTC) PROGRAM

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

#### Department Course Offerings

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

#### Interdepartmental Course Offerings

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

### ARMY ROTC SCHOLARSHIPS AND FINANCIAL AID

Scholarships: Two, three, and four year Army ROTC scholarships paying full tuition, full fees, and \$1,200 a year for books are available to qualified applicants. Application for the four-year Army ROTC scholarship is made during the high school senior year by applying on the GoArmy website. All other Army ROTC scholarship applications are made through the department.

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

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

The Department of Military Studies is located at Adams House, 601 Main Street, (802) 656-2966. 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 Options are offered to students of all majors. Advising is coordinated through the Career Center's Pre-health advisor who works with a faculty Pre-health Advisory Committee. Students are strongly encouraged to consult the Pre-health advisor early and throughout their college career. Formal advising begins with an Introductory Information Session; these are held regularly throughout the year, and are posted online. For more information visit the graduate and professional school section of the Career (<http://www.uvm.edu/career>) Center's website and join the pre-health mailing list.

Pre-Law preparation is available to students of any major and is coordinated through Career Center's Pre-law advisor and several faculty members. For more information visit the graduate and professional school section of the Career (<http://www.uvm.edu/career>) Center's 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 garner academic credit. They have an opportunity to present their research papers at the annual Student Research Conference held every April.

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

Undergraduate research projects may be funded or supported by structured programs. The Office of Undergraduate Research directs the Pre-medical Enhancement Program (PEP), Summer Undergraduate Research Fellowships (SURF), Simon Family Fellowships, Research Minigrants, Office of the Chief Medical Examiner Internships, among others.

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

## RESIDENTIAL LEARNING COMMUNITIES

Residential Learning Communities (RLCs) at the University of Vermont are designed to 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 true community, a community that is also tied to the greater world beyond the confines of the university. In addition, students, faculty, and staff are given the opportunity to interact outside the classroom, the lab, or the office, thereby encouraging the pursuit of knowledge as a lifetime activity.

Five Residential Learning Communities are offered, including: The Arts Initiative; The Dewey House for Community Engagement; The Global Village; GreenHouse; and Health & Wellness.

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.

Admission to RLCs is by application, and complete information about these dynamic communities can be found on the RLC Website: <http://www.uvm.edu/~rlc>.

## STUDY ABROAD

The Office of International Education (OIE), located in B162 of the Living/Learning Center, is an advising and resource center for students interested in a year, semester, short-term or summer study abroad experience. Study abroad advisors maintain extensive information about study abroad 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 ([http://www.uvm.edu/oie/?Page=study/studyabroad.php&SM=sa\\_menu.html](http://www.uvm.edu/oie/?Page=study/studyabroad.php&SM=sa_menu.html)) 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, *Universitäs Viridis Montis*, the University of the Green Mountains. Ira Allen, brother of Revolutionary War hero Ethan Allen and a central figure in Vermont's early economic and social development, led the drive to charter a state university and locate it in Burlington and is credited with founding the university. The new university's charter explicitly declared support for freedom of religion – making it the nation's first institution of higher learning to take such a public stance. This tradition of openness continued in 1871, when the university defied custom and admitted two women as students. Four years later, the university's Phi Beta Kappa chapter became the first honor society in the nation to admit women; two years after that, in 1877, the society became the nation's first to admit African American students.

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

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

Some of 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 100 undergraduate majors, 54 master's programs, and 22 doctoral degrees including a medical degree.

In the Fall of 2015, the university enrolled approximately 10,080 undergraduate students, 1,360 graduate students, and 450 medical students. The university's academic units include: the Colleges of Agriculture and Life Sciences; Arts and Sciences; Education and Social Services; Engineering and Mathematical Sciences; Medicine; Nursing and Health Sciences; the Rubenstein School of Environment and Natural Resources; the 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 70 institutions in the U.S., out of over 4,300, that combine a "high research" profile with a "high undergraduate" enrollment mix. The university employs over 3,800 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

Peter Shumlin	Governor, ex officio
E. Thomas Sullivan	President, ex officio

### Term Ending March 2017

Bill Botzow	Bennington, Vermont
David R. Brandt	Underhill, Vermont
Frank J. Cioffi	St. Albans, Vermont
Joan G. Lenes	Shelburne, Vermont
Kesha K. Ram	Burlington, Vermont

### Term Ending March 2018

Robert P. Brennan, Jr.	Chappaqua, New York
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Richard L. Gamelli	New London, New Hampshire
Soraiya Thura	Falls Church, Virginia
Lisa M. Ventriss	South Burlington, Vermont

### Term Ending March 2019

Carolyn K. Dwyer	Montpelier, Vermont
Anne T. O'Brien	Richmond, Vermont
Donna G. Sweaney	Windsor, Vermont
Jeff Wilson	Manchester Center, Vermont

### Term Ending March 2020

Cynthia L. Barnhart	Wellesley, Massachusetts
Ron E. Lumbra	Rye, New York
Donald H. McCree	Rye, New York

### Term Ending March 2021

Bernard C. Juskievicz	Cambridge, 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
David A. Daigle	Greenwich, Connecticut

## ADMINISTRATION

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Rosowsky, David V., Ph.D.	Senior Vice President and Provost
Bazluke, Francine T., J.D.	Vice President for Legal Affairs and General Counsel
Derr, Gary, Ed.D.	Vice President for Executive Operations
Gustafson, Thomas J., Ed.D.	Vice President for University Relations and Administration
Heading-Grant, Wanda, Ed.D.	Vice President for Human Resources, Diversity and Multicultural Affairs
Cate, Richard, MPA	Vice President for Finance and Treasurer
Bundy III, Richard, MBA	CEO and President of the UVM Foundation
Stacey Kostell, MA	Vice President for Enrollment Management
Richard Galbraith, M.D. Ph.D.	Vice President for Research
Saule, Mara, MLS	Chief Information Officer and Dean, Libraries and Learning Resources
Stevens, Annie, Ph.D.	Vice Provost for Student Affairs
Nestor, David A., Ed.D.	Dean of Students



Belliveau, Cynthia, Ed.D.	Dean, Continuing and Distance Education
Garcia, Luis, Ph.D.	Dean, College of Engineering and Mathematical Sciences
Morin, Frederick C. III, M.D.	Dean, College of Medicine
Lantagne, Douglas O., Ph.D.	Dean, Extension System
Falls, William A., Ph.D.	Dean, College of Arts and Sciences
Thomas, Scott, Ph.D.	Dean, College of Education and Social Services
Prelock, Patricia A., Ph.D.	Dean, College of Nursing and Health Sciences
Schnell, Lisa, Ph.D.	Interim Dean, Honors College
Sharma, Sanjay Ph.D	Dean, Grossman School of Business
Vogelmann, Thomas C., Ph.D.	Dean, College of Agriculture and Life Sciences
Matthews, Nancy E., Ph.D.	Dean, Rubenstein School of the Environment and Natural Resources
Forehand, Cynthia, Ph.D.	Dean, Graduate College

## UNIVERSITY PROFESSORSHIPS

- The **Williams Professorship of Mathematics**, 1853, honors Azarias Williams of Concord, Vermont, merchant and judge, native of Sheffield, England, who in 1839 deeded to the University extensive land holdings.
- The **Marsh Professorship of Intellectual and Moral Philosophy** was established in 1867 to honor James Marsh, distinguished UVM president and philosopher of the 1830's. Dr. Terence D. Cuneo is the Marsh Professor of Intellectual and Moral Philosophy.
- The **Pomeroy Professorship of Chemistry** was established in 1878 by John N. Pomeroy, A.B., 1809, who lectured on chemistry and served as trustee of the University. Dr. Dwight E. Matthews is the Pomeroy Professor of Chemistry.
- The **Howard Professorship of Natural History and Zoology** was established in 1881 by John Purple Howard, a generous benefactor of the University. Dr. C. William Kilpatrick is the Howard Professor.
- The **Flint Professorship of Mathematics, Natural or Technic Science** was established in 1895 by a bequest from Edwin Flint. Dr. Chris Danforth 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, A.B., 1861, LL.D., 1897, who as a trustee of the University proposed the teaching of Latin, modern languages, history, and other subjects. Dr. William A. Gibson is the Converse Professor.
- The **Samuel W. Thayer Professorship of Neurological Sciences** was established in 1910 to honor Dr. Samuel White Thayer, Dean of the College of Medicine from 1854-71 and 1880-82, from contributions made by alumni of the College of Medicine. Dr. Gary Mawe is the Thayer Professor.
- The **John G. McCullough Professorship in Political Science** was established in 1926 through grants made by Gov. and Mrs. John G. McCullough. Dr. John P. Burke is the McCullough Professor.
- The **Perkins Professorship of Zoology** was established in 1931 to honor George H. Perkins, a teacher of science and dean of the College of Arts and Sciences. Dr. Judith L. Van Houten is the Perkins Professor.
- The **Elliot W. Shipman Professorship of Ophthalmology** was established in 1934 by a bequest from Dr. Elliot W. Shipman, M.D., 1885. Brian Y. Kim, M.D. is the Elliot W. Shipman Professor.
- The **Lyman-Roberts Professorship of Classical Languages and Literature** was established in 1941 to honor Robert Roberts, mayor of Burlington in the 1890's and a University trustee from 1895-1939. Dr. Robert H. Rodgers is the Lyman-Roberts Professor.
- The **Corse Professorship of English Language and Literature** was established in 1952 by Frederick M. and Fannie C.P. Corse. Dr. Lokangaka Losambe 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, A.B., 1901.
- The **Sanders Professorship** was established in 1968 by UVM alumni, honoring the Rev. Daniel Clarke Sanders, first president of the University. Dr. Pramodita Sharma is the Sanders Professor.
- The **John L. Beckley Professorship in American Business** was established in 1983 by John L. Beckley, 1934 graduate of UVM a trustee from 1966 to 1970, to encourage economic education.
- The **Bishop Robert F. Joyce Distinguished University Professorship of Human Development** was established in 1983 by alumni and friends, honoring Robert F. Joyce, 1917 graduate, a trustee from 1948 to 1954, and Bishop of the R. C. Diocese of Burlington for 15 years. Dr. Betsy Hoza is the Bishop Joyce Professor.
- The **Ernest Hiram Buttles Chair in Pathology** was established in 1984 to honor Ernest Hiram Buttles, Professor of Pathology and Bacteriology, 1921 to 1946. Pamela Gibson, M.D. is the Buttles Chair in Pathology.
- The **McClure Professorship in Musculoskeletal Research** was established in 1988 by J. Warren and Lois H. McClure. Dr. Bruce David Beynnon 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. Polly E. Parsons, M.D. is the E.L. Amidon Chair in Medicine.
- The **Roger H. Allbee '31 Professorship in Surgery** was created in 1992 by Roger H. Allbee, M.D. '31, to provide support for a research fellow in the Department of Surgery. Dr. Jonathan E. Boyson is the Roger H. Allbee Professor in Surgery.

- The **Gund Chair in Liberal Arts**, established in 1995 by Gordon and Lulie Gund, provides the College of Arts and Sciences with the opportunity to attract a leading teacher-scholar to one of the liberal arts disciplines. Dr. Robert V. Bartlett is the Gund Chair.
- The **Harry W. Wallace Professorship in Neonatology** was established in the Department of Pediatrics 1995 by the family of Harry W. Wallace to represent Mr. Wallace's philanthropic interests. Roger F. Soll, M.D. is the Wallace Professor.
- The **Dorothean 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 Rizzo is the Dorothean Chair.
- The **Henry and Carleen Tufo Chair in General Internal Medicine** was created in 1999 by Henry M. and Carleen Ann Tufo to support continued excellence in teaching, research and patient care in General Internal Medicine. Benjamin Littenberg, M.D. is the Tufo Chair in General Internal Medicine.
- The **S.D. Ireland Family Professorship in Surgical Oncology** was established in 1999 in recognition of the cancer research being conducted at the University of Vermont. David N. Krag, M.D. is the S.D. Ireland Family Professor.
- The **Robert F. and Genevieve B. Patrick Chair in Nephrology** was created in 2000 through a generous bequest from the estate of Genevieve Patrick. The endowment is intended to support the study or specialty of nephrology. Richard J. Solomon, M.D. is the Patrick Chair in Nephrology.
- The **Robert F. and Genevieve B. Patrick Endowed Chair** was established in 2000 from the estate of Genevieve Patrick. Dr. William Breck Bowden is the Patrick Chair in Watershed Science and Planning.
- The **John Van Sicklen Maeck, M.D. Chair in Obstetrics and Gynecology** was established in 2000. The endowment supports the Chair of the Department of Obstetrics, Gynecology and Reproductive Sciences, who also holds the faculty position. Ira Bernstein, M.D. is the John Van Sicklen Maeck, M.D. Chair in Obstetrics and Gynecology.
- The **Gund Professorship of Ecological Economics** was established in 2001 by Gordon and Lulie Gund and their sons, Grant and Zachary. Dr. Taylor Ricketts is the Gund Professor of Ecological Economics.
- The **Stanley S. Fieber '48 Chair in Surgery** was created in 2002 by Stanley S. Fieber, M.D. to enhance the research and educational activities of the Department of Surgery. Mitchell C. Norotsky, M.D. is the Stanley S. Fieber Chair in Surgery.
- The **Duncan W. Persons, M.D. '34 Green and Gold Professorship in Ophthalmology** was established in 2003.
- 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. Dr. Paula Deming is the Steele Professor.
- The **Irwin H. Krakoff, M.D. Green and Gold Professorship in the Vermont Cancer Center** was established in 2003 in honor of Dr. Krakoff, first director of the Vermont Cancer Center. It supports outstanding senior or promising junior faculty members in the VCC in cancer research. Claire F. Verschraegen, M.D. is the Irwin H. Krakoff, M.D. Green and Gold Professor in the Vermont Cancer Center.
- The **Heinz and Rowena Ansbacher Green and Gold Professorship in Psychology** was established by Max, Ben, Ted, and Charles Ansbacher in October 2004 to honor the lifetime achievement of their father and mother, Heinz and Rowena, in the field of Psychology. Dr. Rex Forehand is the Ansbacher Green and Gold Professor in Psychology.
- The **Albert G. Mackay '32 and H. Gordon Page '45 Professorship in Surgical Education** was established in 2005 to support the academic mission of the Department of Surgery. James Charles Hebert, M.D. is the Mackay-Page Professor.
- The **Cordell E. Gross Green and Gold Professorship in Neurosurgery** was established in 2005. Bruce I. Tranmer, M.D. is the Gross Green and Gold Professor in Neurosurgery.
- The **Mary Kay Davignon Green and Gold Professorship** was established in 2005 to support the strategic priorities of the Dean of Medicine. C. Lawrence Kien, M.D., Ph.D. is the Davignon Green and Gold Professor.
- 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 DeStigter, M.D. is the Tampas Green and Gold Professor of Radiology.
- 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. Peter A. Cataldo, M.D. is the Labow Green and Gold Professor of Colon and Rectal Surgery.
- 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. Jeffrey S. Klein, M.D. is the Soule-Tampas Green and Gold Professor of Radiology.
- The **R. James McKay, M.D. Green and Gold Professor in Pediatrics** was established in 2006 to support the research and educational activities in the Department of Pediatrics. Marshall L. Land, M.D. is the McKay Green and Gold Professor.
- The **Richard and Pamela Ader Green and Gold Professor** was established in 2006 by Richard H. Ader '63 to be awarded to a faculty member in the College of Arts and Sciences or School of Business Administration. Dr. William E. Mierse is the Ader Green and Gold Professor.
- The **Raul Hilberg Distinguished Professorship of Holocaust Studies** was established in 2006 by Leonard '51 and Carolyn Miller in the College of Arts and Sciences Holocaust Studies Program. Dr. Frank Nicosia is the Raul Hilberg Distinguished Professor of Holocaust Studies.
- The **Leonard and Carolyn Miller Distinguished Professor of Holocaust Studies** was established in 2006 by Leonard '51 and Carolyn Miller in the College of Arts and Sciences Holocaust Studies Program. Prof. Alan E. Steinweis is the Miller Distinguished Professor of Holocaust Studies.

- The **Richard A. Dennis University Professorship** was established in 2006 by family and friends of Richard A. Dennis '57 as a university-wide professorship, assigned at the discretion of the Provost, to recruit or retain a faculty member embodying the ideals to which Dick Dennis dedicated his life. Mr. Major Jackson is the Richard A. Dennis University Professor.
- The **Jerold F. Lucey, M.D. Chair in Neonatal Medicine** was established in 2007 by Vermont Oxford Network, Inc. and other donors to advance the care of newborn infants and their families through research, education, and quality improvement in the Department of Pediatrics. Jeffrey Horbar, M.D. is the Lucey Chair in Neonatal Medicine.
- The **Thomas Achenbach Chair in Developmental Psychopathology** was established in 2007 by the Research Center for Children, Youth and Families, Inc. to support research and education in the Department of Psychology. James J. Hudziak, M.D. is the Achenbach Chair in Developmental Psychopathology.
- The **Robert L. Bickford, Jr. Professorship** was established in the College of Agriculture and Life Sciences in 2007 by Robert L. Bickford, Jr. '43 and Oletha T. Bickford '41 to advance the teaching and research of a distinguished professor whose research efforts are at the intersection of nutrition, biochemistry and human health. Dr. Rachel K. Johnson is the Robert L. Bickford, Jr. Green and Gold Professor.
- In July 2008, David and Roxanne Breazzano established the **Breazzano Family Green and Gold Professorship** to support an endowed faculty position in the College of Arts and Sciences. Dr. Jim Vigoreaux is the Breazzano Family Green and Gold Professor.
- The **Robert B. Lawson Green and Gold Professorship in Psychology** was established in 2010 by the Segal and Davis Family Foundation of Charlestown, W.V., in honor of Dr. Robert B. Lawson, who retired in May of 2010 from UVM's Department of Psychology. The professorship was founded to support teaching, service and research in the Department of Psychology. Dr. Mark Bouton has been named as the first Lawson Green and Gold Professor in Psychology.
- The **Roy Korson, M.D. and Lorraine Korson, M.D. Green and Gold Professor in Pathology** was established in 2011 by the Korsons to promote academic excellence in the Department of Pathology.
- 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 is the inaugural Fisher Professor.
- The **Elliott A. Brown Green and Gold Professor of Law, Politics, and Political Behavior** was established in 2012 to support an endowed faculty position in the Department of Political Science. Dr. Garrison Nelson is the inaugural Brown Professor.
- The **Frank P. Ittleman, M.D. Professorship in Surgery** was established in 2013 to help the College of Medicine and Fletcher Allen Health Care attract and retain nationally recognized cardiothoracic surgeons. Dr. Frank P. Ittleman is the first Ittleman Professor.
- The **Wolfgang and Barbara Mieder Green & 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. Dennis Mahoney is the Wolfgang and Barbara Mieder professor.
- The **Steven Rubenstein Professorship for Environment and Natural Resources** was established in 2013 by Steve and Beverly Rubenstein. Dr. Robert Manning is the inaugural 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 College of Medicine and Fletcher Allen Health Care. Dr. Peter Weimersheimer is the first Weimersheimer Endowed Professor.
- 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 in order to enhance their current research, scholarship, and teaching. Dr. Katharine Shepherd is the Levitt Professor.
- The **Virginia H. Donaldson, M.D. '51 Professorship** was established in the College of Medicine in 2013 by Virginia Donaldson, M.D. Dr. Stephen Higgins is the Donaldson Professor.
- The **Barrett Foundation Chair** was established in 2013 by the Barrett Foundation to recruit and retain a new dean for the College of Engineering and Mathematical Sciences. Dean Luis A. Garcia is the inaugural Barrett Chair.
- 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 School of Business Administration. Dr. Erik Monsen 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 School of Business Administration. Dr. Charles Schnitzlein 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 School of Business Administration. Dr. Stuart Hart is the inaugural Steven Grossman Chair in Sustainable Business.
- 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. Jennie C. Stephens is the inaugural Blittersdorf Professor.
- The **Mark J. Zwynenburg Green and Gold Professorship of Financial History** was established in 2013 to honor Mark



J.Zwynenburg '81. Dr. Jane E. Knodell is the Zwynenburg Green and Gold 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 is the Veinott Professor.
- The **Elizabeth and David Daigle Professorship in Finance** was established in 2014 to attract and retain high quality faculty in finance. Dr. Andrew Prevost is the Daigle Professor.
- 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. John L. Leahy, M.D. is the Gruenig Green and Gold Professor.
- The **Robert Lerner Professorship in Medical Education** was established in 2015 for the College of Medicine Teaching Academy. Dr. Katheryn N. Huggett is the Lerner Professor.
- The **Holly and Bob Miller Endowed Chair in Palliative Medicine** was established in 2015 to recognize and support excellence in palliative medical education. Robert E. Gramling, M.D. is the Miller Chair.

## HONORARY AND RECOGNITION SOCIETIES

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

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

National honorary societies represented on campus are as follows:

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

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 honorary societies include: Alpha Kappa Delta (sociology), Alpha Omega Alpha (medical), Alpha Zeta (agriculture), Beta Gamma Sigma (business administration), Chi Epsilon (civil and environmental engineering), Eta Sigma Phi (classical studies), Delta Sigma Rho (debating), Gamma Theta Upsilon (geography), Justin Morrill Honors program (College of Agriculture and Life Sciences), Kappa Delta Pi (education), Lambda Alpha (anthropology), Lola Aiken Scholars program (Rubenstein School of Environment and Natural Resources), Mu Sigma Rho (statistics), 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 Sigma Alpha (political science honors society), Sigma Theta Tau (nursing), Tau Beta Pi (engineering), and Upsilon Pi Epsilon (computer science).

## ACCREDITATIONS

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

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

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

Inquiries regarding the status of an institution's accreditation by the NEASC should be directed to the administrative staff of the university. Individuals may also contact:

New England Association of Schools and Colleges  
209 Burlington Road  
Bedford, MA 01730-1433



(781) 271-0022

Specific academic program accreditations include:

### **AGRICULTURE AND LIFE SCIENCES**

- Dietetics — Accreditation Council for Education and Dietetics of the Academy of Nutrition and Dietetics
- Public Administration - Network of Schools of Public Policy, Affairs, and Administration

### **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 — National Council for Accreditation of Teacher Education; 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**

- Civil, Electrical, Environmental, and Mechanical Engineering — Commission of the Accreditation Board for Engineering and Technology

### **MEDICINE**

- Liaison Committee on Medical Education (American Medical Association & Association of American Medical Colleges)

### **NURSING AND HEALTH SCIENCES**

- Athletic Training Education Program — Commission on Accreditation of Athletic Training Education
- Radiation Therapy — Joint Review Committee on Education in Radiologic Technology
- Medical Laboratory Science — National Accrediting Agency for Clinical Laboratory Science
- Nuclear Medicine Technology — Joint Review Committee on Education Programs in Nuclear Medicine Technology
- Nursing — Commission on Collegiate Nursing Education
- Physical Therapy — Commission on Accreditation in Physical Therapy Education
- Speech-Language Pathology — Council for Academic Accreditation

## **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 and hire into all positions the most qualified persons in light of job-related requirements, and applicants and employees shall be treated in employment matters without regard to unlawful criteria including race, color, religion, 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, other protected veteran or Armed Forces service medal veteran, as these terms are defined under applicable law, or any other factor or characteristic protected by law.

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.

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