# TABLE OF CONTENTS

Undergraduate Catalogue ............................................................... 7
Academic Offerings ........................................................................ 9
Majors ................................................................................................. 9
Minors ............................................................................................... 11
Courses .............................................................................................. 12
Diversity Courses ............................................................................ 12
Course List ........................................................................................ 15
Agriculture & Life Science (CALS) ................................................... 16
ALANA U.S. Ethnic Studies (ALAN) ................................................ 17
American Sign Language (ASL) ...................................................... 17
Anatomy & Neurobiology (ANNB) ................................................. 18
Anatomy/Physiology (ANPS) .......................................................... 18
Animal Sciences (ASCI) ................................................................. 18
Anthropology (ANTH) ................................................................. 20
Arabic (ARBC) ............................................................................... 23
Art Education (EDAR) ................................................................... 24
Art History (ARTH) ....................................................................... 24
Art Studio (ARTS) ......................................................................... 26
A&S Interdisciplinary (AS) ............................................................. 27
Astronomy (ASTR) ....................................................................... 27
Athletic Training (AT) ................................................................... 28
Biochemistry (BIOC) ................................................................. 29
BioCore (BCOR) ........................................................................... 30
Biological Sciences (BSCI) ........................................................... 30
Biology (BIOL) ............................................................................ 31
Biomedical Technologies (BMT) .................................................. 33
Biomedical Technology (BMED) ................................................... 33
Business Administration (BSAD) .................................................. 33
Chemistry (CHEM) ...................................................................... 37
Chinese (CHIN) ............................................................................ 39
Civil & Environmental Engr (CE) .................................................. 40
Classics (CLAS) ............................................................................ 43
Comm Sciences & Disorders (CSD) ............................................. 44
Community Development & Applied Economics (CDAE) .......... 45
Complex Systems (CSYS) ............................................................ 48
Computer Science (CS) ................................................................. 49
Dance (DNCE) .............................................................................. 51
Early Childhood Pre K-3 (EDEC) ................................................... 52
Early Childhood Special Educ (ECSP) .......................................... 53
Economics (EC) ............................................................................ 53
Education (EDSS) ........................................................................ 55
Electrical Engineering (EE) .......................................................... 56
Elementary Education (EDEL) ...................................................... 58
Emergency Medical Technician (SURG) ...................................... 59
Engineering (ENGR) .................................................................... 60
Engineering Management (EMGT) .............................................. 60
Engl for Spkrs of Other Langs (ESOL) .......................................... 60
English (ENGS) ............................................................................ 60
Engr & Math Sciences (CEMS) ..................................................... 66
Environmental Sciences (ENSC) ................................................... 66
Environmental Studies (ENVS) .................................................... 67
Exercise & Movement Science (EXMS) ....................................... 69
Family&Consumer Sciences (EDFC) .......................................... 70
Film & Television Studies (FTS) ................................................... 70
Foreign Language (LANG) ........................................................... 71
Forestry (FOR) ............................................................................ 72
Foundations (EDFS) ................................................................... 73
French (FREN) ............................................................................. 73
Geography (GEOG) ................................................................... 75
Geology (GEOL) ......................................................................... 77
German (GERM) ......................................................................... 79
Global and Regional Studies (GRS) ............................................. 81
Gndr, Sexuality, & Wms Stdies (GSWS) ....................................... 82
Greek (GRK) ............................................................................... 83
Health Education (EDHE) ........................................................... 84
Health (HLTH) ............................................................................ 84
Hebrew (HEBR) ........................................................................... 86
HELiX (HLX) .............................................................................. 86
Higher Education (EDHI) ............................................................. 87
History (HST) ............................................................................... 87
Holocaust Studies (HS) ............................................................... 92
Honors: Arts & Sciences (HON) ................................................... 93
Honors College (HCOL) ............................................................. 94
Human Development & Fam Stdies (HDFS) .............................. 94
Humanities (HUMN) ................................................................. 96
Italian (ITAL) ............................................................................... 96
<table>
<thead>
<tr>
<th>Program</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Sciences</td>
<td>194</td>
</tr>
<tr>
<td>Asian Languages and Literatures</td>
<td>205</td>
</tr>
<tr>
<td>Art and Art History</td>
<td>203</td>
</tr>
<tr>
<td>Art History Minor</td>
<td>205</td>
</tr>
<tr>
<td>Asian Languages and Literatures</td>
<td>205</td>
</tr>
<tr>
<td>Chinese Major</td>
<td>205</td>
</tr>
<tr>
<td>Chinese Minor</td>
<td>206</td>
</tr>
<tr>
<td>Japanese Major</td>
<td>206</td>
</tr>
<tr>
<td>Japanese Minor</td>
<td>206</td>
</tr>
<tr>
<td>Agriculture and Environment</td>
<td>182</td>
</tr>
<tr>
<td>Plant and Soil Science</td>
<td>188</td>
</tr>
<tr>
<td>Plant Biology</td>
<td>191</td>
</tr>
<tr>
<td>The Self-Designed Major</td>
<td>193</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>194</td>
</tr>
<tr>
<td>ALANA U.S. Ethnic Studies Minor</td>
<td>201</td>
</tr>
<tr>
<td>Anthropology</td>
<td>201</td>
</tr>
<tr>
<td>Anthropology Major</td>
<td>202</td>
</tr>
<tr>
<td>Anthropology Minor</td>
<td>203</td>
</tr>
<tr>
<td>Art and Art History</td>
<td>203</td>
</tr>
<tr>
<td>Art History Major</td>
<td>203</td>
</tr>
<tr>
<td>Studio Art Major</td>
<td>204</td>
</tr>
<tr>
<td>Art History Minor</td>
<td>205</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>206</td>
</tr>
<tr>
<td>Biochemistry Major</td>
<td>207</td>
</tr>
<tr>
<td>Biochemistry Minor</td>
<td>207</td>
</tr>
<tr>
<td>Biology</td>
<td>207</td>
</tr>
<tr>
<td>Biology B.A. Major</td>
<td>208</td>
</tr>
<tr>
<td>Biological Science B.S. Major</td>
<td>209</td>
</tr>
<tr>
<td>Zoology B.A. Major</td>
<td>209</td>
</tr>
<tr>
<td>Zoology B.S. Major</td>
<td>210</td>
</tr>
<tr>
<td>Biology Minor</td>
<td>210</td>
</tr>
<tr>
<td>Zoology Minor</td>
<td>210</td>
</tr>
<tr>
<td>Chemistry</td>
<td>211</td>
</tr>
<tr>
<td>Chemistry B.A. Major</td>
<td>211</td>
</tr>
<tr>
<td>Chemistry B.S. Major</td>
<td>212</td>
</tr>
<tr>
<td>Chemistry Minor</td>
<td>213</td>
</tr>
<tr>
<td>Classical Civilization</td>
<td>213</td>
</tr>
<tr>
<td>Classical Civilization Major</td>
<td>214</td>
</tr>
<tr>
<td>Greek Major</td>
<td>214</td>
</tr>
<tr>
<td>Latin Major</td>
<td>214</td>
</tr>
<tr>
<td>Classical Civilization Minor</td>
<td>215</td>
</tr>
<tr>
<td>Greek Language and Literature Minor</td>
<td>215</td>
</tr>
<tr>
<td>Latin Language and Literature Minor</td>
<td>215</td>
</tr>
<tr>
<td>Computer Science</td>
<td>215</td>
</tr>
<tr>
<td>Computer Science Major</td>
<td>216</td>
</tr>
<tr>
<td>Economics</td>
<td>217</td>
</tr>
<tr>
<td>Economics Major</td>
<td>217</td>
</tr>
<tr>
<td>Economics Minor</td>
<td>217</td>
</tr>
<tr>
<td>English</td>
<td>217</td>
</tr>
<tr>
<td>English Major</td>
<td>218</td>
</tr>
<tr>
<td>Film and Television Studies Major</td>
<td>218</td>
</tr>
<tr>
<td>English Minor</td>
<td>218</td>
</tr>
<tr>
<td>Film and Television Studies Minor</td>
<td>219</td>
</tr>
<tr>
<td>Environmental Sciences</td>
<td>219</td>
</tr>
<tr>
<td>Environmental Sciences Major</td>
<td>220</td>
</tr>
<tr>
<td>Environmental Sciences: Biology Minor</td>
<td>220</td>
</tr>
<tr>
<td>Environmental Sciences: Geology Minor</td>
<td>221</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>221</td>
</tr>
<tr>
<td>Environmental Studies Major</td>
<td>221</td>
</tr>
<tr>
<td>Environmental Studies Minor</td>
<td>221</td>
</tr>
<tr>
<td>Gender, Sexuality, and Women's Studies</td>
<td>222</td>
</tr>
<tr>
<td>Department/Minor/Program</td>
<td>Page</td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Geography</td>
<td>223</td>
</tr>
<tr>
<td>Geography Major</td>
<td>223</td>
</tr>
<tr>
<td>Geography Minor</td>
<td>223</td>
</tr>
<tr>
<td>Geospatial Technologies Minor</td>
<td>223</td>
</tr>
<tr>
<td>Geology</td>
<td>224</td>
</tr>
<tr>
<td>Geology B.A. Major</td>
<td>224</td>
</tr>
<tr>
<td>Geology B.S. Major</td>
<td>225</td>
</tr>
<tr>
<td>Geology Minor</td>
<td>225</td>
</tr>
<tr>
<td>Geospatial Technologies Minor</td>
<td>226</td>
</tr>
<tr>
<td>German and Russian</td>
<td>226</td>
</tr>
<tr>
<td>German Major</td>
<td>226</td>
</tr>
<tr>
<td>Russian Major</td>
<td>227</td>
</tr>
<tr>
<td>German Minor</td>
<td>227</td>
</tr>
<tr>
<td>Russian Minor</td>
<td>227</td>
</tr>
<tr>
<td>Global and Regional Studies</td>
<td>227</td>
</tr>
<tr>
<td>Asian Studies Major</td>
<td>228</td>
</tr>
<tr>
<td>European Studies Major</td>
<td>228</td>
</tr>
<tr>
<td>Global Studies Major</td>
<td>231</td>
</tr>
<tr>
<td>Latin American and Caribbean Studies Major</td>
<td>231</td>
</tr>
<tr>
<td>Russian and East European Studies Major</td>
<td>232</td>
</tr>
<tr>
<td>African Studies Minor</td>
<td>232</td>
</tr>
<tr>
<td>Asian Studies Minor</td>
<td>233</td>
</tr>
<tr>
<td>Canadian Studies Minor</td>
<td>233</td>
</tr>
<tr>
<td>European Studies Minor</td>
<td>233</td>
</tr>
<tr>
<td>Global Studies Minor</td>
<td>233</td>
</tr>
<tr>
<td>Latin American and Caribbean Studies Minor</td>
<td>234</td>
</tr>
<tr>
<td>Middle East Studies Minor</td>
<td>234</td>
</tr>
<tr>
<td>Russian/East European Studies Minor</td>
<td>234</td>
</tr>
<tr>
<td>Vermont Studies Minor</td>
<td>235</td>
</tr>
<tr>
<td>History Major</td>
<td>235</td>
</tr>
<tr>
<td>History Minor</td>
<td>235</td>
</tr>
<tr>
<td>Holocaust Studies Minor</td>
<td>235</td>
</tr>
<tr>
<td>Individually Designed Major</td>
<td>235</td>
</tr>
<tr>
<td>Individually Designed Minor</td>
<td>236</td>
</tr>
<tr>
<td>Mathematics and Statistics</td>
<td>236</td>
</tr>
<tr>
<td>Mathematics Major</td>
<td>236</td>
</tr>
<tr>
<td>Music and Dance</td>
<td>237</td>
</tr>
<tr>
<td>Music Major</td>
<td>237</td>
</tr>
<tr>
<td>Music Performance Major</td>
<td>238</td>
</tr>
<tr>
<td>Dance Minor</td>
<td>239</td>
</tr>
<tr>
<td>Music Minor</td>
<td>239</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>239</td>
</tr>
<tr>
<td>Neuroscience Major</td>
<td>239</td>
</tr>
<tr>
<td>Philosophy</td>
<td>240</td>
</tr>
<tr>
<td>Philosophy Major</td>
<td>241</td>
</tr>
<tr>
<td>Philosophy Minor</td>
<td>241</td>
</tr>
<tr>
<td>Physics</td>
<td>241</td>
</tr>
<tr>
<td>Physics B.A. Major</td>
<td>241</td>
</tr>
<tr>
<td>Physics B.S. Major</td>
<td>242</td>
</tr>
<tr>
<td>Astronomy Minor</td>
<td>243</td>
</tr>
<tr>
<td>Physics Minor</td>
<td>243</td>
</tr>
<tr>
<td>Plant Biology</td>
<td>243</td>
</tr>
<tr>
<td>Plant Biology Major</td>
<td>244</td>
</tr>
<tr>
<td>Plant Biology Minor</td>
<td>245</td>
</tr>
<tr>
<td>Political Science</td>
<td>245</td>
</tr>
<tr>
<td>Political Science Major</td>
<td>245</td>
</tr>
<tr>
<td>Political Science Minor</td>
<td>246</td>
</tr>
<tr>
<td>Psychological Science</td>
<td>246</td>
</tr>
<tr>
<td>Psychological Science B.A. Major</td>
<td>246</td>
</tr>
<tr>
<td>Psychological Science B.S. Major</td>
<td>247</td>
</tr>
<tr>
<td>Psychology Minor</td>
<td>247</td>
</tr>
<tr>
<td>Religion</td>
<td>248</td>
</tr>
<tr>
<td>Religion Major</td>
<td>248</td>
</tr>
<tr>
<td>Religion Minor</td>
<td>249</td>
</tr>
<tr>
<td>Romance Languages and Linguistics</td>
<td>250</td>
</tr>
<tr>
<td>French Major</td>
<td>251</td>
</tr>
<tr>
<td>Italian Studies Major</td>
<td>251</td>
</tr>
<tr>
<td>Linguistics Major</td>
<td>252</td>
</tr>
<tr>
<td>Spanish Major</td>
<td>252</td>
</tr>
<tr>
<td>French Minor</td>
<td>253</td>
</tr>
<tr>
<td>Italian Minor</td>
<td>253</td>
</tr>
<tr>
<td>Italian Studies Minor</td>
<td>254</td>
</tr>
<tr>
<td>Linguistics Minor</td>
<td>254</td>
</tr>
<tr>
<td>Spanish Minor</td>
<td>254</td>
</tr>
<tr>
<td>Sociology</td>
<td>254</td>
</tr>
</tbody>
</table>
UNDERGRADUATE CATALOGUE

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

The University of Vermont reserves the right to make changes in the course offerings, 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.

To access prior editions of the University of Vermont catalogues, please visit this page:

MAJORS

Animal Science B.S. (p. 170)
Anthropology B.A. (p. 202)
Art History B.A. (p. 203)
Art: Studio Art B.A. (p. 204)
Asian Studies B.A. (p. 228)
Athletic Training Education B.S. (p. 317)
Biochemistry B.S. (p. 175) (College of Agriculture and Life Sciences)
Biochemistry B.S. (p. 207) (College of Arts and Sciences)
Biological Science B.S. (p. 176) (College of Agriculture and Life Sciences)
Biological Science B.S. (p. 209) (College of Arts and Sciences)
Biology B.A. (p. 208)
Business Administration B.S.B.A. (p. 259)
Chemistry B.A. (p. 211)
Chemistry B.S. (p. 212)
Chinese B.A. (p. 205)
Civil Engineering B.S.CE. (p. 294)
Classical Civilization B.A. (p. 214)
Communication Sciences and Disorders B.S. (p. 308)
Community and International Development B.S. (p. 178)
Community Entrepreneurship B.S. (p. 178)
Computer Science B.A. (p. 216) (College of Arts and Sciences)
Computer Science B.S.CS. (p. 283) (College of Engineering and Mathematical Sciences)
Computer Science and Information Systems B.S. (p. 284)
Dietetics, Nutrition and Food Sciences B.S. (p. 186)
Ecological Agriculture B.S. (p. 189)
Economics B.A. (p. 217)
Electrical Engineering B.S.EE. (p. 295)
Engineering B.A.E. (p. 297)
Engineering B.S.E. (p. 298)
Engineering Management B.S.EM. (p. 299)
English B.A. (p. 218)
Environmental Engineering B.S.EV. (p. 302)
Environmental Sciences B.S. (p. 182) (College of Agriculture and Life Sciences)
Environmental Sciences B.S. (p. 220) (College of Arts and Sciences)
Environmental Sciences B.S. (p. 323) (Rubenstein School of Environment and Natural Resources)
Environmental Studies B.S. (p. 183) (College of Agriculture and Life Sciences)
Environmental Studies B.A. (p. 221) (College of Arts and Sciences)
Environmental Studies B.S. (p. 324) (Rubenstein School of Environment and Natural Resources)
European Studies B.A. (p. 228)
Exercise and Movement Science B.S. (p. 319)
Film and Television Studies B.A. (p. 218)
Forestry B.S. (p. 325)
French B.A. (p. 251)
Gender, Sexuality and Women’s Studies B.A. (p. 222)
Geography B.A. (p. 223)
Geology B.A. (p. 224)
Geology B.S. (p. 225)
German B.A. (p. 226)
Global Studies B.A. (p. 231)
Greek B.A. (p. 214)
History B.A. (p. 235)
Human Development and Family Studies B.S. (p. 278)
Individually Designed B.A. (p. 235)
Italian Studies B.A. (p. 251)
Japanese B.A. (p. 206)
Latin B.A. (p. 214)
Latin American and Caribbean Studies B.A. (p. 231)
Linguistics B.A. (p. 252)
Mathematics B.A. (p. 236) (College of Arts and Sciences)
Mathematics B.S.M. (p. 287) (College of Engineering and Mathematical Sciences)
Mathematics: Statistics B.S.M. (p. 290)
Mechanical Engineering B.S.ME. (p. 304)
Medical Laboratory Science B.S. (p. 310)
Medical Radiation Sciences B.S. (p. 312)
Microbiology B.S. (p. 184)
Molecular Genetics B.S. (p. 184)
Music B.A. (p. 237)
Music Performance B.Mus. (p. 238)
Natural Resources B.S. (p. 326)
Neuroscience B.S. (p. 239)
Nursing B.S. (p. 315)
Nursing (for Registered Nurses) B.S. (p. 316)
Nutrition and Food Sciences B.S. (p. 187)
Parks, Recreation and Tourism B.S. (p. 328)
Philosophy B.A. (p. 241)
Physics B.A. (p. 241)
Physics B.S. (p. 242)
Plant Biology B.A. (p. 244) (College of Arts and Sciences)
Plant Biology B.S. (p. 191) (College of Agriculture and Life Sciences)
Political Science B.A. (p. 245)
Psychological Science B.A. (p. 246)
Psychological Science B.S. (p. 247)
Public Communication B.S. (p. 178)
Religion B.A. (p. 248)
Russian B.A. (p. 227)
Russian and East European Studies B.A. (p. 232)
Self-Designed B.S. (p. 193)
Social Work B.S. (p. 280)
Sociology B.A. (p. 255)
Spanish B.A. (p. 252)
Sustainable Landscape Horticulture B.S. (p. 189)
Teacher Education: Art Education (PreK-12) B.S.AE. (p. 265)
Teacher Education: Early Childhood Education (Birth-Gr3) B.S. (p. 266)
Teacher Education: Early Childhood Special Education (Birth-6) B.S. (p. 268)
Teacher Education: Elementary Education (K-6) B.S.Ed. (p. 269)
Teacher Education: Middle Level Education (5-9) B.S.Ed. (p. 271)
Teacher Education: Music Education (Pre-K - 12) B.S.MS. (p. 273)
Teacher Education: Physical Education (Pre-K - 12) B.S.Ed. (p. 274)
Teacher Education: Secondary Education (7 - 12) B.S.Ed. (p. 275)
Theatre B.A. (p. 256)
Wildlife and Fisheries Biology B.S. (p. 329)
Zoology B.A. (p. 209)
Zoology B.S. (p. 210)
MINORS

Accounting (p. 261)
African Studies (p. 232)
ALANA U.S. Ethnic Studies (p. 201)
Animal Science (p. 174)
Anthropology (p. 203)
Applied Design (p. 179)
Art History (p. 205)
Asian Studies (p. 233)
Astronomy (p. 243)
Biochemistry (p. 207)
Biology (p. 210)
Business Administration (p. 262)
Canadian Studies (p. 233)
Chemistry (p. 213)
Chinese (p. 206)
Classical Civilization (p. 215)
Coaching (p. 277)
Communication Sciences and Disorders (p. 310)
Community and International Development (p. 179)
Community Entrepreneurship (p. 180)
Computer Science (p. 285)
Consumer Affairs (p. 180)
Consumer and Advertising (p. 180)
Dance (p. 239)
Ecological Agriculture (p. 190)
Economics (p. 217)
Electrical Engineering (p. 305)
English (p. 218)
Environmental Sciences: Biology (p. 220)
Environmental Sciences: Geology (p. 221)
Environmental Studies (p. 324)
European Studies (p. 233)
Film and Television Studies (p. 219)
Food Systems (p. 180)
Forestry (p. 325)
French (p. 253)
Gender, Sexuality and Women’s Studies (p. 222)
Geography (p. 223)
Geology (p. 225)
Geospatial Technologies (p. 330)
German (p. 227)
Gerontology (p. 255)
Global Studies (p. 233)
Greek Language and Literature (p. 215)
Green Building and Community Design (p. 181)
History (p. 235)
Holocaust Studies (p. 235)
Human Development and Family Studies (p. 280)
Individually Designed (p. 236)
Italian (p. 253)
Italian Studies (p. 254)
Japanese (p. 206)
Latin American and Caribbean Studies (p. 234)
Latin Language and Literature (p. 215)
Linguistics (p. 254)
Mathematics: Pure (p. 291)
Microbiology (p. 185)
Middle East Studies (p. 234)
Molecular Genetics (p. 185)
Music (p. 239)
Nutrition and Food Sciences (p. 188)
Parks, Recreation and Tourism (p. 328)
Pharmacology (p. 334)
Philosophy (p. 241)
Physics (p. 243)
Plant Biology (p. 193)
Political Science (p. 246)
Psychological Science (p. 247)
Public Communication (p. 181)
Religion (p. 249)
Russian (p. 227)
Russian and East European Studies (p. 234)
Sexuality and Gender Identity Studies (p. 222)
Sociology (p. 256)
Soil Science (p. 191)
Spanish (p. 254)
Special Education (p. 277)
Speech and Debate (p. 256)
Statistics (p. 291)
Sustainable Landscape Horticulture (p. 191)
Theatre (p. 257)
Vermont Studies (p. 235)
Wildlife Biology (p. 330)
Zoology (p. 210)
COURSES

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

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 (Human and Societal Diversity). 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 2014-15.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALAN 051</td>
<td>D1: Intr ALANA US Ethnic Stds.</td>
<td>3</td>
</tr>
<tr>
<td>ALAN 061</td>
<td>D1: Asian-American Experiences</td>
<td>3</td>
</tr>
<tr>
<td>ALAN 269</td>
<td>D1: Cross-Cultr Psych: Clin Prsp</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 160</td>
<td>D1: North American Indians</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 169</td>
<td>D1: Latinos in the US</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 187</td>
<td>D1: Race and Ethnicity</td>
<td>3</td>
</tr>
<tr>
<td>DNCE 150</td>
<td>D1: Jazz in American Dance</td>
<td>3</td>
</tr>
<tr>
<td>EC 153</td>
<td>D1: African Amer in the US Econ</td>
<td>3</td>
</tr>
<tr>
<td>EDFS 001</td>
<td>D1: Race and Racism in the U.S.</td>
<td>3</td>
</tr>
<tr>
<td>EDFS 322</td>
<td>D1: Chll Multicult/Ed&amp;Soc Inst</td>
<td>3</td>
</tr>
<tr>
<td>EDTE 056</td>
<td>D1: Lang Policy Issues, Race &amp; Sch</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 010</td>
<td>D1: Dvrsty Issues: Math/Sci/Egr</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 031</td>
<td>D1: Topics in Afr-Am Lit &amp; Cult</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 057</td>
<td>D1: Race &amp; Ethnic Lit Stds: Intro</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 111</td>
<td>D1: Race &amp; Ethnic in Lit Stdies</td>
<td>0,3</td>
</tr>
<tr>
<td>ENGS 159</td>
<td>D1: Afr Am Lit to Harlem Ren</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 160</td>
<td>D1: Afr Am Lit &amp; Cul Before 1900</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 176</td>
<td>D1: Afr Am Lit since Harlem Ren</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 177</td>
<td>D1: Topics 20C Afr Am Lit &amp; Cul</td>
<td>3</td>
</tr>
<tr>
<td>ENV 181</td>
<td>D1: Race, Class and Garbage</td>
<td>3</td>
</tr>
<tr>
<td>FTS 135</td>
<td>D1: Race &amp; Ethnicity in Film/TV</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 060</td>
<td>D1: Geography/Race &amp; Ethnic in US</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 041</td>
<td>D1: Afr American Women Writers</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 141</td>
<td>D1: Afr Amer Women’s Writing</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 141</td>
<td>D1: Interrogating White Identity</td>
<td>3</td>
</tr>
<tr>
<td>HLTH 155</td>
<td>D1: Racism &amp; Health Disparities</td>
<td>3</td>
</tr>
<tr>
<td>HST 068</td>
<td>D1: Race &amp; Nation in the U.S.</td>
<td>3</td>
</tr>
<tr>
<td>HST 187</td>
<td>D1: Afr Amer Hist: 1619-Civil War</td>
<td>3</td>
</tr>
<tr>
<td>HST 188</td>
<td>D1: Afr Amer Hist: Civil War-pres</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Title</td>
<td>Type</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>LING 135</td>
<td>D1: Language &amp; Ethnicity</td>
<td></td>
</tr>
<tr>
<td>LING 176</td>
<td>D1: African American English</td>
<td></td>
</tr>
<tr>
<td>MU 005</td>
<td>D1: Intro to Jazz History</td>
<td></td>
</tr>
<tr>
<td>MU 011</td>
<td>D1: Chasing the Blues</td>
<td></td>
</tr>
<tr>
<td>MU 012</td>
<td>D1: Music &amp; Culture:New Orleans</td>
<td></td>
</tr>
<tr>
<td>MU 019</td>
<td>D1: Latin Jazz Immersion</td>
<td></td>
</tr>
<tr>
<td>NR 006</td>
<td>D1: Race &amp; Culture in NR</td>
<td></td>
</tr>
<tr>
<td>NR 207</td>
<td>D1: Power, Privilege &amp; Environment</td>
<td></td>
</tr>
<tr>
<td>POLS 028</td>
<td>D1: Race &amp; Ethnicity in the US</td>
<td></td>
</tr>
<tr>
<td>POLS 029</td>
<td>D1: Amer Civil Rights Movements</td>
<td></td>
</tr>
<tr>
<td>POLS 129</td>
<td>D1: Const Law:Civil Rights Amer</td>
<td></td>
</tr>
<tr>
<td>PSYC 269</td>
<td>D1: Cross-Cultural Psychology: Clin Pers</td>
<td></td>
</tr>
<tr>
<td>SOC 019</td>
<td>D1: Race Relations in the US</td>
<td></td>
</tr>
<tr>
<td>SOC 117</td>
<td>D1: Multiracial People &amp; Identity</td>
<td></td>
</tr>
<tr>
<td>SOC 119</td>
<td>D1: Race &amp; Ethnicity</td>
<td></td>
</tr>
<tr>
<td>SOC 219</td>
<td>D1: Race Relations</td>
<td></td>
</tr>
<tr>
<td>SWSS 060</td>
<td>D1: Racism &amp; Contemporary Issue</td>
<td></td>
</tr>
<tr>
<td>SWSS 140</td>
<td>D1: SW w/ Indigenous: VT Abenaki</td>
<td></td>
</tr>
<tr>
<td>THE 075</td>
<td>D1: Diversity:Cont US Theatre</td>
<td></td>
</tr>
<tr>
<td>THE 076</td>
<td>D1: Contemp US Latina/o Theatre</td>
<td></td>
</tr>
<tr>
<td>VS 064</td>
<td>D1: Native Americans of Vermont</td>
<td></td>
</tr>
<tr>
<td>WLIT 116</td>
<td>D1: Latino Writers US:Cont Pers</td>
<td></td>
</tr>
<tr>
<td>ANTH 021</td>
<td>D2: Cultural Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 023</td>
<td>D2: Anthro Global Development</td>
<td></td>
</tr>
<tr>
<td>ANTH 024</td>
<td>D2: Prehistoric Archaeology</td>
<td></td>
</tr>
<tr>
<td>ANTH 026</td>
<td>D2: Biological Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 028</td>
<td>D2: Linguistic Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 059</td>
<td>D2: Culture and Environment</td>
<td></td>
</tr>
<tr>
<td>ANTH 104</td>
<td>D2: Archaeology of the Americas</td>
<td></td>
</tr>
<tr>
<td>ANTH 152</td>
<td>D2: Chinese Culture</td>
<td></td>
</tr>
<tr>
<td>ANTH 161</td>
<td>D2: Cultures of South America</td>
<td></td>
</tr>
<tr>
<td>ANTH 162</td>
<td>D2: Cultures of Africa</td>
<td></td>
</tr>
<tr>
<td>ANTH 163</td>
<td>D2: South Pacific Cultures</td>
<td></td>
</tr>
<tr>
<td>ANTH 165</td>
<td>D2: Peoples of South Asia</td>
<td></td>
</tr>
<tr>
<td>ANTH 166</td>
<td>D2: Peoples of the Middle East</td>
<td></td>
</tr>
<tr>
<td>ANTH 172</td>
<td>D2: Gender, Sex and Culture</td>
<td></td>
</tr>
<tr>
<td>ANTH 174</td>
<td>D2: Culture, Health and Healing</td>
<td></td>
</tr>
<tr>
<td>ANTH 179</td>
<td>D2: Environmental Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 180</td>
<td>D2: Psychological Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 185</td>
<td>D2: Food and Culture</td>
<td></td>
</tr>
<tr>
<td>ANTH 189</td>
<td>D2: Aging in Cross-Cultural Pers</td>
<td></td>
</tr>
<tr>
<td>ANTH 209</td>
<td>D2: Caribbean Archaeology</td>
<td></td>
</tr>
<tr>
<td>ARTH 008</td>
<td>D2: Asian Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 146</td>
<td>D2: Egypt &amp; the Ancient Near E</td>
<td></td>
</tr>
<tr>
<td>ARTH 184</td>
<td>D2: Islamic Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 185</td>
<td>D2: Japanese Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 186</td>
<td>D2: The Hindu Temple</td>
<td></td>
</tr>
<tr>
<td>ARTH 187</td>
<td>D2: Chinese Painting</td>
<td></td>
</tr>
<tr>
<td>ARTH 188</td>
<td>D2: Indian Painting</td>
<td></td>
</tr>
<tr>
<td>ARTH 189</td>
<td>D2: Topics in Non-Western Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 192</td>
<td>D2: Inter Spec Topics Asian Art</td>
<td></td>
</tr>
<tr>
<td>ARTH 285</td>
<td>D2: Seminar in Asian Art</td>
<td></td>
</tr>
<tr>
<td>BSAD 258</td>
<td>D2: Int’l Market Analysis</td>
<td></td>
</tr>
<tr>
<td>CDAE 002</td>
<td>D2: World Food, Pop &amp; Develop</td>
<td></td>
</tr>
<tr>
<td>CDAE 003</td>
<td>D2: Intr to Dev Carib &amp; Cent Am</td>
<td></td>
</tr>
<tr>
<td>CLAS 145</td>
<td>D2: Comparative Epic</td>
<td></td>
</tr>
<tr>
<td>CLAS 149</td>
<td>D2: Hist of Ancient Near East</td>
<td></td>
</tr>
<tr>
<td>CSD 274</td>
<td>D2: Culture of Disability</td>
<td></td>
</tr>
<tr>
<td>CSD 287</td>
<td>D2: Mindfulness &amp; Helping Skills</td>
<td></td>
</tr>
<tr>
<td>DNCE 005</td>
<td>D2: Intro to World Dance Cult</td>
<td></td>
</tr>
<tr>
<td>DNCE 031</td>
<td>D2: African Forms</td>
<td></td>
</tr>
<tr>
<td>EC 040</td>
<td>D2: Economics of Globalization</td>
<td></td>
</tr>
<tr>
<td>EC 045</td>
<td>D2: Latin American Development</td>
<td></td>
</tr>
<tr>
<td>ECSP 202</td>
<td>D2: Introduction to EL/ECSE</td>
<td></td>
</tr>
<tr>
<td>EDFS 206</td>
<td>D2: Comparative Education</td>
<td></td>
</tr>
<tr>
<td>EDSP 005</td>
<td>D2: Iss Aff Persons W/Disabil</td>
<td></td>
</tr>
<tr>
<td>EDSP 201</td>
<td>D2: Foundations of Special Ed</td>
<td></td>
</tr>
<tr>
<td>EDSP 274</td>
<td>D2: Culture of Disability</td>
<td></td>
</tr>
<tr>
<td>ENGS 061</td>
<td>D2: Intro to African Literature</td>
<td></td>
</tr>
<tr>
<td>ENGS 179</td>
<td>D2: Topics in African Lit</td>
<td></td>
</tr>
<tr>
<td>ENGS 182</td>
<td>D2: Colonial/Post-Col World Lit</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>ENVS 002</td>
<td>D2: International Env Studies</td>
<td>0.4</td>
</tr>
<tr>
<td>ENVS 153</td>
<td>D2: Ethnobotany</td>
<td>3</td>
</tr>
<tr>
<td>ENVS 154</td>
<td>D2: Trad Ecological Knowledge</td>
<td>3</td>
</tr>
<tr>
<td>ENVS 167</td>
<td>D2: Global Env History</td>
<td>3</td>
</tr>
<tr>
<td>ENVS 179</td>
<td>D2: Ecofeminism</td>
<td>3</td>
</tr>
<tr>
<td>ENVS 182</td>
<td>D2: Religion and Ecology</td>
<td>3</td>
</tr>
<tr>
<td>FREN 282</td>
<td>D2: Multiethnic France: 20-21C Lt</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 050</td>
<td>D2: World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 150</td>
<td>D2: Geography of Africa</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 151</td>
<td>D2: Geography of India</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 154</td>
<td>D2: Geography of Development</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 156</td>
<td>D2: Latin America</td>
<td>3</td>
</tr>
<tr>
<td>GRS 001</td>
<td>D2: Intro to Global Studies</td>
<td>3</td>
</tr>
<tr>
<td>GRS 200</td>
<td>D2: Seminar in Global Studies</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 001</td>
<td>D2: Gender Sexuality Wmn’s Stdy</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 100</td>
<td>D2: Gender and Feminism(s)</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 105</td>
<td>D2: LGBT Politics and History</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 113</td>
<td>D2: Women &amp; Religion in Africa</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 131</td>
<td>D2: Sex in Modern History</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 150</td>
<td>D2: Women and Gender in Society</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 165</td>
<td>D2: Gender, Sex, and Culture</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 179</td>
<td>D2: Ecofeminism</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 031</td>
<td>D2: Undoing Identity</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 167</td>
<td>D2: Sexual &amp; Gender Identities</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 242</td>
<td>D2: Development of Prejudice</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 243</td>
<td>D2: Cross Cultural Human Dev</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 267</td>
<td>D2: Adv Gender &amp; Sexual Iden</td>
<td>3</td>
</tr>
<tr>
<td>HLTH 103</td>
<td>D2: Intro to Global Health</td>
<td>3</td>
</tr>
<tr>
<td>HLTH 105</td>
<td>D2: Cultural Health Care</td>
<td>3</td>
</tr>
<tr>
<td>HLTH 145</td>
<td>D2: Women’s Hlth &amp; Spirituality</td>
<td>3</td>
</tr>
<tr>
<td>HLTH 210</td>
<td>D2: Health and Culture: Oaxaca</td>
<td>3</td>
</tr>
<tr>
<td>HLTH 211</td>
<td>D2: Sustainable Dev Pub Hlth</td>
<td>3</td>
</tr>
<tr>
<td>HS 112</td>
<td>D2: History of Zionism to 1948</td>
<td>3</td>
</tr>
<tr>
<td>HS 119</td>
<td>D2: Modern Jewish History</td>
<td>3</td>
</tr>
<tr>
<td>HST 009</td>
<td>D2: Global History to 1500</td>
<td>0.3</td>
</tr>
<tr>
<td>HST 010</td>
<td>D2: Global History Since 1500</td>
<td>3</td>
</tr>
<tr>
<td>HST 035</td>
<td>D2: History of India to 1750</td>
<td>3</td>
</tr>
<tr>
<td>HST 036</td>
<td>D2: History of India since 1750</td>
<td>3</td>
</tr>
<tr>
<td>HST 040</td>
<td>D2: African History to C-1870</td>
<td>3</td>
</tr>
<tr>
<td>HST 041</td>
<td>D2: Africa C-1870 to Present</td>
<td>3</td>
</tr>
<tr>
<td>HST 045</td>
<td>D2: Hat Islam &amp; Middle E to 1258</td>
<td>3</td>
</tr>
<tr>
<td>HST 046</td>
<td>D2: Hat Islam &amp; Middle E Since 1258</td>
<td>3</td>
</tr>
<tr>
<td>HST 055</td>
<td>D2: History of China and Japan</td>
<td>3</td>
</tr>
<tr>
<td>HST 062</td>
<td>D2: Colonial Latin Amer Hist</td>
<td>3</td>
</tr>
<tr>
<td>HST 063</td>
<td>D2: Modern Latin Amer History</td>
<td>3</td>
</tr>
<tr>
<td>HST 067</td>
<td>D2: Global Env History</td>
<td>3</td>
</tr>
<tr>
<td>HST 106</td>
<td>D2: Himalayas: 1750 to Present</td>
<td>3</td>
</tr>
<tr>
<td>HST 107</td>
<td>D2: Visual Cultures of India</td>
<td>3</td>
</tr>
<tr>
<td>HST 112</td>
<td>D2: History of Zionism to 1948</td>
<td>3</td>
</tr>
<tr>
<td>HST 119</td>
<td>D2: Modern Jewish History</td>
<td>3</td>
</tr>
<tr>
<td>HST 140</td>
<td>D2: W Africa: Holy War - Colonial</td>
<td>3</td>
</tr>
<tr>
<td>HST 141</td>
<td>D2: History of Southern Africa</td>
<td>3</td>
</tr>
<tr>
<td>HST 146</td>
<td>D2: Hist of Modern Southern Africa</td>
<td>3</td>
</tr>
<tr>
<td>HST 149</td>
<td>D2: Hist of Ancient Near East</td>
<td>3</td>
</tr>
<tr>
<td>HST 150</td>
<td>D2: Modern China</td>
<td>3</td>
</tr>
<tr>
<td>HST 151</td>
<td>D2: Modern Japan</td>
<td>3</td>
</tr>
<tr>
<td>HST 160</td>
<td>D2: Sex in Modern History</td>
<td>3</td>
</tr>
<tr>
<td>HST 211</td>
<td>D2: Cults of Colonialism: India</td>
<td>3</td>
</tr>
<tr>
<td>HST 240</td>
<td>D2: Compar Slavery: Hist Persp</td>
<td>3</td>
</tr>
<tr>
<td>HST 250</td>
<td>D2: Seminar in East Asian Hist</td>
<td>3</td>
</tr>
<tr>
<td>HST 252</td>
<td>D2: Seminar on China</td>
<td>3</td>
</tr>
<tr>
<td>MU 007</td>
<td>D2: Intro World Music Cultures</td>
<td>3</td>
</tr>
<tr>
<td>MU 107</td>
<td>D2: World Music Cultures</td>
<td>3</td>
</tr>
<tr>
<td>NFS 050</td>
<td>D2: Cheese and Culture</td>
<td>3</td>
</tr>
<tr>
<td>NFS 073</td>
<td>D2: Farm to Table: Our Food Sys</td>
<td>3</td>
</tr>
<tr>
<td>NFS 185</td>
<td>D2: Food and Culture</td>
<td>3</td>
</tr>
<tr>
<td>NH 202</td>
<td>D2: Social Justice and Health</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 121</td>
<td>D2: Chinese Philosophy I</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 221</td>
<td>D2: Topics in Chinese Phil</td>
<td>3</td>
</tr>
<tr>
<td>POLS 119</td>
<td>D2: LGBT Politics and History</td>
<td>3</td>
</tr>
<tr>
<td>POLS 157</td>
<td>D2: Int’l Politics Middle East</td>
<td>3</td>
</tr>
<tr>
<td>POLS 168</td>
<td>D2: Middle East Politics</td>
<td>3</td>
</tr>
</tbody>
</table>
### COURSE LIST

- Agriculture & Life Science (CALS) (p. 16)
- ALANA U.S. Ethnic Studies (ALAN) (p. 17)
- American Sign Language (ASL) (p. 17)
- Anatomy & Neurobiology (ANNB) (p. 18)
- Anatomy/Physiology (ANPS) (p. 18)
- Animal Sciences (ASCI) (p. 18)
- Anthropology (ANTH) (p. 18)
- Arabic (ARBC) (p. 20)
- Art Education (EDAR) (p. 20)
- Art History (ARTH) (p. 20)
- Art Studio (ARTS) (p. 20)
- A&S Interdisciplinary (AS) (p. 26)
- Astronomy (ASTR) (p. 27)
- Athletic Training (AT) (p. 28)
- Biochemistry (BIOC) (p. 29)
- BioCore (BCOR) (p. 30)
- Biological Sciences (BSCI) (p. 31)
- Biology (BIOL) (p. 31)
- Biomedical Technologies (BMT) (p. 33)
- Biomedical Technology (BMED) (p. 33)
- Business Administration (BSAD) (p. 33)
- Chemistry (CHEM) (p. 37)
- Chinese (CHIN) (p. 39)
- Civil & Environmental Engr (CE) (p. 40)
- Classics (CLAS) (p. 43)
- Comm Sciences & Disorders (CSD) (p. 44)
- Community Development & Applied Economics (CDAE) (p. 44)
- Complex Systems (CSYS) (p. 48)
- Computer Science (CS) (p. 49)
- Dance (DNCE) (p. 51)
- Early Childhood Pre K-3 (EDEC) (p. 52)
- Early Childhood Special Educ (ECSP) (p. 53)
- Economics (EC) (p. 53)
- Education (EDSS) (p. 55)
- Electrical Engineering (EE) (p. 56)
- Elementary Education (EDEL) (p. 57)
- Emergency Medical Technician (SURG) (p. 59)
- Engineering (ENGR) (p. 60)
- Engineering Management (EMGT) (p. 60)
- Engl for Spkrs of Other Langs (ESOL) (p. 60)
- English (ENGS) (p. 60)
- Engr & Math Sciences (CEMS) (p. 66)
- Environmental Sciences (ENSC) (p. 66)
- Environmental Studies (ENVS) (p. 67)
- Exercise & Movement Science (EXMS) (p. 69)
- Family&Consumer Sciences (EDFC) (p. 70)

<table>
<thead>
<tr>
<th>COURSE</th>
<th>DEPARTMENT/PROGRAM</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLS 174</td>
<td>D2: Latin American Politics</td>
<td>3</td>
</tr>
<tr>
<td>POLS 175</td>
<td>D2: Govt &amp; Politics of China</td>
<td>3</td>
</tr>
<tr>
<td>POLS 176</td>
<td>D2: Govt &amp; Politics of Japan</td>
<td>3</td>
</tr>
<tr>
<td>POLS 177</td>
<td>D2: Pol Sys of Trop Africa</td>
<td>3</td>
</tr>
<tr>
<td>POLS 266</td>
<td>D2: Politics of Persian Gulf</td>
<td>3</td>
</tr>
<tr>
<td>POLS 280</td>
<td>D2: Central Asian Politics</td>
<td>3</td>
</tr>
<tr>
<td>PRNU 241</td>
<td>D2: Public Health Nursing</td>
<td>0-6</td>
</tr>
<tr>
<td>PSS 003</td>
<td>D2: Coffee Ecol &amp; Livelihoods</td>
<td>3</td>
</tr>
<tr>
<td>REL 020</td>
<td>D2: Intro Rel:Comparative</td>
<td>3</td>
</tr>
<tr>
<td>REL 021</td>
<td>D2: Intro Rel:Asian Traditions</td>
<td>3</td>
</tr>
<tr>
<td>REL 026</td>
<td>D2: Intro Rel:African Religions</td>
<td>3</td>
</tr>
<tr>
<td>REL 029</td>
<td>D2: Intro Rel:Global Religion</td>
<td>3</td>
</tr>
<tr>
<td>REL 130</td>
<td>D2: Islam</td>
<td>3</td>
</tr>
<tr>
<td>REL 132</td>
<td>D2: Buddhist Traditions</td>
<td>3</td>
</tr>
<tr>
<td>REL 141</td>
<td>D2: Religion in Japan</td>
<td>3</td>
</tr>
<tr>
<td>REL 145</td>
<td>D2: Religion in China</td>
<td>3</td>
</tr>
<tr>
<td>REL 163</td>
<td>D2: Women &amp; Religion in Africa</td>
<td>3</td>
</tr>
<tr>
<td>REL 167</td>
<td>D2: Christianity in Africa</td>
<td>3</td>
</tr>
<tr>
<td>REL 234</td>
<td>D2: Buddhism in Sri Lanka</td>
<td>3</td>
</tr>
<tr>
<td>RMS 188</td>
<td>D2: Org&amp;Ldrship in AthTm&amp;Ex Sc</td>
<td>3</td>
</tr>
<tr>
<td>SOC 122</td>
<td>D2: Women &amp; Gender in Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 155</td>
<td>D2: Culture, Health and Healing</td>
<td>3</td>
</tr>
<tr>
<td>SOC 171</td>
<td>D2: Soc Chng&amp;Dev Persp 3rd Wrld</td>
<td>3</td>
</tr>
<tr>
<td>SOC 212</td>
<td>D2: Int’l Migration &amp; U.S. Soc</td>
<td>3</td>
</tr>
<tr>
<td>SOC 218</td>
<td>D2: Disability as Deviance</td>
<td>3</td>
</tr>
<tr>
<td>SOC 272</td>
<td>D2: Soc of African Societies</td>
<td>3</td>
</tr>
<tr>
<td>SWSS 047</td>
<td>D2: Theories in Social Work I</td>
<td>3</td>
</tr>
<tr>
<td>SWSS 048</td>
<td>D2: Theories in Social Work II</td>
<td>3</td>
</tr>
<tr>
<td>SWSS 147</td>
<td>D2: Theories in Social Work I</td>
<td>3</td>
</tr>
<tr>
<td>SWSS 148</td>
<td>D2: Theories in Social Work II</td>
<td>3</td>
</tr>
<tr>
<td>SWSS 229</td>
<td>D2: Soc Work&amp;Disability Rights</td>
<td>3</td>
</tr>
<tr>
<td>WLIT 020</td>
<td>D2: Literatures of Globaliztn</td>
<td>3</td>
</tr>
<tr>
<td>WLIT 109</td>
<td>D2: Japanese Lit-Premodern</td>
<td>3</td>
</tr>
<tr>
<td>WLIT 119</td>
<td>D2: Japanese Literature-Modern</td>
<td>3</td>
</tr>
<tr>
<td>WLIT 145</td>
<td>D2: Comparative Epic</td>
<td>3</td>
</tr>
</tbody>
</table>
• Film & Television Studies (FTS) (p. 70)
• Foreign Language (LANG) (p. 71)
• Forestry (FOR) (p. 72)
• Foundations (EDFS) (p. 73)
• French (FREN) (p. 73)
• Geography (GEOG) (p. 75)
• Geology (GEOL) (p. 77)
• German (GERM) (p. 79)
• Global and Regional Studies (GRS) (p. 81)
• Gndr, Sexuality, & Wms Stdies (GSWS) (p. 82)
• Greek (GRK) (p. 83)
• Health Education (EDHE) (p. 84)
• Health (HLTH) (p. 84)
• Hebrew (HEBR) (p. 86)
• HELiX (HLX) (p. 86)
• Higher Education (EDHI) (p. 87)
• History (HST) (p. 87)
• Holocaust Studies (HS) (p. 92)
• Honors: Arts & Sciences (HON) (p. 93)
• Honors College (HCOL) (p. 94)
• Human Development & Fam Stdies (HDFS) (p. 94)
• Humanities (HUMN) (p. 96)
• Italian (ITAL) (p. 96)
• Japanese (JAPN) (p. 97)
• Latin (LAT) (p. 97)
• Learning Studies (EDLS) (p. 98)
• Linguistics (LING) (p. 98)
• Mathematics (MATH) (p. 99)
• Mechanical Engineering (ME) (p. 102)
• Medical Lab & Radiation Sci (MLRS) (p. 105)
• Medical Laboratory Science (MLS) (p. 106)
• Microbiology & Molecular Genetics (MMG) (p. 106)
• Middle Level Teacher Education (EDML) (p. 108)
• Military Studies (MS) (p. 109)
• Molecular Physiology & Biophysics (MPBP) (p. 109)
• Movement Sciences & Rehabilitation (MVSR) (p. 110)
• Music Education (EDMU) (p. 110)
• Music (MU) (p. 110)
• Natural Resources (NR) (p. 115)
• Neurology (NEUR) (p. 117)
• Neuroscience (NSCI) (p. 117)
• Nuclear Medicine Technology (NMT) (p. 118)
• Nursing & Health Sciences (NH) (p. 118)
• Nursing (NURS) (p. 119)
• Nutrition and Food Sciences (NFS) (p. 119)
• Overseas Study Program (OSSP) (p. 121)
• Parks, Recreation and Tourism (PRT) (p. 121)
• Pathology (PATH) (p. 121)
• Philosophy (PHIL) (p. 121)
• Physical Education Activities (PEAC) (p. 123)
• Physical Education-Prof (EDPE) (p. 125)
• Physical Therapy (PT) (p. 127)
• Physics (PHYS) (p. 127)
• Plant & Soil Science (PSS) (p. 129)
• Plant Biology (PBIO) (p. 131)
• Political Science (POLS) (p. 132)
• Portuguese (PORT) (p. 136)
• Professional Nursing (PRNU) (p. 136)
• Psychology (PSYC) (p. 137)
• Public Administration (PA) (p. 140)
• Public Health (PH) (p. 140)
• Radiation Therapy (RADT) (p. 140)
• Rehabilitation & Movement Sci (RMS) (p. 140)
• Religion (REL) (p. 141)
• Russian (RUSS) (p. 143)
• Secondary Education (EDSC) (p. 144)
• Social Work (SWSS) (p. 145)
• Sociology (SOC) (p. 147)
• Spanish (SPAN) (p. 151)
• Special Education (EDSP) (p. 153)
• Speech (SPCH) (p. 154)
• Statistics (STAT) (p. 155)
• Teacher Education (EDTE) (p. 157)
• Theatre (THE) (p. 157)
• Vermont Studies (VS) (p. 159)
• Wildlife & Fisheries Biology (WFB) (p. 160)
• Women’s & Gender Studies (WGST) (p. 161)
• World Literature (WLIT) (p. 161)

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. 0.5-12 Credits.
Appropriate for interdepartmental and interdisciplinary topics in Agriculture and Life Sciences. Permission of Dean’s Office.

CALS 196. Special Topics. 1-12 Credits.
Appropriate for interdepartmental and interdisciplinary topics in Agriculture and Life Sciences. Permission of Dean’s Office.

ALANA U.S. ETHNIC STUDIES (ALAN)

Courses

ALAN 051. D1: Intr ALANA US Ethnic Stdies. 3 Credits.
Survey of the experience of ALANA peoples in the U.S. as well as a theoretical analysis of issues of race, culture, gender, and diverse traditions in the American multicultural setting.

ALAN 055. Racism and American Culture. 3 Credits.
Survey and analysis of racism in the development of American institutions and its effects upon ALANA groups and societies.

ALAN 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.

ALAN 095. Introductory Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

ALAN 096. Introductory Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

ALAN 158. Amer Multicultural Heritage. 3 Credits.
History and culture of ALANA groups, their role in and contributions to the American cultural heritage. Prerequisites: ALAN 051 or ALAN 055 or having previously satisfied the College of Arts and Sciences Race and Ethnicity requirement.

ALAN 159. Am Cultrl Images ALANA People. 3 Credits.
Comparative study of ALANA groups and the stereotypical and archetypal impressions projected on peoples of color in American society. Prerequisites: ALAN 051 or ALAN 055 or having previously satisfied the College of Arts and Sciences Race and Ethnicity requirement.

ALAN 191. Field Experience: Internship. 3 Credits.
Prerequisites: Field experience; six hours of 100-level courses in appropriate field; Program Director permission. A contract must be obtained from and returned to the ALANA Studies program during preregistration.

ALAN 192. Field Experience Seminar. 3 Credits.
Prerequisites: Field experience; six hours of 100-level courses in appropriate field; Program Director permission. A contract must be obtained from and returned to the ALANA Studies program during preregistration.

ALAN 195. Intermediate Special Topics. 1-18 Credits.
Intermediate courses or seminars beyond the scope of existing ALANA U.S. Ethnic Studies offerings. See Schedule of Courses for specific titles. Prerequisite: Sophomore standing.

ALAN 196. Intermediate Special Topics. 1-18 Credits.
Intermediate courses or seminars beyond the scope of existing ALANA U.S. Ethnic Studies offerings. See Schedule of Courses for specific titles. Prerequisite: Sophomore standing.

ALAN 197. Readings and Research. 1-12 Credits.

ALAN 198. Readings and Research. 1-12 Credits.

ALAN 269. D1: Cross-Cultrl Psyc:Clin Prsp. 3 Credits.
Introduction to issues posed for psychologists in their work with ALANA (African, Latino/a, Native, and Asian American) and international populations. Critical appraisal of readings, research and case studies. Prerequisite: PSYC 001, PSYC 109. Cross-listed with: PSYC 269.

ALAN 277. Sem in ALANA US Ethnic Stdy. 3 Credits.
Interdisciplinary examination of theories on the position of ALANA peoples in U.S. culture and society. Emphasis on relationship between race, class, gender, and ethnicity. Prerequisites: Six hours in ALANA U.S. Ethnic Studies; admission to ALANA U.S. Ethnic Studies minor program.

ALAN 295. Advanced Special Topics. 1-18 Credits.
Advanced courses or seminars on topics beyond the scope of existing departments. See Schedule of Courses for specific titles. Prerequisite: Junior standing.

ALAN 296. Advanced Special Topics. 1-18 Credits.
Advanced courses or seminars on topics beyond the scope of existing departments. See Schedule of Courses for specific titles. Prerequisite: Junior standing.

ALAN 297. Independent Study. 3 Credits.
Special topics in consultation with ALANA U.S. Ethnic Studies faculty. Prerequisite: Permission of Program Director; Junior standing.

ALAN 298. Independent Study. 3 Credits.
Special topics in consultation with ALANA U.S. Ethnic Studies faculty. Prerequisite: Permission of Program Director; Junior standing.

AMERICAN SIGN LANGUAGE (ASL)

ALAN 269. D1: Cross-Cultrl Psyc:Clin Prsp. 3 Credits.
Introduction to issues posed for psychologists in their work with ALANA (African, Latino/a, Native, and Asian American) and international populations. Critical appraisal of readings, research and case studies. Prerequisite: PSYC 001, PSYC 109. Cross-listed with: PSYC 269.

ALAN 277. Sem in ALANA US Ethnic Stdy. 3 Credits.
Interdisciplinary examination of theories on the position of ALANA peoples in U.S. culture and society. Emphasis on relationship between race, class, gender, and ethnicity. Prerequisites: Six hours in ALANA U.S. Ethnic Studies; admission to ALANA U.S. Ethnic Studies minor program.

ALAN 295. Advanced Special Topics. 1-18 Credits.
Advanced courses or seminars on topics beyond the scope of existing departments. See Schedule of Courses for specific titles. Prerequisite: Junior standing.

ALAN 296. Advanced Special Topics. 1-18 Credits.
Advanced courses or seminars on topics beyond the scope of existing departments. See Schedule of Courses for specific titles. Prerequisite: Junior standing.

ALAN 297. Independent Study. 3 Credits.
Special topics in consultation with ALANA U.S. Ethnic Studies faculty. Prerequisite: Permission of Program Director; Junior standing.

ALAN 298. Independent Study. 3 Credits.
Special topics in consultation with ALANA U.S. Ethnic Studies faculty. Prerequisite: Permission of Program Director; Junior standing.
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 095. Introductory Special Topics. 0-18 Credits.

ANATOMY & NEUROBIOLOGY (ANNB)

Courses

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. Undergrad Research. 1-6 Credits.
Individual laboratory research under guidance of faculty member. Prerequisite: Department permission.

ANNB 198. Undergrad Research. 1-6 Credits.
Individual laboratory research under guidance of faculty member. 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 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.

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 095. Introductory Special Topics. 1-4 Credits.

ANPS 096. Introductory Special Topics. 1-4 Credits.

ANIMAL SCIENCES (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.

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 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.

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. Prerequisite: ASCI 001; a Biology course, or Instructor permission.

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. Prerequisite: 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. Prerequisite: Sophomore standing.

ASCI 125. Equine Instructing Techniques. 0 or 3 Credits.
Examines philosophies, concepts and teaching-learning strategies needed for the development of sound equine instructing skills. Prerequisite: ASCI 115 or Instructor Permission.

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. Prerequisite: Sophomore/Junior 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. Prerequisite: Sophomore/Junior 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: BIOL 001; a chemistry course, or Instructor permission.

ASCI 143. Forage and Pasture Mgmnt. 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 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: 2 + 2 FARMS or CREAM or Instructor permission.

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. Prerequisites: BIOL 001 or BCOR 011 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 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: Sophomore standing.

ASCI 191. Intermediate Special Topics. 0.5-15 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. Prerequisite: 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. Prerequisite: 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. Prerequisites: ASCI 115 or 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 or 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. Prerequisites: ASCI 141 or Instructor permission.
ASCI 216. Endocrinology. 3 Credits.
Physiology of endocrine and autocrine/paracrine systems and growth factors. 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 222. 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. Prerequisites: ASCI 110, ASCI 134 or ASCI 135 or equivalents. Fifteen hours.

ASCI 223. 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. Prerequisites: ASCI 110, ASCI 134 or ASCI 135 or equivalents. Fifteen hours.

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). Prerequisite: FARMS Program enrollment; ASCI 156.

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. Prerequisite: 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. Prerequisite: 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: 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: 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: 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 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: ANTH 024.

ANTH 105. Sophomore Proseminar in Anthro. 1 Credit.
Sophomore proseminar in Anthropology focusing on skill-building, course selection, internships, service learning, research or teaching assistantships, study abroad, fieldwork, senior projects/theses, and grant opportunities. Prerequisites: At least one of the following: ANTH 021, ANTH 024, ANTH 026, ANTH 028; Sophomore standing; Anthropology major.

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. Prerequisites: 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. Pre/co-requisite: 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. Pre/co-requisite: 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. Pre/co-requisites: 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. Pre/co-requisite: 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. Pre/co-requisite: ANTH 021 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. Prerequisite: ANTH 021. Alternate years.

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 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 163. D2: South Pacific Cultures. 3 Credits.
Survey of major cultural areas of the South Pacific including problems of prehistory, contact with Western colonialism, and contemporary life. Prerequisite: ANTH 021. Alternate years.

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. Prerequisites: 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. Pre/co-requisite: 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. Pre/co-requisite: ANTH 021 or three credits of Sociology. Cross-listed with: SOC 155.

ANTH 176. Topics in Linguistic Anthro. 3 Credits.
Intermediate level special topics in linguistic anthropology. Pre/co-requisites: ANTH 028 or CSD 080.

ANTH 177. 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: 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. Pre/co-requisite: ANTH 021, ANTH 023, and 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. Pre/co-requisite: 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. Alternate years.

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. Pre/co-requisite: ANTH 021 or SOC 020. Alternate years.

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 Assistant Practicum. 1-3 Credits.
Provides undergraduate Teaching Assistants with a formal academic structure to support their learning while they assist department faculty as Teaching Assistants. Prerequisite: Instructor permission.

ANTH 195. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

ANTH 196. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

ANTH 197. Readings & Research. 1-6 Credits.

ANTH 198. Readings & Research. 1-12 Credits.

ANTH 200. Field Work in Archaeology. 6 Credits.
Methods and techniques of archaeological investigation in field situations and the laboratory analysis of data. Pre/co-requisites: ANTH 024, and one 100-level course in Anthropology or History, or Instructor permission.

ANTH 201. Practicum & Internship. 1-12 Credits.
Supervised service or research integrating theoretical and practical anthropological issues. Prerequisite: Nine hours of Anthropology.

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. Pre/co-requisites: ANTH 021; one 100-level ANTH 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. Pre/co-requisites: ANTH 021 and one 100-level ANTH 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 ANTH 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, one 100-level Anthropology course; or HP 201; or graduate standing in Historic Preservation Program, or HIST 121, HIST 122, or HIST 149. Alternate years.

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 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: 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, 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 ANTH.

ANTH 250. Museum Anthropology. 3 Credits.
The cultural context of selected archaeological and ethnographic collections at Fleming Museum; cataloging, 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 100-level Anthropology or Linguistics course. Cross-listed with: LING 272.

ANTH 276. Adv Topics in Linguistics. 3 Credits.
Advanced special topics in linguistics, sociolinguistics and linguistic anthropology. Pre/co-requisites: ANTH 028 and one 100-level Anthropology course 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, or ANTH 021, six hours in the social sciences. Alternate years.

ANTH 274. 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. Pre/Co-requisites: ANTH 028 or LING 080 and one Anthropology or Linguistics course at the 100 level or above. Cross-listed with: LING 284.

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. Alternate years.

ANTH 295. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles. Prerequisites: ANTH 021, one 100-level course.

ANTH 296. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles. Prerequisites: ANTH 021, one 100-level course.

ANTH 297. Advanced Readings & Research. 1-3 Credits.
Prerequisite: Junior/Senior standing.

ANTH 298. Advanced Readings & Research. 1-3 Credits.
Prerequisite: Junior/Senior standing.

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.
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 HISTORICAL (ARTH)

Courses

ARTH 05. 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 06. 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 08. 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 09. 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.
AR TH 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.

AR TH 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.

AR TH 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.

AR TH 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.

AR TH 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. Prerequisites: three hours of Art History, preferably ARTH 172 or ARTH 181. Alternate years.

AR TH 176. Identity Diversity Postmod Art. 3 Credits.
Examination of art since 1960 with an emphasis on questions relating to identity and diversity. Prerequisite: Three hours in Art History or Instructor permission.

AR TH 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.

AR TH 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: Three hours in Art History.

AR TH 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: three hours of Art History.

AR TH 180. N American Art 1600-1900. 3 Credits.
Painting, sculpture, and architecture in the U.S. and Canada from Colonial beginnings (Hispanic, Franco, Anglo) to WWI. Emphasis on the development of nationalist sensibilities as they emerge from European sources. Prerequisites: ARTH 006 or GRS 091 (Canada).

AR TH 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.

AR TH 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.

AR TH 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.

AR TH 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.

AR TH 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.

AR TH 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.

AR TH 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.

AR TH 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.

AR TH 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.

AR TH 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.

AR TH 198. Readings & Research. 1-6 Credits.
Prerequisite: Department permission.

AR TH 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.

AR TH 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.
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. Prerequisites: ARTS 012 and one of the following: ARTH 005, ARTH 006, or ARTH 008.

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 and one of the following: ARTH 005, ARTH 006, or ARTH 008.

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 and one of the following: ARTH 005, ARTH 006, or ARTH 008.

ARTS 116. Drawing From the Figure. 3 Credits.
Drawing from the model, emphasizing in-depth studies in different media. Prerequisites: ARTS 001 and one of the following: ARTH 005, ARTH 006 or ARTH 008.

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, and one of the following: ARTH 005, ARTH 006 or ARTH 008.

ARTS 131. Printmaking: Etching. 3 Credits.
Studio class using non-chemical procedures with copper plates. Prerequisites: ARTS 001 or ARTS 012, and one of the following: ARTH 005, ARTH 006 or ARTH 008.

ARTS 132. Printmaking: Silkscreen. 3 Credits.
Studio class focusing on procedures in stencil printing that use photo-silk screen technology. Prerequisites: ARTS 001 or ARTS 012, and one of the following: ARTH 005, ARTH 006 or ARTH 008.

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. Prerequisites: ARTS 001 and ARTS 002.

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, and one of the following: ARTH 005, ARTH 006, or ARTH 008.

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, and one of the following: ARTH 005, ARTH 006, or ARTH 008.

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, and one of the following: ARTH 005, ARTH 006, or ARTH 008.

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 141, and one of the following: FTS 007, FTS 008, or FTS 009 or ARTH 005, ARTH 006, or ARTH 008.

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, and one of the following: ARTH 005, ARTH 006, or ARTH 008.

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, and one of the following: ARTH 005, ARTH 006, or ARTH 008.
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, or one of the following: ARTH 005, ARTH 006, or ARTH 008.

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 one of the following: FTS 007, FTS 008, FTS 009, or FTS 010, and either FTS 121 or ARTH 140.

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. Rdgs&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. Prerequisite: ARTS 144; 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.
Advanced seminar for senior studio art majors covering a range of topics. Prerequisites: Senior standing; Instructor 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.

A&S INTERDISCIPLINARY (AS) Courses

AS 095. Focus:First Year Seminar. 1-3 Credits.
See Schedule of Courses for specific titles.

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.
Courses

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

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 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 195. Special Topics in Athl Trng. 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.

BIOCHEMISTRY (BIOC)

Courses

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 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. Cross-listed with: MMG 240. Alternate years.

BIOC 284. Biochemistry Senior Seminar. 1 Credit.
Oral and written presentation of a subject of current biochemical interest. Prerequisites: Audit of BIOC 381. Cross-listed with: CHEM 284, MMG 284.

BIOC 295. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

BIOC 296. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

BIOCORE (BCOR)

Courses

BCOR 011. Exploring Biology. 0 or 4 Credits.
Exploring biology from cells to organisms. Topics include origins of life; ancestral organisms; uni- and multi- cellular energetics; evolution of respiration and metabolism; and the genetic code. Credit not given for both BCOR 011 and BIOL 001. 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 032.

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. Pre/co-requisite: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012; CHEM 031, CHEM 032, organic chemistry recommended.

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. Pre/co-requisite: BIOL 001 and BIOL 002 or BCOR 011 and BCOR 012; 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.

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.
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.

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. 0-18 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. Prerequisite: BCOR 101, BIOL 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-requisites: 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 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. 1-18 Credits.
See Schedule of Courses for specific titles.

BIOL 296. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

BIOL 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.

BIOL 299. Advanced Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

BIOMEDICAL TECHNOLOGIES (BMT)

BIOMEDICAL TECHNOLOGY (BMED)

BUSINESS ADMINISTRATION (BSAD)

Courses

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.

BSAD 015. Business Communications. 3 Credits.
Provides students a basic understanding of professional business communications.

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. Pre/co-requisites: BSAD 010, BSAD 015, EC 011 and 012, MATH 019 and MATH 020 or MATH 021, and STAT 141.

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. Pre/co-requisites: BSAD 060, MATH 019 and MATH 020 or MATH 021, and STAT 141.

BSAD 035. Workplace Communications. 1 Credit.
Students enrolled must participate in an approved internship. Exploration of classroom theory applied to workplace. Focus on communication and writing. Prerequisites: Business major or minor; Sophomore standing.

BSAD 040. Information Technology & Mgmt. 0 or 3 Credits.
Introduction to use of technology and computers in decision-making functions of management. Includes coverage of information technology, computer software applications, and programming. Credit cannot be received for CS 002 or CS 003 after completion of BSAD 040. Students required to bring laptop with BSAD software to every class. Pre/co-requisite: BSAD 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. Prerequisites: BSAD majors or minors, CSIS, EMGT; Sophomore standing. Credit will be granted for only one of BSAD 060 or BSAD 065.

BSAD 061. Managerial Accounting. 3 Credits.
Introduction to use of accounting for planning, cost behavior, budgeting, analysis and decision making. Prerequisites: BSAD 060 or BSAD 065; BSAD majors or minors, CSIS, EMGT; Sophomore standing.

BSAD 095. Special Topics. 0-6 Credits.
See Schedule of Courses for specific titles.

BSAD 096. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

BSAD 101. Business Savvy. 6 Credits.
Introduces non-business majors to the fundamentals of accounting, finance, marketing, operations, human resources, and strategy. Students also participate in an integrative, comprehensive business simulation. Pre/co-requisites: Non-BSAD majors only; Junior, Senior, or recent Graduate standing; minimum GPA = 2.5; or Instructor permission.

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. Prerequisite: 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. Prerequisite: 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. Prerequisite: 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. Prerequisite: BSAD 120.

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. Prerequisite: BSAD 120.

BSAD 127. International Management. 3 Credits.
Reviews special problems in the management of human resources in a global economy. Focuses on cultural differences, a comparison of labor-management systems in a number of countries, the role of multinational corporations, and the impact of foreign enterprises on employment practices in host countries. Prerequisite: BSAD 120; Senior standing.

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. Pre/co-requisites: EC 011 and EC 012; Junior standing.

BSAD 137. Entrepreneurial Leadership. 3 Credits.
This experiential course is suitable for students aiming for leadership roles in an existing organization or for those who want to launch a new venture. Prerequisite: Junior standing.

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 137 or permission of the Instructor; Senior standing.

BSAD 141. Info, Technology & Bus Systems. 3 Credits.
Introduces business information systems and how they enable better managerial decision-making. Discusses problems in analyzing, designing, and implementing such systems. Pre/co-requisites: BSAD 060 and BSAD 061 or BSAD 065; BSAD 040 or Computer Science major.

BSAD 142. Structured Business Prgmmng. 0 or 3 Credits.
Fundamental principles of business computer programming. Topics include: the constructs of structured programming, modular development, sequential and nonsequential access techniques. Exercises include data editing, reporting, file updating. An on-line program development mode is used. Credit cannot be received for both CS 014 and BSAD 142. Prerequisite: BSAD 141.

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. Prerequisite: BSAD 141.

BSAD 144. Data Base Development & Admin. 3 Credits.
Data base system development cycle from analysis to design, implementation, and administration. Central focus on complex data structure modeling, data base implementation and administration. A project involving analysis, design, and implementation required. Prerequisite: BSAD 141, BSAD 143, or Instructor permission.

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. Pre/co-requisites: BSAD 120, BSAD 141, concurrent enrollment in BSAD 144, or Instructor permission.

BSAD 146. Business Data Communications. 3 Credits.
The course covers basic concepts of data communications, networking, and network management and security. Focus is on local area networking (LAN) technologies and protocols. Includes various hands on lab-based exercises. Pre/co-requisite: BSAD 141; BSAD majors only; Junior standing.

BSAD 147. Green IT & Virtualization. 3 Credits.
This course will analyze the environmental, managerial and economic benefits of emerging IT platforms for data center, systems continuity, remote workforce and e-waste management. Pre/co-requisites: BSAD 040, BSAD 141, CS 002, CS 003, or CALS 085.

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: STAT 141; EC 011, EC 012; Junior standing.

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. Prerequisite: BSAD 150.

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. Prerequisite: BSAD 150.
BSAD 155. Marketing Communications. 3 Credits.
Emphasizes the coordination of advertising and sales promotion into cohesive, single-minded promotional programs. Stress the need to integrate promotional activity into the overall marketing strategy. Prerequisite: BSAD 150. Credit cannot be received for both CDAE 128 and BSAD 155.

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. Pre/co-requisite: BSAD 150; BSAD major or minor; 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. Pre/co-requisites: BSAD 060; 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/ BSAD 261; 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. Pre/co-requisite: BSAD 150.

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: STAT 141, EC 011, EC 012; 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. Pre/co-requisites: MATH 020 or MATH 021, STAT 141, and Junior standing.

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. Prerequisite: Senior standing in Engineering or Business Administration. Cross-Listed with: EMGT 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. Prerequisite: MATH 020 or MATH 021, STAT 141 or equivalent; 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, BSAD 061, EC 011, EC 012, and STAT 141; Junior standing.

BSAD 181. Intermediate Financial Mgmt. 3 Credits.
Examines key areas of financial decision making. With cases and problems, issues such as capital budgeting, leasing, mergers, and acquisitions examined. Prerequisite: BSAD 180.

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. Prerequisite: BSAD 180.

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. Prerequisite: BSAD 180.

BSAD 191. Strategy and Competition. 0 or 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. Pre/co-requisites: Senior standing; BSAD 120, BSAD 150, BSAD 180; Recommended to take after completing all BSAD Field Courses.

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. Prerequisite: 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: BSAD Honors College students only; Junior standing; completion of the basic business core courses.

BSAD 194. Internship. 3 Credits.
Independent research under faculty supervision, in connection with a preprofessional work experience. Written requirements include a substantive analysis of an aspect of the internship, linking it with the academic curriculum. Prerequisite: Completion of the Basic Business Core courses; at least one Business Field Course; cumulative GPA of at least a 3.0; permission of the School of Business Administration.

BSAD 195. Special Topics. 1-18 Credits.
Specialized or experimental courses offered as resources permit.

BSAD 196. Special Topics. 1-18 Credits.
Specialized or experimental courses offered as resources permit.

BSAD 197. Independent Study. 1-6 Credits.
Independent investigation designed by the student as a means of applying prior course work to a specialized problem. Well suited for senior projects. Prerequisite: Permission of BSAD Undergraduate Studies Committee.
BSAD 198. Independent Study. 1-6 Credits.
Independent investigation designed by the student as a means of applying prior course work to a specialized problem. Well suited for senior projects. Prerequisite: Permission of BSAD Undergraduate Studies Committee.

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. Prerequisite: BSAD 120; Senior standing.

BSAD 226. Current Iss in Mgmt & Org Thry. 1-3 Credits.
Subjects may include training and development, selection and recruitment, and affirmative action. Prerequisite: BSAD 120.

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. Prerequisite: BSAD 150.

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 251 and Instructor permission.

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. Pre/co-requisites: BSAD 150; BSAD majors or minors, MBA or Senior 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: Junior/Senior/Graduate standing; BSAD 150 or permission of the Instructor.

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. Pre/co-requisites: BSAD majors/minors; Senior or Graduate standing; BSAD 180 or BSAD 308.

BSAD 263. Environmntl & Social Reporting. 3 Credits.
An examination of voluntary and mandatory reporting of environmental and other social activities along with related issues through readings and research. Prerequisites: Junior standing; BSAD 061 or BSAD 065 or BSAD 306.

BSAD 264. Intro to Federal Taxation. 3 Credits.
An introduction to US federal taxation as it applies to individuals and business entities including proprietorships, partnerships, C Corporations, S Corporations. Pre/co-requisites: BSAD majors/minors; Senior or Graduate standing; BSAD 060 and BSAD 061 or their equivalent.

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. Pre/co-requisites: BSAD majors/minors; Senior or Graduate standing; BSAD 060 and BSAD 061 or their equivalent.

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. Pre/co-requisites: BSAD majors/minors; Senior or Graduate standing; BSAD 162, BSAD 265.

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 061 or BSAD 306 or equivalent; Senior/Graduate standing.

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. Prerequisite: STAT141, MATH 020 or MATH 021.

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. Pre/co-requisite: BSAD 180 or BSAD 308.

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

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 180; Instructor invitation only.

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. Pre/co-requisites: BSAD 180; BSAD major, minor, MBA, Junior standing.
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 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 standing.

BSAD 299. Business Admin Honors Thesis. 3-6 Credits.
Honors thesis dealing with business administration topics. Honors College students only. Pre/co-requisite: By application only; See BSAD honors faculty advisor.

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 or 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 permission of department.

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 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 095. Intro Special Topics. 0-18 Credits.
See Schedule of Courses for specific titles.

CHEM 096. Intro Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

CHEM 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: Credit for or concurrent enrollment in CHEM 142 or CHEM 144.

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: CHEM 142 or CHEM 144.

CHEM 161. Quantum Chemistry. 3 Credits.
Fundamentals of quantum mechanics, with applications to atomic structure, bonding, and spectroscopy. Introduction to statistical mechanics. Prerequisites: CHEM 032 or CHEM 036, PHYS 152 or equivalent, and CHEM 167 or MATH 121.

CHEM 162. Thermodynamics & Kinetics. 3 Credits.
Properties of gases and solutions, equilibria, thermodynamics and kinetics. Prerequisites: CHEM 032 or CHEM 036, PHYS 012 or PHYS 152 or equivalent.

CHEM 167. Physical Chemistry Preparation. 1 Credit.
Review of relevant mathematical and physical concepts as applied to physical chemistry. Prerequisite: CHEM 032 or CHEM 036; MATH 022. Cross-listed with: MATH 167.

CHEM 195. Intermediate Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

CHEM 196. Intermediate Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

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

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. Prerequisite: 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: CHEM 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. Co-requisite: CHEM 202 or CHEM 206. 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.

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. Prerequisites: CHEM 142 or CHEM 144. Credit for or concurrent enrollment in CHEM 161.

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; 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, CHEM 161, and CHEM 162 strongly recommended.

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 262. Chemical Thermodynamics. 3 Credits.
Classical and statistical thermodynamics. Systematic study of applications of thermodynamics to chemical problems. Prerequisite: CHEM 161 and 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. Prerequisite: Senior standing. Cross-listed with: BIOC 284, MMG 284.

CHEM 285. Special Topics. 1-3 Credits.

CHEM 286. Special Topics. 1-3 Credits.

CHEM 289. Undergraduate Research. 1-4 Credits.
Research in chemistry in a faculty member’s laboratory. Prerequisite: Departmental permission. Credit as arranged with maximum of four hours per semester and 12 hours total.

CHEM 295. Advanced Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

CHEM 296. Advanced Special Topics. 1-6 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 095. Special Topics. 1-6 Credits.
Introductory courses on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

CHIN 096. Special Topics. 1-6 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 101 designed with more 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. Prerequisites: 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. Pre-requisite: CHIN 121.

CHIN 195. Intermediate Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

CHIN 196. Intermediate Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

CHIN 197. Readings & Research. 1-6 Credits.
Individual research project or directed reading in area of special interest to student. Prerequisite: Instructor permission. Variable credit.

CHIN 198. Readings & Research. 1-6 Credits.
Individual research project or directed reading in area of special interest to student. Prerequisite: Instructor permission. Variable credit.

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 295. Advanced Special Topics. 1-12 Credits.
Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: CHIN 202 or equivalent.

CHIN 296. Advanced Special Topics. 1-12 Credits.
Advanced courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles. Prerequisite: CHIN 202 or equivalent.

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: Pre-Engineering Technical (PET) Core Completion.

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. Intro to Civil & Envir Engr. 0 or 2 Credits.
Introduces Civil and Environmental Engineering through hands-on-design, group projects, inquiry-based learning, systems thinking, critical thinking, and computational exercises.

CE 010. Geometrics. 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: Pre-Engineering Technical (PET) Core Completion.

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 and CE 170.

CE 132. 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). Prerequisite: Pre-Engineering Technical (PET) Core Completion.

CE 133. Transportation Systems. 3 Credits.
Transportation systems planning, analysis, and design with foci on safety, modeling, decision support, and environmental impacts. Prerequisites: CE 132. Co-requisite: CS 020.

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; Junior standing in CE, or Instructor permission.

CE 150. Environmental Engineering. 3 Credits.
Basic phenomena and theoretical principles underlying water supply, air and water pollution control, and industrial hygiene. Prerequisite: CHEM 031 or CHEM 025; MATH 022.

CE 151. Water & Wastewater Engineering. 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. 0 or 4 Credits.
Mechanics of incompressible fluids; flow meters; flow in closed conduits and open channels; elements of hydraulic machinery; laboratory studies of flow and hydraulic machinery. Prerequisites: CE 001, MATH 121. Co-requisites: MATH 271, CS 020 or CS 016.

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: CE 100, MATH 271, CS 020.

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. 0 or 4 Credits.
Characteristics and classification of soils; physical, mechanical and hydraulic properties of soils; seepage; the effective stress principle; stress distribution, consolidation, settlement; shear strength; laboratory testing. Prerequisite: CE 100.

CE 191. Special Projects. 3 Credits.
Investigation of special topic under guidance of faculty member. Library investigations, unique design problems, laboratory and field studies. Prerequisite: Senior standing; Department permission.

CE 192. Special Projects. 3 Credits.
Investigation of special topic under guidance of faculty member. Library investigations, unique design problems, laboratory and field studies. Prerequisite: Senior standing; Department permission.

CE 193. College Honors. 1-6 Credits.
See Schedule of Courses for specific titles. Prerequisite: Senior standing in Civil Engineering.

CE 195. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles. Prerequisite: Senior standing in Civil engineering.

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 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: computer programming, linear algebra, or permission of Instructor.

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 or Instructor permission. Cross-listed with: CSYS 226.

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 140 or equivalent; Instructor permission. 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. Pre/co-requisites: CHEM 025, PHYS 021.

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, CHEM 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. Prerequisite: CE 133.

CE 254. Environmental Quantitive Anyl. 0 or 4 Credits.
Course focuses on chemical, biochemical and physical processes; diffusion, equilibrium, reaction kinetics, acids/bases, colloids, air/water exchange; laboratories demonstrate standard environmental engineering techniques. Prerequisites: CHEM 032, CE 132, STAT 141 or 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. Pre/co-requisites: CE 151, CE 154, or permission of Instructor.

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 252 or CE 253.

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. Prerequisite: 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 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, finite element analysis of structural systems, non-linear structural analysis, structural optimization, probabilistic structural analysis. Prerequisite: CE 170.

CE 272. Structural Dynamics. 3 Credits.
Vibrations, matrices, earthquake engineering, stability and wave propagation. Prerequisites: Senior or Graduate standing in Engineering or physical sciences, or Instructor permission. Cross-listed with: ME 270.

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. Pre/co-requisite: 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 Geoenery technologies for subsurface energy extraction (shallow and deep geothermal systems, enhanced oil recovery, shale gas extraction) and secure storage of byproducts of energy production (carbon dioxide and nuclear wastes). Prerequisite: CE 180.
CE 290. Engineering Investigation. 3 Credits.
Independent investigation of a special topic under the guidance of a staff member. Preparation of an engineering report is required.

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.

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 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, Political Science. Cross-listed with: HST 147.

CLAS 148. Ancient Egypt Through the Ages. 3 Credits.
A thematic and historical introduction to the civilization of Ancient Egypt and its cultural position and influence in both the ancient and modern worlds. Prerequisite: Three credits in Classics/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 lawmakers, 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 195. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

CLAS 196. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

CLAS 197. Readings & Research. 1-6 Credits.

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

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 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.

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. Stress 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. 1-6 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. 1-6 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.

CSD 125. Becoming an SLPA. 0-3 Credits.
Understand working with school-aged children. Enroll in practicum for CSD 125/CSD 126 not to exceed 100 hours combined. Prerequisites: Six hours in Communication Sciences; enrollment in practicum experience at max of 100 hours between CSD 125 & CSD 126.

CSD 126. Support Chldrn w/Comm Disorder. 0-3 Credits.
Intervention practices, collaboration and communication skills. Enroll in practicum for CSD 125/CSD 126 not to exceed one hundred hours combined. Prerequisites: Six hours in Communication Sciences; enrollment in practicum experience at maximum of one hundred hours between CSD 125 & CSD 126.

CSD 195. Intermediate Special Topics. 1-12 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. 1-6 Credits.
Intermediate courses or seminars on topics beyond the scope of existing departmental offerings. See Schedule of Courses for specific titles.

CSD 197. Readings & Research. 1-6 Credits.
Instructor permission.

CSD 198. Readings & Research. 1-6 Credits.
Instructor permission.

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. Prerequisites: PSYC 109, PSYC 161 or Instructor permission.
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 080, CSD 101; 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. Prerequisite: CSD 101.

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 101.

CSD 273. Internship in Audiology. 3 Credits.
Seniors interested in practical experience can intern at the UVM Audiology Clinic. Exposure to diagnostic and rehabilitative procedures will increase clinical confidence prior to graduate studies. Prerequisites: CSD 271; CSD 272 or concurrent enrollment, 3.0 or greater GPA and Instructor permission.

CSD 274. D2: Culture of Disability. 3 Credits.
Focus on theoretical questions of how societies understand disability and its consequences for social justice, by examining the biological, social, cultural, political, and economic determinants in the societal construction of disability. Prerequisite: Junior/Senior/Graduate standing. Cross-listed with: EDSP 274.

CSD 281. Cognitive Neuroscience. 3 Credits.
The structure and organization of the human central nervous system as related to higher cognitive and linguistic behaviors. Pre/co-requisites: a college level Human Biology course, such as BIOL 004.

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 295. Advanced Special Topics. 1-12 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. 1-6 Credits.
See Schedule of Courses for specific titles. Undergraduate only.

CSD 299. Autism Spect Dis: Assess & Interv. 3 Credits.
Assessment and intervention considerations in communication, social interaction and play, selection and use of evaluation tools, and implementation of intervention strategies for children with autism. Prerequisites: Graduate standing or Instructor permission.

COMMUNITY DEVELOPMENT & APPLIED ECONOMICS (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: 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 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: PCOM 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 or equivalent.

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 095. Special Topics. 1-12 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. 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 107. History of Costume. 0 or 3 Credits.
See THE 041. Prerequisites: 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. Prerequisites: One of the following: CDAE 015, CDAE 001, or equivalent course.

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.

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. Prerequisites: 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. Pre/co-requisites: CDAE 024 and Junior/Senior standing.

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. Prerequisites: One of the following: CDAE 024, CDAE 015, ENGS 001, or ENGS 050, or equivalent course.

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. Prerequisites: CDAE 024 and Junior standing.

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: CDAE 006 or MATH 009 or MATH 010.

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 099, 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. Prerequisites: 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 equivalent course.

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. Prerequisites: 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. Prerequisites: CDAE 061 or equivalent.

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. Prerequisites: CDAE 085 or equivalent.

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 101 or equivalent.

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 Practicums. 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 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. 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: Minimum Junior standing; PSS 137 or one course in ecology plus one course in design or drawing. Cross-listed with: PSS 238, ENVS 238, NR 238.

CDAE 250. Applied Research Methods. 0 or 4 Credits.
Methods used in the collection and analysis of qualitative and quantitative data. Critical review of literature, and data collection, analysis, and interpretation for descriptive, inferential, and evaluation research. Prerequisites: One of the following: STAT 141, STAT 111, or equivalent course; must register for CDAE 250 lab.

CDAE 251. Contemp Policy Iss:Comm Devel. 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 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. Prerequisites: 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. 1-12 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.

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

CSYS 221. Deterministic Modls Oper Rsch. 3 Credits.

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 124 or MATH 271; STAT 153 or equivalent; computer programming. Cross-listed with: STAT 256, CS 256.
**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. Prerequisites: One of CS 016, CS 020, CS 021 or equivalent.**

**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: CSYS 271 or CSYS 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: CSYS 124, CSYS 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 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 019. Introduction to Programming. 0 or 3 Credits.**
A gentle, graphical introduction to computer programming. Pre/co-requisite: No credit after CS 021 or higher.

**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. Credit not given for both CS 016 and CS 020/ENGR 020.

**CS 021. Computer Programming I. 0 or 3 Credits.**
Introduction to algorithmic problem solving. Designed to provide a foundation for further studies in computer science. Prerequisites: MATH 010 or a strong background in secondary school algebra and trigonometry.

**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. Prerequisites: One of CS 016, CS 020, CS 021 or equivalent.

**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 042. Dynamic Data on the Web. 3 Credits.**
Data is everywhere; Learn to collect, organize, and classify it. Students will design and create tables, queries and reports on the web using introductory programming.

**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. Co-requisites: One semester of programming, MATH 020 or MATH 022.

**CS 095. Special Topics. 0-18 Credits.**
See Schedule of Courses for specific titles. Prerequisite: Instructor permission.

**CS 100. Object-Oriented Programming. 3 Credits.**
Object-oriented software analysis, design, and programming using a modern object-oriented programming environment. Topics include encapsulation, information hiding, inheritance, and polymorphism. Prerequisite: CS 026 or CS 110.

**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. Prerequisites: One of CS 016, CS 020, CS 021 or equivalent.

**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 026 or CS 110. No credit for both CS 101 and CS 121.

**CS 123. Programming Languages. 3 Credits.**
Systematic treatment of principles underlying the features and implementation of programming languages. Contrast of traditional procedural languages and at least one nontraditional language. Prerequisites: CS 026 or CS 110; CS 064 or MATH 052 or MATH 054. No credit for both CS 103 and CS 123.
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 026 or CS 110, CS 064 or MATH 052 or MATH 054. No credit for both CS 104 and CS 124.

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

CS 189. CS for Geospatial Technologies. 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 course in GIS (CE 010, GEOG 081, or NR 143) or one in computer programming.

CS 192. Independent Service & Teaching. 1-3 Credits.
Independently designed project or pedagogical experience that benefits the University or the Community under the direction of a CS faculty member. Requires final presentation. Pre/co-requisite: Department permission.

CS 195. Special Topics. 1-9 Credits.
See Schedule of Courses for specific titles. Prerequisite: Instructor permission.

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 101 or CS 121; CS 104 or 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 104 or 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. Students who receive credit for CS 205 may not receive credit for CS 208 or CS 209. Prerequisite: CS 104 or CS 124. Cross-listed with: CSYS 205.

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 101 or 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. CS 125 and one course in probability (e.g. STAT 143, STAT 151 or CS 128) are recommended.

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, 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; CS 104 or CS 124; STAT 153 or equivalent. 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, STAT 151 or STAT 153 or equivalent, MATH 121, 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 124 or MATH 271; STAT 153 or equivalent; computer programming. 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 104 or CS 124, or Instructor permission.

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 026 or CS 110, CS 101 or CS 121, and STAT 153 or equivalent.

CS 266. Network Security&Cryptography. 3 Credits.

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. Prerequisite: CS 104 or CS 124, 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: CS 148 or CS 204 (recommended but not required).

CS 276. Integrative Computing. 3 Credits.
Integrative computing principles and practices: Abstraction via APIs, distributed systems orchestration, security, application design and implementation. Team projects for mobile and other networked, embedded devices. Prerequisites: Senior standing in Computer Science or Instructor permission.

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 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. Independent Readings&Research. 1-6 Credits.
Independent readings and investigation under the direction of faculty member. Prerequisite: Department permission.

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.

CS 296. Special Topic:Computer Science. 1-12 Credits.
See Schedule of Courses for specific titles. Subject will vary from year to year. May be repeated for credit.

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 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 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 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 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 to Early Education. 0 or 4 Credits.
Introduction to a social-constructivist approach to early childhood curriculum development and strategies for observing and documenting young children’s development and learning. Offered Spring only.

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 & Pedagogy 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 Teacher in ECE. 3 Credits.
Explore 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: EDTE 001 or EDEC 001 or Instructor permission; Early Childhood Preschool or Early Childhood Special Education majors only or instructor permission. Co-requisites: EDEC 102, EDEC 103; Praxis Core or pending; Infant/Child CPR and First Aid Certification 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 Education Internship. 3 Credits.
Internship experience in an early childhood setting. Pre/co-requisites: EDEC 001; ECP or ECSP majors only; Praxis I; EDEC 101; EDEC 102.

EDEC 156. Teaching Math For Meaning, K-3. 3 Credits.
Focuses on children’s development of thinking in mathematics 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 with emphasis on inquiry and “real world investigation. Prerequisites: EDEC 189; Early Childhood Education P-3 major or Instructor permission. Co-requisites: EDEC 180, EDEC 296 or Instructor permission.

EDEC 180. ELA Across Content Areas. 6 Credits.
This seminar/practicum provides the foundation needed to implement an integrated approach to design, 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 187. Field Practicum. 0 or 15 Credits.
Full semester student teaching internship in a primary (K-3) setting. Prerequisite: EDEC 189; Instructor permission.

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. 1-6 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. Special Problems. 1-6 Credits.
Reading, discussion, and special field and/or laboratory investigations. Prerequisite: Department permission. Students may enroll more than once up to 12 hours.

EDEC 295. Special Topics. 1-6 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.

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 and ECSP 211. 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-requisite: Completion or co-enrollment in ECSP 202 for undergraduates. 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. Prerequisite: EC 011.

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: Economics 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 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 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 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. Economics Environmental 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.

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, taught using economic examples and applications. Prerequisites: EC 011, EC 012, and MATH 019 or MATH 021. Credit not given for both EC 170 and any of following STAT courses: 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 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 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 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 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 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. Readings & Research. 1-3 Credits.
Independent study with permission of supervising professor prior to registration. Prerequisites: EC 170, EC 171, EC 172.

EC 298. Readings & Research. 1-6 Credits.
Independent study with permission of supervising professor prior to registration. 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 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. Readings & Research. 1-4 Credits.

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 295. Laboratory Exp 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.

ELECTRICAL ENGINEERING (EE)

Courses

EE 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. Cross-listed with: ME 001.

EE 003. Linear Circuit Analysis I. 3 Credits.

EE 004. Linear Circuit Analysis II. 0 or 3 Credits.

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-requisite: EE 003.

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. Prerequisite: EE 081. Co-requisite: EE 004.

EE 095. Special Topics. 1-3 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.

EE 101. Digital Control w/Embedded Sys. 0 or 4 Credits.
Applications of single-chip microcomputers as embedded systems for data acquisition/real time control. Assembly language; parallel and serial ports; timers; counters; A/D and D/A. Laboratory. Prerequisite: EE 100.

EE 113. 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, power electronics; 0 credit laboratory included. Prerequisite: EE 100. Co-requisite: EE 004.

EE 120. Electronics I. 0 or 3 Credits.
Theory of operation of diodes and MOS transistors. DC and transient analysis using diodes and transistors. NMOS and CMOS logic circuits and memory cells. Circuit simulation software. Prerequisite: EE 004.

EE 121. Electronics II. 0 or 3 Credits.
Bipolar transistor circuits. DC and high frequency amplifier design using MOS and bipolar transistors. Feedback, oscillators, and stability criteria. Operational amplifiers and switched capacitor filters. Prerequisite: EE 120.

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. Prerequisites: EE 003 or EE 100; CS 020 or CS 021; CS 031.

EE 141. Electromagnetic Field Theory. 0 or 4 Credits.
Fundamentals of electromagnetic field theory, vector analysis, electric and magnetic fields, potential theory, boundary conditions and boundary value problems, 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. Prerequisite: PHYS 042 with PHYS 022; MATH 271.

EE 164. Solid St Phys Electronics II. 3 Credits.
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.

EE 174. Communication Systems. 0 or 4 Credits.

EE 183. Electronics Laboratory I. 0 or 2 Credits.
Characteristics and applications of diodes and MOSFETs; CMOS inverters and logic characterization; applications of operational amplifiers. Co-requisite: EE 120.

EE 184. Electronics Laboratory II. 0 or 2 Credits.
Characteristics and applications of bipolar junction transistors; medium frequency and differential amplifiers; operational amplifier output stages; analog and digital filters. Prerequisite: EE 183. Co-requisite: EE 121.

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. 2 Credits.

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 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. Transient Phenomena. 3 Credits.
Study of complex variable basis of Laplace and Fourier Transforms; applications to transient behavior of lumped and distributed parameter systems, root locus. Nyquist criterion and two-dimensional field problems. Prerequisite: MATH 271.

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. Prerequisites: 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: MATH 124 or MATH 271 and CS 026, or Instructor permission. Cross-listing: CS 212.

EE 215. Electric Energy Systems Analys. 3 Credits.
Transmission line, generator, transformer modeling and control, per-unit conversion, power flow calculations and software, symmetric components and fault analysis, protection/relaying, stability analysis, smart grid. Prerequisite: EE 113. Co-requisite: MATH 124.

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. Pre/co-requisites: EE 131, EE 163, EE 121.

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.

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. Prerequisites: 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. Prerequisites: 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. Prerequisites: 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.

EE 250. Test Engineering. 3 Credits.
Parametric, structural, functional, characterization and stress testing of components and subsystems. Test methods, strategies, planning, and economics. Test equipment hardware and software. Prerequisites: EE 121, EE 131.

EE 251. Digital Syst Testing & Design. 3 Credits.
Circuit failures, fault models, testing and test pattern generation, logic and fault simulation, design for testability, scan design, test interfaces, design for built-in self-test. Prerequisite: EE 131.

EE 261. Solid State Mat & Devices I. 3 Credits.

EE 262. Solid State Mats & Devices II. 3 Credits.

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. Prerequisites: EE 163 or EE 261; concurrent registration in 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. Prerequisites: STAT 143/STAT 151/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 274. Intro Wavelets & Filter Banks. 3 Credits.

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.

EE 278. Wireless Communication. 3 Credits.
Modern wireless systems, including cellular design, propagation modeling, multiple access and equalization techniques. Pre/co-requisites: EE 174 and STAT 151.

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 285. Seminar. 1 Credit.

EE 286. Seminar. 1 Credit.

EE 287. Seminar. 1 Credit.

EE 288. Seminar. 1 Credit.

EE 289. Digital Signal Processing Lab. 1-3 Credits.
Design and microprocessor implementation of real-time digital signal processing systems. PC-based evaluation module and development tools. Experiments include sampling, digital filtering, and the FFT. Pre/co-requisite: EE 171.

EE 295. Special Topics. 1-18 Credits.
Special topics in developing areas of Electrical Engineering. Prerequisites: Senior standing; or Instructor permission.

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 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.

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 Indiv Needs:Assmt&Instrct. 3 Credits.
Methods of responding to individual differences within a heterogeneous classroom. Sources of student variability, developing settings of least restriction, and appropriate assessment strategies. Pre/co-requisites: Admission to Elementary Teacher Education Program; concurrent with EDEL 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: Method Block in Literacy; EDEL 156, EDEL 176, EDEL 177.

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.

EMERGENCY MEDICAL TECHNICIAN (SURG)

Courses
SURG 195. EMT - Basic. 1-6 Credits.
SURG 196. EMT - Basic. 1-6 Credits.
SURG 197. EMT - Intermediate. 3 Credits.
SURG 198. EMT - Intermediate. 3 Credits.
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 295. Advanced Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles. Prerequisite: Instructor permission.

ENGINEERING (ENGR)

Courses
ENGR 001. First-Year Design Experience. 2 Credits.
Introduction to the engineering profession and design. Hands-on experiences that emphasize interdisciplinary teamwork, technical communications, and project design methodologies.
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 095. Special Topics. 0-18 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 195. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.
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 295. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

ENGINEERING MANAGEMENT (EMGT)

Courses
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. Senior Project. 3 Credits.
Individual management engineering study designed to the particular interest of the student, utilizing and synthesizing the student’s engineering management education experience. Prerequisite: Senior standing in EMBA.
EMGT 195. Special Topics. 1-6 Credits.
Specialized or experimental course offered as resources permit.

ENGLISH (ENGS)
Courses

ENGS 001. Written Expression. 3 Credits.
A foundational composition course featuring sequenced writing assignments. Students learn to write and revise for different rhetorical situations while increasing their mastery of academic conventions.

ENGS 004. Engl for International Stdnts. 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 025. World Literature I. 3 Credits.
Part one of a survey of world literature in English, which may include Virgil, Dante, Goethe, and similar major figures. Students may not take for credit both ENGS 025 and ENGS 027, or both ENGS 026 and ENGS 028.

ENGS 026. World Literature II. 3 Credits.
Part two of a survey of world literature in English, which may include Virgil, Dante, Goethe, and similar major figures. Students may not take for credit both ENGS 025 and ENGS 027, or both ENGS 026 and ENGS 028.

ENGS 027. Lit of Western Trad:Int 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. Students may not take for credit both ENGS 025 and ENGS 027, or both ENGS 026 and ENGS 028. Prerequisites: Concurrent enrollment in REL 027, REL 028.

ENGS 028. Lit of Western Trad:Int 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. Students may not take for credit both ENGS 025 and ENGS 027; or both ENGS 026 and ENGS 028. Prerequisite: Concurrent enrollment in REL 027, REL 028, HST 013, HST 014; Integrated Humanities Program.

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 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: GWS 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. Text & Context: 1st Yr Prosp Mjrs. 3 Credits.
Introduction to the critical work of close reading and close writing. Readings vary by section. Recommended for First-Year students planning to major in English.

ENGS 086. Critical Approaches to Lit. 3 Credits.
Several theoretical approaches to literary study applied to specific texts. No prerequisite, but recommended only for students with Sophomore standing or First-Year students with Advanced Placement. Required of all English majors.

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 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 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 courses numbered ENGS 005 - ENGS 096; Sophomore standing.

ENGS 111. D1: Race & Ethnic in Lit Stdies. 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 132. 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 133. 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 134. 19th Century British Novel. 3 Credits.
Topics examining 19th-century British literature. 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 Browning, the Rossettis, Wilde. 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 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, Chesnutt, 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 183. 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 184. Topics in 20C Women’s Writing. 3 Credits.
Works in various genres by 20th-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, Sacvan 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. 3-6 Credits.
Pre/co-requisite: Departmental permission; Junior/ Senior standing.

ENGS 192. Internship. 3-6 Credits.
Pre/co-requisite: Departmental permission; 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 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 topics 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. Readings and Research. 1-6 Credits.
Department permission required. Not to exceed three hours per semester. See schedule of courses for specific titles. Pre/co-requisite: Department permission.

ENGS 198. Readings and Research. 1-6 Credits.
Department permission required. Not to exceed three hours per semester. See schedule of courses for specific titles. Pre/co-requisite: Department permission.

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 086, six hours at the intermediate level, and Instructor permission.

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

ENGS 211. Sem in Composition & Rhetoric. 3 Credits.
Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing. Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

ENGS 212. Sem in Composition & Rhetoric. 3 Credits.
Recent topics: "Writing the New Yorker;" "Writing Vermont Life;" "Editing and Publishing. Prerequisite: ENGS 086; six hours at the intermediate level; and Instructor permission.

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

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

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

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

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

ENGS 281. Sem Lit Themes, Genres, Folklore. 3 Credits.
Recent topics: "Spiritual Journeys;" "Murder, He Said: Detective Fiction;" "Chekhov to Cheever: The Short Story." Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

ENGS 282. Sem Lit Themes, Genres, Folklore. 3 Credits.
Recent topics: "Spiritual Journeys;" "Murder, He Said: Detective Fiction;" "Chekhov to Cheever: The Short Story." Prerequisite: ENGS 086; six hours at the intermediate level; Instructor permission.

ENGS 290. Sem Prospective Tchrs of Engl. 3 Credits.
Approaches to teaching composition, literature, and the English language in secondary school. Prerequisites: ENGS 086, six hours at the intermediate level, and Instructor permission.

ENGS 295. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles. Prerequisites: ENGS 086, six hours at the intermediate level, and Instructor permission.

ENGS 296. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles. Prerequisites: ENGS 086, six hours at the intermediate level, and instructor permission.

ENGS 297. Readings and Research. 1-3 Credits.
Department permission required. Not to exceed three hours per semester.

ENGS 298. Readings and Research. 1-3 Credits.
Department permission required. Not to exceed three hours per semester.

ENGR & MATH SCIENCES (CEMS)

Courses
CEMS 095. Introductory Special Topics. 1-18 Credits.
See Schedule of Topics for specific titles.

CEMS 195. Intermediate Special Topics. 1-18 Credits.

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

ENVIRONMENTAL SCIENCES (ENSC)

Courses
ENSC 001. Intro Environmental Sciences. 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. Pre/co-requisites: First-Year RSENR and CALS ENSC majors.

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. Prerequisite: BIOL 001 or BOT 004, CHEM 023, or equivalent, MATH 019.

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; BIOC 011, BIOC 012; CHEM 031, CHEM 032; MATH 019, MATH 020.

ENSC 185. Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles. Variable credit.

ENSC 195. Internship. 1-6 Credits.
Professionally-oriented field experience under joint supervision of faculty and business or community representative. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing; Maximum of six hours. Three can be applied to elected concentration with Director permission.

ENSC 196. Independent Research. 1-6 Credits.
Special study and research activity under the directory of a faculty member. Prerequisite: Proposal and permission of ENSC Director; Junior standing; good academic standing. Up to six hours. Three can be applied to elected concentration with Director permission.

ENSC 201. Recovery&Restor Altered Ecosys. 0 or 3 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: NR 103 or an intermediate-level ecology course; or Instructor permission. ENSC 160 strongly recommended.
ENSC 202. Ecological Risk Assessment. 0 or 3 Credits.
Approaches used to identify, measure, and manage ecological risk. Problem formulation, characterization, uncertainty analysis, and risk management. Case studies. Prerequisite: ENSC 201, NR 140 or STAT 141; Senior standing, or Instructor permission.

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, NR 103, or equivalent ecology course.

ENSC 285. Adv Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles. Prerequisite: Senior standing or Instructor permission. Variable credit.

ENSC 299. Environmental Sciences Honors. 1-6 Credits.
Honors project dealing with environmental sciences. Prerequisite: By application only, see program chair. Not approved for Graduate credit.

ENVIRONMENTAL STUDIES (ENVS)

Courses

ENVS 001. Intro to Environmental 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 or Instructor permission.

ENVS 002. D2: International Env Studies. 0 or 4 Credits.
Multidisciplinary analysis of the interaction of global and local variables in understanding and solving pervasive environmental problems. Prerequisites: First-Year or Sophomore standing.

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. Human Health & the Environment. 3 Credits.
Interdisciplinary understanding of the effects of anthropogenic factors including pollution, reduced biodiversity, climate change, overpopulation, and resource depletion on the health of natural systems and human populations. Prerequisites: A college level science course; 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. Prerequisites: ENVS 001 or NR 002. Cross-listed with: NR 141.

ENVS 142. Intro to Environmental Policy. 3 Credits.
Introduction to policy aspects of environment and natural resources including policy processes, public governance, and citizen participation with applications to environmental issues. Prerequisite: NR 104 or POLS 021. Cross-listed with: NR 153.

ENVS 143. Political Ecology. 3 Credits.
Human-environment interactions under globalization. Social and economic causes of global and local environmental problems. Environmental movements and sustainable livelihoods in First and Third Worlds. Prerequisite: GEOG 050 or GEOG 070 or Instructor permission. 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. Prerequisites: ENVS 001 or ENVS 002, or NR 001 or NR 002.

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: Major in Environmental Studies; ENVS 001, ENVS 002; or Instructor permission.

ENVS 153. 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. Prerequisites: ENVS 001 or ENVS 002, or NR 001 or NR 002.

ENVS 154. 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. Prerequisites: ENVS 001 or ENVS 002, or NR 001 or NR 002.

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-environment interaction on the North American continent over the past five hundred years. Pre/co-requisite: Three hours History. 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. Pre/co-requisites: ENVS 002 or NR 002. May not be taken concurrently with or following receipt of credit for HST 067 since course requirements partially overlap.
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. Prerequisites: ENVS 001 or ENVS 002 or NR 002; Sophomore standing.

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. Prerequisites: ENVS 001; Sophomore standing.

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. Prerequisites: ENVS 001, NR 001, or Instructor permission.

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, NR 001, or Instructor permission.

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 environmental course; Junior standing.

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 or GSW 001; Sophomore standing. Cross-listed with: GSW 179.

ENVS 180. Radical Environmentalism. 3 Credits.
Survey of radical environmental philosophy and activism from a liberation ethics perspective. Includes deep ecology, ecofeminism, environmental justice, and ecological resistance movements around the world. Prerequisite: ENVS 001, ENVS 002; Sophomore standing.

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. Prerequisites: 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. Prerequisites: ENVS 001 or ENVS 002; or NR 002, REL 020 or REL 021 preferred; Sophomore standing.

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: ENVS 001 or ENSC 001 or NR 002.

ENVS 184. 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. Prerequisites: one of the following: ENVS 001, ENVS 002, NR 001, NR 002.

ENVS 187. Campus Sustainability. 3 Credits.
Sustainability methods, policies, and frameworks applied in the campus setting using UVM as a case study and field site for the study of campus greening. Prerequisites: One of the following: ENVS 001, ENVS 002, NR 001, or NR 002.

ENVS 188. 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. Prerequisites: One of the following: ENVS 001, ENVS 002, or NR 001.

ENVS 189. 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. Prerequisites: ENVS 001 or ENVS 002.

ENVS 191. Environmental Practicum. 0.5-9 Credits.
Individual readings and research, internship, or field-based learning experience under direction of a faculty member or environmental practitioner. Credit arranged. Prerequisite: Permission of course coordinator.

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 environmental course; Sophomore standing.

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 environmental course; Sophomore standing.

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. Prerequisites: ENVS 001, ENVS 002, Instructor permission.

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: ENVS 201 or appropriate 200-level course by Instructor permission.

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, ENVS 002; Junior or 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. Prerequisites: one 100-level ENVS or NR course, or Instructor permission; Junior standing or higher.

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. 1-2 Credits.
Students gain practical teaching experience through assisting with instruction, evaluation, and reflection. Tasks may include: leading discussion sessions, grading, and developing course materials. Prerequisites: Senior standing or permission of Instructor; concurrent teaching assistant in ENVS course. Variable credit. May be repeated.

ENVS 291. Advanced Env Practicum. 1-12 Credits.
Individual readings and research, internship, or field-based learning experience at the advanced level, under direction of faculty member or environmental practitioner. Prerequisite: ENVS 001, ENVS 002; Senior/Graduate standing.

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. Pre/co-requisites: 100-level course in Environmental Studies or Natural Resources; Junior, Senior, or Graduate 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. Prerequisite: 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: Six hours of intermediate or advanced courses in Environmental Studies or related areas.

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: One environmental course at 100 level; 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: One environmental course at 100 level; Junior standing.

EXERCISE & MOVEMENT SCIENCE (EXMS)

Courses
EXMS 095. Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

EXMS 096. Special Topics. 1-6 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: EXMS major.

EXMS 195. Intermediate Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

EXMS 196. Intermediate Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

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. Pre/co-requisites: EMS or PE majors with Junior standing; ANPS 019 and ANPS 020.

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. Pre/co-requisite: PSYC 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: EXMS 250, EXMS 254; senior EMS majors.

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; EMS majors only or Instructor permission.

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. Pre/co-requisites: EMS or PE majors with Junior standing.

EXMS 262. Human Perf & Ergogenic Aids. 3 Credits.
The purpose of this course is to evaluate the role and effectiveness of performance enhancing substances in sports: including supplements, diets, banned substances, prescription and social drugs, and others. Pre/co-requisites: ANPS 019, ANPS 020; NFS 163.

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. Pre/co-requisites: RMS 250, EXMS 260; senior EMS majors.

EXMS 264. Health Fitness Specialist. 3 Credits.
Designed to prepare students for the ACSM Health Fitness Specialist exam and includes a high level review of exercise physiology, risk stratification, and fitness assessments. Pre/co-requisites: RMS 250, EXMS 245; Senior standing.

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. Pre/co-requisites: RMS 250, EXMS 245; Senior standing.

EXMS 272. Senior Capstone Experience. 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. Pre/co-requisites: Senior standing in Exercise & Movement Science.

EXMS 295. Advanced Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

EXMS 296. Advanced Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

FAMILY & CONSUMER SCIENCES (EDFC)

Courses
EDFC 055. Special Topics I. 2-6 Credits.

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 197. Readings and Research. 1-4 Credits.

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.

Teaching in middle or secondary schools under guidance of cooperating teachers and college supervisor. Credits variable up to fifteen hours per semester.

EDFC 295. Lab Experience in Education. 1-15 Credits.

EDFC 296. Special Topics. 1-15 Credits.
See Schedule of Courses for specific titles.

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 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. Pre/co-requisite: FTS 007, FTS 008, or FTS 009.

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. Pre/co-requisites: FTS 007, FTS 008, or FTS 009.

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. Pre/co-requisite: FTS 121.

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. Pre/co-requisite: FTS 121.

FTS 132. Stdies Adv Film/TV History. 3 Credits.
Intensive focus on various historical movements within film and/or television. Pre/co-requisite: FTS 121.

FTS 133. Stds Docmntry/Avant-garde Cinm. 3 Credits.
Explorations into various issues, ideas, and movements within documentary and avant-garde cinema. Pre/co-requisites: FTS 007, FTS 008, FTS 009.

FTS 134.Cntmpry Topics in Film/TV. 3 Credits.
Explorations into various issues, ideas, and movements within contemporary film and/or television. Pre/co-requisites: FTS 007, FTS 008, FTS 009.

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. Prerequisites: FTS 007, FTS 008, or FTS 009.

FTS 141. Film & Video Production I. 3 Credits.
An introduction to techniques and theories of video production. Pre/co-requisites: FTS 007, FTS 008, FTS 009, FTS 121.

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. Pre/co-requisite: FTS 141.

FTS 143. Film Theory and Practice. 3 Credits.
An advanced study of media theory and video production. Pre/co-requisites: FTS 007, FTS 008, or FTS 009, and FTS 121.

FTS 144. Screenwriting I. 3 Credits.
An investigation of screenwriting practice and a screenwriting workshop. Pre/co-requisites: FTS 007, FTS 008 or FTS 009, and FTS 121.

FTS 145. Screenwriting II. 3 Credits.
Intermediate topics in screenwriting. Topics vary with instructor, and may include writing the thriller, the romantic comedy, etc. Pre/co-requisite: FTS 144.

FTS 191. Internship. 1-6 Credits.
Work in some area of media production or study with the support of a faculty advisor. May be repeated for credit up to six credits, but only three credits can be applied to the FTS major. Pre/co-requisites: FTS 007, FTS 008, or FTS 009.

FTS 192. Internship. 1-6 Credits.
Work in some area of media production or study with the support of a faculty advisor. May be repeated for credit up to six credits, but only three credits can be applied to the FTS major. Pre/co-requisites: FTS 007, FTS 008, FTS 009.

FTS 195. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific Titles. Pre/co-requisite: FTS 007, FTS 008, or FTS 009.

FTS 196. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific Titles. Pre/co-requisite: FTS 007, FTS 008, or FTS 009.

FTS 197. Readings & Research. 1-6 Credits.
Independent study arranged in conjunction with a faculty member. The project must be approved by the FTS director. May be repeated for credit up to six credits. Pre/co-requisites: FTS 007, FTS 008, FTS 009.

FTS 198. Readings & Research. 1-6 Credits.
Independent study arranged in conjunction with a faculty member. The project must be approved by the FTS director. May be repeated for credit up to six credits. Pre/co-requisites: FTS 007, FTS 008, FTS 009.

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. Pre/co-requisite: FTS 007, FTS 008, or FTS 009; FTS 121.

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. Pre/co-requisite: FTS 007, FTS 008, or FTS 009; FTS 121.

FTS 295. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles. Pre/co-requisite: FTS 007, FTS 008, or FTS 009.

FTS 296. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

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 RSENR 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: First-Year/Sophomore standing in Natural Resources.

FOR 121. Forest Ecology Laboratory. 0 or 2 Credits.
Application of ecological principles in the analysis of forest communities. Prerequisite: NR 025; a course in tree identification; previous or concurrent enrollment in NR 103.

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. Prerequisite: 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. Prerequisites: 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. Prerequisites: 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/Senior standing in Forestry. Credit arranged.

FOR 185. Undergrad Special Topics. 0-6 Credits.
Readings, investigations, and lectures in selected forest resource subjects. Prerequisite: Instructor permission. Credit arranged.

FOR 191. Forestry Work Practicum. 1-9 Credits.
Supervised work experience in forest resource area. Prerequisite: Instructor permission. Credit arranged.

FOR 222. Advanced Silviculture. 0 or 3 Credits.
Scientific basis and contemporary status of silviculture practices. Prerequisite: FOR 223; permission. 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. Prerequisites: NR 025, NR 103, FOR 121.

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: 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, NR 143 or NR 146, or Instructor permission. 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. Pre/co-requisites: NR 103, BIOL 001 and BIOL 002 or PBO 004, MATH 009, FOR 021, preferred FOR 121.

FOR 272. Sustainable 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. Prerequisite: FOR 122, NR 205; concurrent or prior enrollment in FOR 223, or Graduate standing.

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. Prerequisites: NR 102; Junior standing; or Instructor permission.

FOR 285. Advanced Special Topics. 0-6 Credits.
Advanced special topics courses or seminars in forestry beyond the scope of existing formal courses. Prerequisite: Graduate or advanced undergraduate standing; Instructor permission. Credit as arranged.
FOR 291. Senior Research. 3 Credits.
Work on research problem under direction of a staff member. Findings submitted in written form as prescribed by department. Prerequisites: Senior standing; Instructor permission.

FOR 292. Senior Research. 3 Credits.
Work on research problem under direction of a staff member. Findings submitted in written form as prescribed by department. Prerequisites: Senior standing; Instructor permission.

FOR 299. Honors. 1-6 Credits.
Honors project dealing with the biology and/or management of forest ecosystems. Prerequisite: By application only. See Program Chair.

FOUNDATIONS (EDFS)

Courses
EDFS 200. Contemporary Issues. 3 Credits.
Experiences.

EDFS 205. 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 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 209. Intro to Research Methods. 3 Credits.
Seminars and research projects. Methods of historical, descriptive, experimental, quasi-experimental, field studies, and survey research.

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 200. Contemporary Issues. 3 Credits.
Selected topics in history of education. Education in democratic, experimental, quasi-experimental, field studies, and survey research.

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 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 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. Readings & Research. 1-6 Credits.
Permission of Chair required.

FREN 198. Readings & Research. 1-6 Credits.
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 the 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 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: Multiethnic France: 20-21 C 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. Advanced Readings & Research. 1-6 Credits.
Permission of Chair required.

FREN 298. Advanced Readings & Research. 1-6 Credits.
Permission of Chair required.

GEOGRAPHY (GEOG)

Courses

GEOG 040. Weather, Climate & Landscapes. 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: World Regional Geography. 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. Geotechniques. 0 or 3 Credits.
Introduction to cartography, geographic information systems (GIS), and remote sensing. Map design and analysis using topographic/satellite data, air photo interpretation, digitizing, and Internet resources.

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 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. Pre/co-requisite: 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 or Instructor permission.

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. Pre/co-requisite: GEOL 001 or GEOL 055.

GEOG 145. 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 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. Pre/co-requisite: 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. Prerequisites: GEOG 050 or GEOG 070 or Instructor permission.

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. Pre/co-requisite: 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: 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. Prerequisites: GEOG 050 or GEOG 070 or Instructor permission.

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. Pre/co-requisite: 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. Pre/co-requisite: 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. Pre/co-requisites: 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. Pre/co-requisite: GEOG 050 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. Prerequisites: GEOG 050 or GEOG 070 recommended, HST 011 or HST 012 or Instructor permission.

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. Pre/co-requisites: GEOG 050 or GEOG 070 or Instructor permission.

GEOG 173. 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. Pre/co-requisites: GEOG 050 or GEOG 070 or Instructor permission. Cross-listed with: ENVS 143.

GEOG 174. Rural Geography. 3 Credits.
Global, national and local scale study of rural landscapes, cultures, social issues, and environmental concerns. Pre/co-requisites: GEOG 050 or GEOG 070, or Instructor permission.

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. Pre/co-requisites: GEOG 050 or GEOG 070 or Instructor permission.

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. Pre/co-requisite: 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. Pre/co-requisite: GEOG 050 or GEOG 070 or POLS 071 or Instructor permission. 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. Prerequisites: Six Prerequisite: GEOG 060 or GEOG 070. 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. Pre/co-requisite: GEOG 050 or GEOG 070 or Instructor permission. Cross-listed with: ANTH 179.

GEOG 184. Geo Info: Cncpts & Applic. 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. Pre/co-requisite: GEOG 081 or NR 025 or equivalent.

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 recommended. 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. Prerequisites: GEOG 081 or Instructor permission.

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. 1-6 Credits.
Supervised internship in applied geography working with a local public agency or private firm. Individually arranged. Prerequisite: Junior/Senior standing; department permission.

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: Three hours in Geography. 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. Readings & Research. 1-6 Credits.

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

GEOG 201. 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; nine hours in Geography.

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; nine hours in Geography.

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: Nine hours in Geography or Instructor permission.

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. Prerequisites: GEOG 040, GEOG 140 or GEOG 143, or Instructor permission.

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. Prerequisite: Senior/Graduate standing with nine hours in Geography or Instructor permission.

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: GEOG 143 or GEOG 144 and Senior or Graduate standing with nine hours in Geography.

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. Prerequisite: Senior/Graduate standing with nine hours in Geography or Instructor permission.

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. Prerequisite: Senior/Graduate standing with nine hours in Geography or Instructor permission.

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. Prerequisite: Senior/Graduate standing with nine hours in Geography, or Instructor permission.

GEOG 278. Spatial Analysis. 3 Credits.
Analysis of spatial pattern and interaction through quantitative models; introduction to measurement, sampling, and covariation in a spatial framework. Prerequisites: Senior/Graduate standing with at least nine hours in Geography or Instructor permission.

GEOG 291. Geography Internship. 1-6 Credits.

GEOG 292. Vermont Field Studies. 3 Credits.

GEOG 293. Contemp Geog Thought Context. 3 Credits.

GEOG 294. Adv Top: Global Change. 3 Credits.

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. Readings & Research. 1-6 Credits.

GEOG 298. Readings & Research. 1-6 Credits.

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 Champln Bsn. 4 Credits.
Scientific principles applied to the geology and geologic history of the Lake Champlain Basin.

GEOL 007. 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.
Explanation 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 or introductory science course.

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. Prerequisites: Introductory science course or ASTR 005.

GEOL 055. Environmental Geology. 0 or 4 Credits.
Introduction to the 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 003, GEOL 005, or GEOL 055.

GEOL 095. Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

GEOL 096. Special Topics. 1-12 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 055, or Instructor permission.

GEOL 110. Earth Materials. 0 or 4 Credits.
Introduction to the major rocks and rock-forming minerals and their relationship to formation/depositional environments. Pre/co-requisite: Introductory Geology course: GEOL 001, GEOL 055 or GEOL 095.

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. Prerequisites: GEOL 001, GEOL 005, or GEOL 055.

GEOL 135. Geochemistry. 4 Credits.
Application of many basic principles of chemistry, e.g. thermodynamic, kinetic, and transport calculations involving abiotic and biotic processes, to selected problems in the geosciences. Field trips. Pre/co-requisite: GEOL 110, CHEM 031, CHEM 032.

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 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. 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. Prerequisites: one other Geology course or Instructor permission.

GEOL 195. Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

GEOL 196. Special Topics. 1-15 Credits.
See Schedule of Courses for specific titles.

GEOL 197. Research in Geology. 1-6 Credits.
Supervised research and readings in a selected field of geology. Students from allied sciences, Mathematics, and Engineering may elect a research problem that combines their major field of study and geology. Prerequisite: Department permission.

GEOL 198. Research in Geology. 1-15 Credits.
Supervised research and readings in a selected field of geology. Students from allied sciences, Mathematics, and Engineering may elect a research problem that combines their major field of study and geology. Prerequisite: Department permission.

GEOL 201. Advanced Field Geology. 3 Credits.
Advanced field mapping techniques, analysis of field data, preparation of geological maps and reports. Prerequisite: GEOL 260.

GEOL 210. Systems Dynamics & Earth Sci. 3 Credits.
Analysis of generic systems with examples from physical and natural sciences. Geological systems emphasized. Laboratories involve computer analysis of system structure and behavior over time. Prerequisites: A major or minor in science, Mathematics, Natural Resources, Engineering, or permission of Instructor.
GEOL 217. Vermont Field Geology. 4 Credits.
Field observations of rocks and surficial materials across northern Vermont are utilized to decipher the region's geologic history. Readings complement field work. Pre/co-requisite: 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. Pre/co-requisite: 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: Introductory Chemistry.

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: Introductory Chemistry.

GEOL 235. Geochemistry of Natural Waters. 3 Credits.
Basic concepts of chemical equilibria applied to natural waters, including thermodynamics, pH, oxidation-reduction, weathering, and solution equilibria. Prerequisite: CHEM 031, 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. Prerequisite: 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 255. Geohydrology. 4 Credits.
Field-based projects address hydrologic processes in geological context; precipitation, runoff, ground water flow, river behavior, and hillslope stability. Stresses data analysis, writing, and practical approaches to water-related environmental problems. Prerequisite: Major in science or engineering or permission.

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 geologic structures. Prerequisite: GEOL 101, GEOL 110, PHYS 011, or Instructor permission.

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. Prerequisite: GEOL 101 and GEOL 110 or Instructor permission.

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. Pre/co-requisite: 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. Prerequisite: GEOL 101, GEOL 110, or equivalent.

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. Prerequisite: GEOL 101, GEOL 110, or Instructor permission.

GEOL 278. Principles of Aquatic Systems. 3 Credits.
See NR 278.

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. Prerequisite: Instructor permission.

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. Prerequisite: Instructor permission.

GEOL 295. Advanced Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles.

GEOL 296. Advanced Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles.

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 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 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. Readings & Research. 1-6 Credits.

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

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 Erecre, 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, Drost-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 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.

GLOBAL AND REGIONAL STUDIES (GRS)

Courses

GRS 001. D2: 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 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. Internships. 1-6 Credits.
Approved programs of learning outside the classroom. Internships must be undertaken in the field and involve activity in which substantive learning about the program area can take place.

GRS 192. Internships. 1-6 Credits.
Approved programs of learning outside the classroom. Internships must be undertaken in the field and involve activity in which substantive learning about the program area can take place.

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. Readings & Research. 1-6 Credits.

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

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 291. Regional Studies Seminar. 3 Credits.
Interdisciplinary seminar with geocultural focus. Regional content/topics vary by instructor. Prerequisite: Instructor permission.

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. Advanced Readings & Research. 1-6 Credits.
Independent study of a specific region with an approved instructor. Prerequisites: Junior/Senior standing or Graduate student, and permission of Program Director.

GRS 298. Advanced Readings & Research. 1-6 Credits.
Independent study of a specific region with an approved instructor. 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 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 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 191. Internship. 3-6 Credits.
Approved programs of learning outside the classroom. Students work at local women’s agencies, in consultation with faculty sponsors. 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. Internship. 3-6 Credits.
Approved programs of learning outside the classroom. Students work at local women’s agencies, in consultation with faculty sponsors. 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. 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 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 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.

GWS 245. 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: PSYC 264.

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. 3 Credits.
Selection and development of topic for investigation using assigned faculty member as preceptor. Prerequisites: GSWS 001; permission of Director of Gender, Sexuality, and Women’s Studies.

GSWS 298. Independent Study. 3 Credits.
Selection and development of topic for investigation using assigned faculty member as preceptor. Prerequisites: GSWS 001; approval of Director of Gender, Sexuality, and Women’s Studies.

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

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 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.

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 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 (HLTH)

Courses

HLTH 003. Medical Terminology. 2 Credits.
Terminology related to medical and health sciences. Online.
HLTH 107. Human Health & the Environment. 3 Credits.
Interdisciplinary understanding of the effects of anthropogenic factors including pollution, reduced biodiversity, climate change, overpopulation, and resource depletion on the health of natural systems and human populations. Pre/co-requisites: a college level science course; Sophomore standing. Cross-listed with: ENVS107, NR 107.

HLTH 108. Explorations in Public Health. 3 Credits.
From various disciplines, theoretical perspectives, and narrative experiences, the class will build and apply to contemporary issues and populations an ideal public health service model.

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 115. Women’s Health & Advocacy. 3 Credits.
Aims to demystify women’s health care issues through understanding options/choices concerning sexuality, contraception, reproductive health, sexually transmitted diseases, relationships, addictive disorders, anxiety/depression and more.

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 125. Exercise, Fitness and Health. 3 Credits.
An intermediate-level course on fundamentals of exercise physiology, diet and fitness as they relate to health, wellness and human performance. Pre/co-requisites: One semester of BIOL 001, BIOL 002, BIOL 003, BIOL 004, or ANPS 019, ANPS 020.

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 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: PSYC 001; HDFS 005; 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 Health & 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 & Human Health. 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 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. 1-3 Credits.
Students outside CNHS may develop individual plans specific to their academic interests in health and, if approved, work with a faculty mentor to meet objectives.

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 Development in Public Health. 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 Research. 3 Credits.
Examines the process and development of conducting community-based participatory research projects in collaboration with a community partner.

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.

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 095. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

HEBR 096. Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

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. Readings & Research. 1-6 Credits.

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

HELIX (HLX)

Courses

HLX 095. Introductory Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

HLX 096. Introductory Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.
HIGHER EDUCATION (EDHI)

Courses

EDHI 055. Special Topics. 1-18 Credits.

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 295. Lab Experience in Education. 1-3 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.

EDHI 297. Special Topics. 1-3 Credits.
Learning modules may vary each semester as the need to address topics arises. Learning modules are five week classes.

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. Prerequisites: Concurrent enrollment in ENGS 027 and ENGS 028, REL 027 and REL 028, or Integrated Humanities Program.

HST 014. Ideas in the Western Tradition. 3 Credits.
Great books of Western civilization in their historical setting. Renaissance to Existentialism. Prerequisite: Concurrent enrollment in ENGS 027 and ENGS 028, REL 027 and REL 028, or 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 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. Pre/co-requisites: History major; three hours in History; Sophomore status 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 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 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. Pre/co-requisite: HST 016.

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. Pre/co-requisites: HST 010 or 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. Pre/co-requisites: HST 015 or Instructor permission.

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. Prerequisites: HST 015 or Instructor permission.
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. Prerequisites: 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. Prerequisites: HST 009, CLAS 023/HST 022, or appropriate work in Classics. 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. Prerequisites: 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. Prerequisites: 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. Prerequisites: HST 014 or HST 016.

HST 128. Eur Soc & Culture 1880-1920. 3 Credits.
European society and culture before and during "The Great War. The transitions in the arts, philosophy, science and technology, industry, dance, theatre, attitudes, and diplomacy. Prerequisites: 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. Prerequisites: 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. Prerequisites: 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 016.

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 016.

HST 139. Modern Germany. 3 Credits.
Political, cultural, and social history of Germany from unification in 1871 through the Wilhelmine empire, Weimar Republic, Nazi era, and postwar period. Prerequisites: HST 010 or 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: HST 040 or HST 041.

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: HST 040 or HST 041.

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: HST 045 or HST 046; Instructor permission.

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; Instructor permission.

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.

HST 148. Ancient Egypt Through the Ages. 3 Credits.
A Thematic and historical introduction to the civilization of Ancient Egypt and its cultural position and influence in both the ancient and modern worlds. Prerequisite: Three credits in Classics/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 (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.
This course 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.

HST 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, WLIT 157.

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. Pre/co-requisite: HST 011 or HST 012, or Instructor permission. 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 in 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. Cross-listed with: ENVS 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.
Pre/co-requisites: GEOG 050 or GEOG 070 recommended, HST 011 or HST 012, or Instructor permission. 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 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: Three hours of History.

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: Three hours of History.

HST 177. American Revolution. 3 Credits.

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 History or Film.

HST 182. History of Women in the U.S. 3 Credits.
Survey of the origins and changes in images, status, and roles of women in American society since the colonial period. Prerequisites: Three hours in history (HST 011 or HST 012 recommended), or Gender, Sexuality, and Women’s Studies minor. Cross-listed with: GWSW 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. 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 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 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. Prerequisites: 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. Prerequisites: 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. Readings & Research. 3-6 Credits.
Prerequisite: May be prescribed by an individual Instructor; Junior/ Senior standing.

HST 198. Readings & Research. 3-6 Credits.
Prerequisite: May be prescribed by an individual Instructor; Junior/ Senior standing.

HST 199. Internship in History. 3-6 Credits.
Supervised cooperative internship work in history in archives, museums, libraries, etc. To be individually arranged for each student. Prerequisite: Junior/Senior standing; department permission.

HST 201. History on the Land. 3 Credits.
Identifying and interpreting evidence of the cultural forces - early settlement patterns, transportation, industry, agriculture, planning, conservation - that have shaped our land, buildings, towns and cities. Cross listed with: HP 201.

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 and 12 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 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. Prerequisite: Junior/Senior/Graduate standing and 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 137.

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 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. Prerequisite: Junior/ Senior/Graduate standing; twelve hours 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 history; 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: 12 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/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. Prerequisite: 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. Prerequisite: 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. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

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. Prerequisite: Junior/Senior/Graduate standing; twelve hours History, including HST 184 or permission.

HST 287. Seminar in Historiography. 3 Credits.
Topics and methods in contemporary historical writing. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

HST 295. Special Topics Seminar. 1-18 Credits.
See Schedule of Courses for specific titles. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

HST 296. Special Topics Seminar. 1-18 Credits.
See Schedule of Courses for specific titles. Prerequisite: Junior/Senior/Graduate standing; twelve hours of History.

**HOLOCAUST STUDIES (HS)**

Courses

HS 017. German Literature:Translation. 3 Credits.
See Schedule of Courses for specific titles.

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.

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 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. Readings and Research. 1-6 Credits.
May be prescribed by an individual instructor. Junior/Senior standing.

HS 198. Readings and Research. 1-6 Credits.
May be prescribed by an individual instructor. 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 sociocultural 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 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. Advanced Readings & Research. 1-3 Credits.
declared minor in Holocaust Studies and permission of director.

 HS 298. Advanced Readings & Research. 1-3 Credits.
declared minor in Holocaust Studies and permission of director.

HONORS: ARTS & SCIENCES (HON)

Courses

HON 095. Introductory Special Topics. 1 Credit.
This seminar accompanies the visit of the Zeltzerman Lecturer each spring. Satisfactory/Unsatisfactory. Prerequisite: College of Arts and Sciences/Honors College membership.

HON 096. Introductory Special Topics. 1 Credit.
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 or by Instructor permission; 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. 1-3 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. 3 Credits.

HON 214. Honors: Classics. 1-6 Credits.

HON 215. Honors: Classics. 1-6 Credits.

HON 216. Honors: Communication Science. 1-6 Credits.

HON 217. Honors: Communication Science. 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: Psychology. 1-6 Credits.

HON 249. Honors: Psychology. 1-6 Credits.

HON 250. Honors: Religion. 1-6 Credits.

HON 251. Honors: Religion. 1-6 Credits.

HON 252. Honors: Russian. 1-6 Credits.

HON 253. Honors: Russian. 1-6 Credits.

HON 254. Honors: Sociology. 1-6 Credits.

HON 255. Honors: Sociology. 1-6 Credits.

HON 256. Honors: Spanish. 1-6 Credits.
HON 257. Honors: Spanish. 1-6 Credits.
HON 258. Honors: Theatre. 1-6 Credits.
HON 259. Honors: Theatre. 1-6 Credits.
HON 260. Honors: Environmental Studies. 1-6 Credits.
HON 261. Honors: Environmental Studies. 1-6 Credits.
HON 262. Honors: Women's & Gender Studies. 1-6 Credits.
HON 263. Honors: Women's & Gender Studies. 1-6 Credits.
HON 264. Honors: Individually Designed. 1-6 Credits.
HON 265. Honors: Individually Designed. 1-6 Credits.
HON 266. Honors: Computer Science. 1-6 Credits.
HON 267. Honors: Computer Science. 1-6 Credits.
HON 268. Honors: Italian Studies. 1-6 Credits.
HON 269. Honors: Italian Studies. 1-6 Credits.
HON 270. Honors: Chinese. 1-6 Credits.
HON 271. Honors: Chinese. 1-6 Credits.
HON 272. Honors: Film/Television Studies. 1-6 Credits.
HON 273. Honors: Film/Television Studies. 1-6 Credits.
Contact Department for specific Requirements. Pre/co-requisite: FTS 007, FTS 008, or FTS 009, and FTS 121.
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.

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 093. Special Topics. 0-12 Credits.
HCOL 094. Special Topics. 0-12 Credits.

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.

HUMAN DEVELOPMENT & FAM STDIES (HDFS)

Courses

HDFS 001. Int Hum Dev & Fam Std & Acad Serv. 3 Credits.
Seminar designed to introduce concepts and practices of Human Development and Family Studies through integrating academic service-learning in developmental settings with critical thinking about development. Prerequisite: Majors only.

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 and 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. Pre/co-requisite: HDFS 060.

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 and Sophomore standing.

HDFS 195. Special Topics. 1-12 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.

HDFS 197. Readings & Research. 1-4 Credits.
HDFS 200. Contemporary Issues. 1-6 Credits.
Undergraduates only.

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 161 and HDFS 189.

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, and HDFS 189.

HDFS 260. Family Ecosystem. 3 Credits.
Family viewed in and as an environment for human development. The family ecological approach applied to practical family concerns. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

HDFS 263. Advanced Child Development. 3 Credits.
Survey of professional literature in child development with special emphasis on influence of early life experiences throughout the life cycle. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing.

HDFS 264. Contemporary Issues Parenting. 3 Credits.
Contemporary cultural factors that influence adult lifestyles and their relationship to successful parenting. Prerequisites: HDFS 005, HDFS 060, HDFS 161, HDFS 189; Junior standing. May be repeated up to six credits.

HDFS 265. Teaching Human Development. 3 Credits.
HDFS 266. Seminar in Human Development. 3 Credits.
Intensive study of issues in human development and their application in a wide variety of professional areas. May be taken more than once up to a maximum of 12 hours. Prerequisite: Junior standing; nine hours in Human Development & Family Studies or Instructor permission.

HDFS 267. D2: Advanced Gender & Sexual Identities. 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. Prerequisite: Junior standing; nine hours in Human Development & Family Studies or Instructor permission.

HDFS 268. Seminar 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. Prerequisite: Junior standing; nine hours in Human Development & Family Studies or Instructor permission. Offered in alternate years.

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, and HDFS 189.

HDFS 289. Advanced Theories of Human Development. 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 161 and HDFS 189; Junior standing.

HDFS 291. Special Problems. 1-6 Credits.
Reading, discussion, and special field and/or laboratory investigations. Prerequisite: Department permission. Students may enroll more than once up to twelve hours.
ITAL 096. Introductory Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

ITAL 095. Introductory Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

ITAL 051. Prerequisite: ITAL 051 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 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 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 133. Corporate Communication. 3 Credits.
Prerequisite: ITAL 052 or equivalent.

ITAL 137. Women's Studies. 3 Credits.
A study of Italian women writers, journalists, artists, and film directors. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052 or equivalent.

ITAL 139. Italian Mythology. 3 Credits.
A study of 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 140. Food, Culture, and the Internet. 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 141. Advanced Reading. 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 142. 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 143. 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 144. 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 145. Corporate Communication. 3 Credits.
Prerequisite: ITAL 052 or equivalent.

ITAL 146. Women's Studies. 3 Credits.
A study of Italian women writers, journalists, artists, and film directors. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052 or equivalent.

ITAL 147. Italian Mythology. 3 Credits.
A study of 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 148. Food, Culture, and the Internet. 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 149. Advanced Reading. 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 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 151. 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 152. 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 153. 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 154. 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, Macchiavelli. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052.

ITAL 155. 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 156. 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 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, Macchiavelli. Emphasis on improving linguistic fluency. Prerequisite: ITAL 052.

ITAL 159. 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 160. 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 161. 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 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 163. 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 164. 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 165. 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 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 198. Readings & Research. 1-6 Credits.
Permission of department chair required.
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.

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. Prerequisite: 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.
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 095. Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.
JAPN 096. Introductory Special Topics. 1-6 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 195. Intermediate Special Topics. 1-6 Credits.
See Schedule of Courses for special titles. Prerequisite: JAPN 052 or equivalent.
JAPN 196. Intermediate Special Topics. 1-6 Credits.
See Schedule of Courses for special titles. Prerequisite: JAPN 052 or equivalent.
JAPN 197. Readings and Research. 1-6 Credits.
Independent study of a specific area, subject, or theme with an approved instructor.
JAPN 198. Readings and Research. 1-6 Credits.
Independent study of a specific area, subject, or theme with an approved instructor.
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 viewpoints in varied social contexts. Repeatable with different content. Prerequisite: JAPN 102 or equivalent.
JAPN 295. Advanced Special Topics. 1-6 Credits.
Contact department for details.
JAPN 296. Advanced Special Topics. 1-6 Credits.
Contact department for details.
JAPN 297. Adv Readings and Research. 1-6 Credits.
Advanced independent study of a specific area, subject, or theme with an approved instructor. Prerequisite: JAPN 102 or equivalent.
JAPN 298. Adv Readings and Research. 1-6 Credits.
Advanced independent study of a specific area, subject, or theme with an approved instructor. Prerequisite: JAPN 102 or equivalent.

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 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 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. Readings & Research. 1-6 Credits.

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

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 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.

LEARNING STUDIES (EDLS)

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 095. Introductory Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

LING 096. Introductory Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

LING 097. Readings & Research. 1-6 Credits.
See Schedule of Courses for specific titles.

LING 098. Readings & Research. 1-6 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.

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 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. Prerequisites: LING 080 or PSYC 001.

LING 176. D1: African American English. 3 Credits.
Overview of African American English from linguistic and cultural perspectives. Topics include: linguistic structure and history/development, discourse genres, hip-hop language, education, and media representations, among others.

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.

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 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. Readings & Research. 1-6 Credits.
See Schedule of Courses for specific titles.

LING 198. Readings & Research. 1-6 Credits.
See Schedule of Courses for specific titles.

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 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. Readings & Research. 1-6 Credits.
See Schedule of Courses for specific titles.

LING 298. Readings & Research. 1-6 Credits.
See Schedule of Courses for specific titles.

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. 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 055. Special Topics. 1-12 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 124. Linear Algebra. 3 Credits.
Matrices, linear dependence, vector spaces, linear transformations, characteristic equations and applications. Prerequisite: MATH 022. 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.

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 191. Special Topics. 1-3 Credits.
An approved project under guidance of a staff member and culminating in a written report. Involvement with off-campus groups permitted. Prerequisite: Junior/ Senior standing; approval of Department Chair.

MATH 192. Special Topics. 1-3 Credits.
An approved project under guidance of a staff member and culminating in a written report. Involvement with off-campus groups permitted. Prerequisite: Junior/ Senior standing; approval of Department Chair.

MATH 193. College Honors. 1-3 Credits.
MATH 194. College Honors. 1-3 Credits.
MATH 195. Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles.

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 Models of Oper Rsch. 3 Credits.
The linear programming problem. Simplex algorithm, dual problem, sensitivity analysis, goal programming. Dynamic programming and network problems. Prerequisites: MATH 124; MATH 121 desirable. Cross-listed with: CSYS 221.

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 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 and any of MATH 124, MATH 230, or MATH 271.

MATH 236. Calculus of Variations. 3 Credits.

MATH 237. Intro to Numerical Analysis. 3 Credits.
Error analysis, root-finding, interpolation, least squares, quadrature, linear equations, numerical solution of ordinary differential equations. Prerequisite: MATH 121, MATH 124 or MATH 271; Knowledge of computer programming.

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; either 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 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 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. Prerequisite: MATH 121, 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 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 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.
See Schedule of Courses for specific titles. One to three hours with Instructor approval.

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. Cross-listed with: EE 001.

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 with PHYS 021.

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.

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.

Introduction to finite element analysis, solid modeling, and stress-strain analysis with post-processing techniques. Online course. Prerequisite: CE 001. Co-requisite: ME 014 or CE 100.

ME 095. Special Topics. 0-3 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.

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.

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: Senior 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 and build novel devices that meet functional needs. Prerequisite: Senior standing.

ME 186. Capstone Design II. 2 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 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 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 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 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 124.

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.

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.
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 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.

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 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.

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 095. Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles.

MLRS 096. Special Topics. 1-12 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: MLRS 140.

MLRS 145. 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 149. 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 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.
Lecture dealing with cellular and humoral immunity, B cells and T cells, autoimmunity, immunodeficiency. Prerequisite: One semester of Biochemistry.

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; one semester of Biochemistry.

MLRS 281. Applied Molecular Biology. 3 Credits.
Lecture course focused on application of molecular biology techniques to diagnostic testing and biotechnology. Prerequisite: CHEM 042 or CHEM 141.
MLRS 282. Applied Molecular Biology Lab. 1 Credit.
Laboratory course focused on application of molecular biology techniques to diagnostic testing and biotechnology. Prerequisites: CHEM 042 or CHEM 141. Co-requisite: MLRS 281.

MLRS 293. Undergraduate Research I. 1-6 Credits.
Individual research performed under the supervision of a faculty mentor. A written report and seminar is required. 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 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 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 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 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: CHEM 031 and CHEM 032; CHEM 141 or CHEM 042; ANPS 019 & ANPS 020 or Instructor permission.

MLS 222. Clinical Chemistry II. 4 Credits.
Advanced instruction in body chemistry and pathophysiology of disease with emphasis on diagnostic lab techniques in chemistry. Prerequisites: MLS 221, PATH 101, or Instructor permission.

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.

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. 4 Credits.
Comprehensive study of non-bacterial microorganisms and their disease states in humans. Includes medical mycology, parasitology and virology. Laboratory sessions provide experience in identifying these pathogens. Prerequisites: MMG 065 or MMG 101 or equivalent.

MLS 260. Clin Practicum:Immunohematolog. 3 Credits.
Experiences in an approved clinical laboratory education site in the area of clinical immunohematology. Prerequisite: Medical Laboratory Science Seniors only.

MLS 262. Immunohematology. 4 Credits.
Advanced theory and experience related to human blood groups and transfusion practice. Prerequisite: One semester of immunology.

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 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.

MICROBIOLOGY & 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 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. 1-12 Credits.
An approved area of study or project under the guidance of an MMG faculty member and the Academic advisor.

MMG 096. Special Topics. 1-12 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 the basic principles of mammalian cell culture, as well as cell and mammalian molecular genetics. Prerequisite: BCOR 103 or MMG 104, Permission of Coordinator. Alternate years. Fall.

MMG 103. 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 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 105. 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 106. Biochemistry I. 3 Credits.
Introduction to chemical structure and 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 107. 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 206, CHEM 206. Spring.

MMG 195. Intermediate Special Topics. 1-6 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. 3 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.
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 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 221. 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 222. Clinical Microbiology I. 0 or 4 Credits.
Comprehensive study of human pathogenic microorganisms and their disease states in humans, which includes pathogenic bacteriology and medical mycology. Laboratory sessions provide practical experience in handling and identifying these pathogens. Prerequisites: MMG 065 or MMG 101 or equivalent or Instructor permission. Alternate years. Spring.

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 224. Molecular Cloning Lab. 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 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.
MIDDLE LEVEL TEACHER EDUCATION (EDML)

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. Prerequisite: Junior/Senior/Graduate standing. Cross-listed with: CS 232. Spring. Pre/co-requisite: MMG 197 or MMG 198 or Advisor approval.

MMG 240. Macromol Struct Prot&Nucl Acid. 3 Credits.

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. 1-6 Credits.
Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor permission. Credit as arranged.

MMG 296. Advanced Special Topics. 1-6 Credits.
Supervised investigations in microbiology or molecular genetics. Prerequisite: Instructor permission. Credit as arranged.

MMG 297. 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. 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 capstone required course for Microbiology and Molecular Genetics majors involves written and oral presentations by graduating seniors on current topics in microbiology/molecular genetics. Prerequisites: MMG 101; second semester Senior standing. Spring.

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. Learners, Development&Learning. 3 Credits.
Students learn about the interrelated processes of development and learning throughout childhood but with special emphasis on the approximate ages of ten to fourteen. Prerequisite: EDML 010.

EDML 055. Special Topics I. 2-6 Credits.

EDML 056. Teachers & Teaching Process. 3 Credits.
Students examine professional responsibilities of middle level teachers as defined by Vermont and national standards via classroom observations. Prerequisite: EDML 010, EDML 024.

EDML 171. Teaching Practicum II. 3 Credits.
Second teaching practicum on a middle level team to learn policy, curriculum, exemplary pedagogy, assessment in second of two academic concentrations defined by student’s IDIMC plan. Prerequisite: Admission to Middle Level Professional Program.

EDML 177. Adolescent Lit and Literacy. 3 Credits.
Course participants examine middle school literature, focusing on research-based instructional practices for teaching and engaging middle schoolers in reading and writing across the subject areas.

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 developmental approach to the design of middle level curriculum, with an emphasis on literacy and numeracy.

EDML 261. Middle Level Teaching Pract. 3 Credits.
Teaching practicum on middle level team in two areas of academic concentration, acquiring knowledge of and skills in curriculum, pedagogy, and assessment. Pre/co-requisite: Admission to Middle Level Professional Program.

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 260, EDML 261.

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. 

EDML 287. Literacy & Mathematics. 3 Credits. 
All middle level teachers are expected to teach reading, writing, literature and mathematics. This course is the capstone for work previously done in these pedagogies. Pre/co-requisite: Successful completion of EDML 260, EDML 261, and EDML 270.

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 & BIOPHYSICS (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 prossections, 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 prossections, 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 191. Undergraduate Research. 3-6 Credits.
Individual laboratory research under guidance of faculty member. Prerequisite: Department permission.

MPBP 192. Undergraduate Research. 3-6 Credits.
Individual laboratory research under guidance of faculty member. Prerequisite: Department permission.

MPBP 295. Advanced Special Topics. 0-6 Credits.
Topics of interest to high level Undergraduate and Graduate students beyond the scope of existing courses.

MOVEMENT SCIENCES & REHABILITATION (MVSR)

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.

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. Blues and 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 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, resonation, 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 combinacion 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 033. Applied Lessons. 1 or 2 Credit.
Private instruction in an instrument or voice for non-majors and non-minors. Subject to availability of staff. Lab fee required. May be repeated for credit. Not open for credit to music majors/minors. Prerequisite: successful completion of Level I Examination; contact department office for placement.
MU 034. Required Secondary Lessons. 1 or 2 Credit.
Private instruction for music majors involving a required secondary instrument/area. Subject to staff availability. Lab fee required. May be repeated for credit.

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 044. Elective Secondary Lessons. 1 or 2 Credit.
Private instruction for music majors involving an elective, non-required secondary instrument/area. Subject to staff availability. Lab fee required. May be repeated for credit.

MU 054. Harmony and Form Lab I. 1 Credit.

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.

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/
instructors; 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 133. Applied Lessons. 1 or 2 Credit.
Private instruction in an instrument or voice for music minors.
Subject to availability of staff. Lab fee required. May be repeated for
credit. Prerequisite: Successful completion of Level I Examination.

MU 134. Applied Lessons. 1 or 2 Credit.
Private instruction in an instrument or voice for music majors. Lab fee
required. Juried examinations generally every semester of study. May
be repeated for credit. Prerequisite: Successful completion of Level II
Examination.

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 solfège, chromatic harmony at the keyboard,
dictation, and score reading. Prerequisite: MU 056 or Instructor

MU 156. Harmony and Form Lab IV. 1 Credit.
Intensive study of solfège, extended tonality and atonality at the
keyboard, dictation, and score reading. Prerequisite: MU 154 or

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 improvisor. Prerequisites: MU 009 or
Instructor permission; intermediate instrumental skill.

MU 161. Studio Production I. 3 Credits.
Explores the fundamentals of music studio recording production.
Topics include recording hardware, ProTools software, microphone
technique, signal processing, and post production engineering.
Prerequisites: MU 060 or Instructor permission.
MU 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 234. Applied Lessons. 1 or 2 Credit.
Private instruction in an instrument or voice for majors. Lab fee required. Juried examinations generally every semester of study. May be repeated for credit. Prerequisites: MU 134 and successful completion of Level III Examination.

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 II. 3 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 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 Education; 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.

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: A course in high school or college trigonometry; permission required of nonmajors.

NR 085. Intro Special Topics-Env & NR. 1-6 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. Prerequisite: NR 001, NR 002 or equivalent.

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. Prerequisites: NR 001; concurrent enrollment in NR 104 required.

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. Prerequisites: NR 002; concurrent enrollment in NR 103 required.

NR 107. Human Health & the Environment. 3 Credits.
Interdisciplinary understanding of the effects of anthropogenic factors including pollution, reduced biodiversity, climate change, overpopulation, and resource depletion on the health of natural systems and human populations. Pre/co-requisites: a college level science course; 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. Pre/co-requisite: 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. Pre/co-requisites: 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. Prerequisites: Sophomore standing, two years of high school algebra.

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. Prerequisites: ENVS 001 or NR 002. 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. Pre/co-requisite: 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 185. Special Topics. 1-6 Credits.
Special topics in natural resources beyond the scope of existing formal courses. Variable credit.

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 RSENRR guidelines with sponsorship by interested faculty. Variable credit.

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.

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.

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: NR 001, NR 002, NR 006, NR 103, and NR 104. Co-requisite: NR 205.

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; CHEM 023; NR 103 or equivalent ecology course.

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, BIOL 002, a 100-level ecology course.

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, NR 143, NR 146, or Instructor permission. 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. Pre/co-requisite: 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. Pre/co-requisites: minimum Junior standing, PSS 137 or one course in ecology plus one course in design or drawing. Cross-listed with: CDAE 238, ENVS 238, PSS 238.

NR 240. Park and Wilderness Mgmt. 3 Credits.
Cross-listed with PRT 240. History, philosophy, and management of wilderness, national parks, and related areas. Prerequisites: Junior/Senior standing in Parks, Recreation and Tourism.

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. Prerequisites: Introductory GIS (NR 143 or GEOG 184 or NR 343) or remote sensing (NR 146, NR 346, GEOG 185) course as determined by Instructor.

NR 243. GIS Practicum. 3 Credits.
An applied course in geospatial technology with a focus on ESRI’s ArcGIS software suite. Prerequisite: NR 143/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, one introductory GIS course, one introductory Statistics course.

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: One year Biology; one year Chemistry; ecology course.

NR 254. Adv Natural Resource Policy. 3 Credits.
Advanced seminar in natural resource policy, emphasizing current issues in forest policy. Prerequisite: Graduate or advanced undergraduate standing; Instructor permission.
NR 255. Field Methods 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 or equivalent basic course in water.

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: 100-level ecology course.

NR 260. Wetlands Ecology & Mgmt. 3 Credits.
Structure, dynamics and values of natural and artificial wetlands; wetlands management and issues. Prerequisite: BIOL 001 and BIOL 002; an upper-level ecology course.

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; permission.

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 103, NR 104, or equivalent. NR 153 or equivalent is recommended.

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, 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. Prerequisite: BIOL 001, CHEM 023, CHEM 042; CHEM 102 or equivalent; 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: One course in Chemistry, calculus, and Statistics; 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. Prerequisite: NR 170 or equivalent or as a co-requisite; NR 020, PHYS 011, CHEM 023, CHEM 026 or equivalent; 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: One year Biology; one year Chemistry; ecology course.

NR 285. Advanced Special Topics. 1-6 Credits.
Advanced special topics in natural resource planning beyond the scope of existing formal courses. Prerequisite: Graduate/Senior standing; Instructor permission.

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. Pre/co-requisites: Junior/Senior standing, background in ecology/systems theory.

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.

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. Prerequisites: Junior standing; concurrent enrollment in NR 199 for HCOL students; Instructor permission; undergraduate only.

NR 299. Honors. 1-6 Credits.
Honors project dealing with aquatic resources, terrestrial ecology, or integrated natural resources. Prerequisite: By application only; see Program Chair.

NEUROLOGY (NEUR)

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 110. Exploring Neuroscience. 0 or 4 Credits.
Neuroscience survey, including cellular and molecular functioning of neurons, anatomical and functional organization of the nervous system, and diseases of the nervous system. With lab. Prerequisites: PSYC 001, BCOR 011, BCOR 012.

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 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 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. Prerequisite: NMT 152.


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: NMT 152.

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.

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 and participate in Fletcher Allen Health Care’s Nuclear Medicine Department. 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. NMT majors only. Prerequisite: NMT 163.

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.

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. NMT majors only. Prerequisite: NMT 164.

NMT 264. Clinical Practicum IV. 14 Credits. Full-time clinical experience at an affiliated institution. NMT majors only. Prerequisite: NMT 263.

NMT 296. Advanced Special Topics. 1-18 Credits.

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 015. Personal Power in Health. 3 Credits. Explores consumer power in health care. Addresses how an individual can influence personal health as well as health of community.

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 095. Special Topics. 1-6 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 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 201. Hlth: Sex, Drugs & Fast Foods. 3 Credits.
All Honors College Juniors within the CNHS will take this course in fulfillment of the Honors College curriculum. The course will be an exploration into the determinants of health.

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. 3 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. 3 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 295. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

NURSING (NURS)

Courses
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 or MLRS 054, MLRS 056 recommended).

NURS 135. Hlth Issues in Dev Countries. 3 Credits.
Discussion of status and practice issues in developing countries including several Black African countries and Peoples’ Republic of China. Historical, sociocultural, religious, political perspectives.

NURS 138. Critical Care Nursing. 6 Credits.
Prepares the experienced registered nurse with the knowledge to competently manage the critically ill adult patient. Focuses on assessment, analysis, and nursing management strategies. Pre/co-requisite: Registered Nurse status.

NURS 195. Intermediate Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles.

NURS 196. Intermediate Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles.

NURS 296. Advanced Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles.

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.

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. Prerequisite: NFS 053 or concurrent registration in NFS 053 or permission. Spring; Department majors only.

NFS 063. Obesity, Weight Control & Fitness. 3 Credits.
Introduction to the causes, consequences, and treatment of obesity. Fall.

NFS 073. D2: Farm to Table: Our 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 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. Prerequisite: Instructor permission. Fall/Spring.

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 195. Intermediate Special Topics. 1-12 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. Arrangement with faculty member and permission of Department Chair.

NFS 198. Undergraduate Research. 1-15 Credits.
Individual laboratory or community research in food or nutritional sciences under the guidance of a faculty member. Arrangement with faculty member and Department Chair permission.

NFS 203. Food Microbiology. 0 or 4 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: A course in Biochemistry. Fall.

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 208. Sensory Evaluation of Foods. 3 Credits.
Practical study of the methods and protocols used to evaluate the sensory quality of food in the industry and research world. Prerequisite: NFS 053.

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 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; PBIO 201 or equivalent; ANPS 019 or equivalent; Junior standing. Spring.

NFS 244. Nutr in Hlth & Disease Prevtn. 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 065 and BSAD 120.

NFS 253. Food Safety & Regulation. 3 Credits.
Comprehensive study of the relationships between food processing and preservation, food toxicology, and the scope, applicability, and limitations of U.S. food laws. Prerequisite: AGBI 201 or equivalent. Spring.

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:NFS 260; 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. 1-15 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. Prerequisite: Departmental permission. Credit negotiable. Maximum of fifteen hours in NFS 196 and NFS 296 combined.

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 138. Park & Recreation Design. 0-4 Credits.
Recreation design methodology applied to the design of public and private recreational facilities.

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. Prerequisites: EC 012 or CDAE 061. Cross-listed with: FOR 152.

PRT 230. Ecotourism. 3 Credits.
Study of nature-based travel emphasizing international destinations. Examination of ecotourism as a tool for preservation and economic development. Prerequisite: Junior or Senior standing.

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: Advanced standing in Parks, Recreation and Tourism or Instructor permission.

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/Senior standing in Parks, Recreation and Tourism or Instructor permission.

PATHOLOGY (PATH)
Courses
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. Prerequisite: College biology, anatomy, and physiology.

PATH 295. Advanced Special Topics. 1-3 Credits.
See Schedule of Courses for specific titles.
Courses

PHIL 100. 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 103. Introduction to Logic. 3 Credits.
Study of the basic principles of deductive inference.

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 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. Readings & Research. 1-6 Credits.
Prerequisite: Instructor permission.
PHIL 198. Readings & Research. 1-6 Credits.
Prerequisite: Instructor permission.

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 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. Adv Readings & Research. 1-6 Credits.
Independent study with an instructor on a specific philosopher or philosophical problem. Prerequisites: Instructor permission; an appropriate 200-level course in Philosophy.

PHIL 298. Adv Readings & Research. 1-6 Credits.
Independent study with an instructor on a specific philosopher or philosophical problem. Prerequisites: Instructor permission; an appropriate 200-level course in Philosophy.

PHYSICAL EDUCATION ACTIVITIES (PEAC)

Courses
PEAC 000. Varsity Sports. 1 Credit.
PEAC 001. Remedial Physical Education. 0.5-1 Credits.
PEAC 002. Conditioning 1-4. 1 Credit.
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. Fitness & Weight Control 1-4. 1 Credit.
PEAC 009. Run For Fitness. 0.5 Credits.
PEAC 010. Fitness & Aging. 1 Credit.
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 Training. 1 Credit.

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 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 1-3. 0.5-1 Credits.

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 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 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 108. Moo Gong Do 1-2. 1 Credit.

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 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, covering primarily the basics of Hawaiian, Indian, and Spanish dance.

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. Modern Jazz 3-4. 1 Credit.

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 104. Phys Educ Teaching Experience. 0 or 5 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. Prerequisites: EDPE 023 or EDPE 157; Junior standing.

EDPE 105. Phys Educ Teaching Experience. 0 or 5 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. Prerequisites: EDPE 023 or EDPE 157; Junior standing.

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 3 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: Junior standing; PE majors only.

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: Ath 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 & Programmg. 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. Prerequisite: SOC 001, SOC 019, or equivalent.

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 Prescrpt: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&Condtng. 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 203. Professional Seminar 1. 2 Credits.
Framework for students’ becoming excellent practitioners, focusing on values, principles and core documents of the physical therapy profession, and contemporary issues related to the profession. Pre/co-requisite: DPT majors only.

PT 204. Professional Seminar 2. 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-requisites: PT 203; Enrollment in DPT program.

PT 205. Professional Seminar 3. 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 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 207. Professional Seminar 5. 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 213. Movement Science I. 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: ANNB 201; 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 241. Patient Mgmt Fndmntl Skills. 6 Credits.
Introduction to principles and practices of patient/client management including fundamental patient handling skills, physical examination techniques, history taking and interviewing skills, and clinical documentation. Prerequisites: ANNB 201; Enrolled as DPT student. Co-requisite: Pharmacology and Pathophysiology.

PT 242. Patient Mgmt Musculoskeletal 1. 8 Credits.
Lecture/Lab experiences in which students will apply fundamental biomechanical and kinesiology principles of the trunk, spine, and extremities. Prerequisites: PT 241, RMS 213, Pathophysiology, Pharmacology; Enrolled as DPT student. Co-require: RMS 244, RMS 251.

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.

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.

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. Prerequisite: MATH 021.

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, concurrent enrollment in MATH 021.

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, MATH 121.

PHYS 130. Introductory Laboratory III. 1 Credit.
Prerequisite: Concurrent enrollment or credit in PHYS 128.

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 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. Readings & Research. 1-6 Credits.
Prerequisites: PHYS 128; Department permission.

PHYS 198. Readings & Research. 1-6 Credits.
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 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. Applications 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 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.

PLANT & SOIL SCIENCE (PSS)

Courses

PSS 003. D2: Coffee Ecol & Livelihoods. 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. Introduction 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. Prerequisites: PSS 010 or PSS 021, or one semester of Biology, or Instructor permission.

PSS 123. Garden Flowers. 2 Credits.
Outdoor flowers, culture, related topics. Prerequisites: PSS 010 or PSS 021, or one semester of Biology, or Instructor permission.

PSS 124. Agroecology of Vegetable Crops. 0 or 4 Credits.
The course will introduce students to agroecological research in vegetable cropping systems, farm management, and current trends in organic and conventional vegetable production. Prerequisites: PSS 010, PSS 021, and PSS 001, one semester of Biology, or permission of the Instructor. Alternate years.

PSS 125. Woody Landscape Plants. 0 or 4 Credits.
Identification, climatic requirements, cultural management, and use of ornamental plant materials in landscape planting. Prerequisite: PSS 010 or PSS 021, or one semester of Biology, or Instructor permission.

PSS 127. Greenhouse Operations & Mgmt. 0 or 4 Credits.
Principles and practices of commercial greenhouse management including construction, heating, cooling, container media, watering, fertilization, light and temperature, growth regulators, integrated pest management and disease control. Prerequisites: PSS 010 or 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. Pre/co-requisites: 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. Prerequisites: 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, or one semester of Biology, or 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 or PSS 021, or 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. 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-requisites: Must be a Junior/Senior in the Ecological Agriculture
Major or the Sustainable Landscape Horticultural Major or Instructor
permission.

PSS 161. Fundamentals 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. Prerequisites: PSS 161 or Instructor
permission.

PSS 195. Undergrad Special Topics. 0-18 Credits.
Courses or seminars on topics beyond the scope of existing
department offerings. Prerequisite: Instructor permission.

PSS 196. Undergrad 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. 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. Prerequisites:
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.
Pre/co-requisites: minimum Junior standing, PSS 137 or one course
in ecology plus one course in design or drawing. Cross-listed with:
CDAE 238, ENVS 238, NR 238.

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. Pre/
co-requisites: BCOR 102 or NR 103; 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. 1-12 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. 1-12 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. 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. 1-4 Credits.
See Schedule of Courses for specific titles.

PBIO 096. Special Topics. 1-4 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: One year of plant or Biological Science, 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 the major fungal groups, especially basidiomycetes (mushrooms, rusts and smuts), ascomycetes (e.g. cup fungi, yeasts and mildews), and affiliated taxa. Extensive field and lab work, accompanied by thematic lectures. Prerequisite: A college-level biology course or permission of Instructor.

PBIO 185. Survey of Biochemistry. 3 Credits.
Broad coverage of biochemical topics suitable for students in the applied health sciences. Prerequisites: CHEM 042 or acceptable coursework in organic chemistry. Cross-listed with: BIOC 185.

PBIO 187. Survey of Biochemistry: Lab. 1 Credit.
Introduction to techniques and equipment used for the isolation and quantitative analysis of amino acids, proteins, carbohydrates and DNA enzymes in biological materials. Pre/co-requisite: BIOC 185. Cross-listed with: BIOC 187.

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 205. Mineral Nutrition of Plants. 3 Credits.
Role of essential elements for plant growth including classical and modern approaches to the study of ion availability and transport. Prerequisite: PBIO 104.

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 229. Water Relations of Plants. 3 Credits.
Cross-listed with: FOR 299.

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 234. Ecology of Freshwater Algae. 0 or 3 Credits.
Community, population and physiological ecology of algae. Topics include taxonomy; diversity; distribution and seasonal succession; productivity and grazing; growth kinetics; and competitive and synergistic reactions. Prerequisite: NR 103 or BCOR 102. Alternate years.

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.

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 295. Advanced Special Topics. 1-18 Credits.
For advanced students within areas of expertise of faculty. Aspects of ecology, physiology, genetics, cytology, bryology, 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 Movements. 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 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, or Instructor permission. Cross-listed with: GSWS 155.

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, sexuality, and sex education. Prerequisite: POLS 021 or GSWS 001. Cross-listed with: GSWS 155.

POLS 121. Law & Politics. 3 Credits.
Examination of the U.S. 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. 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 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 143. Philosophy of Law I. 3 Credits.
Analysis of the nature of law, the relation between law and morality, legal obligation, and the judicial decision. Prerequisites: POLS 041 or one Philosophy course. Cross-listed with: PHIL 142.

POLS 144. 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: POLS 041 or one Philosophy course. Cross-listed with: PHIL 143.

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. International 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.

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 Sys of Trop Africa. 3 Credits.
Development of differing political systems in African countries located south of the Sahara and north of South Africa. Prerequisite: POLS 071, or one course in African Studies.

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 191. Internships. 1-6 Credits.

POLS 192. Internships. 1-6 Credits.

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. Readings & Research. 1-6 Credits.

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

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.
This course involves students in policy research for the Vermont State Legislature on a wide range of topics that include the environment, health, and welfare. Prerequisite: Prerequisite: POLS 021, three hours at the 100-level.

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. Film, TV and Public Opinion. 3 Credits.
The impact of popular Film and TV on public opinion. Class research projects relate Film and/or TV to people’s views of 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 242. American Political Thought. 3 Credits.
American political thought from the colonial period to recent times. Prerequisites: POLS 041, three hours at the 100-level. Background in American history recommended.

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 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. Seminar 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. 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.
PORT 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.

PORT 279. Sem in Comparative Politics. 3 Credits.

PORT 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.

PORT 293. Senior Honors Seminar I. 3 Credits.
Examination of major contemporary research topics in political science. Admission by invitation only.

PORT 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.

PORT 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.

PORT 297. Advanced Readings & Research. 3 Credits.
For advanced undergraduate and graduate students.

PORT 298. Advanced Readings & Research. 3 Credits.
For advanced undergraduate and graduate students.

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.

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 Cntmp Prof Nursing. 3 Credits.
This course bridges students into the RN-BS-MS program. An emphasis is placed on nursing theory, holistic nursing practice, contemporary issues in nursing and ethical decision-making. Prerequisite: Admission to program (NAT majors).

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. Prerequisites: Sociology, PSYC 001, ENGS 001, NH 050.

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 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, ANPS 020, MMG 065 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. Prerequisites: PRNU 111, PRNU 113, and PRNU 114.

PRNU 128. Pharmacology. 0-4 Credits.
Examination and application of knowledge of pharmacotherapeutic principles to nursing practice. Prerequisites: PRNU 113, PRNU 114, CHEM 026, ANPS 020. Pre/co-requisite: NURS 120.
PRNU 129. Women & Newborn Nursing. 0 or 4 Credits.
This course focuses on the human experiences of child bearing. Students will have opportunities to care for childbearing women, neonates and their 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, PRNU 129, and NURS 120.

PRNU 132. Child & Adolescent Nursing. 0 or 5 Credits.
Through classroom and practicum, students learn to holistically care for children/adolescents experiencing health alterations within the context of family. Prerequisites: PRNU 128, PRNU 129, NURS 120. Pre/co-requisite: PRNU 131.

PRNU 134. Adult Health Nursing I. 0 or 6 Credits.
Through classroom and practicum, students learn to holistically care for adults and elders experiencing health alterations within the context of family. Prerequisites: NURS 120, PRNU 128, PRNU 129. Pre/co-requisite: PRNU 131.

PRNU 196. Special Topics. 1-12 Credits.
Refer to course schedule for specific title. Prerequisite: Majors only; Senior standing.

PRNU 197. Independent Study. 1-3 Credits.
An independent study is an educational experience taken for credit that occurs separate from a group class. The student develops a plan specific to their learning needs and interests and works under the guidance of a faculty member to achieve the predetermined objectives. Prerequisite: Agreement from a faculty sponsor and approval by the Baccalaureate Education Committee.

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. Adult Health Nursing II. 0 or 6 Credits.
Through this second course and practicum students learn to holistically care for adults and elders experiencing complex health alterations within the context of family. Prerequisite: PRNU 134. Pre/co-requisite: PRNU 231.

PRNU 235. Psychiatric Mental Hlth Nurs. 0 or 5 Credits.
Focus on clients experiencing altered human response patterns from acute, serious and persistent psychiatric disorders. Pre/co-requisites: PSYC 152, PRNU 131.

PRNU 240. Contemp Iss&Ldrsh Prof Nursng. 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. Prerequisites: PRNU 132, PRNU 231, PRNU 234, PRNU 235. Co-requisite: PRNU 241.

PRNU 241. D2:Public Health Nursing. 0-6 Credits.
Focus on population health and community partnerships. 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, PRNU 235. Co-requisites: PRNU 240, PRNU 241.

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 program (NAT majors).

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 295. Advanced Special Topics. 1-12 Credits.
PRNU 296. Advanced Special Topics. 1-12 Credits.

PSYCHOLOGY (PSYC)

Courses

PSYC 001. General Psychology. 0 or 3 Credits.
Introduction to the entire field, emphasizing the behavior of the normal adult human being.

PSYC 015. Improv Memory,Motiv&Cog Skills. 3 Credits.
Theory and research on learning and memory, motivation, and cognitive skills. Emphasis on the application of principles to everyday life. Prerequisite: PSYC 001 or Instructor permission.

PSYC 095. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

PSYC 096. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

PSYC 104. 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. Pre/co-requisite: PSYC 001.

PSYC 109. Psychology Research Methods I. 0 or 3 Credits.
Basic course in principles of research methodology, including design, statistical procedures, and reporting. Prepares students to understand and evaluate psychological research in a variety of areas of psychology. Prerequisite: PSYC 001.
PSYC 110. Psychology Research Methods II. 0 or 4 Credits.
More advanced methodology course for majors in psychology.
Prepares students to conduct and report research in psychology,
with special attention to experimental procedures in learning and
cognition. Laboratory experiences. Prerequisite: PSYC 109.

PSYC 111. Psychology of Decision Making. 3 Credits.
Introduction to the study of individual and group decisions. Focus on
"how," "how best," and "how reasonably" to decide. Attention to tricks
and traps in the process. Prerequisite: PSYC 001. Summer only.

PSYC 119. History of Psychology. 3 Credits.
Review of major theoretical and empirical developments in
psychology, including schools of psychology that have influenced
contemporary models of psychology. Prerequisite: PSYC 001; Junior
or Senior standing.

PSYC 121. 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. Prerequisite: PSYC 001 or
BIOL 001.

PSYC 130. Social Psychology. 3 Credits.
An introduction to concepts and methods used to study the behavior
of individuals in various social situations. Prerequisite: PSYC 001.

PSYC 152. 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: PSYC 001.

PSYC 161. Developmental Psychology: Child. 3 Credits.
Survey of research and theories on child development from
conception to adolescence emphasizing experimental analyses of
early social and cognitive development. Prerequisite: PSYC 001.

PSYC 163. Psychology Mass Communication. 3 Credits.
Survey of theory and research concerning mass media effects in
children’s socialization, information diffusion, and in shaping
values, behaviors regarding health, politics, consumer choices, and
environment. Prerequisite: PSYC 001 or Instructor permission.

PSYC 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.

PSYC 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.

PSYC 197. Independent Study. 1-6 Credits.
Individual research under staff direction. Prerequisite: Department
permission.

PSYC 198. Independent Study. 1-6 Credits.
Individual research under staff direction. Prerequisite: Department
permission.

PSYC 205. Learning. 3 Credits.
Analysis of theory and research on the basic learning process and
behavior. Prerequisite: PSYC 109.

PSYC 206. 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. Prerequisite: PSYC
109.

PSYC 207. 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. Prerequisite: PSYC 109.

PSYC 215. Cognition & Aging. 3 Credits.
Changes in both sensory and cognitive aspects of aging, including
changes in vision, hearing, perception, learning, and memory.
Prerequisite: Permission of the Instructor.

PSYC 220. 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. Prerequisite: PSYC 109 or BCOR
102.

PSYC 221. Physiological Psychology I. 0 or 4 Credits.
Structure and function of mammalian nervous system, emphasizing
neurological correlates of sensory experience and perception.
Individual laboratory experience. Prerequisites: PSYC 109; PSYC
121 or NSCI 110.

PSYC 222. 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. Prerequisite: PSYC 121 or PSYC
221.

PSYC 223. Psychopharmacology. 3 Credits.
Effects of drugs (both medical and recreation) on behavior. Topics
such as drug effects on learning, memory, motivation, perception,
emotions, and aggression. Prerequisites: PSYC 109; PSYC 121 or
PSYC 222.

PSYC 224. 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. Pre/co-
prerequisites: PSYC 121 and PSYC 109, or permission from the
Instructor.

PSYC 230. Advanced Social Psychology. 3 Credits.
Advanced survey of current research on the behavior of individuals
in social situations. Prerequisite: PSYC 109 or PSYC 130.

PSYC 233. Experience & Creativity. 3 Credits.
Explores psychological processes for developing creative thinking
and for enhancing the quality of conscious experience. Emphasizes
personal growth as well as theoretical understanding. Prerequisite:
Advanced background in at least one relevant field, such as
Psychology, Environmental Studies, Studio Art, or education.
PSYC 235. Psychology of Art. 3 Credits.
Exploration of key psychological processes involved in creating and experiencing all forms of art; participants also conduct a research project in an area of interest. Prerequisite: Strong background in Psychology and/or Art.

PSYC 236. Theories of Human Comm. 3 Credits.
Study of the role of perception, human information processing, language, nonverbal codes, meaning, cognition, and interpersonal and sociocultural context in human communication process. Prerequisite: PSYC 109 or PSYC 130.

PSYC 237. Cross-Cultural Communication. 3 Credits.
Study of cultural factors, cognitive processes, communication patterns, and problems in cross-cultural communication; role of communication in development and social change in third world countries. Prerequisite: PSYC 109 or PSYC 130 or PSYC 230; other advanced background in education or a social science.

PSYC 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: PSYC 109, or Instructor permission.

PSYC 241. Org Psyc:Glob/Cultr/Loc Force. 3 Credits.
Study of global, cultural, and local dynamics upon organizational culture, leadership, workforce diversity, ethics and justice at work, and conflict resolution. Conduct applied organizational cultural analysis. Prerequisite: PSYC 109 or Instructor permission.

PSYC 250. 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. Prerequisite: PSYC 109, PSYC 152.

PSYC 251. 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. Prerequisite: PSYC 109 or PSYC 161. PSYC 109 may be taken concurrently.

PSYC 253. Advanced Behavior Modification. 3 Credits.
Application of techniques for the modification of human behavior in a variety of educational and social situations involving the collection and analysis of behavioral data. Prerequisites: PSYC 109, PSYC 152.

PSYC 254. Prim Prevent&Mental Hlth Promo. 3 Credits.
An examination of empirical approaches to prevention of mental and emotional disorders; history of public health methods; sources of support and opposition to prevention efforts. Prerequisite: PSYC 109, PSYC 152.

PSYC 255. 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. Prerequisite: PSYC 109 or advanced standing in Allied Health Sciences.

PSYC 260. Self and Social Cognition. 3 Credits.
An advanced course in social psychology that covers theory and research on the self and social cognition. Pre/co-requisites: PSYC 109 and PSYC 130.

PSYC 261. 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. Prerequisite: PSYC 109 or PSYC 161. PSYC 109 may be taken concurrently.

PSYC 262. Social Development. 3 Credits.
Examination of theory and research concerning interpersonal development in humans from infancy through adulthood. Relationships between language, cognition, and social development emphasized. Prerequisite: PSYC 109 or PSYC 161. PSYC 109 may be taken concurrently.

PSYC 264. 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: GSWS 260.

PSYC 265. 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. Prerequisite: PSYC 109, PSYC 161 which may be taken concurrently or comparable.

PSYC 266. Communication & Children. 3 Credits.
Study of the role of communication, especially television, in cognitive and social development from preschool to adolescence. Relationship between television violence and abnormal behavior examined. Prerequisite: PSYC 109 or PSYC 161 or PSYC 163.

PSYC 267. 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. Pre/co-requisites: PSYC 109 and PSYC 161.

PSYC 268. Psychology Adult Dev & 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: PSYC 001, and HDFS 020 or HDFS 195/HDFS 295 or Instructor permission.

PSYC 269. D1:Cross-Cultrl Psyc:Clin Pers. 3 Credits.
Introduction to issues posed for psychologists in their work with ALANA (African, Latino/a, Native and Asian American) and international populations. Critical appraisal of readings, research and case studies. Prerequisites: PSYC 001, PSYC 109. Cross-listed with: ALANA 269.

PSYC 295. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

PSYC 296. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.
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 or equivalent.

PA 295. Advanced Special Topics. 1-6 Credits.
Current issues and new developments in public policy and public administration. Prerequisite: Permission.

PA 296. Advanced Special Topics. 1-6 Credits.
Current issues and new developments in public policy and public administration. Prerequisite: Permission.

PUBLIC HEALTH (PH)

Courses
PH 196. Intermediate Special Topics. 1-18 Credits.

RADIATION THERAPY (RADT)

Courses
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 care. Includes a clinical practicum. Pre-requisite: RADT 152.

RADT 174. Clinical Practicum. 2 Credits.
Students participate and observe in the Fletcher Allen Health Care Radiation Therapy Department. Radiation Therapy majors only. 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 223. Clin Pract: Radiation Therapy. 3 Credits.
A continuation of RADT 174 emphasizing increasing clinical capabilities. Radiation Therapy majors only. Prerequisite: RADT 174.

RADT 244. Patient Care Seminar. 3 Credits.
This course 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. Qual 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.

REHABILITATION & MOVEMENT SCI (RMS)

Courses
RMS 095. Introductory 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 AthTrn&Ex Sc. 3 Credits.
Concepts of diversity, equity, and active citizenship in health care management, professional development, leadership, and professional ethics for athletic training and exercise-related professions. Pre/co-requisites: Junior standing; AT and EMS majors only.

RMS 195. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

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 I. 3 Credits.
Focus is on critical analysis of research literature. Emphasis on critically reading and interpreting published research regarding applicability to the practice of health care professionals. Pre/co-requisite: Undergraduate Statistics.

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 280. Senior Research Experience. 1-4 Credits.
This course is designed to increase student understanding of the connection between systematic investigation and professional knowledge through a range of research activities and experiences. Pre/co-requisites: RMS 220, Instructor permission.

RMS 295. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

RELIGION (REL)

Courses

REL 020. D2: Intro Rel:Comparative. 3 Credits.
Comparison of diverse practices and beliefs from selected religious traditions and cultures.

REL 021. D2: Intro Rel:Asian Traditions. 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. Intro Rel:Bible. 3 Credits.
Study of religious expressions as exemplified in biblical and related texts.

REL 026. D2: Intro Rel:African Religions. 3 Credits.
Introduction to the study of religion with an emphasis on African religious beliefs, practices, and experiences.

REL 027. Integr Humanities. 3 Credits.
Study of religious and philosophical thought in Western culture from Hebraic and Greek antiquity to present. Prerequisites: Concurrent enrollment in Integrated Humanities Program; ENGS 027, ENGS 028 and HST 013, HST 014.

REL 028. Integrated Humanities. 3 Credits.
Study of religious and philosophical thought in Western culture from Hebraic and Greek antiquity to present. Prerequisite: Concurrent enrollment in Integrated Humanities Program; ENGS 027, ENGS 028, HST 027, and HST 028.

REL 029. D2: Intro Rel:Global Religion. 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 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 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 124. Christianity. 3 Credits.
Historical study of the Christian tradition examining major religious movements of early, medieval, and Reformation Christianity, and the spirituality of Christians during these periods. Prerequisite: Three hours in Religion.

REL 125. Women in Christianity to 1500. 3 Credits.
Women’s roles in early and medieval Christianity, including women’s religious orders, religious identities, mystical writings devotional practices, and their relationships to structures of ecclesiastical authority. Prerequisite: Three hours in Religion. Cross-listed with: GSWS 114.

REL 128. 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. Studies in Hindu Tradition. 3 Credits.
Selected writings, rituals, and developments in the Hindu tradition 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. Methods in Teaching Religion. 1-3 Credits.
Provides formal academic structure to support learning in Religion pedagogy for undergraduate teaching assistants. Pre/co-requisite: Simultaneous appointment as Teaching Assistant.

REL 191. Methods in Teaching Religion. 1-3 Credits.
Provides formal academic structure to support learning in Religion pedagogy for undergraduate teaching assistants. Pre/co-requisite: Simultaneous appointment as Teaching Assistant.

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. Readings & Research. 1-6 Credits.
Variable credit.

REL 198. Readings & Research. 1-6 Credits.
Variable credit.

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 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 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 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 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.
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 142. Listening Comprehension. 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 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 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. Readings & Research. 1-6 Credits.

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

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 295. Advanced Readings & Research. 1-18 Credits.
See Schedule of Courses for specific titles.

RUSS 296. Advanced Readings & Research. 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.

EDSC 216. Curr,Instr&Assmt Sec Schl Tchr. 3 Credits.

EDSC 225. Tchng 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.

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. Tchg Foreign Lang in Sec Schls. 3 Credits.
An overview of language teaching methodology. The learning/teaching process as it relates to language learning; techniques used in the teaching and testing of second language skills and culture. Prerequisite: Acceptance into licensure program.
EDSC 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 Engagement&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, and SWSS 147.

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. 1-12 Credits.
Supervised practicum, readings, or research on special topics not within the boundaries of an existing course for advanced level students. Prerequisites: Social Work major, Instructor permission, pre-arrangement.

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. Prerequisite: 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. Prerequisite: Social Work major; Senior standing; Instructor permission; taken concurrently with SWSS 168 and SWSS 171.

SWSS 197. Readings & Research. 1-4 Credits.
Prerequisite: Social Work major. Pre-arrangement only. Variable credit.

SWSS 198. Readings & Research. 1-4 Credits.

SWSS 199. Laboratory Experience. 1-12 Credits.
Supervised practicum for advanced level students. Prerequisite: 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. Prerequisite: MSW standing.
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.

SOCIOLOGY (SOC)

Courses

SOC 001. 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 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 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: Three hours of Sociology, six hours in a related social science, or Instructor permission, plus STAT 051 or higher. Cross-listed with: POLS 181.

SOC 101. Developm’t Sociological Theory. 0 or 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 or equivalent preparation in another social science with Instructor permission.

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 PSYC 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 credits 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.

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. Pre/co-requisites: Three hours of Sociology or equivalent with Instructor permission; Sophomore standing.

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. Pre/co-requisite: 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. Prerequisites: three hours of Sociology.

SOC 130. Sociology of Heterosexuality. 3 Credits.
Examination of heterosexuality as cultural production with attention to how heterosexuality works alongside other forms of social power especially gender, race, and class. Prerequisites: Three hours of Sociology, preferably SOC 001 or WGST 073 or WGST 075. Cross-listed with: WGST 130.

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. Prerequisites: 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 155. D2: Culture, Health and Healing. 3 Credits.
Introduction to medical anthropology. Social and cultural perspectives on health and illness experiences, doctor-patient interactions, healing practices, and access to health and health care. Prerequisite: three hours of Sociology or ANTH 021. Cross-listed with: ANTH 174.

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, lifestyle, 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 in Sociology.

SOC 195. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.
SOC 196. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

SOC 197. Readings & Research. 1-6 Credits.

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

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. Prerequisite: Six hours of Sociology including SOC 001 and PSYC 100, or PSYC 001 and
PSYC 101, or Instructor permission.

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: Six hours of Sociology including
SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor
permission.

SOC 204. Community Org & Development. 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
including SOC 001 and SOC 100, or SOC 001 and SOC 101, or
Instructor permission. Cross-listed with CDAE 205.

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. Prerequisite: Six hours of Sociology
including SOC 001 and SOC 100, or SOC 001 and SOC 101, or
Instructor permission. Cross-listed with CDAE 205.

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. Prerequisite: Six hours of Sociology
including SOC 001 and SOC 100, or SOC 001 and SOC 101, or
Instructor permission.

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.
Prerequisite: Six hours of Sociology including SOC 001 and SOC
100, or SOC 001 and SOC 101, or Instructor permission. Cross-listed
with CDAE 218.

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. Prerequisite: Six hours of Sociology
including SOC 001 and SOC 100, or SOC 001 and SOC 101, or
Instructor permission.

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.
Prerequisite: Six hours of Sociology including SOC 001 and SOC
100, or SOC 001 and SOC 101, or Instructor permission.

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: Six hours of Sociology including
SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor
permission.

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. Prerequisite: Six hours of Sociology including SOC 001 and
SOC 100, or SOC 001 and SOC 101, or Instructor permission.
Cross-listed with WGST 205.

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. Prerequisite: Six hours of Sociology
including SOC 001 and SOC 100, or SOC 001 and SOC 101, or
Instructor permission.

SOC 215. Criminal Justice. 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. Prerequisite:
Six hours of Sociology, including SOC 001 and SOC 100, or SOC
001 and SOC 101, or Instructor permission.

SOC 216. Corrections. 3 Credits.
Analysis of the social structures and processes involved with
developmental psychology of behavior, and the psychological
and educational needs of individuals. Prerequisites: Six hours of Sociology
including SOC 001 and SOC 100, or SOC 001 and SOC 101, or
Instructor permission.

SOC 217. Disability as Deviance. 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. Prerequisite: Six hours of Sociology
including SOC 001 and SOC 100, or SOC 001 and SOC 101, or
Instructor permission.

SOC 218. Race Relations. 3 Credits.
Examination of American racial subordination in social and historical
perspective. Analysis of interracial contacts, tribal subcultures and
social structures, and responses to racial prejudice and discrimination.
Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC
001 and SOC 101; or HST 190/HS 190; or HST 139/HS 139; or
Instructor permission.

SOC 219. Internship in Gerontology. 3 Credits.
Supervised service or research internship integrating theoretical and
practical gerontological issues. Prerequisites: Six hours of Sociology
including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor
permission.

SOC 220. 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 SOC 101, or SOC 001 and
SOC 100, or Instructor permission.
SOC 222. Sociology of Animals & Society. 3 Credits.
Analysis of selected ethical issues posed by animal rights and animal welfare issues. Pre/co-requisites: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

SOC 223. Sociology of Emotions. 3 Credits.
The study of emotions in non-human animals. Prerequisites: Three hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

SOC 224. Sociology of End of Life Care. 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. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

SOC 225. 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: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101; or Instructor permission.

SOC 226. Sociology of Family & Society. 3 Credits.
Analysis of the institution of the American family in cross-cultural and historical perspective. Theories and research on family continuity, change, and institutional relationships explored. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

SOC 227. Sociology of Organizations. 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: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

SOC 228. Sociology of Media & 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. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

SOC 229. Sociology of Education. 3 Credits.
The relations of cultural forms and subjective experience to social structure and power; in-depth applications of interpretive approaches in contemporary sociology. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.
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. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

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: six hours of Sociology including SOC 001 and SOC 100, or Instructor permission.

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: six hours of Sociology including SOC 001 and SOC 100, or Instructor permission.

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: Six hours of Sociology including SOC 001 and SOC 101, or Instructor permission.

SOC 281. Seminar. 3 Credits.
Presentation and discussion of advanced problems in sociological analysis. Prerequisite: Twelve hours of Sociology; Instructor permission.

SOC 282. Seminar. 3 Credits.
Presentation and discussion of advanced problems in sociological analysis. Prerequisite: Twelve hours of Sociology; Instructor permission.

SOC 285. Internship. 1-6 Credits.
Prerequisites: Twelve hours of Sociology including at least one 200-level course in substantive area relevant to field placement; Department permission.

SOC 286. Internship. 3 Credits.
Students participate in a service-learning internship, focused on social change and strengthening communities, with a local organization, and put their experience in a sociological context, while participating in a seminar, writing field notes, and writing a related paper. Prerequisites: Twelve hours in Sociology; Department permission.

SOC 288. Rsch Meth Teaching Sociology. 3 Credits.
The development and evaluation of the teaching of sociology. Prerequisite: Twelve hours of Sociology; permission of Department. Open only to students who serve concurrently as teaching assistants in the Department.

SOC 289. Rsch Meth Teaching Sociology. 3 Credits.
The development and evaluation of the teaching of sociology. Prerequisite: Twelve hours of Sociology; permission of Department. Open only to students who serve concurrently as teaching assistants in the Department.

SOC 295. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 100, or Instructor permission.

SOC 296. Advanced Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles. Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

SOC 297. Readings & Research. 1-6 Credits.
Prerequisite: Six hours of Sociology including SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

SOC 298. Readings & Research. 1-6 Credits.
Prerequisite: Six hours of Sociology included SOC 001 and SOC 100, or SOC 001 and SOC 101, or Instructor permission.

SPANISH (SPAN)

Courses

SPAN 001. Elementary I. 4 Credits.
Fundamentals of Spanish composition, comprehension, pronunciation, speaking, reading, and writing in a cultural context. Classes are conducted in Spanish and students engage in active use of the language. No prior knowledge expected.

SPAN 002. Elementary II. 4 Credits.
Continuation of SPAN 001. Fundamentals of Spanish composition, comprehension, pronunciation, speaking, reading, and writing in a cultural context. Classes are conducted in Spanish and students engage in active use of the language. Prerequisite: SPAN 001 or equivalent.

SPAN 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 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 141. Intro To Literature of Spain. 3 Credits.
An introductory survey of major developments in Spanish literat

SPAN 142. Intro To Lit Spanish America. 3 Credits.
Readings and discussion focus on textual analysis, and historical and cultural contexts. Pre/co-requisite: SPAN 140.

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. Readings & Research. 1-6 Credits.
Permission of chair required. Prerequisite: SPAN 140.

SPAN 198. Readings & Research. 1-6 Credits.
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 252. Span Lit:Dictatorshp-Democracy. 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 254. 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 reaction 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:Dictatorship-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-American 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 266. 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 Spanish-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 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. Advanced Readings & Research. 1-6 Credits.
Permission of Chair required. Prerequisite: SPAN 140.

SPAN 298. Advanced Readings & Research. 1-6 Credits.
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 222. 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 224. Meeting Inst Needs/All Stdnts. 3 Credits.
Students apply principles of behavior analysis in the development and implementation of instructional programs for learners with moderate and severe disabilities. 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.

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 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 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. Readings and Research. 1-6 Credits.
See Schedule of Courses for specific titles.

SPCH 198. Readings and Research. 1-6 Credits.
See Schedule of Courses for specific titles.

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 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. Readings and Research. 1-6 Credits.
See Schedule of Courses for specific titles.

SPCH 298. Readings and Research. 1-6 Credits.
See Schedule of Courses for specific titles.

STATISTICS (STAT)

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 095. Special Topics. 1-12 Credits.
Lectures, reports, and directed readings at an introductory level. Prerequisite: As listed in course schedule.

STAT 111. Elements of Statistics. 3 Credits.
Basic statistical concepts, methods, and applications, including correlation, regression, confidence intervals, and hypothesis tests. Prerequisite: 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: MATH 019 or MATH 021; 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 Cnprrr Sci. 3 Credits.

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. Prerequisites: STAT 141 or EC 170.

STAT 191. Special Projects. 1-4 Credits.
Student-designed special project under supervision of a staff member culminating in a report. Prerequisite: Junior standing; permission of Program Director.

STAT 195. Intermediate Special Topics. 1-18 Credits.
Lectures, reports, and directed readings. Prerequisite: As listed in course schedule.
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. Prerequisites: STAT 111, STAT 141 or 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. Prerequisites: STAT 111 with Instructor permission, or STAT 141. Co-requisite: 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. Prerequisites: STAT 141 or 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. Prerequisites: 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. Prerequisites: STAT 141 or 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 227. Adv Statistical Methods II. 3 Credits.

STAT 229. Survival/Logistic Regression. 3 Credits.

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. Prerequisites: 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. Prerequisites: 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 or STAT 153 or STAT 251, STAT 141 or equivalent, 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. Prerequisites: 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. Prerequisites: 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 124 or MATH 271, STAT 153 or equivalent, and computer programming. 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. Prerequisites: STAT 251 or either 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. 1-4 Credits.
Intensive experience in carrying out a complete statistical analysis for a research project in substantive area with close consultation with a project investigator. Prerequisites: Any one of STAT 200, STAT 201, STAT 221 through STAT 237, or STAT 253; Some statistical software experience preferred. No credit for Graduate students in Statistics or Biostatistics.

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. 1-6 Credits.
For advanced students. Lectures, reports, and directed readings on advanced topics. Prerequisite: As listed in course schedule.

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 074. 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.

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. Pre/co-requisite: THE 040 or Instructor permission.

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. Pre/co-requisite: Sophomore standing.

THE 076. D1:Contemp US Latina/o Theatre. 3 Credits.

THE 095. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles. Fall. Prerequisite: Instructor permission.

THE 096. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles. Spring. Prerequisite: Instructor permission.

THE 110. Acting II:Cntmp 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. Prerequisite: THE 010 and Instructor permission.
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. Prerequisites: THE 030; and either THE 020 or THE 040 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.

THE 160. Stage Management. 3 Credits.

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. Prerequisites: 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 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. Readings & Research. 0.5-9 Credits.
Prerequisite: Instructor Permission. Fall.

THE 198. Readings & Research. 0.5-9 Credits.
Prerequisite: Instructor Permission. Spring.

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 Scn Stdy. 3 Credits.
Refining and developing script analysis and performance skills using Shakespeare, ancient Greek, Moliere, or other stylized texts. Prerequisites: THE 010, THE 110 & THE 111 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.

THE 250. Directing I. 3 Credits.

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. 3 Credits.
Fall only. Credits: 3.

THE 284. Seminar. 3 Credits.
Spring only. Credits: 3.

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. Senior Readings and Research. 1-3 Credits.
Fall only. Credits: 3.

THE 298. Senior Readings & Research. 1-3 Credits.
Spring only. Credits: 1-3.

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 092. Vermont Field Studies. 3 Credits.
Cross-listed with: GEOG 092.

VS 095. Introductory Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

VS 096. Introductory Special Topics. 1-6 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. Pre/co-requisites: HST 011 or HST 012, or Instructor permission. 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: Three Hours in History; HST 011 or HST 012 recommended. Cross-listed with: HST 184.

VS 191. Internships. 3 Credits.
Prerequisite: Nine hours of Vermont Studies; permission of Director of Vermont Studies; Junior/Senior standing.

VS 192. Vermont Field Studies. 3 Credits.
Prerequisite: Three hours in Geography. Cross-listed with: GEOG 192.

VS 195. Intermediate Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

VS 196. Intermediate Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles.

VS 197. Readings & Research. 1-6 Credits.
Prerequisite: Declared minor in Vermont Studies.

VS 198. Readings and Research. 1-6 Credits.
Prerequisite: Declared minor in Vermont Studies.

VS 230. The Vermont Economy. 3 Credits.
Cross-listed with: EC 230, Seminar C. Prerequisite: EC 170, EC 171, EC 172.

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. Prerequisite: Junior/Senior standing; twelve hours of History, including VS 184; or Instructor permission. Cross-listed with: HST 284.

VS 295. Advanced Special Topics. 1-6 Credits.
See Schedule of Courses for specific titles. Prerequisite: Advanced undergraduate or Graduate standing.
Prerequisites: BIOL 001 and BIOL 002 or equivalent.

stocking, harvest regulations, population and habitat evaluation.

Introduction to freshwater fish, habitats, and life histories. Overview

WFB 161. Fisheries Biology & Techniques. 0 or 4 Credits.
Prerequisites: BIOL 001 and BIOL 002 or equivalent.

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. Prerequisite: Basic understanding of biological terms and concepts.

WFB 130. Ornithology. 3 Credits.
Taxonomy, classification, identification, morphology, physiology, behavior, and ecology of birds. Prerequisite: BIOL 001, BIOL 002, or equivalent.

WFB 131. Field Ornithology. 2 Credits.
Identification and field studies of birds, emphasizing resident species. Two weeks in summer. Prerequisite: WFB 130. Preference to WFB majors.

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. Pre/co-requisites: BIOL 001, BIOL 002 or equivalent, and NR 103.

WFB 150. Wildlf Habitat & Pop Measrmnt. 1 Credit.
Field methods for measuring habitat variables and estimating population parameters. One week in summer. Prerequisites: WFB 131, FOR 021 or PBIO 109, NR 140.

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 equivalent.

WFB 161. Fisheries Biology & Techniques. 0 or 4 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 232. Ichthyology. 3 Credits.
Behavior of fishes. Focus is on form and function, morphology, physiology, behavior, life history, and ecology of modern fishes. Prerequisites: BIOL 001, BIOL 002 or equivalent; Junior standing. Alternate years.

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. 2 Credits.
Breeding biology, behavior, habitat management, and population ecology of wetland wildlife with emphasis on waterfowl. Prerequisites: WFB 174, NR 103.

WFB 271. Wetlands Wildlife. 2 Credits.
Breeding biology, behavior, habitat management, and population ecology of wetland wildlife with emphasis on waterfowl. Prerequisites: WFB 174, NR 103.

WFB 187. Undergrad Special Projects. 1-5 Credits.
Individual projects supervised by a faculty member. Projects may involve independent field, laboratory, or library investigations. Formal report required. Prerequisite: Junior standing; submission of a project prospectus for permission.

WFB 191. Wildlife & Fisheries Practicum. 1-6 Credits.
Supervised work experience in the wildlife and fisheries area. Prerequisite: Instructor permission. Credit as arranged.

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. Pre/co-requisites: BIOL 001 and BIOL 002, or PBIO 004; a 100-level ecology course.

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, WFB 174; Instructor permission. 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; Instructor permission. Alternate years.

WFB 185. Special Topics. 1-6 Credits.

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 Globalizatin. 3 Credits.
How writers imagine themselves and their relationship with others in a globalizing world.

WLIT 024. Myths & Legends of Trojan War. 3 Credits.
Homer epic, 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.
Cross-listed with CLAS 042.

WLIT 095. Special Topics. 1-6 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. 1-6 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. Classical Chinese Lit in Trans. 3 Credits.
Selected topics in Chinese Literature. Reading and discussion are in English. No knowledge of Chinese language is 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 or Instructor permission.

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 or Instructor permission.

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 or Instructor permission.

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 or Instructor permission.

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 or Instructor permission.

WLIT 117. German Lit in Translation. 3 Credits.
Topics such as German author(s), genre, literary movement, or theme such as Goethe, proverbs, Expressionism, Faust, Holocaust, or the German film. Prerequisite: Sophomore standing or Instructor permission.

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 145. D2: Comparative Epic. 3 Credits.
Prerequisite: Sophomore standing. Cross-listed with: CLAS 145.
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 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 effectively communicate in writing. Competency may be met by satisfactory completion of two courses: any ENGS 001-099 course; and an additional course or series of courses that uses the writing process (redrafting) for a minimum of three graded papers.

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 Science 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 Science 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.

VERMONT TECHNICAL COLLEGE/UVM 2+2 FARMS PROGRAM

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

- Understanding the dairy businesses and related support systems
- Communication skills needed for directing a management team
- Leadership skills to become spokespeople for the agricultural community
- Confidence in application of practical knowledge

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

- An interest in and a proven aptitude for the Vermont dairy industry
- A minimum SAT score of 1550
- High school chemistry and algebra
- Two years of a foreign language

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

MAJORS

- Animal Science B.S. (p. 170)
- Biochemistry B.S. (p. 175)
- Biological Science B.S. (p. 176)
- Community Entrepreneurship B.S. (p. 178)
- Community and International Development B.S. (p. 178)
- Dietetics, Nutrition and Food Sciences B.S. (p. 186)
- Ecological Agriculture B.S. (p. 189)
- Environmental Sciences B.S. (p. 182)
- Environmental Studies B.S. (p. 183)
- Microbiology. B.S. (p. 184)
- Molecular Genetics B.S. (p. 184)
- Nutrition and Food Sciences B.S. (p. 187)
- Plant Biology B.S. (p. 191)
- Public Communication B.S. (p. 178)
- Self-Designed B.S. (p. 193)
- Sustainable Landscape Horticulture B.S. (p. 189)

MINORS

- Animal Science (p. 174)
- Applied Design (p. 179)
- Biochemistry (p. 175)
- Community and International Development (p. 179)
- Community Entrepreneurship (p. 180)
- Consumer Affairs (p. 180)
- Consumer and Advertising (p. 180)
- Ecological Agriculture (p. 190)
- Environmental Studies (p. 183)
- Food Systems (p. 180)
- Green Building and Community Design (p. 181)
- Microbiology (p. 185)
- Molecular Genetics (p. 185)
- Nutrition and Food Sciences (p. 188)
- Plant Biology (p. 193)
- Public Communication (p. 181)
- Soil Science (p. 191)
- Sustainable Landscape Horticulture (p. 191)

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. 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

#### Biology with laboratory

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 001 &amp; BIOL 002</td>
<td>Principles of Biology and Principles of Biology</td>
</tr>
<tr>
<td>BCOR 011 &amp; BCOR 012</td>
<td>Exploring Biology and Exploring Biology</td>
</tr>
</tbody>
</table>

#### Chemistry with laboratory

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 032</td>
<td>General Chemistry 2</td>
</tr>
</tbody>
</table>

#### Organic Chemistry:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
</tr>
</tbody>
</table>

#### Physics with laboratory

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 011 &amp; PHYS 021</td>
<td>Elementary Physics and Introductory Lab I</td>
</tr>
</tbody>
</table>

#### Physics with laboratory

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 012 &amp; PHYS 022</td>
<td>Elementary Physics and Introductory Lab II</td>
</tr>
</tbody>
</table>

With calculus:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 051</td>
<td>Fundamentals of Physics I</td>
</tr>
<tr>
<td>PHYS 152</td>
<td>Fundamentals of Physics II</td>
</tr>
</tbody>
</table>

#### Mathematics (requirement varies)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 019</td>
<td>Fundamentals of Calculus I</td>
</tr>
<tr>
<td>MATH 020</td>
<td>Fundamentals of Calculus II</td>
</tr>
</tbody>
</table>

### Biochemistry

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 212</td>
<td>Biochemistry of Human Disease</td>
</tr>
</tbody>
</table>

### Humanities, Social Sciences, Languages

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

### Veterinary Medical Schools

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

#### Biochemistry

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBIO 185 &amp; PBIO 187</td>
<td>Survey of Biochemistry and Survey of Biochemistry: Lab</td>
</tr>
</tbody>
</table>

#### Written English

Choose two of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGS 001</td>
<td>Written Expression</td>
</tr>
<tr>
<td>ENGS 050</td>
<td>Expository Writing</td>
</tr>
<tr>
<td>ENGS 053</td>
<td>Intro to Creative Writing</td>
</tr>
</tbody>
</table>

#### Genetics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 101</td>
<td>Genetics</td>
</tr>
<tr>
<td>or ASCI 168</td>
<td>Animal Genetics</td>
</tr>
</tbody>
</table>

#### Microbiology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMG 101</td>
<td>Microbiol &amp; Infectious Disease</td>
</tr>
</tbody>
</table>

#### Nutrition

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 110</td>
<td>Animal Nutrit, Metab &amp; Feeding</td>
</tr>
</tbody>
</table>

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

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

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

DEPARTMENT OF ANIMAL SCIENCE
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 Science is to provide a high quality, broad-based education emphasizing domestic animals and their interactions with humans.

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

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

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

The Department of Animal Science actively encourages participation in undergraduate research, internships, and study abroad. By combining classroom, laboratory, and practical experience, students maximize their performance in a friendly environment and develop responsibility for and control over their education.

MAJORS
ANIMAL SCIENCE MAJOR
Animal Science B.S. (p. 170)
MINORS

ANIMAL SCIENCE MINOR
Animal Science (p. 174)

GRADUATE

Animal Science A.M.P.
Animal Science M.S.
Animal, Nutrition and Food Science Ph.D.
Cellular, Molecular, and Biomedical Sciences M.S.
Cellular, Molecular, and Biomedical Sciences Ph.D.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information

ANIMAL SCIENCE B.S.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 167)

This page includes descriptions of the four Animal Science concentrations:

    Dairy Production Concentration (p. 170)
    Equine Science Concentration (p. 171)
    General Animal Science Concentration (p. 171)
    Pre-Veterinary/Pre-Professional Science Concentration (p. 171)

MAJOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Animal Science</th>
<th>ASCI 001</th>
<th>Introductory Animal Sciences</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 110</td>
<td></td>
<td>Animal Nutrit, Metab &amp; Feeding</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 122</td>
<td></td>
<td>Animals in Soc/Animal Welfare</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 141</td>
<td></td>
<td>Anat&amp;Physiol Domestic Animals</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 168</td>
<td></td>
<td>Animal Genetics</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 181</td>
<td></td>
<td>Animal Science Career Seminar</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 215</td>
<td></td>
<td>Physiology of Reproduction</td>
<td>3</td>
</tr>
<tr>
<td>One additional Animal Science elective at the 200-level</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Animal Health
Choose one of the following:

<table>
<thead>
<tr>
<th>ASCI 117</th>
<th>Horse Health and Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 118</td>
<td>Appl Animal Health</td>
</tr>
<tr>
<td>ASCI 263</td>
<td>Clin Top:Companion Animal Med</td>
</tr>
</tbody>
</table>

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

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

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.

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.

**EQUINE SCIENCE CONCENTRATION**

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

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

**GENERAL ANIMAL SCIENCE CONCENTRATION**

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

**PRE-VETERINARY/PRE-PROFESSIONAL SCIENCE CONCENTRATION**

This concentration 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.

**PLAN OF STUDY**

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

- Dairy Production Concentration (p. )
- Equine Science Concentration (p. 172)
- General Animal Science Concentration (p. 172)
- Pre-Veterinary/Pre-Professional Science Concentration (p. 173)

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.

**First Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALS 001 Foundations: Communication Meth</td>
<td>3</td>
</tr>
<tr>
<td>CALS 002 Foundation: Information Tech</td>
<td>3</td>
</tr>
<tr>
<td>Diversity Elective</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 001 Introductory Animal Sciences</td>
<td>4</td>
</tr>
<tr>
<td>Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Inorganic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 166 Intro to Comm Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>Written English 001-099</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 002 Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>Year Total:</td>
<td>34</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 110 Animal Nutrit, Metab &amp; Feeding</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 134 CREAM</td>
<td>4</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 122 Animals in Soc/Animal Welfare</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 181 Animal Science Career Seminar</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>BIOL 001 Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 141 Anat &amp; Physiol Domestic Animals</td>
<td>4</td>
</tr>
<tr>
<td>CDAE 166 Intro to Comm Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>32</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 156 Dairy Management Seminar</td>
<td>2</td>
</tr>
<tr>
<td>ASCI 234 Advanced Dairy Management</td>
<td>15</td>
</tr>
<tr>
<td>Diversity Elective</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 167 Fin Mgmt: Comm Entrepreneurs</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 263 Clin Top: Companion Animal Med</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>30</td>
</tr>
</tbody>
</table>
Senior

Credits
ASC1 156 Dairy Management Seminar 2
ASC1 168 Animal Genetics 3
ASC1 215 Physiology of Reproduction 3
ASC1 220 Lactation Physiology 3
CDAE 168 Marketing: Comm Entrepreneurs 3
CDAE 208 Agricultural Policy and Ethics 3
CDAE 266 Dec Making:Comm Entrepreneurs 3
CDAE 267 Strat Plan:Comm Entrepreneurs 4
Electives 6
Year Total: 30

Total Credits in Sequence: 126

Junior

Credits
ASC1 141 Anat&Physiol Domestic Animals 4
ASC1 215 Physiology of Reproduction 3
ASC1 121 Equus 2-4
ASC1 122 Animals in Soc/Animal Welfare 3
Statistics 3
ASC1 181 Animal Science Career Seminar 1
PSS 143 Forage and Pasture Mgmnt 4
CDAE 168 Marketing: Comm Entrepreneurs 3
Electives 6
ASC1 192 Intermediate Special Topics 3
Year Total: 32-34

Senior

Credits
Diversity Elective 3
Electives 3
Year Total: 33

Junior

Credits
ASC1 215 Physiology of Reproduction 3
Equine Instructing Techniques (ASC1 125) 3
ASC1 208 Equine Industry Issues 3
Genetics 3
Equine Internship 3-6
Specialized Topic 3
CDAE 266 Dec Making:Comm Entrepreneurs 3
CDAE 267 Strat Plan:Comm Entrepreneurs 4
Electives 6
Year Total: 31-34

Total Credits in Sequence: 127-137

EQUINE SCIENCE OPTION

First Year

Credits
CALS 001 Foundations: Communication Meth 3
CALS 002 Foundation: Information Tech 3
Diversity Elective 3
ASC1 001 Introductory Animal Sciences 4
Inorganic Chemistry 4
Written English 001-099 3
Organic Chemistry 4
Mathematics 3
ASC1 115 Introduction to Equine Studies 4
Electives 0-5
Year Total: 31-36

Sophomore

Credits
Principles of Biology (BIOL 001 and BIOL 002) 8
ASC1 108 Equine Enterprise Management 3
ASC1 117 Horse Health and Disease 3
Emergency First Aid (EDPE 023 - 3 cr) 2
ASC1 110 Animal Nutrit, Metab & Feeding 4
CDAE 166 Intro to Comm Entrepreneurship 3
CDAE 167 Fin Mgmt: Comm Entrepreneurs 4

Finding a balance between science and practical application is crucial in equine science. Students in this concentration learn about animal sciences, production, or companion animal courses while also gaining hands-on experience through internships or special topics courses. The program prepares graduates for careers in equine-related fields, such as equine health, management, or business.

GENERAL ANIMAL SCIENCE OPTION

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

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALS 001 Foundations:Communication Meth</td>
<td>3</td>
</tr>
<tr>
<td>CALS 002 Foundation:Information Tech</td>
<td>3</td>
</tr>
<tr>
<td>Diversity Elective</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 001 Introductory Animal Sciences</td>
<td>4</td>
</tr>
<tr>
<td>Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Inorganic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Biology</td>
<td>4</td>
</tr>
<tr>
<td>Written English 001-099</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>0-3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>31-34</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 110 Animal Nutrit, Metab &amp; Feeding</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 171 Zoos, Exotics &amp; Endang Species</td>
<td>3</td>
</tr>
<tr>
<td>Biology</td>
<td>8</td>
</tr>
<tr>
<td>Environmental Biology</td>
<td>3</td>
</tr>
<tr>
<td>WFB 174 Prin of Wildlife Management</td>
<td>3</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3-8</td>
</tr>
<tr>
<td>Year Total:</td>
<td>27-32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 141 Anat&amp;Physiol Domestic Animals</td>
<td>4</td>
</tr>
<tr>
<td>WFB 130 Ornithology</td>
<td>3</td>
</tr>
<tr>
<td>WFB 273 Terrestrial Wildlife</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 272 Adv Top:Zoo,Exotic,Endang Spec</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 154 Dog Training and Behavior</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 122 Animals in Soc/Animal Welfare</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 118 Appl Animal Health</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 181 Animal Science Career Seminar</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 109 Psychology Research Methods I</td>
<td>3</td>
</tr>
<tr>
<td>Diversity Elective</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6-9</td>
</tr>
</tbody>
</table>

| Year Total:                      | 35-38   |

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 215 Physiology of Reproduction</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 220 Animal Behavior</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 216 Endocrinology</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 263 Clin Top:Companion Animal Med</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 195 Field Experience</td>
<td>6</td>
</tr>
<tr>
<td>ASCI 196 Field Experience</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>5-11</td>
</tr>
<tr>
<td>Year Total:</td>
<td>29-35</td>
</tr>
</tbody>
</table>

Total Credits in Sequence: 122-139

**PRE-VETERINARY/PRE-PROFESSIONAL SCIENCE**

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

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALS 001 Foundations:Communication Meth</td>
<td>3</td>
</tr>
<tr>
<td>CALS 002 Foundation:Information Tech</td>
<td>3</td>
</tr>
<tr>
<td>Diversity Elective</td>
<td>3</td>
</tr>
<tr>
<td>Inorganic Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 001 Introductory Animal Sciences</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 012 Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>ASCI 110 Animal Nutrit, Metab &amp; Feeding</td>
<td>4</td>
</tr>
<tr>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 141 Anat&amp;Physiol Domestic Animals</td>
<td>4</td>
</tr>
<tr>
<td>Written English</td>
<td>3</td>
</tr>
<tr>
<td>BCOR 011 Exploring Biology</td>
<td>4</td>
</tr>
</tbody>
</table>
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 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.

ANIMAL SCIENCE MINOR REQUIREMENTS

Fifteen credits including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 001 Introductory Animal Sciences</td>
<td>0-4</td>
</tr>
<tr>
<td>or ASCI 006 Companion Animal Care &amp; Mgmt</td>
<td></td>
</tr>
<tr>
<td>or ASCI 115 Introduction to Equine Studies</td>
<td></td>
</tr>
</tbody>
</table>

Additional Animal Science course work 11-12 credits

Year Total: 28-34 credits

Total Credits in Sequence: 118-130 credits
## MAJORS
### BIOCHEMISTRY MAJOR
Biochemistry B.S. (p. 175)

### MINORS
### BIOCHEMISTRY MINOR
Biochemistry (p. 175)

### GRADUATE
Biochemistry M.S.
Biochemistry Ph.D.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information

## BIOCHEMISTRY B.S.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 167)

### MAJOR REQUIREMENTS
In addition to the CALS or CAS college distribution requirements, the biochemistry core requires satisfactory completion of:

<table>
<thead>
<tr>
<th>Option A (recommended)</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose one of the following options:</td>
<td>8-10</td>
</tr>
<tr>
<td><strong>Option A</strong></td>
<td></td>
</tr>
<tr>
<td>BCOR 011 &amp; BCOR 012 Exploring Biology and Exploring Biology</td>
<td></td>
</tr>
<tr>
<td><strong>Option B</strong></td>
<td></td>
</tr>
<tr>
<td>BIOL 001 &amp; BIOL 002 Principles of Biology and Principles of Biology</td>
<td></td>
</tr>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>Choose one of the following options:</td>
<td></td>
</tr>
<tr>
<td><strong>Option A (recommended)</strong></td>
<td></td>
</tr>
<tr>
<td>PHYS 051 &amp; PHYS 152 Fundamentals of Physics I and Fundamentals of Physics II</td>
<td></td>
</tr>
<tr>
<td><strong>Option B</strong></td>
<td></td>
</tr>
<tr>
<td>PHYS 011 &amp; PHYS 012 &amp; PHYS 021 &amp; PHYS 022 Elementary Physics and Elementary Physics and Introductory Lab I and Introductory Lab II</td>
<td></td>
</tr>
<tr>
<td>Choose one of the following options:</td>
<td>8</td>
</tr>
<tr>
<td><strong>Option A (recommended)</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 031 &amp; CHEM 032 General Chemistry 1 and General Chemistry 2</td>
<td></td>
</tr>
<tr>
<td>Choose one of the following options:</td>
<td>8</td>
</tr>
<tr>
<td><strong>Option A (recommended)</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 143 &amp; CHEM 144 Organic Chemistry for Majors 1 and Organic Chemistry for Majors 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 162 Thermodynamics &amp; Kinetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 205 Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 206 Biochemistry II</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 207 Biochemistry Lab</td>
<td>2</td>
</tr>
<tr>
<td>BIOC 296 Advanced Special Topics</td>
<td>1-18</td>
</tr>
<tr>
<td>BCOR 101 Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BCOR 103 Molecular and Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>Nine credits of advanced biochemistry-related electives.</td>
<td>9</td>
</tr>
<tr>
<td>Choose one course from the following group of intermediate-level laboratory electives:</td>
<td>2-4</td>
</tr>
<tr>
<td>CHEM 121 Quantitative Analysis</td>
<td></td>
</tr>
<tr>
<td>MMG 104 Intro Recombinant DNA Tech</td>
<td></td>
</tr>
<tr>
<td>MMG 201 Molecular Cloning Lab</td>
<td></td>
</tr>
<tr>
<td>BIOL 204 Adv Genetics Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOL 205 Adv Genetics Laboratory</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>70-91</td>
</tr>
</tbody>
</table>

## BIOCHEMISTRY MINOR
### REQUIREMENTS
Seventeen credits of chemistry course work:

| CHEM 143 | Organic Chemistry for Majors 1 | 4 |
| CHEM 144 | Organic Chemistry for Majors 2 | 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 |
CHEM 141 may be substituted for CHEM 143
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. 176)

BIOLOGICAL SCIENCE B.S.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 167)

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
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 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.

Total Credits 74-82

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

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., Honduras, St. Lucia, Belize) and local (e.g., dairy farming and farmers’ markets in Vermont).

More information on CDAE and the majors/minors offered, including faculty, student, and alumni profiles, is available on the department’s website. Inquiries are accepted by email at cdae@uvm.edu or by phone at (802) 656-2001.

GENERAL REQUIREMENTS

Students majoring in any of the three majors within the department must complete the CDAE Core Curriculum, which includes the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 002</td>
<td>D2: World Food,Pop &amp; Develop</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 061</td>
<td>Principles of Comm Development</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 102</td>
<td>Sustainable Community Dev</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 127</td>
<td>Consumer,Markets&amp;Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 250</td>
<td>Applied Research Methods</td>
<td>4</td>
</tr>
</tbody>
</table>

Additionally required are: 9

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLS 021</td>
<td>American Political System</td>
</tr>
<tr>
<td>CALS 001</td>
<td>Foundations:Communication Meth</td>
</tr>
<tr>
<td>CALS 002</td>
<td>Foundation:Information Tech</td>
</tr>
</tbody>
</table>

Two courses from the Humanities and Fine Arts

Two three - credit University Approved Diversity courses

Except for PCOM majors the following are also required: 9

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 019</td>
<td>Fundamentals of Calculus I</td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods</td>
</tr>
<tr>
<td>EC 011</td>
<td>Principles of Macroeconomics</td>
</tr>
</tbody>
</table>

MAJORS

COMMUNITY DEVELOPMENT AND APPLIED ECONOMICS MAJORS

Community Entrepreneurship B.S. (p. 178)

Community and International Development B.S. (p. 178)

Public Communication B.S. (p. 178)
MINORS
COMMUNITY DEVELOPMENT AND APPLIED ECONOMICS MINORS
Applied Design (p. 179)
Community Entrepreneurship (p. 180)
Community and International Development (p. 179)
Consumer Affairs (p. 180)
Consumer and Advertising (p. 180)
Food Systems (p. 180)
Green Building and Community Design (p. 181)
Public Communication (p. 181)

GRADUATE
Community Development and Applied Economics M.S.
Public Administration A.M.P.
Public Administration M.P.A.
See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information

COMMUNITY AND INTERNATIONAL DEVELOPMENT B.S.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 167)
Building on an applied economics foundation, the Community and International Development curriculum offers students the academic and professional experience that enables them to address community development both locally and globally. Students in Community and International Development are provided opportunities to analyze and learn from development issues in Vermont and New England; students learn while engaging in real world problem solving. Over the past decade, students and faculty members within CDAE have also nurtured relationships with communities in Belize, Honduras, and St. Lucia. CID students have the opportunity to partner with these organizations to address real world development issues, through carefully designed service learning courses and faculty led trips abroad.

MAJOR REQUIREMENTS
Students must complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 166</td>
<td>Intro to Comm Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 253</td>
<td>Macroeconomics for Appl Econ</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 254</td>
<td>Microeconomics for Appl Econ</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 255</td>
<td>Applied Consumption Economics</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose seven of the following: 27-28

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 106</td>
<td>Renewable Energy Workshop</td>
</tr>
<tr>
<td>CDAE 157</td>
<td>Consumer Law and Policy</td>
</tr>
<tr>
<td>CDAE 171</td>
<td>Community &amp; Int’l Econ Transform</td>
</tr>
<tr>
<td>CDAE 186</td>
<td>Sustain Dev Sm Island States</td>
</tr>
<tr>
<td>CDAE 218</td>
<td>Community Org &amp; Development</td>
</tr>
<tr>
<td>CDAE 237</td>
<td>Economics of Sustainability</td>
</tr>
<tr>
<td>CDAE 251</td>
<td>Contemp Policy Iss: Comm Devel</td>
</tr>
<tr>
<td>CDAE 272</td>
<td>Int’l Economic Development</td>
</tr>
<tr>
<td>CDAE 273</td>
<td>Project Development &amp; Planning</td>
</tr>
</tbody>
</table>

Transfer Credit or CDAE Special Topics courses, as appropriate

COMMUNITY ENTREPRENEURSHIP B.S.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 167)
Successful entrepreneurship is fundamental to a healthy community. Students majoring in Community Entrepreneurship are able to test the entrepreneurial waters in courses designed to give them firsthand experience in launching or strengthening a product or service. Students build skills applying economics, management, strategic planning, marketing and public policy on the enterprise level. This major emphasizes enterprises that promote community development with sound stewardship of natural resources and regard for social capital.

MAJOR REQUIREMENTS
Students must complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 157</td>
<td>Consumer Law and Policy</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 166</td>
<td>Intro to Comm Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 167</td>
<td>Fin Mgmt: Comm Entrepreneurs</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CDAE 168</td>
<td>Marketing: Comm Entrepreneurs</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 253</td>
<td>Macroeconomics for Appl Econ</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 254</td>
<td>Microeconomics for Appl Econ</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 255</td>
<td>Applied Consumption Economics</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 266</td>
<td>Dec Making: Comm Entrepreneurs</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 267</td>
<td>Strat Plan: Comm Entrepreneurs</td>
<td>4</td>
</tr>
</tbody>
</table>

PUBLIC COMMUNICATION B.S.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 167)
Public Communication is the practice of understanding, designing, implementing, and evaluating successful communication campaigns within a framework of public service. It is used to inform and persuade, to build relationships, and to encourage open dialog in the public interest. This is accomplished by crafting successful messages through the application of research, theory, technical knowledge, and sound design principles. Students majoring in Public Communication use an integrated approach to communication in the public interest to critically analyze situations, manage information, and craft messages that work in an increasingly global society.

**MAJOR REQUIREMENTS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 014</td>
<td>Visual Design Studio</td>
<td>1</td>
</tr>
<tr>
<td>CDAE 015</td>
<td>Visual Communication</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 120</td>
<td>Strategic Writing for PCOM</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 121</td>
<td>News Writing Across Media</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 124</td>
<td>Public Communication Media</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 129</td>
<td>Communication Law</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 224</td>
<td>Public Communication Capstone</td>
<td>3</td>
</tr>
<tr>
<td>PA 206</td>
<td>Intro Cont Public Affairs</td>
<td>3</td>
</tr>
<tr>
<td>Choose five of the following:</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>CDAE 128</td>
<td>The Consumer &amp; Advertising</td>
<td></td>
</tr>
<tr>
<td>CDAE 157</td>
<td>Consumer Law and Policy</td>
<td></td>
</tr>
<tr>
<td>CDAE 159</td>
<td>Consumer Assistance Program</td>
<td></td>
</tr>
<tr>
<td>CDAE 166</td>
<td>Intro to Comm Entrepreneurship</td>
<td></td>
</tr>
<tr>
<td>CDAE 168</td>
<td>Marketing: Comm Entrepreneurs</td>
<td></td>
</tr>
<tr>
<td>CDAE 231</td>
<td>Applied Computer Graphics</td>
<td></td>
</tr>
<tr>
<td>CDAE 251</td>
<td>Contemp Policy Iss:Comm Devel</td>
<td></td>
</tr>
<tr>
<td>SOC 043 &amp; SOC 243</td>
<td>Survey of Mass Communication and Mass Media in Modern Society</td>
<td></td>
</tr>
<tr>
<td>or SOC 150</td>
<td>Popular Culture</td>
<td></td>
</tr>
<tr>
<td>or POLS 137</td>
<td>Politics and The Media</td>
<td></td>
</tr>
</tbody>
</table>

**APPLIED DESIGN MINOR**

**REQUIREMENTS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 015</td>
<td>Visual Communication</td>
<td>9</td>
</tr>
<tr>
<td>CDAE 001</td>
<td>Drafting and Design Drawing</td>
<td></td>
</tr>
<tr>
<td>or CDAE 016</td>
<td>Digital Illustration</td>
<td></td>
</tr>
<tr>
<td>CDAE 101</td>
<td>Computer Aided Drafting &amp; Design</td>
<td></td>
</tr>
<tr>
<td>or CDAE 231</td>
<td>Applied Computer Graphics</td>
<td></td>
</tr>
</tbody>
</table>

**Six advisor-approved credits. Students from the College of Arts and Sciences must have their advisor pre-approve the two focus courses. Nine of the fifteen credits must be at the 100-level or above.**

**RESTRICTIONS**

Ineligible Major: Studio Art

**PRE/CO-REQUISITES**

- CDAE 001 or instructor’s permission required for CDAE 101
- CDAE 015 required for CDAE 231

**COMMUNITY AND INTERNATIONAL DEVELOPMENT MINOR**

**REQUIREMENTS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 002</td>
<td>D2: World Food, Pop &amp; Develop</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 061</td>
<td>Principles of Comm Development (CAS students may substitute EC012 for CDAE 061)</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 102</td>
<td>Sustainable Community Dev</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 171</td>
<td>Community &amp; Int’l Econ Transform</td>
<td>3</td>
</tr>
<tr>
<td>or CDAE 296</td>
<td>Field Experience/Practicum</td>
<td></td>
</tr>
<tr>
<td>or CDAE 273</td>
<td>Project Development &amp; Planning</td>
<td></td>
</tr>
</tbody>
</table>

Choose one of the following: 3

- CDAE 166 Intro to Comm Entrepreneurship
- CDAE 167 Fin Mgmt: Comm Entrepreneurs
- CDAE 237 Economics of Sustainability
- CDAE 251 Contemp Policy Iss: Comm Devel
- CDAE 255 Applied Consumption Economics
- CDAE 272 Int’l Economic Development

Or others as approved by minor advisor

**RESTRICTIONS**

Ineligible Major: Community and International Development

**PRE/CO-REQUISITES**

- Instructor’s permission or CDAE 061 required for CDAE 102 or CDAE 237
- CDAE 002, CDAE 061 required for CDAE 171
- CDAE 171 as a pre- or co-requisite for CDAE 273 (or instructor’s permission)
- Sophomore standing required for CDAE 166
- CDAE 166 required for CDAE 167
- Instructor’s permission or CDAE 102 required for CDAE 251
EC 172 or CDAE 254 required for CDAE 255
Junior standing required and instructor’s permission or CDAE 102 for CDAE 272
CDAE 273 is a co-requisite for CDAE 272

### COMMUNITY ENTREPRENEURSHIP MINOR

#### REQUIREMENTS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 166</td>
<td>Intro to Comm Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 167</td>
<td>Fin Mgmt: Comm Entrepreneurs</td>
<td>4</td>
</tr>
<tr>
<td>CDAE 168</td>
<td>Marketing: Comm Entrepreneurs</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 266</td>
<td>Dec Making:Comm Entrepreneurs</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 157</td>
<td>Consumer Law and Policy</td>
<td>3</td>
</tr>
<tr>
<td>or CDAE 267</td>
<td>Strat Plan:Comm Entrepreneurs</td>
<td></td>
</tr>
</tbody>
</table>

#### RESTRICTIONS

Ineligible Major: Community Entrepreneurship

#### PRE/CO-REQUISITES

Sophomore standing required for CDAE 166
CDAE 166 required for CDAE 167
CDAE 061 and CDAE 166 required for CDAE 168
CDAE 166, MATH 019 and CALS 085 or CS 002 required for CDAE 266
Sophomore standing required for CDAE 157
Instructor permission for CDAE 267

### CONSUMER AND ADVERTISING MINOR

#### REQUIREMENTS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 015</td>
<td>Visual Communication</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 127</td>
<td>Consumer, Markets &amp; Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 128</td>
<td>The Consumer &amp; Advertising</td>
<td>3</td>
</tr>
<tr>
<td>CALS 183</td>
<td>Communication Methods</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>One additional three or more credit advisor-approved course</td>
<td>3</td>
</tr>
</tbody>
</table>

#### RESTRICTIONS

Ineligible Major: Public Communication

#### PRE/CO-REQUISITES

Sophomore standing required for CDAE 127
Junior standing required for CDAE 128

### FOOD SYSTEMS MINOR

#### REQUIREMENTS

A minimum of eighteen credits.

Choose nine credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSS 021</td>
<td>Introduction to Ecological Agr</td>
<td>9</td>
</tr>
<tr>
<td>NFS 073</td>
<td>D2: Farm to Table: Our Food Sys</td>
<td></td>
</tr>
<tr>
<td>PBIO 006</td>
<td>The Green World</td>
<td></td>
</tr>
<tr>
<td>CDAE 002</td>
<td>D2: World Food, Pop &amp; Develop</td>
<td></td>
</tr>
<tr>
<td>PHIL 010</td>
<td>Introduction to Philosophy</td>
<td></td>
</tr>
</tbody>
</table>

Choose at least nine credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 185 &amp; NFS 185</td>
<td>D2: Food and Culture and D2: Food and Culture (ANTH 185 Lecture, NFS 185 Lab)</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 122</td>
<td>Animals in Soc/Animal Welfare</td>
<td></td>
</tr>
<tr>
<td>CDAE 127</td>
<td>Consumer, Markets &amp; Public Policy</td>
<td></td>
</tr>
<tr>
<td>PSS 154</td>
<td>Composting Ecology &amp; Mgmt</td>
<td></td>
</tr>
<tr>
<td>PSS/ENVS 156</td>
<td>Permaculture</td>
<td></td>
</tr>
<tr>
<td>ENVS 183</td>
<td>Env Impacts of Consumerism</td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>CDAE 208/ASCI 230</td>
<td>Agricultural Policy and Ethics</td>
<td></td>
</tr>
<tr>
<td>PSS/ENVS 212</td>
<td>Advanced Agroecology</td>
<td></td>
</tr>
<tr>
<td>CDAE 237</td>
<td>Economics of Sustainability</td>
<td></td>
</tr>
<tr>
<td>PSS 127</td>
<td>Greenhouse Operations &amp; Mgmt</td>
<td></td>
</tr>
<tr>
<td>PSS 209</td>
<td>Sustainable Farming Practicum</td>
<td></td>
</tr>
<tr>
<td>ASCI 192</td>
<td>Intermediate Special Topics</td>
<td></td>
</tr>
<tr>
<td>NFS 195</td>
<td>Intermediate Special Topics</td>
<td></td>
</tr>
<tr>
<td>CDAE 195</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>PSS 195</td>
<td>Undergrad Special Topics</td>
<td></td>
</tr>
<tr>
<td>ENVS 195</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>PHIL 295</td>
<td>Advanced Special Topics</td>
<td></td>
</tr>
<tr>
<td>FS 395</td>
<td>Special Topics (requires approval by Minor advisor)</td>
<td></td>
</tr>
</tbody>
</table>

**Green Building and Community Design Minor**

**Requirements**

<table>
<thead>
<tr>
<th>Graphical Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 001</td>
</tr>
<tr>
<td>or CDAE 118</td>
</tr>
</tbody>
</table>

**Green Building**

Choose three credits:

- CDAE 170 | Solar Strategies Bldg Constrct |
- CDAE 131 | Appl Des Studio: Lt Frame Bldg |

Or approved summer courses at Yestermorrow

**Renewable Energy**

Choose three credits:

- CDAE 006 | Energy Alternatives |
- CDAE 106 | Renewable Energy Workshop |
- ENSC 285 | Adv Special Topics |

Approved summer courses at Yestermorrow or other advisor-approved course

**Green Communities**

Choose three credits:

- CDAE 102 | Sustainable Community Dev |
- CDAE 276 | Community Design Studio |
- CDAE 171 | Community & Intl Econ Transform |

Approved summer courses at Yestermorrow or other advisor-approved course

**Green Landscapes**

Choose one of the following:

- PSS 137 | Landscape Design Fundamentals |
- PSS 196 | Undergrad Special Topics (see Registrar’s Page for Semester offerings) |
- PSS 238 | Ecological Landscape Design |
- ENVS 177 | Intro to Landscape Restoration |
- PSS 156 | Permaculture |

Approved summer courses at Yestermorrow or other advisor-approved course

**Capstone**

- NR 288 | Ecol Design & Living Technol |
- or NR 289 | Advanced Ecological Design |
- or CDAE 273 | Project Development & Planning |

**Restrictions**

Students majoring in Environmental Science (ENSC) may obtain the Green Building Community Design minor with only one overlapping course.

**Public Communication Minor**

**Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAE 024</td>
<td>Fund of Public Communication</td>
</tr>
<tr>
<td>CDAE 124</td>
<td>Public Communication Media</td>
</tr>
</tbody>
</table>

An additional nine advisor-approved elective credits, at least six of which must be at 100-level or above

**Restrictions**

Ineligible Major: Public Communication

**Pre/Co-Requisites**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGS 001</td>
<td>Written Expression</td>
</tr>
<tr>
<td>CALS 183</td>
<td>Communication Methods</td>
</tr>
<tr>
<td>STAT 111</td>
<td>Elements of Statistics</td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods</td>
</tr>
<tr>
<td>CDAE 250</td>
<td>Applied Research Methods</td>
</tr>
</tbody>
</table>

Junior standing required for CDAE 124
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 environmental focus, so an environmental sciences major is balanced with a broad-based understanding of the environment.
- 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 which 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, environmental resources, 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. 182)

ENVIRONMENTAL SCIENCES B.S.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 167)

MAJOR REQUIREMENTS

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

| General CALS distribution requirements | 17 |
| Core distribution requirements for the major (which also fill CALS distribution requirements): |
| CDAE 002 | D2: World Food, Pop & Develop |
| CDAE 208 | Agricultural Policy and Ethics |
| PSS 010 | Home & Garden Horticulture |
| or PSS 021 | Introduction to Ecological Agr |
| BCOR 102 | Ecology and Evolution |
| MMG 101 | Microbial & 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 | Fundamentals 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: | 16 |
ENSC 001 Intro Environmental Sciences
ENSC 130 Global Environmental Assessment
ENSC 160 Pollutant Mvmt/Air, Land & Water
ENSC 201 Recovery & Restore Altered Ecosys
ENSC 202 Ecological Risk Assessment

Concentration requirement: fourteen to seventeen credits in one of the following Focus Areas:

- Agriculture and the Environment
- Conservation Biology and Biodiversity
- Ecological Design
- Environmental Analysis and Assessment
- Environmental Biology
- Environmental Chemistry
- Environmental Geology
- Environmental Resources
- Water Resources

Up-to-date course requirements for each Focus 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. 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. 183)

MINORS
ENVIRONMENTAL STUDIES MINOR
Environmental Studies (p. 183)

ENVIRONMENTAL STUDIES B.S.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 167)

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS 001</td>
<td>Intro to Environmental Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENVS 002</td>
<td>D2: International Env Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENVS 151</td>
<td>Intermed Environmental Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

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:

Natural sciences

Humanities

Social science

International studies (may be fulfilled with study abroad experience) 30

ENVIRONMENTAL STUDIES MINOR REQUIREMENTS

Seventeen credits in Environmental Studies consisting of:
ENVS 001 Intro to Environmental Studies 4
ENVS 002 D2: International Env Studies 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.)

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, Fletcher Allen Health Care, the Department of Health, and the Office of the Chief Medical Examiner are also available to pre-med students. Approximately 85 percent of MICR and MGEN majors take advantage of either research or internship opportunities.

The program is flexible enough to allow students to minor in another scientific discipline such as animal sciences, biochemistry, biological sciences, chemistry, computer science, mathematics, medical technology, nutrition, and pharmacology -- or in a field that is altogether different. Students have graduated with minors in French, business administration, psychology, and statistics, allowing them to put together a career plan that spans a wide range of opportunities. The program is also flexible enough to allow students to experience a study abroad semester.

MAJORS

MICROBIOLOGY AND MOLECULAR GENETICS MAJORS

Microbiology B.S. (p. 184)
Molecular Genetics B.S. (p. 184)

MINORS

MICROBIOLOGY AND MOLECULAR GENETICS MINORS

Microbiology (p. 185)
Molecular Genetics (p. 185)

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://catalog.uvm.edu/graduate) for more information

MICROBIOLOGY B.S.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 167)

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. 339)
All students must meet the College Requirements. (p. 167)

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMG 101</td>
<td>Microbiol &amp; Infectious Disease</td>
<td>4</td>
</tr>
<tr>
<td>MMG 104</td>
<td>Intro Recombinant DNA Tech</td>
<td>2</td>
</tr>
<tr>
<td>BCOR 101</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>or BCOR 103</td>
<td>Molecular and Cell Biology</td>
<td></td>
</tr>
</tbody>
</table>

Minors also take six additional credits of upper-level courses in their area of interest

### PRE/CO-REQUISITES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011</td>
<td>Exploring Biology</td>
<td>0 or 4</td>
</tr>
<tr>
<td>BCOR 012</td>
<td>Exploring Biology</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CHEM 032</td>
<td>General Chemistry 2</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
<td>0 or 4</td>
</tr>
</tbody>
</table>

### MOLECULAR GENETICS MINOR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMG 101</td>
<td>Microbiol &amp; Infectious Disease</td>
<td>4</td>
</tr>
<tr>
<td>MMG 104</td>
<td>Intro Recombinant DNA Tech</td>
<td>2</td>
</tr>
<tr>
<td>BCOR 103</td>
<td>Molecular and Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>or BCOR 101</td>
<td>Genetics</td>
<td></td>
</tr>
</tbody>
</table>

Minors also take six additional credits of upper-level courses in their area of interest

### 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**

<table>
<thead>
<tr>
<th>Communication Skills</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGS 001 Written Expression (or equivalent)</td>
<td>3</td>
</tr>
<tr>
<td>CALS 183 Communication Methods (or equivalent)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fine Arts and Humanities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Any two humanities courses (Note: See diversity course substitute for Humanities)</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Science Core</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 001 General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 001 Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>or ANTH 021 D2: Cultural Anthropology</td>
<td></td>
</tr>
<tr>
<td>or HLTH 105 D2: Cultural Health Care</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Basic Science Core</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 023 Outline of General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 031 General Chemistry 1</td>
<td></td>
</tr>
<tr>
<td>CHEM 042 Intro Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 141 Organic Chemistry 1</td>
<td></td>
</tr>
</tbody>
</table>

**MAJORS**

**NUTRITION AND FOOD SCIENCES MAJORS**

Dietetics, Nutrition and Food Sciences B.S. (p. 186)

Nutrition and Food Sciences B.S. (p. 187)

**MINORS**

**NUTRITION AND FOOD SCIENCES MINORS**

Nutrition and Food Sciences (p. 188)

Food Systems (p. 187)

**GRADUATE**

Animal, Nutrition and Food Science Ph.D.

Dietetics M.S.D.

Food Systems AMP

Food Systems M.S.

Nutrition and Food Sciences M.S.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information

**DIETETICS, NUTRITION AND FOOD SCIENCES B.S.**

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 167)

**MAJOR REQUIREMENTS**

Dietetics, Nutrition and Food Science Core

<table>
<thead>
<tr>
<th>Analytic Sciences Core</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 060 Financial Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Core Courses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### NUTRITION AND FOOD SCIENCES B.S.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 167)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 120</td>
<td>Leadership &amp; Org Behavior</td>
<td>3</td>
</tr>
<tr>
<td>HLTH 003</td>
<td>Medical Terminology</td>
<td>2</td>
</tr>
<tr>
<td>NFS 223</td>
<td>Nutrition Educ &amp; Counseling</td>
<td>3</td>
</tr>
<tr>
<td>NFS 244</td>
<td>Nutr in Hlth &amp; Disease Pervntn</td>
<td>3</td>
</tr>
<tr>
<td>NFS 250</td>
<td>Foodservice Systems</td>
<td>4</td>
</tr>
<tr>
<td>NFS 260</td>
<td>Diet and Disease</td>
<td>3</td>
</tr>
<tr>
<td>NFS 262</td>
<td>Community Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>NFS 263</td>
<td>Nutritional Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>NFS 196</td>
<td>Field Experience</td>
<td>1-3</td>
</tr>
<tr>
<td>NFS 197</td>
<td>Undergraduate Research</td>
<td></td>
</tr>
<tr>
<td>NFS 198</td>
<td>Undergraduate Research</td>
<td></td>
</tr>
<tr>
<td>NFS 274</td>
<td>Community Practicum</td>
<td></td>
</tr>
<tr>
<td>NFS 296</td>
<td>Field Experience</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

### Nutrition and Food Sciences Core Courses

In consultation with the student’s academic advisor, select four additional didactic courses, at least two of which must be at the 200-level.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFS 043</td>
<td>Fundamentals of Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>NFS 044</td>
<td>Survey of the Field</td>
<td>1</td>
</tr>
<tr>
<td>NFS 053</td>
<td>Basic Concepts of Foods</td>
<td>3</td>
</tr>
<tr>
<td>NFS 054</td>
<td>Basic Concepts of Foods Lab</td>
<td>1</td>
</tr>
<tr>
<td>NFS 073</td>
<td>D2:Farm to Table:Our Food Sys</td>
<td>3</td>
</tr>
<tr>
<td>NFS 143</td>
<td>Nutrition in the Life Cycle</td>
<td>3</td>
</tr>
<tr>
<td>NFS 153</td>
<td>Principles of Food Technology</td>
<td>3</td>
</tr>
<tr>
<td>NFS 154</td>
<td>Principles Food Technology Lab</td>
<td>1</td>
</tr>
<tr>
<td>NFS 203</td>
<td>Food Microbiology</td>
<td>0 or 4</td>
</tr>
<tr>
<td>NFS 243</td>
<td>Advanced Nutrition</td>
<td>3</td>
</tr>
</tbody>
</table>

### Speech and Computer Science

Speech and computer science courses are only required of transfer students who have not taken CALS 001 and CALS 002

### Category Two Diversity Requirement

ANTH 021 and HLTH 105 fulfill the Category Two Diversity requirement.

### Students wishing to apply to medical, naturopathic, chiropractic, osteopathic, dental or graduate school should take:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1 (in place of CHEM 023)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1 (in place of CHEM 042)</td>
<td>4</td>
</tr>
</tbody>
</table>

Plus use electives to take:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 032</td>
<td>General Chemistry 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
<td></td>
</tr>
<tr>
<td>BIOL 001</td>
<td>Principles of Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 002</td>
<td>Principles of Biology</td>
<td></td>
</tr>
<tr>
<td>PHYS 011 &amp; PHYS 021</td>
<td>Elementary Physics and Introductory Lab I</td>
<td></td>
</tr>
<tr>
<td>PHYS 012 &amp; PHYS 022</td>
<td>Elementary Physics and Introductory Lab II</td>
<td></td>
</tr>
</tbody>
</table>

The following are optional and depend on the professional school the student plans on applying to:

Choose one of the following sequences: 6-8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 019 &amp; MATH 020</td>
<td>Fundamentals of Calculus I and Fundamentals of Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH 021 &amp; MATH 022</td>
<td>Calculus I and Calculus II</td>
<td></td>
</tr>
</tbody>
</table>

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

### FOOD SYSTEMS MINOR REQUIREMENTS

A minimum of eighteen credits.

Choose nine credits from the following: 9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSS 021</td>
<td>Introduction to Ecological Agr</td>
<td></td>
</tr>
<tr>
<td>NFS 073</td>
<td>D2:Farm to Table:Our Food Sys</td>
<td></td>
</tr>
</tbody>
</table>
PBIO 006  The Green World
CDAE 002  D2: World Food, Pop & Develop
PHIL 010  Introduction to Philosophy

Choose at least nine credits from the following:

ANTH 185 & NFS 185  D2: Food and Culture and D2: Food and Culture (ANTH 185 Lecture, NFS 185 Lab)
ASCI 122  Animals in Soc/Animal Welfare
CDAE 127  Consumer, Markets & Public Policy
PSS 154  Composting Ecology & Mgmt
PSS/ENVS 156  Permaculture
ENVS 183  Env Impacts of Consumerism
CDAE 208/ASCI 230  Agricultural Policy and Ethics
PSS/ENVS 212  Advanced Agroecology
CDAE 237  Economics of Sustainability
PSS 127  Greenhouse Operations & Mgmt
PSS 209  Sustainable Farming Practicum
ASCI 192  Intermediate Special Topics
NFS 195  Intermediate Special Topics
CDAE 195  Special Topics
PSS 195  Undergrad Special Topics
ENVS 195  Special Topics
PHIL 295  Advanced Special Topics
FS 395  Special Topics (requires approval by Minor advisor)

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 water pollution control.

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

MAJORS
PLANT AND SOIL SCIENCE MAJORS
Ecological Agriculture B.S. (p. 189)
Sustainable Landscape Horticulture B.S. (p. 189)

MINORS
PLANT AND SOIL SCIENCE MINORS
Ecological Agriculture (p. 190)
Food Systems (p. 190)
Soil Science (p. 191)
Sustainable Landscape Horticulture (p. 191)

GRADUATE
See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information
**ECOLOGICAL AGRICULTURE B.S.**

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSS 021</td>
<td>Introduction to Ecological Agr</td>
<td>3</td>
</tr>
<tr>
<td>PSS 106</td>
<td>Entomology &amp; Pest Mgmt</td>
<td>4</td>
</tr>
<tr>
<td>PSS 112</td>
<td>Weed Ecology &amp; Management</td>
<td>3</td>
</tr>
<tr>
<td>PSS 117</td>
<td>Plant Pathology</td>
<td>4</td>
</tr>
<tr>
<td>PSS 138</td>
<td>Commercial Plant Propagation</td>
<td>4</td>
</tr>
<tr>
<td>PSS 158</td>
<td>Internship: Eco Ag/Landscape Hrt</td>
<td>1-3</td>
</tr>
<tr>
<td>or PSS 209</td>
<td>Sustainable Farming Practicum</td>
<td></td>
</tr>
<tr>
<td>PSS 161</td>
<td>Fundamentals of Soil Science</td>
<td>4</td>
</tr>
<tr>
<td>PSS 162</td>
<td>Soil Fertility &amp; Conservation</td>
<td>3</td>
</tr>
<tr>
<td>PSS 208</td>
<td>Organic Farm Planning</td>
<td>3</td>
</tr>
<tr>
<td>PSS 212</td>
<td>Advanced Agroecology</td>
<td>4</td>
</tr>
<tr>
<td>PSS 281</td>
<td>Prof Dev:Eco Ag/Sust Lndsc Hrt</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 001</td>
<td>Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 002</td>
<td>Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 102</td>
<td>Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>or NR 103</td>
<td>Ecology, Ecosystems &amp; Environ</td>
<td></td>
</tr>
<tr>
<td>CDAE 061</td>
<td>Principles of Comm Development</td>
<td>3</td>
</tr>
<tr>
<td>or CDAE 166</td>
<td>Intro to Comm Entrepreneurship</td>
<td></td>
</tr>
<tr>
<td>CDAE 208</td>
<td>Agricultural Policy and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PBIO 104</td>
<td>Plant Physiology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 023</td>
<td>Outline of General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 026</td>
<td>Outline of Organic &amp; Biochem</td>
<td>4</td>
</tr>
<tr>
<td>MATH 010</td>
<td>Pre-Calculus Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 019</td>
<td>Fundamentals of Calculus I</td>
<td></td>
</tr>
<tr>
<td>STAT 111</td>
<td>Elements of Statistics</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 141</td>
<td>Basic Statistical Methods</td>
<td></td>
</tr>
</tbody>
</table>

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)

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. 339)

All students must meet the College Requirements. (p. 167)

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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSS 010</td>
<td>Home &amp; Garden Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>PSS 106</td>
<td>Entomology &amp; Pest Mgmt</td>
<td>0 or 4</td>
</tr>
<tr>
<td>PSS 112</td>
<td>Weed Ecology &amp; Management</td>
<td>0 or 3</td>
</tr>
<tr>
<td>PSS 117</td>
<td>Plant Pathology</td>
<td>4</td>
</tr>
<tr>
<td>PSS 123</td>
<td>Garden Flowers</td>
<td>2</td>
</tr>
<tr>
<td>PSS 125</td>
<td>Woody Landscape Plants</td>
<td>0 or 4</td>
</tr>
<tr>
<td>PSS 137</td>
<td>Landscape Design Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>PSS 138</td>
<td>Commercial Plant Propagation</td>
<td>0 or 4</td>
</tr>
<tr>
<td>PSS 145</td>
<td>Turfgrass Management</td>
<td>3</td>
</tr>
<tr>
<td>PSS 158</td>
<td>Internship: Eco Ag/Landscape Hrt</td>
<td>1-3</td>
</tr>
<tr>
<td>PSS 161</td>
<td>Fundamentals of Soil Science</td>
<td>0 or 4</td>
</tr>
<tr>
<td>PSS 162</td>
<td>Soil Fertility &amp; Conservation</td>
<td>3</td>
</tr>
<tr>
<td>PSS 238</td>
<td>Ecological Landscape Design</td>
<td>4</td>
</tr>
<tr>
<td>PSS 281</td>
<td>Prof Dev:Eco Ag/Sust Lndsc Hrt</td>
<td>1</td>
</tr>
<tr>
<td>FOR 021</td>
<td>Dendrology</td>
<td>0 or 4</td>
</tr>
<tr>
<td>BIOL 001</td>
<td>Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 002</td>
<td>Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 102</td>
<td>Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>or NR 103</td>
<td>Ecology, Ecosystems &amp; Environ</td>
<td></td>
</tr>
<tr>
<td>CDAE 061</td>
<td>Principles of Comm Development</td>
<td>3</td>
</tr>
<tr>
<td>CDAE 166</td>
<td>Intro to Comm Entrepreneurship</td>
<td>3</td>
</tr>
</tbody>
</table>
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 Introduction to Ecological Agr  
- PSS 212 Advanced Agroecology  

Choose three of the following:  
- 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 Mgmt  
- PSS 154 Composting Ecology & Mgmt  
- PSS 156 Permaculture  
- PSS 161 Fundamentals of Soil Science  
- PSS 162 Soil Fertility & Conservation  
- PSS 208 Organic Farm Planning  
- PSS 209 Sustainable Farming Practicum

Choose nine credits from the following:  
- PSS 232 Biological Control  
- PSS 268 Soil Ecology  
- Or appropriate 100- or 200-level PSS special topics (as approved by the PSS Undergraduate Affairs committee).

RESTRICTIONS

Ineligible Major: Ecological Agriculture

FOOD SYSTEMS MINOR

REQUIREMENTS

A minimum of eighteen credits.

Choose nine credits from the following:  
- PSS 021 Introduction to Ecological Agr  
- NFS 073 D2: Farm to Table: Our Food Sys  
- PBIO 006 The Green World  
- CDAE 002 D2: World Food, Pop & Develop  
- PHIL 010 Introduction to Philosophy  

Choose at least nine credits from the following:  
- ANTH 185 & NFS 185 D2: Food and Culture and D2: Food and Culture (ANTH 185 Lecture, NFS 185 Lab)  
- ASCI 122 Animals in Soc/Animal Welfare  
- CDAE 127 Consumer, Markets & Public Policy  
- PSS 154 Composting Ecology & Mgmt  
- PSS/ENVS 156 Permaculture  
- ENVS 183 Env Impacts of Consumerism  
- CDAE 208/ASCI 230 Agricultural Policy and Ethics  
- PSS/ENVS 212 Advanced Agroecology  
- CDAE 237 Economics of Sustainability  
- PSS 127 Greenhouse Operations & Mgmt  
- PSS 209 Sustainable Farming Practicum  
- ASCI 192 Intermediate Special Topics  
- NFS 195 Intermediate Special Topics  
- CDAE 195 Special Topics  
- PSS 195 Undergrad Special Topics  
- ENVS 195 Special Topics  
- PHIL 295 Advanced Special Topics
SOIL SCIENCE MINOR

REQUIREMENTS

A minimum of seventeen credits including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSS 161</td>
<td>Fundamentals of Soil Science</td>
<td>4</td>
</tr>
<tr>
<td>Four other courses from the following list:</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>PSS 154</td>
<td>Composting Ecology &amp; Mgmt</td>
<td></td>
</tr>
<tr>
<td>PSS 162</td>
<td>Soil Fertility &amp; Conservation</td>
<td></td>
</tr>
<tr>
<td>PSS 261</td>
<td>Soil Morph Class &amp; Land Use</td>
<td></td>
</tr>
<tr>
<td>PSS 264</td>
<td>Chemistry of Soil &amp; Water</td>
<td></td>
</tr>
<tr>
<td>PSS 266</td>
<td>Soil Water Movement</td>
<td></td>
</tr>
<tr>
<td>PSS 268</td>
<td>Soil Ecology</td>
<td></td>
</tr>
<tr>
<td>PSS 269</td>
<td>Soil/Water Pollution/Bioremed</td>
<td></td>
</tr>
<tr>
<td>With one PSS course substitution allowed from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOL 151</td>
<td>Geomorphology</td>
<td></td>
</tr>
<tr>
<td>GEOL 234</td>
<td>Global Biogeochemical Cycles</td>
<td></td>
</tr>
<tr>
<td>NR 260</td>
<td>Wetlands Ecology &amp; Mgmt</td>
<td></td>
</tr>
</tbody>
</table>

SUSTAINABLE LANDSCAPE HORTICULTURE MINOR

REQUIREMENTS

A minimum of fifteen credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSS 010</td>
<td>Home &amp; Garden Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>PSS 123</td>
<td>Garden Flowers</td>
<td>2</td>
</tr>
<tr>
<td>PSS 125</td>
<td>Woody Landscape Plants</td>
<td>4</td>
</tr>
<tr>
<td>PSS 137</td>
<td>Landscape Design Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>PSS 106</td>
<td>Entomology &amp; Pest Mgmt</td>
<td></td>
</tr>
<tr>
<td>PSS 117</td>
<td>Plant Pathology</td>
<td></td>
</tr>
<tr>
<td>PSS 138</td>
<td>Commercial Plant Propagation</td>
<td></td>
</tr>
<tr>
<td>PSS 145</td>
<td>Turfgrass Management</td>
<td></td>
</tr>
<tr>
<td>PSS 156</td>
<td>Permaculture</td>
<td></td>
</tr>
<tr>
<td>PSS 161</td>
<td>Fundamentals of Soil Science</td>
<td></td>
</tr>
<tr>
<td>PSS 238</td>
<td>Ecological Landscape Design</td>
<td></td>
</tr>
<tr>
<td>Or an appropriate PSS special topics course (as approved by the Plant and Soil Science Undergraduate Affairs committee)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011</td>
<td>Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 012</td>
<td>Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 101</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>PBIO 104</td>
<td>Plant Physiology</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following options: 16

- **Option A**
  - CHEM 031 & CHEM 032 & CHEM 141 & CHEM 142
    - General Chemistry 1 and General Chemistry 2
    - and Organic Chemistry 1 and Organic Chemistry 2

- **Option B** (for students desiring an especially strong foundation in Chemistry)
  - CHEM 035 & CHEM 036 & CHEM 143 & CHEM 144
    - General Chemistry for Majors 1 and General Chemistry for Majors 2
    - and Organic Chemistry for Majors 1 and Organic 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
- PHYS 011 & PHYS 021
  - Elementary Physics and Introductory Lab I
- or PHYS 051
  - Fundamentals of Physics I
- STAT 141
  - Basic Statistical Methods
- or STAT 211
  - Statistical Methods I
- or NR 140
  - Applied Environ Statistics

**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:

<table>
<thead>
<tr>
<th>Concentration Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBIO 108 Morph &amp; Evo of Vascular Plants</td>
</tr>
<tr>
<td>or PBIO 109 Plant Systematics</td>
</tr>
<tr>
<td>BCOR 102 Ecology and Evolution</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Concentration Electives</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least eighteen credits (including at least two 200-level plant biology courses) selected in consultation with the student’s advisor. An up-to-date list of approved courses for this concentration may be found on the department’s website.</td>
</tr>
</tbody>
</table>

**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:

<table>
<thead>
<tr>
<th>Concentration Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBIO 108 Morph &amp; Evo of Vascular Plants</td>
</tr>
<tr>
<td>PBIO 109 Plant Systematics</td>
</tr>
<tr>
<td>BCOR 102 Ecology and Evolution</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Concentration Electives</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least fifteen credits (including at least one ecology course and two 200-level plant biology courses) selected in consultation with the student’s advisor. An up-to-date list of approved courses for this concentration may be found on the department’s website.</td>
</tr>
</tbody>
</table>
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**

Choose one of the following sequences:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBIO 185 &amp; PBIO 187</td>
<td>Survey of Biochemistry and Survey of Biochemistry: Lab</td>
</tr>
<tr>
<td>BIOC 205 &amp; BIOC 206 &amp; BIOC 207</td>
<td>Biochemistry I and Biochemistry II and Biochemistry Lab</td>
</tr>
<tr>
<td>MMG 101</td>
<td>Microbiol &amp; Infectious Disease 4</td>
</tr>
<tr>
<td>BCOR 103</td>
<td>Molecular and Cell Biology 4</td>
</tr>
</tbody>
</table>

**Concentration Electives**

At least twelve credits (including at least two 100- or 200-level plant biology courses) selected in consultation with the student’s advisor. An up-to-date list of approved courses for this concentration may be found on the department’s website.

To learn more about the undergraduate program, visit the Plant Biology department’s website.

PLANT BIOLOGY MINOR

**REQUIREMENTS**

At least fifteen credits of course work in Plant Biology including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBIO 004</td>
<td>Intro to Botany 4</td>
</tr>
<tr>
<td>BIOL 001</td>
<td>Principles of Biology</td>
</tr>
<tr>
<td>BIOL 002</td>
<td>Principles of Biology</td>
</tr>
<tr>
<td>BCOR 011</td>
<td>Exploring Biology</td>
</tr>
<tr>
<td>BCOR 012</td>
<td>Exploring Biology</td>
</tr>
</tbody>
</table>

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. 339)

All students must meet the College Requirements. (p. 167)

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.
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 dean’s office 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 college’s Distribution Requirements. Typical topics for TAP courses include “Science as a Way of Knowing”, “Coming to America: Autobiography and Ethnicity”, “Geology and Ecology of Lake Champlain”, “Rationality: Belief in God”, and “Student Movements in the Twentieth Century”. More than fifty different courses like these are available to first-year students each year.

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

PRE-PROFESSIONAL PREPARATION

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

Medicine and Dentistry

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

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

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

MAJORS

- Anthropology B.A. (p. 202)
- Art History B.A. (p. 203)
- Art: Studio Art B.A. (p. 204)
- Asian Studies B.A. (p. 228)
- Biochemistry B.S. (p. 207)
- Biological Science B.S. (p. 209)
- Biology B.A. (p. 208)
- Chemistry B.A. (p. 211)
- Chemistry B.S. (p. 212)
- Chinese B.A. (p. 205)
- Classical Civilization B.A. (p. 214)
- Computer Science B.A. (p. 216)
- Economics B.A. (p. 217)
- English B.A. (p. 218)
- Environmental Sciences B.S. (p. 220)
- Environmental Studies B.A. (p. 221)
- European Studies B.A. (p. 228)
- Film and Television Studies B.A. (p. 218)
- French B.A. (p. 251)
- Gender, Sexuality, and Women’s Studies B.A. (p. 222)
- Geography B.A. (p. 223)
- Geology B.A. (p. 224)
- Geology B.S. (p. 225)
- German B.A. (p. 226)
- Global Studies B.A. (p. 231)
- Greek B.A. (p. 214)
- History B.A. (p. 235)
- Individually Designed B.A. (p. 235)
- Italian Studies B.A. (p. 251)
- Japanese B.A. (p. 206)
- Latin B.A. (p. 214)
- Latin American and Caribbean Studies B.A. (p. 231)
- Linguistics B.A. (p. 252)
- Mathematics B.A. (p. 236)
- Music B.A. (p. 237)
- Music Performance B.Mus. (p. 238)
- Neuroscience B.S. (p. 239)
- Philosophy B.A. (p. 241)
- Physics B.A. (p. 241)
- Physics B.S. (p. 242)
- Plant Biology B.A. (p. 244)
- Political Science B.A. (p. 245)
- Psychological Science B.A. (p. 246)
- Psychological Science B.S. (p. 247)
- Religion B.A. (p. 248)
- Russian B.A. (p. 227)
• Russian and East European Studies B.A. (p. 232)
• Sociology B.A. (p. 255)
• Spanish B.A. (p. 252)
• Theatre B.A. (p. 256)
• Zoology B.A. (p. 209)
• Zoology B.S. (p. 210)

MINORS
• African Studies (p. 232)
• ALANA U.S. Ethnic Studies (p. 201)
• Anthropology (p. 203)
• Art History (p. 205)
• Asian Studies (p. 233)
• Astronomy (p. 243)
• Biochemistry (p. 207)
• Biology (p. 210)
• Canadian Studies (p. 233)
• Chemistry (p. 213)
• Chinese (p. 206)
• Classical Civilization (p. 215)
• Dance (p. 239)
• Economics (p. 217)
• English (p. 218)
• Environmental Sciences: Biology (p. 220)
• Environmental Sciences: Geology (p. 221)
• Environmental Studies (p. 221)
• European Studies (p. 233)
• Film and Television Studies (p. 219)
• French (p. 253)
• Gender, Sexuality, and Women’s Studies (p. 222)
• Geography (p. 223)
• Geology (p. 225)
• Geospatial Technologies (p. 226)
• German (p. 227)
• Gerontology (p. 255)
• Global Studies (p. 233)
• Greek Language and Literature (p. 215)
• History (p. 235)
• Holocaust Studies (p. 235)
• Individually Designed (p. 236)
• Italian (p. 253)
• Italian Studies (p. 254)
• Japanese (p. 206)
• Latin American and Caribbean Studies (p. 234)
• Latin Language and Literature (p. 215)
• Linguistics (p. 254)
• Middle East Studies (p. 234)
• Music (p. 239)
• Philosophy (p. 241)

• Physics (p. 243)
• Plant Biology (p. 245)
• Political Science (p. 246)
• Psychological Science (p. 247)
• Religion (p. 249)
• Russian (p. 227)
• Russian/East European Studies (p. 234)
• Sexuality and Gender Identity Studies (p. 222)
• Sociology (p. 256)
• Spanish (p. 254)
• Speech and Debate (p. 256)
• Theatre (p. 257)
• Vermont Studies (p. 235)
• Zoology (p. 210)

REQUIREMENTS
Requirements for the Bachelor of Arts Degree (p. 196)
Requirements for the Bachelor of Music Degree (p. 198)
Requirements for the Bachelor of Science Degree (p. 199)

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.¹

Distribution Requirements

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

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.¹⁰ Also, a student must maintain a cumulative grade-point average of 2.00 in the minor field¹¹. 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-

a. Foreign Language: Two courses in the same foreign language² at the appropriate level, as determined by the offering department.³ 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.⁴

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), music⁵, theatre⁶, 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 Spanish⁷.

e. Humanities: Two courses from a list of approved offerings in Alana U.S. Ethnic Studies, art history, classics, Greek, history, Latin, philosophy, political science, and religion⁸.

f. Social Sciences: Two courses from a list of approved offerings in anthropology, economics, geography, Global and Regional Studies, linguistics, political science, psychology, sociology, Vermont Studies, and Gender, Sexuality, and Women’s Studies⁹.

g. Natural Sciences: Two courses, one of which must include laboratory experience, chosen from GEOG 040, GEOG 140, GEOG 143, MMG 065, and all offerings in astronomy, biology (including BCOR), plant biology, chemistry, geology, physics.
half of the credits used toward completion of the minor requirements must be taken at the University of Vermont, and application of credits earned elsewhere toward completion of the minor is subject to approval by the appropriate department chair or program director. No courses applied toward satisfaction of the minor requirements may be taken on a pass/no pass basis.

1 Courses in this category may also fulfill the University Approved Diversity requirement. Check the listing of University Approved Diversity courses found elsewhere in this catalogue. The following courses have been approved for this category: ANTH 021, ANTH 023, ANTH 024, ANTH 028, ANTH 059, ANTH 104, ANTH 152, ANTH 161, ANTH 162, ANTH 163, ANTH 165, ANTH 166, ANTH 172, ANTH 174, ANTH 179, ANTH 180; ANTH 189, ANTH 209, ARTH 146, ARTH 184, ARTH 185, ARTH 186, ARTH 187, ARTH 188, ARTH 189, ARTH 192, ARTH 285; CLAS 145, CLAS 149; DNCE 005 DNCE 031; EC 040, EC 045; ENGS 061, ENGS 179, ENGS 182; GEOG 050, GEOG 150, GEOG 151, GEOG 154, GEOG 156; GRK 001, GRK 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 068, HST 107, HST 140, HST 141, HST 146, HST 150, HST 151, HST 211, HST 240, HST 250, HST 252; MU 007, MU 105, 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 026, REL 029, REL 130, REL 132, REL 141, REL 145, REL 163, REL 167, REL 234; SOC 155 SOC 171, SOC 212, SOC 218, SOC 272; WLIT 020, WLIT 109, WLIT 119, WLIT 145.

2 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.

3 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.

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

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

6 Speech courses will not satisfy the fine arts requirement.

7 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; 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 numbered 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.

8 The following courses have been approved for this category: all art history, history, and religion courses; ALAN 055, ALAN 159; CLAS 021, CLAS 022, CLAS 023, CLAS 024, CLAS 035, CLAS 121, CLAS 122, CLAS 149, CLAS 154, CLAS 157, CLAS 158, 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 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 241, POLS 242, POLS 244, POLS 245, POLS 249.

9 The following courses have been approved for this category: all anthropology, economics, linguistics, psychology, and sociology courses; CSD 094; GRK 091; all geography courses except: GEOG 040, GEOG 140, GEOG 143; all political science courses except: POLS 041, POLS 141, POLS 142, POLS 143, POLS 144, POLS 147, POLS 148, POLS 241, POLS 242, POLS 244, POLS 245, POLS 249; VS 052; GSWS 001.

10 Only one course may be applied toward completion of both a major and a minor requirement.

11 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.

2. Students must be matriculated in the College of Arts and Sciences and in residence at UVM during the period in which they earn 30 of the last 45 credits applied toward their degree.

3. Guidelines for a Second Bachelor’s Degree
The Bachelor of Science in the College of Arts and Sciences is not a tagged degree. As a consequence, students who have completed a B.S. in Arts and Sciences will not receive a second degree should they complete an additional major within the same degree.

If a B.S. graduate of Arts and Sciences is readmitted and/or completes an additional major beyond the one used toward the original diploma, the additional major and course work will be added to the transcript. A second degree will only be awarded when the additional course work completed satisfies the requirements for a different degree with a different major from the one initially awarded (e.g., a B.S. graduate with a major in chemistry completes requirements for a B.A. in physics).
Students who do not complete the degree within 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). Note that students opting for a B.S. degree in psychology may not use psychology courses to fulfill the social sciences category. See Bachelor of Arts Distribution Requirements for the courses which fit into the remaining categories. No courses applied toward satisfaction of the Distribution Requirements may be taken on a pass/no pass basis.

6. A student must complete an approved major in the College of Arts and Sciences by satisfying the requirements specified by the department or program supervising the major, and by maintaining a cumulative grade-point average of 2.00 in the major field. Unless specifically required, no more than 50 credits in courses with the same departmental prefix may be used toward completion of the 120 credits required for graduation. At least one-half of the credits used toward the major requirements must be taken at UVM. Of these, at least 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 Readings and Research or Internship. All such projects must conform to university guidelines for independent study. There is no limit on the number of independent study credits which may be earned, but prior approval by the Committee on Honors and Individual Studies is required if a student wishes to select nine or more such credits in a single semester.

GOVERNING COLLEGE HONORS
1. The College Honors program, designed for the superior student with unusual initiative and intellectual curiosity, provides an opportunity for a student to pursue two semesters (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.

ALANA U.S. ETHNIC STUDIES MINOR REQUIREMENTS

Eighteen credits (six courses) including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALAN 051</td>
<td>D1: Intr ALANA US Ethnic Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Fifteen credits to be chosen from the list of ALANA approved courses (consult program website or office for list) of which at least nine must be at the 100-level or above.

Students should consult with an ALANA U.S. Ethnic Studies program advisor in devising their course of study.

PRE/CO-REQUISITES

Intro and intermediate level courses for varying subject areas to get to the appropriate level of 100.

DEPARTMENT OF ANTHROPOLOGY

http://www.uvm.edu/~anthro/

Anthropology and UVM have roots going back to the early days of the discipline. One of the first, if not the first, undergraduate course in anthropology in the United States was taught here in 1886 by a geologist, and subsequent Dean of the College of Arts and Sciences, George Henry Perkins. Although the department faculty is deeply committed to research and other scholarly activities, its primary mission is providing a first-rate undergraduate education.
Anthropology majors are well-prepared in the areas of archaeology, biological anthropology, sociocultural anthropology and linguistic anthropology.

**MAJORS**

**ANTHROPOLOGY MAJOR**

Anthropology B.A. (p. 202)

**MINORS**

**ANTHROPOLOGY MINOR**

Anthropology (p. 203)

**ANTHROPOLOGY B.A.**

All students must meet the University Requirements (p. 339).

All students must meet the College Requirements. (p. 196)

**MAJOR REQUIREMENTS**

Thirty-three credits in anthropology:

<table>
<thead>
<tr>
<th>Core Courses (twelve credits):</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 021 D2: Cultural Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 024 D2: Prehistoric Archaeology</td>
<td></td>
</tr>
<tr>
<td>ANTH 026 D2: Biological Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 028 D2: Linguistic Anthropology</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Two 100-level courses in two different subfields (6 credits):</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archaeology Subfield:</td>
<td></td>
</tr>
<tr>
<td>ANTH 104 D2: Archaeology of the Americas</td>
<td></td>
</tr>
<tr>
<td>ANTH 134 Prehistory of North America</td>
<td></td>
</tr>
<tr>
<td>ANTH 135 Prehistory of the US Southwest</td>
<td></td>
</tr>
<tr>
<td>ANTH 160 D1: North American Indians</td>
<td></td>
</tr>
<tr>
<td>ANTH 161 D2: Cultures of South America</td>
<td></td>
</tr>
<tr>
<td>ANTH 164 Indians of the NE: Vermont</td>
<td></td>
</tr>
<tr>
<td>ANTH 188 Historical Archaeology</td>
<td></td>
</tr>
</tbody>
</table>

| 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) 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 courses may count toward the major:

| ANTH 197 Readings & Research | |
|-------------------------------| |
| ANTH 198 Readings & Research | |
| ANTH 200 Field Work in Archaeology | |
ISSP thesis (ANTH 190) and internship (ANTH 201) courses will not count toward the thirty-three credits required for the anthropology major.

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 are encouraged to take an appropriate mixture of methods and theory courses at the 200-level.

ANTHROPOLOGY MINOR

REQUIREMENTS

Eighteen credits in anthropology, including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 021</td>
<td>D2: Cultural Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 024</td>
<td>D2: Prehistoric Archaeology</td>
<td></td>
</tr>
<tr>
<td>ANTH 026</td>
<td>D2: Biological Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH 028</td>
<td>D2: Linguistic Anthropology</td>
<td></td>
</tr>
</tbody>
</table>

Six credits from the following core courses: 6

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 190</td>
<td>ISSP Thesis</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 197</td>
<td>Readings &amp; Research</td>
<td>1-6</td>
</tr>
<tr>
<td>ANTH 198</td>
<td>Readings &amp; Research</td>
<td>1-12</td>
</tr>
<tr>
<td>ANTH 201</td>
<td>Practicum &amp; Internship</td>
<td>1-12</td>
</tr>
<tr>
<td>ANTH 297</td>
<td>Advanced Readings &amp; Research</td>
<td>1-3</td>
</tr>
<tr>
<td>ANTH 298</td>
<td>Advanced Readings &amp; Research</td>
<td>1-3</td>
</tr>
</tbody>
</table>

DEPARTMENT OF ART AND ART HISTORY

http://www.uvm.edu/~artdept/
Choose two of the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 005</td>
<td>Western Art: Ancient - Medieval</td>
</tr>
<tr>
<td>ARTH 006</td>
<td>Western Art: Renaissance - Modern</td>
</tr>
<tr>
<td>ARTH 008</td>
<td>D2: Asian Art</td>
</tr>
</tbody>
</table>

Twelve credits to include three credits from four of the following five categories (courses numbered 196 in these categories also qualify):  

- **Ancient and Medieval:**
  - ARTH 146 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 140</td>
<td>Hist of Optical Media as Art</td>
</tr>
<tr>
<td>ARTH 176</td>
<td>Identity Diversity Postmod Art</td>
</tr>
<tr>
<td>ARTH 178</td>
<td>Methods and Theories</td>
</tr>
<tr>
<td>ARTH 179</td>
<td>Issues in Contemporary Art</td>
</tr>
<tr>
<td>ARTH 189</td>
<td>D2: Topics in Non-Western Art</td>
</tr>
<tr>
<td>ARTH 199</td>
<td>Topics: Gender, Race, Ethn in Art</td>
</tr>
</tbody>
</table>

Six credits of studio art

The study of French or German through 051 or 052 is strongly recommended for students considering eventual graduate work in art history.

**ART: STUDIO ART B.A.**

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

**MAJOR REQUIREMENTS**

Thirty credit hours in art studio and nine credit hours in art history (39 credit hours total) including the following:

**Category A: Studio Art Foundation**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 001</td>
<td>Drawing</td>
</tr>
<tr>
<td>ARTS 012</td>
<td>Perspectives on Art Making</td>
</tr>
</tbody>
</table>

**Category B: Studio Art 100-level (15 credits)**

Choose two of the following (6 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 113</td>
<td>Clay: Hand Building</td>
</tr>
<tr>
<td>ARTS 115</td>
<td>Intermediate Drawing</td>
</tr>
<tr>
<td>ARTS 114</td>
<td>Clay: Wheel Throwing</td>
</tr>
<tr>
<td>ARTS 116</td>
<td>Drawing From the Figure</td>
</tr>
<tr>
<td>ARTS 121</td>
<td>Painting</td>
</tr>
<tr>
<td>ARTS 131</td>
<td>Printmaking: Etching</td>
</tr>
<tr>
<td>ARTS 132</td>
<td>Printmaking: Silkscreen</td>
</tr>
<tr>
<td>ARTS 134</td>
<td>Color Structures in Silkscreen</td>
</tr>
<tr>
<td>ARTS 137</td>
<td>Photography</td>
</tr>
<tr>
<td>ARTS 138</td>
<td>Color Photography</td>
</tr>
<tr>
<td>ARTS 139</td>
<td>Animation</td>
</tr>
<tr>
<td>ARTS 141</td>
<td>Sculpture</td>
</tr>
<tr>
<td>ARTS 144</td>
<td>Digital Art</td>
</tr>
<tr>
<td>ARTS 145</td>
<td>Graphic Design</td>
</tr>
<tr>
<td>ARTS 148</td>
<td>Motion Picture Production</td>
</tr>
<tr>
<td>ARTS 195</td>
<td>Intermediate Special Topics</td>
</tr>
<tr>
<td>ARTS 197</td>
<td>Rdgs&amp;Rsch: Tutorial in Studio</td>
</tr>
</tbody>
</table>

Choose one of the following from Area 1: Photography, Motion Picture and Digital Art (three credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 137</td>
<td>Photography</td>
</tr>
<tr>
<td>ARTS 138</td>
<td>Color Photography</td>
</tr>
<tr>
<td>ARTS 139</td>
<td>Animation</td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>ARTS 144</td>
<td>Digital Art</td>
</tr>
<tr>
<td>ARTS 148</td>
<td>Motion Picture Production</td>
</tr>
</tbody>
</table>

Choose one of the following from Area 2: Drawing, Painting, Printmaking, Graphic Design (three credits) 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 115</td>
<td>Intermediate Drawing</td>
</tr>
<tr>
<td>ARTS 116</td>
<td>Drawing From the Figure</td>
</tr>
<tr>
<td>ARTS 121</td>
<td>Painting</td>
</tr>
<tr>
<td>ARTS 131</td>
<td>Printmaking: Etching</td>
</tr>
<tr>
<td>ARTS 132</td>
<td>Printmaking: Silkscreen</td>
</tr>
<tr>
<td>ARTS 134</td>
<td>Color Structures in Silkscreen</td>
</tr>
<tr>
<td>ARTS 145</td>
<td>Graphic Design</td>
</tr>
</tbody>
</table>

Choose one of the following from Area 3: Ceramics, Sculpture (three credits) 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 113</td>
<td>Clay: Hand Building</td>
</tr>
<tr>
<td>ARTS 114</td>
<td>Clay: Wheel Throwing</td>
</tr>
<tr>
<td>ARTS 141</td>
<td>Sculpture</td>
</tr>
</tbody>
</table>

**Category C: Studio Art 200-level**

Choose two of the following (6 credits): 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 213</td>
<td>Advanced Ceramics</td>
</tr>
<tr>
<td>ARTS 215</td>
<td>Advanced Drawing</td>
</tr>
<tr>
<td>ARTS 221</td>
<td>Advanced Painting</td>
</tr>
<tr>
<td>ARTS 230</td>
<td>Projects in Printmaking</td>
</tr>
<tr>
<td>ARTS 237</td>
<td>Advanced Photography</td>
</tr>
<tr>
<td>ARTS 241</td>
<td>Advanced Sculpture</td>
</tr>
<tr>
<td>ARTS 244</td>
<td>Advanced Digital Art</td>
</tr>
<tr>
<td>ARTS 248</td>
<td>Adv Motion Picture Production</td>
</tr>
<tr>
<td>ARTS 281</td>
<td>Advanced Studies in Studio Art</td>
</tr>
<tr>
<td>ARTS 283</td>
<td>Advanced Seminar in Studio Art</td>
</tr>
<tr>
<td>ARTS 295</td>
<td>Special Topics in Studio Art</td>
</tr>
</tbody>
</table>

One additional studio art course at any level (three credits) 3

**Category D: Art History Foundation**

Choose two of the following (six credits): 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 005</td>
<td>Western Art: Ancient - Medieval</td>
</tr>
<tr>
<td>ARTH 006</td>
<td>Western Art: Renaissance-Modern</td>
</tr>
<tr>
<td>ARTH 008</td>
<td>D2: Asian Art</td>
</tr>
</tbody>
</table>

Twelve credits of 100-level courses or above 12

**ART HISTORY MINOR REQUIREMENTS**

Eighteen credits, including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose two of the following: 6</td>
<td></td>
</tr>
<tr>
<td>ARTH 005</td>
<td>Western Art: Ancient - Medieval</td>
</tr>
<tr>
<td>ARTH 006</td>
<td>Western Art: Renaissance-Modern</td>
</tr>
<tr>
<td>ARTH 008</td>
<td>D2: Asian Art</td>
</tr>
</tbody>
</table>

**RESTRICTIONS**

Ineligible Major: Art History

**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 LITERATURES MAJORS**

Chinese B.A. (p. 205)

Japanese B.A. (p. 206)

**MINORS**

**ASIAN LANGUAGES AND LITERATURES MINORS**

Chinese (p. 206)

Japanese (p. 206)

**CHINESE B.A.**

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)
## MAJOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Fifteen credits of Chinese language at or above the 100-level, including:</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 101</td>
<td>3rd Year College Chinese I</td>
</tr>
<tr>
<td>CHIN 102</td>
<td>3rd Year College Chinese II</td>
</tr>
<tr>
<td>CHIN 201</td>
<td>4th Year College Chinese I</td>
</tr>
<tr>
<td>CHIN 202</td>
<td>4th Year College Chinese II</td>
</tr>
<tr>
<td>Or equivalent courses at the 100- and 200-levels</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>15</td>
</tr>
</tbody>
</table>

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. 339)

All students must meet the College Requirements. (p. 196)

### MAJOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Fifteen credits of Japanese language at or above the 100-level, including:</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAPN 101</td>
<td>Advanced Japanese I</td>
</tr>
<tr>
<td>JAPN 102</td>
<td>Advanced Japanese II</td>
</tr>
<tr>
<td>JAPN 201</td>
<td>Studies of Japanese Texts I</td>
</tr>
<tr>
<td>JAPN 202</td>
<td>Studies of Japanese Texts II</td>
</tr>
<tr>
<td>Or equivalent courses at the 100- and 200-levels</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td>15</td>
</tr>
</tbody>
</table>

All course work should be chosen in consultation with the student’s major advisor.

## CHINESE MINOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Fifteen credits of Chinese, at least nine of those credits at the 100-level, including CHIN 102 or its equivalent</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>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</td>
<td></td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Fifteen credits of Japanese with at least nine of those credits at the 100-level, including JAPN 102 or its equivalent</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>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</td>
<td></td>
</tr>
</tbody>
</table>

### 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 (CALS) and the College of Medicine (COM). It draws upon a broad set of University resources from all three colleges to provide students with a modern science-based education, emphasizing fundamental knowledge of chemistry and biology along with advanced courses specializing in biochemistry and biomedical sciences.

The Biochemistry curriculum is challenging, offering students with strong academic abilities in science an opportunity to explore upper-level courses in areas of modern biochemistry. It is designed to meet the needs of students wishing to compete in the job market at the B.S. degree level as well as students planning to continue with advanced studies in a graduate or professional degree program.

### MAJORS BIOCHEMISTRY MAJOR

Biochemistry B.S. (p. 207)
MINORS

BIOCHEMISTRY MINOR
Biochemistry (p. 207)

GRADUATE
Cellular, Molecular and Biomedical Sciences M.S.
Cellular, Molecular and Biomedical Sciences Ph.D.
See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information

BIOCHEMISTRY B.S.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

The biochemistry core requires satisfactory completion of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011</td>
<td>Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 012</td>
<td>Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 051</td>
<td>Fundamentals of Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 152</td>
<td>Fundamentals of Physics II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 035</td>
<td>General Chemistry for Majors 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 036</td>
<td>General Chemistry for Majors 2</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 143</td>
<td>Organic Chemistry for Majors 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Organic Chemistry for Majors 2</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 162</td>
<td>Thermodynamics &amp; Kinetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 205</td>
<td>Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 206</td>
<td>Biochemistry II</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 207</td>
<td>Biochemistry Lab</td>
<td>2</td>
</tr>
</tbody>
</table>

Choose one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 284</td>
<td>Biochemistry Senior Seminar</td>
<td>1</td>
</tr>
<tr>
<td>HON 275</td>
<td>Honors: Biochemistry</td>
<td></td>
</tr>
<tr>
<td>&amp; HON 276</td>
<td>and Honors: Biochemistry</td>
<td></td>
</tr>
<tr>
<td>BCOR 101</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BCOR 103</td>
<td>Molecular and Cell Biology</td>
<td>4</td>
</tr>
</tbody>
</table>

Nine credits of advanced biochemistry-related electives

In addition, students must select one course from the following group of intermediate-level laboratory electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 121</td>
<td>Quantitative Analysis</td>
<td></td>
</tr>
</tbody>
</table>

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 course work:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 143</td>
<td>Organic Chemistry for Majors 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Organic Chemistry for Majors 2</td>
<td>4</td>
</tr>
<tr>
<td>BIOC/CHEM/MMG 205</td>
<td>Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>BIOC/CHEM/MMG 206</td>
<td>Biochemistry II</td>
<td>3</td>
</tr>
<tr>
<td>BIOC/CHEM/MMG 207</td>
<td>Biochemistry Lab</td>
<td>2</td>
</tr>
<tr>
<td>BIOC 296</td>
<td>Advanced Special Topics</td>
<td>1</td>
</tr>
</tbody>
</table>

1. CHEM 141 may be substituted for CHEM 143
2. 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. 208)

Biological Science B.S. (p. 209)

Zoology B.A. (p. 209)

Zoology B.S. (p. 210)

MINORS

BIOLOGY MINORS

Biology (p. 210)

Zoology (p. 210)

GRADUATE

Biology A.M.P.

Biology M.S.

Biology M.S.T.

Biology Ph.D.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information

BIOLOGY B.A.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

<table>
<thead>
<tr>
<th>MAJOR REQUIREMENTS</th>
</tr>
</thead>
</table>

Choose one of the following sequences: 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031 &amp; CHEM 032</td>
<td>General Chemistry 1 and General Chemistry 2</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 035 &amp; CHEM 036</td>
<td>General Chemistry for Majors 1 and General Chemistry for Majors 2</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following options:

Option A (recommended)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 012 &amp; PHYS 022</td>
<td>Elementary Physics and Introductory Lab II</td>
<td>5</td>
</tr>
<tr>
<td>or PHYS 152</td>
<td>Fundamentals of Physics II</td>
<td>5</td>
</tr>
</tbody>
</table>

Option B

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 011 &amp; PHYS 021</td>
<td>Elementary Physics and Introductory Lab I</td>
<td>6</td>
</tr>
<tr>
<td>or PHYS 051</td>
<td>Fundamentals of Physics I</td>
<td>6</td>
</tr>
<tr>
<td>MATH 019 &amp; MATH 020</td>
<td>Fundamentals of Calculus I and Fundamentals of Calculus II</td>
<td>8</td>
</tr>
<tr>
<td>or MATH 021 &amp; MATH 022</td>
<td>Calculus I and Calculus II</td>
<td>8</td>
</tr>
</tbody>
</table>

Thirty-three credits of biology including Introductory Biology 33

Choose one of the following options: 8

Option A (recommended)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011 &amp; BCOR 012</td>
<td>Exploring Biology and Exploring Biology</td>
<td>8</td>
</tr>
</tbody>
</table>

Option B

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 001 &amp; BIOL 002</td>
<td>Principles of Biology and Principles of Biology</td>
<td>6</td>
</tr>
<tr>
<td>BCOR 101</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BCOR 102</td>
<td>Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 103</td>
<td>Molecular and Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 255</td>
<td>Comparative Physiology</td>
<td>4</td>
</tr>
</tbody>
</table>

Three additional 200-level biology courses (including at least one with a laboratory). 2

---

1 CHEM 031/CHEM 032 or CHEM 035/CHEM 036 to be taken the first year if possible.

2 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. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS
The Integrated Biological Science B.S. core requires satisfactory completion of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011</td>
<td>Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 012</td>
<td>Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 101</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BCOR 102</td>
<td>Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 103</td>
<td>Molecular and Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 032</td>
<td>General Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following options: 5

Option A

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 011 &amp; PHYS 021</td>
<td>Elementary Physics and Introductory Lab I</td>
<td></td>
</tr>
<tr>
<td>PHYS 012 &amp; PHYS 022</td>
<td>Elementary Physics and Introductory Lab II</td>
<td></td>
</tr>
</tbody>
</table>

Option B

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 051</td>
<td>Fundamentals of Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS 152</td>
<td>Fundamentals of Physics II</td>
<td></td>
</tr>
</tbody>
</table>

Choose one of the following sequences: 6-8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 019 &amp; MATH 020</td>
<td>Fundamentals of Calculus I and Fundamentals of Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH 021 &amp; MATH 022</td>
<td>Calculus I and Calculus II</td>
<td></td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 211</td>
<td>Statistical Methods I</td>
<td></td>
</tr>
</tbody>
</table>

In consultation with their academic advisor, students will design a course of study that includes an additional twenty-six credits of advanced life science electives. From the advanced-level electives, students must complete twelve credits from courses with a statistical component, three credits that stress oral communication and three credits that stress written communication. Consult the Integrated Biological Science advisors for a list of approved advanced courses including those that fulfill the statistical, oral and written communication requirements.

Within the advanced-level elective courses, and excluding the BCOR courses, no more than eight credits at the 100-level may apply toward the major except with written permission from an advisor and not exceeding three 100-level courses. With an advisor’s permission, a biologically relevant 300-level course may be applied toward the advanced-level course requirement.

Up to six credits of undergraduate research in any biological discipline may be applied to the twenty-six credits of advanced electives. Only three of these can be taken for credit at the 100-level, and these will be counted in the eight credits allowed at the 100-level.

In their second year, all students are expected to meet with their advisor to map a plan of study for completing their higher-level courses. The plan will be signed by both the advisor and student and will become a part of the student’s record.

Students majoring in the B.S. program in biological science are required to take at least eighty-four credits of course work in the College of Arts and Sciences. This does not apply to CALS students.

ZOOLOGY B.A.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

Choose one of the following sequences: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031 &amp; CHEM 032</td>
<td>General Chemistry 1 and General Chemistry 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 035 &amp; CHEM 036</td>
<td>General Chemistry for Majors 1 and General Chemistry for Majors 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>MATH 019</td>
<td>Fundamentals of Calculus I (or higher)</td>
<td>3</td>
</tr>
</tbody>
</table>

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).

Choose one of the following options: 8

Option A (recommended)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011 &amp; BCOR 012</td>
<td>Exploring Biology and Exploring Biology</td>
<td></td>
</tr>
</tbody>
</table>

Option B

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 001 &amp; BIOL 002</td>
<td>Principles of Biology and Principles of Biology</td>
<td></td>
</tr>
<tr>
<td>BCOR 101</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BCOR 102</td>
<td>Ecology and Evolution</td>
<td>4</td>
</tr>
</tbody>
</table>
### MAJOR REQUIREMENTS

Choose one of the following sequences:  

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031 &amp; CHEM 032</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 035 &amp; CHEM 036</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 141</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 142</td>
<td>4</td>
</tr>
<tr>
<td>MATH 019</td>
<td>3</td>
</tr>
</tbody>
</table>

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).  

Choose one of the following options:  

**Option A (recommended)**  

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011 &amp; BCOR 012</td>
<td>8</td>
</tr>
</tbody>
</table>

**Option B**  

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 001 &amp; BIOL 002</td>
<td>3</td>
</tr>
<tr>
<td>BCOR 101</td>
<td>3</td>
</tr>
<tr>
<td>BCOR 102</td>
<td>4</td>
</tr>
<tr>
<td>or BCOR 103</td>
<td>4</td>
</tr>
</tbody>
</table>

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.

---

### BIOLOGY MINOR

**REQUIREMENTS**  

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011 &amp; BCOR 012</td>
<td>8</td>
</tr>
</tbody>
</table>

or BIOL 001 & BIOL 002  

Three courses at the 100-level or higher chosen from courses acceptable for the biology major, at least one of which must include a laboratory.

One course may be taken from the advanced offerings of other biologically-oriented departments. Consult the Biology department for a list of approved courses.

---

### ZOOLOGY MINOR

**REQUIREMENTS**  

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011 &amp; BCOR 012</td>
<td>8</td>
</tr>
</tbody>
</table>

or BIOL 001 & BIOL 002  

Three courses at the 100-level or above, chosen from courses within the biology department, at least one of which must include a laboratory.
RESTRICTIONS
Ineligible Majors: Zoology (B.A., B.S.), Biology (B.A.), Biological Sciences (B.S.), Plant Biology (B.A.)

PRE/CO-REQUISITES

<table>
<thead>
<tr>
<th>Course</th>
<th>Sequence</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031 &amp; CHEM 032</td>
<td>General Chemistry 1 and General Chemistry 2</td>
<td>8</td>
</tr>
<tr>
<td>BCOR 011 &amp; BCOR 012</td>
<td>Exploring Biology and Exploring Biology</td>
<td>8</td>
</tr>
</tbody>
</table>

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. 211)
Chemistry B.S. (p. 212)

MINORS
CHEMISTRY MINOR
Chemistry (p. 213)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 231</td>
<td>Advanced Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 282</td>
<td>Senior Seminar</td>
<td>1</td>
</tr>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 051</td>
<td>Fundamentals of Physics I</td>
<td>0 or 4</td>
</tr>
<tr>
<td>PHYS 152</td>
<td>Fundamentals of Physics II</td>
<td>0 or 4</td>
</tr>
</tbody>
</table>

**Biomolecular Concentration**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1</td>
<td>0-4</td>
</tr>
<tr>
<td>or CHEM 035</td>
<td>General Chemistry for Majors 1</td>
<td></td>
</tr>
<tr>
<td>CHEM 032</td>
<td>General Chemistry 2</td>
<td>0-4</td>
</tr>
<tr>
<td>or CHEM 036</td>
<td>General Chemistry for Majors 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 121</td>
<td>Quantitative Analysis</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
<td>0-4</td>
</tr>
<tr>
<td>or CHEM 143</td>
<td>Organic Chemistry for Majors 1</td>
<td></td>
</tr>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
<td>0-4</td>
</tr>
<tr>
<td>or CHEM 144</td>
<td>Organic Chemistry for Majors 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 162</td>
<td>Thermodynamics &amp; Kinetics</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 201</td>
<td>Advanced Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 205</td>
<td>Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 231</td>
<td>Advanced Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 282</td>
<td>Senior Seminar</td>
<td>1</td>
</tr>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following: 4-5

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 011  &amp; PHYS 021</td>
<td>Elementary Physics and Introductory Lab I</td>
<td></td>
</tr>
<tr>
<td>PHYS 051</td>
<td>Fundamentals of Physics I</td>
<td></td>
</tr>
</tbody>
</table>

Choose one of the following: 4-5

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 012  &amp; PHYS 022</td>
<td>Elementary Physics and Introductory Lab II</td>
<td></td>
</tr>
<tr>
<td>PHYS 152</td>
<td>Fundamentals of Physics II</td>
<td></td>
</tr>
<tr>
<td>BIOL 001</td>
<td>Principles of Biology</td>
<td>0-4</td>
</tr>
<tr>
<td>or BCOR 011</td>
<td>Exploring Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 002</td>
<td>Principles of Biology</td>
<td>0-4</td>
</tr>
<tr>
<td>or BCOR 012</td>
<td>Exploring Biology</td>
<td></td>
</tr>
<tr>
<td>BCOR 103</td>
<td>Molecular and Cell Biology</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following: 3

**Environmental Concentration**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1</td>
<td>0-4</td>
</tr>
<tr>
<td>or CHEM 035</td>
<td>General Chemistry for Majors 1</td>
<td></td>
</tr>
<tr>
<td>CHEM 032</td>
<td>General Chemistry 2</td>
<td>0-4</td>
</tr>
<tr>
<td>or CHEM 036</td>
<td>General Chemistry for Majors 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 121</td>
<td>Quantitative Analysis</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
<td>0-4</td>
</tr>
<tr>
<td>or CHEM 143</td>
<td>Organic Chemistry for Majors 1</td>
<td></td>
</tr>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
<td>0-4</td>
</tr>
<tr>
<td>or CHEM 144</td>
<td>Organic Chemistry for Majors 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 161</td>
<td>Quantum Chemistry (requires CHEM 167 or MATH 121)</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 162</td>
<td>Thermodynamics &amp; Kinetics</td>
<td></td>
</tr>
<tr>
<td>CHEM 201</td>
<td>Advanced Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 221</td>
<td>Instrumental Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 231</td>
<td>Advanced Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 282</td>
<td>Senior Seminar</td>
<td>1</td>
</tr>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following: 4-5

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 011  &amp; PHYS 021</td>
<td>Elementary Physics and Introductory Lab I</td>
<td></td>
</tr>
<tr>
<td>PHYS 051</td>
<td>Fundamentals of Physics I</td>
<td></td>
</tr>
</tbody>
</table>

Choose one of the following: 4-5

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 012  &amp; PHYS 022</td>
<td>Elementary Physics and Introductory Lab II</td>
<td></td>
</tr>
<tr>
<td>PHYS 152</td>
<td>Fundamentals of Physics II</td>
<td></td>
</tr>
</tbody>
</table>

Two courses chosen from a list of approved courses

---

1 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. 339)

All students must meet the College Requirements. (p. 196)

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 035 &amp; CHEM 036</td>
<td>General Chemistry for Majors 1 and General Chemistry for Majors 2</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 031 &amp; CHEM 032</td>
<td>General Chemistry 1 and General Chemistry 2</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 031 &amp; CHEM 036</td>
<td>General Chemistry 1 and General Chemistry for Majors 2</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 121</td>
<td>Quantitative Analysis</td>
<td>0 or 4</td>
</tr>
</tbody>
</table>

Choose one of the following sequences: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 143 &amp; CHEM 144</td>
<td>Organic Chemistry for Majors 1 and Organic Chemistry for Majors 2</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 141 &amp; CHEM 142</td>
<td>Organic Chemistry 1 and Organic Chemistry 2</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 141 &amp; CHEM 144</td>
<td>Organic Chemistry 1 and Organic Chemistry for Majors 2</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 146</td>
<td>Advanced Organic Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 161</td>
<td>Quantum Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 162</td>
<td>Thermodynamics &amp; Kinetics</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 167</td>
<td>Physical Chemistry Preparation</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 201</td>
<td>Advanced Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 202</td>
<td>Advanced Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 205</td>
<td>Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 221</td>
<td>Instrumental Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 231</td>
<td>Advanced Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 282</td>
<td>Senior Seminar</td>
<td>1</td>
</tr>
<tr>
<td>Advanced chemistry-related course work, which must include 3 credits of CHEM 291 or equivalent</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

CHEM 032 | General Chemistry 2 | 4 |

or CHEM 036 | General Chemistry for Majors 2 |

Choose one of the following options: 7-10

Option A:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 143</td>
<td>Organic Chemistry for Majors 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Organic Chemistry for Majors 2</td>
<td>4</td>
</tr>
</tbody>
</table>

and one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 121</td>
<td>Quantitative Analysis</td>
<td></td>
</tr>
<tr>
<td>CHEM 131</td>
<td>Inorganic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 161</td>
<td>Quantum Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 162</td>
<td>Thermodynamics &amp; Kinetics</td>
<td>3</td>
</tr>
</tbody>
</table>

Option B:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 161</td>
<td>Quantum Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 162</td>
<td>Thermodynamics &amp; Kinetics</td>
<td>3</td>
</tr>
</tbody>
</table>

and one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 042</td>
<td>Intro Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
<td></td>
</tr>
</tbody>
</table>

RESTRICTIONS

Ineligible majors: Chemistry (B.A., B.S.), Biochemistry (B.S.), Environmental Science Chemistry focus track

PRE/CO-REQUISITES

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 152 and MATH 121 (or CHEM 167)</td>
<td>required for CHEM 161</td>
<td></td>
</tr>
<tr>
<td>PHYS 012 (or PHYS 152)</td>
<td>required for CHEM 162</td>
<td></td>
</tr>
</tbody>
</table>

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. 214)
Greek B.A. (p. 214)
Latin B.A. (p. 214)

MINORS
CLASSICS MINORS
Classical Civilization (p. 215)
Greek Language and Literature (p. 215)
Latin Language and Literature (p. 215)

GRADUATE
Greek and Latin Languages (GKLT) CGS
Greek and Latin M.A.
Greek and Latin M.A.T.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

CLASSICAL CIVILIZATION B.A.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 146</td>
<td>3</td>
</tr>
<tr>
<td>or ARTH 148</td>
<td></td>
</tr>
<tr>
<td>or ARTH 149</td>
<td></td>
</tr>
<tr>
<td>CLAS 021</td>
<td>6</td>
</tr>
</tbody>
</table>

Two courses in ancient history are required. The two history courses must be in two different cultural areas, chosen from among the following:

- **Greece:**
  - CLAS 021 Classical Greek Civilization

- **Rome:**
  - CLAS 021 Classical Roman Civilization
  - CLAS 121 History of Rome

The Near East:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAS 149</td>
<td>3</td>
</tr>
<tr>
<td>CLAS 221</td>
<td>3</td>
</tr>
<tr>
<td>CLAS 222</td>
<td>3</td>
</tr>
</tbody>
</table>

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. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS
Thirty credits in courses above GRP 050 including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRK 211</td>
<td>3</td>
</tr>
<tr>
<td>GRK 212</td>
<td>3</td>
</tr>
<tr>
<td>CLAS 121</td>
<td>3</td>
</tr>
</tbody>
</table>

One course in Literature in Translation above the 100-level

One course in Latin above the 100-level

A second foreign language, at least through the intermediate level, is recommended

LATIN B.A.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS
Thirty credits in courses above LAT 050 including:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAT 211</td>
<td>Latin Prose Style</td>
<td>3</td>
</tr>
<tr>
<td>LAT 212</td>
<td>Latin Prose Style</td>
<td>3</td>
</tr>
<tr>
<td>CLAS 122</td>
<td>History of Rome</td>
<td>3</td>
</tr>
</tbody>
</table>

One classics course above the 100-level

One course in Greek above the 100-level

A second foreign language, at least through the intermediate level, is recommended

### CLASSICAL CIVILIZATION MINOR

**REQUIREMENTS**

Eighteen credits from the following (of which at least nine credits must be above 100):

- All courses in Greek and Latin above 050-level
- All courses in classics
- ARTH 146 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 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

**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/~cemcs/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. 216)

---

**GRADUATE**

Computer Science AMP

Computer Science M.S.

Computer Science Ph.D.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

**COMPUTER SCIENCE B.A.**

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

**MAJOR REQUIREMENTS**

<table>
<thead>
<tr>
<th>One introductory programming course:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 021 Computer Programming I (or equivalent) ¹</td>
</tr>
</tbody>
</table>

**Core Courses:**

| CS 064 Discrete Structures | 3 |
| CS 110 Intermediate Programming ¹ | 4 |
| 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 |

Twelve additional credits of computer science courses, including three credits at the 100-level or above

Six credits of computer science at the 200-level

No more than forty-five credits of Computer Science can be applied to this degree

Choose one of the following sequences:

<table>
<thead>
<tr>
<th>Math 021 &amp; Math 022 Calculus I and Calculus II (recommended)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 019 &amp; Math 023 Fundamentals of Calculus I and Transitional Calculus</td>
</tr>
<tr>
<td>Stat 143 Statistics for Engineering ((or one approved course in probability and one approved course in statistics))</td>
</tr>
</tbody>
</table>

It is recommended that the natural sciences Distribution Requirement be fulfilled with a two-semester laboratory science sequence

¹ Concurrent enrollment in CS 050 is recommended for students enrolled in CS 021 or CS 110.
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. 217)

MINORS
ECONOMICS MINOR
Economics (p. 217)

ECONOMICS B.A.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS
Thirty-three credits in economics and three credits in mathematics as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC 011</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EC 012</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 019</td>
<td>Fundamentals of Calculus I (students are urged to take MATH 019 early in the program)</td>
<td>3</td>
</tr>
<tr>
<td>Three courses from EC 020-EC 160 or EC 194 - EC 196, two of which must be numbered EC 110 or higher</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Methods and theory courses in economics:</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>EC 170</td>
<td>Economic Methods</td>
<td></td>
</tr>
<tr>
<td>EC 171</td>
<td>Macroeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>EC 172</td>
<td>Microeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>Three economics courses at the 200-level or higher</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

No more than three credits from the following courses may be applied toward the major:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HON 218</td>
<td>Honors: Economics</td>
</tr>
<tr>
<td>HON 219</td>
<td>Honors: Economics</td>
</tr>
<tr>
<td>EC 297</td>
<td>Readings &amp; Research</td>
</tr>
<tr>
<td>EC 298</td>
<td>Readings &amp; Research</td>
</tr>
</tbody>
</table>

ECONOMICS MINOR REQUIREMENTS
Eighteen credits including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC 011</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EC 012</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Four courses from EC 020-EC 196, three of which must be from EC 110-EC 196</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Minors are not required to take MATH 019, although they will need to if they wish to take EC 170, EC 171 or EC 172.

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. 218)
Film and Television Studies B.A. (p. 218)

MINORS

ENGLISH MINORS

English (p. 218)
Film and Television Studies (p. 219)

GRADUATE

English M.A.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

ENGLISH B.A.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

Thirty-three credits to include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGS 086</td>
<td>Critical Approaches to Lit</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>At least twenty-one credits at or above the 100-level, at least three of which must be from courses numbered ENGS 201 - ENGS 282 (Senior Seminars). Of the credits above the 100-level:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Category A - at least three credits must be in the study of the English language</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Category B - at least three credits must be in Ancient, Medieval and 16th and 17th Century Literary Traditions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Category C - at least three credits must be in 18th and 19th Century Literary Traditions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Category D - at least three credits must be in 20th and 21st Century Literary Traditions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One world literature course approved by the Department of English may count toward the major; where appropriate, this course may be substituted for one course in the Distribution Requirement categories</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No more than nine credits of Advanced Writing (ENGS 117 - ENGS 120) shall count toward the major</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No more than nine credits of Film and Television Studies at any level shall count toward the major</td>
<td></td>
</tr>
</tbody>
</table>

1 Only courses beginning with ENGS 005 or higher meet the English major requirements.
2 ENGS 085 is recommended for first-year students planning to major in English.

FILM AND TELEVISION STUDIES B.A.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

Thirty-three total credits in Film and Television Studies to include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Two introductory courses:</td>
<td></td>
</tr>
<tr>
<td>FTS 007</td>
<td>Dev Motion Pct I: Origin-1930</td>
<td>6</td>
</tr>
<tr>
<td>FTS 008</td>
<td>Dev Motion Pct II: 1930-1960</td>
<td></td>
</tr>
<tr>
<td>FTS 009</td>
<td>History of Television</td>
<td></td>
</tr>
<tr>
<td>FTS 010</td>
<td>Dev Motion Pct III: 1960-2000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Four core intermediate courses:</td>
<td></td>
</tr>
<tr>
<td>FTS 121</td>
<td>Film/Television Theory</td>
<td>12</td>
</tr>
<tr>
<td>FTS 122</td>
<td>Film/TV Genre and Auteur</td>
<td></td>
</tr>
<tr>
<td>FTS 123</td>
<td>Global Studies in Film/TV</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Three additional 100-level or higher courses from the FTS offerings</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>One senior seminar from:</td>
<td></td>
</tr>
<tr>
<td>FTS 271</td>
<td>Seminar in Film/Television</td>
<td>3</td>
</tr>
<tr>
<td>FTS 272</td>
<td>Seminar in Film/Television</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One course at any level from the FTS offerings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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:</td>
<td></td>
</tr>
<tr>
<td>ARTH 140</td>
<td>Hist of Optical Media as Art</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 139</td>
<td>Animation</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 148</td>
<td>Motion Picture Production</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 248</td>
<td>Adv Motion Picture Production</td>
<td>3</td>
</tr>
<tr>
<td>SOC 043</td>
<td>Survey of Mass Communication</td>
<td>3</td>
</tr>
<tr>
<td>SOC 150</td>
<td>Popular Culture</td>
<td>3</td>
</tr>
<tr>
<td>SOC 243</td>
<td>Mass Media in Modern Society</td>
<td>3</td>
</tr>
</tbody>
</table>

Only three credits of FTS 191/FTS 192 may count toward the major.

ENGLISH MINOR REQUIREMENTS

Eighteen credits including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Six credits taken from one of the following sequences:</td>
<td></td>
</tr>
<tr>
<td>ENGS 021</td>
<td>British Literature I and British Literature II</td>
<td>6</td>
</tr>
</tbody>
</table>
ENGS 023 & ENGS 024
American Literature I
and American Literature II

ENGS 025 & ENGS 026
World Literature I
and World Literature II

ENGS 027 & ENGS 028
Lit of Western Trad: Int Humn
and Lit of Western Trad: Int Humn

ENGS 085 & ENGS 086
Text & Context: 1st Yr Prosp Mjrs
and Critical Approaches to Lit

A minimum of nine credits at the 100-level or above

RESTRICTIONS
Ineligible Major: English

FILM AND TELEVISION STUDIES
MINOR

REQUIREMENTS
Eighteen credits including:

<table>
<thead>
<tr>
<th>At least one from:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTS 007</td>
<td>Dev Motion Pct I: Origin-1930</td>
</tr>
<tr>
<td>FTS 008</td>
<td>Dev Motion Pct II: 1930-1960</td>
</tr>
<tr>
<td>FTS 009</td>
<td>History of Television</td>
</tr>
<tr>
<td>FTS 010</td>
<td>Dev Motion Pct III: 1960-2000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All of the following:</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTS 121</td>
<td>Film/Television Theory</td>
</tr>
<tr>
<td>FTS 122</td>
<td>Film/TV Genre and Auteur</td>
</tr>
<tr>
<td>FTS 123</td>
<td>Global Studies in Film/TV</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Six credits chosen from:</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any other FTS offerings</td>
<td></td>
</tr>
<tr>
<td>ARTH 140</td>
<td>Hist of Optical Media as Art</td>
</tr>
<tr>
<td>ARTH 148</td>
<td>Greek Art</td>
</tr>
<tr>
<td>SOC 043</td>
<td>Survey of Mass Communication</td>
</tr>
<tr>
<td>SOC 150</td>
<td>Popular Culture</td>
</tr>
<tr>
<td>SOC 243</td>
<td>Mass Media in Modern Society</td>
</tr>
</tbody>
</table>

| 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 environmental focus, so an environmental sciences major is balanced with a broad-based understanding of the environment.
- 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 which 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, environmental resources, 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. 220)
MINORS

ENVIRONMENTAL SCIENCES MINORS
Environmental Sciences: Biology (p. 220)
Environmental Sciences: Geology (p. 221)

ENVIRONMENTAL SCIENCES B.S.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 042</td>
<td>Intro Organic Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 141</td>
<td>Organic Chemistry 1</td>
<td></td>
</tr>
<tr>
<td>or CHEM 143</td>
<td>Organic Chemistry for Majors 1</td>
<td></td>
</tr>
<tr>
<td>GEOL 055</td>
<td>Environmental Geology 2</td>
<td>4</td>
</tr>
<tr>
<td>or PSS 161</td>
<td>Fundamentals of Soil Science</td>
<td></td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 211</td>
<td>Statistical Methods I</td>
<td></td>
</tr>
<tr>
<td>or NR 140</td>
<td>Applied Environ Statistics</td>
<td></td>
</tr>
<tr>
<td>ENSC 001</td>
<td>Intro Environmental Sciences</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 130</td>
<td>Global Environmental Assessment</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 160</td>
<td>Pollutant Mvmt/Air, Land &amp; Water</td>
<td>4</td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>BCOR 102</td>
<td>Ecology and Evolution 3</td>
<td></td>
</tr>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 144</td>
<td>Organic Chemistry for Majors 2</td>
<td></td>
</tr>
<tr>
<td>GEOL 110</td>
<td>Earth Materials 2</td>
<td></td>
</tr>
<tr>
<td>BCOR 011 &amp; BCOR 012</td>
<td>Exploring Biology and Exploring Biology</td>
<td>8</td>
</tr>
<tr>
<td>Choose one of the following sequences:</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>CHEM 031 &amp; CHEM 032</td>
<td>General Chemistry 1 and General Chemistry 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 035 &amp; CHEM 036</td>
<td>General Chemistry for Majors 1 and General Chemistry for Majors 2</td>
<td></td>
</tr>
<tr>
<td>Choose one of the following sequences:</td>
<td></td>
<td>6-8</td>
</tr>
<tr>
<td>MATH 019 &amp; MATH 020</td>
<td>Fundamentals of Calculus I and Fundamentals of Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH 021 &amp; MATH 022</td>
<td>Calculus I and Calculus II</td>
<td></td>
</tr>
<tr>
<td>Choose one of the following sequences (physics is required only for the Environmental Chemistry Focus Track):</td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

Fourteen to seventeen credits of advanced course work, chosen in consultation with the student's advisor, in one of the following Focus Tracks: 5

1. Agriculture and the Environment
2. Conservation Biology and Biodiversity
3. Ecological Design
4. Environmental Analysis and Assessment
5. Environmental Biology
6. Environmental Chemistry
7. Environmental Geology
8. Environmental Resources
9. Water Resources

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 001 &amp; BIOL 002</td>
<td>Principles of Biology and Principles of Biology</td>
<td>8</td>
</tr>
<tr>
<td>or BCOR 011 &amp; BCOR 012</td>
<td>Exploring Biology and Exploring Biology</td>
<td></td>
</tr>
<tr>
<td>BCOR 102</td>
<td>Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>Choose one of the following non-biology courses chosen in consultation with co-advisor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>GEOL 055</th>
<th>Environmental Geology</th>
<th>0 or 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 101</td>
<td>Field Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 110</td>
<td>Earth Materials</td>
<td>0 or 4</td>
</tr>
</tbody>
</table>

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

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. 221)

MINORS

ENVIRONMENTAL STUDIES MINOR

Environmental Studies (p. 221)

ENVIRONMENTAL STUDIES B.A.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

Thirty-eight credits including:

| ENVS 001 | Intro to Environmental Studies | 4 |
| ENVS 002 | D2: International Env Studies  | 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:

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:
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. The Program studies concepts such as 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; and academic subjects including women’s history and literature, the sociology of the family, race and gender in urban space, queer theory, 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. 222)

MINORS

GENDER, SEXUALITY, AND WOMEN’S STUDIES MINORS

Gender, Sexuality, and Women’s Studies (p. 222)

Sexuality and Gender Identity Studies (p. 222)

GENDER, SEXUALITY, AND WOMEN’S STUDIES B.A.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

A total of thirty-six credits (twelve courses) are required for the major:

<table>
<thead>
<tr>
<th>Core (fifteen credits):</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSWS 001</td>
</tr>
<tr>
<td>GSWS 100</td>
</tr>
<tr>
<td>GSWS 105</td>
</tr>
</tbody>
</table>

Electives (six credits):

One additional race/ethnicity course beyond the college’s requirement

One additional non-European culture course beyond the college’s requirement

Concentration (fifteen credits):

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.

GENDER, SEXUALITY, AND WOMEN’S STUDIES MINOR

REQUIREMENTS

Eighteen credits of course work to include:

<table>
<thead>
<tr>
<th>Core (nine credits):</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSWS 001</td>
</tr>
<tr>
<td>GSWS 100</td>
</tr>
<tr>
<td>GSWS 200</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Core:</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSWS 001</td>
</tr>
<tr>
<td>GSWS 105</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSWS 191</td>
<td>Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>GSWS 192</td>
<td>Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>GSWS 297</td>
<td>Independent Study</td>
<td>3</td>
</tr>
<tr>
<td>GSWS 298</td>
<td>Independent Study</td>
<td>3</td>
</tr>
</tbody>
</table>

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/

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 “geotechniques,” weather and climate, space and society, and world regional geography. Intermediate classes include political geography, water resources, cultural ecology, biogeography, geography and gender, climatology, international development and political ecology, urban geography, GIS and remote sensing, and regional courses. At the advanced level, classes include spatial analysis, research methods, social geography, climate and hazards, and global economic restructuring. These offerings take students conceptually around the world, and some include international field experiences.

MAJORS

GEOGRAPHY MAJOR
Geography B.A. (p. 223)

MINORS

GEOGRAPHY MINORS
Geography (p. 223)
Geospatial Technologies (p. 223)

GEOGRAPHY B.A.
All students must meet the University Requirements. (p. 339)

MAJOR REQUIREMENTS
Thirty-three credits in geography which must include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 040</td>
<td>Weather, Climate &amp; Landscapes</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 060</td>
<td>D1: Geography/Race &amp; Ethnic in US</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 070</td>
<td>Space, Place and Society</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 081</td>
<td>Geotechniques</td>
<td>3</td>
</tr>
<tr>
<td>At least eighteen credits at or above the 100-level among which six credits must be at the 200-level</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Three credits at any level</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Although repeatable, only three credits of GEOG 191 (Internship) can count toward the 100-level requirement.

GEOGRAPHY MINOR

REQUIREMENTS
Eighteen credits in geography including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least six credits from the following core courses:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>GEOG 040</td>
<td>Weather, Climate &amp; Landscapes</td>
<td></td>
</tr>
<tr>
<td>GEOG 070</td>
<td>Space, Place and Society</td>
<td></td>
</tr>
<tr>
<td>GEOG 081</td>
<td>Geotechniques</td>
<td></td>
</tr>
<tr>
<td>At least nine credits at the 100-level or above</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Three credits of an additional geography course</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

RESTRICTIONS

Ineligible Major: Geography

The following courses do not meet the "Three credits of an additional geography course" requirement:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 191</td>
<td>Geography Internship</td>
</tr>
<tr>
<td>GEOG 197</td>
<td>Readings &amp; Research</td>
</tr>
<tr>
<td>GEOG 198</td>
<td>Readings &amp; Research</td>
</tr>
<tr>
<td>GEOG 297</td>
<td>Readings &amp; Research</td>
</tr>
<tr>
<td>GEOG 298</td>
<td>Readings &amp; Research</td>
</tr>
</tbody>
</table>

GEOSPATIAL TECHNOLOGIES MINOR

REQUIREMENTS
Five courses (fifteen credits with at least nine credits at 100-level or above) which must include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>One course in Geospatial Technologies:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>NR 025</td>
<td>Measurements &amp; Mapping</td>
<td></td>
</tr>
</tbody>
</table>
GEOG 081  Geotechniques
CE 010  Geomatics
ENSC 130  Global Environmental Assessment
GEOL 151/GEOG 144  Geomorphology

Any one Geographic Information Systems course: 3
GEOG 184  Geog Info: Cncpts & Applic
or NR 143  Intro to Geog Info Systems

Any one course from Remote Sensing: 3
NR 146  Remote Sensing of Natural Res
or GEOG 185  Remote Sensing

Any two electives (either two from Group A or one course each from Group A and Group B): 6

Group A:
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

Group B:
CS 021  Computer Programming I
CS 042  Dynamic Data on the Web
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. 224)
Geology B.S. (p. 225)

MINORS

GEOLOGY MINORS
Geology (p. 225)
Geospatial Technologies (p. 226)

GRADUATE

Geology M.S.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

GEOLOGY B.A.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 001</td>
<td>Earth System Science</td>
<td>4</td>
</tr>
<tr>
<td>or GEOL 005</td>
<td>Mt • Lake.Geol Lake Chmpln Bsn</td>
<td></td>
</tr>
<tr>
<td>or GEOL 055</td>
<td>Environmental Geology</td>
<td></td>
</tr>
<tr>
<td>GEOL 062</td>
<td>Earth Env &amp; Life Through Time</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 101</td>
<td>Field Geology</td>
<td>4</td>
</tr>
</tbody>
</table>
### GEOLOGY B.S.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

#### MAJOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 001</td>
<td>Earth System Science</td>
<td>4</td>
</tr>
<tr>
<td>or GEOL 005</td>
<td>Mt - Lake: Geol Lake Chmplt Bsn</td>
<td></td>
</tr>
<tr>
<td>or GEOL 055</td>
<td>Environmental Geology</td>
<td></td>
</tr>
<tr>
<td>GEOL 062</td>
<td>Earth Env &amp; Life Through Time</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 101</td>
<td>Field Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 110</td>
<td>Earth Materials</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 260</td>
<td>Structural Geology</td>
<td>4</td>
</tr>
</tbody>
</table>

At least three credits of field experience are required: 3

#### Or field camp

Three geology courses (at least three credits each) at level 100 or higher 9

Minimum of one semester (three credits) research: 3

GEOL 197 & GEOL 198 Research in Geology and Research in Geology

Senior seminar is recommended:

GEOL 291 & GEOL 292 Seminar in Geology and Senior Seminar

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

MATH 021 Calculus I 4
MATH 022 Calculus II 4

Choose one of the following sequences: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031 &amp; CHEM 032</td>
<td>General Chemistry 1 and General Chemistry 2</td>
</tr>
<tr>
<td>CHEM 035 &amp; CHEM 036</td>
<td>General Chemistry for Majors 1 and General Chemistry for Majors 2</td>
</tr>
<tr>
<td>PHYS 051 &amp; PHYS 152</td>
<td>Fundamentals of Physics I and Fundamentals of Physics II</td>
</tr>
</tbody>
</table>

STAT 141 Basic Statistical Methods 3
or STAT 211 Statistical Methods I

### GEOLOGY MINOR REQUIREMENTS

One geology course from: 4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 001</td>
<td>Earth System Science</td>
</tr>
<tr>
<td>GEOL 005</td>
<td>Mt - Lake: Geol Lake Chmplt Bsn</td>
</tr>
<tr>
<td>or GEOL 055</td>
<td>Environmental Geology</td>
</tr>
<tr>
<td>GEOL 101</td>
<td>Field Geology</td>
</tr>
<tr>
<td>GEOL 110</td>
<td>Earth Materials</td>
</tr>
<tr>
<td>GEOL 260</td>
<td>Structural Geology</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 025</td>
<td>Measurements &amp; Mapping</td>
<td>3-4</td>
</tr>
<tr>
<td>GEOG 081</td>
<td>Geotechniques</td>
<td></td>
</tr>
<tr>
<td>CE 010</td>
<td>Geomatics</td>
<td></td>
</tr>
<tr>
<td>ENSC 130</td>
<td>Global Environmental Assessmnt</td>
<td></td>
</tr>
<tr>
<td>GEOL 151/</td>
<td>Geomorphology</td>
<td></td>
</tr>
<tr>
<td>GEOG 144</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any one Geographic Information Systems course:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GEOG 184</td>
<td>Geog Info:Cncpts &amp; Applic</td>
<td></td>
</tr>
<tr>
<td>or NR 143</td>
<td>Intro to Geog Info Systems</td>
<td></td>
</tr>
<tr>
<td>Any one course from Remote Sensing:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>NR 146</td>
<td>Remote Sensing of Natural Res</td>
<td></td>
</tr>
<tr>
<td>or GEOG 185</td>
<td>Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>Any two electives (either two from Group A or one course each from Group A and Group B):</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**GROUP A:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 243</td>
<td>GIS Practicum</td>
</tr>
<tr>
<td>NR 245</td>
<td>Integrating GIS &amp; Statistics</td>
</tr>
<tr>
<td>GEOG 287</td>
<td>Spatial Analysis</td>
</tr>
<tr>
<td>GEOG 281</td>
<td>Adv Topic:GIS &amp; Remote Sensing (a, Satellite Climatology/Land Surface Applications)</td>
</tr>
<tr>
<td>GEOG 281</td>
<td>Adv Topic:GIS &amp; Remote Sensing (b, Advanced GIS Applications)</td>
</tr>
<tr>
<td>NR 242</td>
<td>Adv Geospatial Techniques</td>
</tr>
</tbody>
</table>

**GROUP B:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 021</td>
<td>Computer Programming I</td>
</tr>
<tr>
<td>CS 042</td>
<td>Dynamic Data on the Web</td>
</tr>
<tr>
<td>CS 148</td>
<td>Database Design for the Web</td>
</tr>
<tr>
<td>CS 189</td>
<td>CS for Geospatial Technologies</td>
</tr>
<tr>
<td>ENGR 002</td>
<td>Graphical Communication</td>
</tr>
<tr>
<td>CDAE 101</td>
<td>Computer Aided Drafting&amp;Design</td>
</tr>
</tbody>
</table>

**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/](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 19th and 20th 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. 226)

Russian B.A. (p. 227)

**MINORS**

**GERMAN AND RUSSIAN MINORS**

German (p. 227)

Russian (p. 227)

**GRADUATE**

German M.A.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

**GERMAN B.A.**

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

**MAJOR REQUIREMENTS**

Thirty credits to include:
RUSSIAN B.A.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

Nine courses (twenty-seven credit hours) of course work in Russian at the 100-level or above

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLIT 118</td>
<td>Russian Lit in Translation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One Russian history course</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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)</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERM 155</td>
<td>German Lit in Context I</td>
</tr>
<tr>
<td>or GERM 156</td>
<td>German Lit in Context II</td>
</tr>
</tbody>
</table>

RESTRICTIONS

Ineligible Major: German

PRE/CO-REQUISITES

Through GERM 052

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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 051</td>
<td>Intermediate Russian</td>
<td>4</td>
</tr>
<tr>
<td>RUSS 052</td>
<td>Intermediate Russian (or its equivalent)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Four courses in Russian at the 100- and/or 200-level</td>
<td>16</td>
</tr>
</tbody>
</table>

RESTRICTIONS

Ineligible Major: Russian

PRE/CO-REQUISITES

Through RUSS 002

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. 228)
European Studies B.A. (p. 228)
Global Studies B.A. (p. 231)
Latin American and Caribbean Studies B.A. (p. 231)
Russian and East European Studies B.A. (p. 232)
MINORS

GLOBAL AND REGIONAL STUDIES MINORS

African Studies (p. 232)
Asian Studies (p. 233)
Canadian Studies (p. 233)
European Studies (p. 233)
Global Studies (p. 233)
Latin American and Carribbean Studies (p. 234)
Middle East Studies (p. 234)
Russian/East European Studies (p. 234)
Vermont Studies (p. 235)

ASIAN STUDIES B.A.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

At least thirty-three credits in courses from the Asian Studies listing to include the following:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of two years’ (normally sixteen credits) study of a language</td>
<td>16</td>
</tr>
<tr>
<td>of the geographic subarea of concentration (e.g., Chinese, Japanese)</td>
<td></td>
</tr>
<tr>
<td>No more than sixteen credits of language study may be counted toward the</td>
<td></td>
</tr>
<tr>
<td>major</td>
<td></td>
</tr>
<tr>
<td>Students who have demonstrated fluency in the language of the</td>
<td></td>
</tr>
<tr>
<td>subarea of concentration (for instance, native speakers of the language),</td>
<td></td>
</tr>
<tr>
<td>may substitute other Asian studies courses to fulfill the thirty-three</td>
<td></td>
</tr>
<tr>
<td>credit requirement</td>
<td></td>
</tr>
<tr>
<td>At least nine credits at the 100-level</td>
<td>9</td>
</tr>
<tr>
<td>Three credits at the 200-level</td>
<td>3</td>
</tr>
</tbody>
</table>

1 100- and 200-level courses must be selected from at least three academic disciplines. Language courses may not be used to fulfill this requirement.

Note: Courses that have a significant but not exclusive Asian component may be counted toward a student’s major requirements only if papers or projects relevant to their Asian subarea or their Asian thematic focus have been completed. The dean’s office must receive written approval from the advisor in order for these courses to be counted toward the major.

Students who major in Asian Studies and minor in an Asian language may overlap only one course as stipulated in the section on Distribution Requirements.

EUROPEAN STUDIES B.A.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

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.

European Studies Senior Seminar or Research project

All seniors must complete a senior project for at least three credits at the 200-level on a subject focused on northern, western, or Mediterranean Europe. The requirement may be fulfilled by taking a 200-level senior seminar (approved by the European Studies academic advisor) or by completing an advanced readings and research project or Honors Thesis (GRS 297/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.

European Culture and Thought

Twelve credits from the approved list to include six credits at the 100-level or higher.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 005</td>
<td>Western Art: Ancient - Medieval</td>
</tr>
<tr>
<td>ARTH 006</td>
<td>Western Art: Renaissance-Modern</td>
</tr>
<tr>
<td>ARTH 148</td>
<td>Greek Art</td>
</tr>
<tr>
<td>ARTH 149</td>
<td>Roman Art</td>
</tr>
<tr>
<td>ARTH 155</td>
<td>Topics in Medieval Art</td>
</tr>
<tr>
<td>ARTH 158</td>
<td>Northern European 1400-1600</td>
</tr>
<tr>
<td>ARTH 162</td>
<td>Italian Early Renaissance Art</td>
</tr>
<tr>
<td>ARTH 163</td>
<td>Italian High and Late Ren Art</td>
</tr>
<tr>
<td>ARTH 165</td>
<td>Topics European Art 1600-1800</td>
</tr>
<tr>
<td>ARTH 170</td>
<td>Topics in Modern Art</td>
</tr>
<tr>
<td>ARTH 172</td>
<td>19th-Century European Painting</td>
</tr>
<tr>
<td>ARTH 174</td>
<td>20th-Century Art</td>
</tr>
<tr>
<td>ARTH 177</td>
<td>19th &amp; 20th Cent Arch &amp; Design</td>
</tr>
<tr>
<td>ARTH 282</td>
<td>Seminar in Western Art (when the content is</td>
</tr>
<tr>
<td></td>
<td>European)</td>
</tr>
<tr>
<td>or ARTH 179</td>
<td>Issues in Contemporary Art</td>
</tr>
<tr>
<td>CLAS 021</td>
<td>Classical Greek Civilization</td>
</tr>
<tr>
<td>CLAS 023</td>
<td>Classical Roman Civilization</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>CLAS 024</td>
<td>Myths/Legends Trojan War</td>
</tr>
<tr>
<td>CLAS 035</td>
<td>The End of the Roman Republic</td>
</tr>
<tr>
<td>CLAS 037</td>
<td>Early Roman Empire: Lit Trans</td>
</tr>
<tr>
<td>CLAS 042</td>
<td>Mythology</td>
</tr>
<tr>
<td>CLAS 153</td>
<td>Greek Drama</td>
</tr>
<tr>
<td>CLAS 154</td>
<td>Stories and Histories</td>
</tr>
<tr>
<td>CLAS 155</td>
<td>Ancient Epic</td>
</tr>
<tr>
<td>CLAS 156</td>
<td>Satiric Spirit</td>
</tr>
<tr>
<td>CLAS 157</td>
<td>Greek Feminism</td>
</tr>
<tr>
<td>CLAS 158</td>
<td>Greco-Roman Political Thought</td>
</tr>
<tr>
<td>CLAS 161</td>
<td>Plato</td>
</tr>
<tr>
<td>ENGS 021</td>
<td>British Literature I</td>
</tr>
<tr>
<td>ENGS 022</td>
<td>British Literature II</td>
</tr>
<tr>
<td>ENGS 025</td>
<td>World Literature I</td>
</tr>
<tr>
<td>ENGS 026</td>
<td>World Literature II</td>
</tr>
<tr>
<td>ENGS 027</td>
<td>Lit of Western Trad:Int Hunn</td>
</tr>
<tr>
<td>ENGS 028</td>
<td>Lit of Western Trad:Int Hunn</td>
</tr>
<tr>
<td>ENGS 102</td>
<td>Hist of English Language</td>
</tr>
<tr>
<td>ENGS 131</td>
<td>Topics in Bible &amp; Lit</td>
</tr>
<tr>
<td>ENGS 135</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>ENGS 136</td>
<td>Topics in Shakespeare</td>
</tr>
<tr>
<td>ENGS 137</td>
<td>Topics in Ren Lit &amp; Culture</td>
</tr>
<tr>
<td>ENGS 138</td>
<td>Milton</td>
</tr>
<tr>
<td>ENGS 140</td>
<td>Survey Brit Lit to 1700</td>
</tr>
<tr>
<td>ENGS 141</td>
<td>Restoration &amp; 18thC Literature</td>
</tr>
<tr>
<td>ENGS 142</td>
<td>18th Century British Novel</td>
</tr>
<tr>
<td>ENGS 143</td>
<td>Topics:18C,19C Brit Lit &amp; Cul</td>
</tr>
<tr>
<td>ENGS 144</td>
<td>Topics in Romanticism</td>
</tr>
<tr>
<td>ENGS 145</td>
<td>Topics in Victorian Literature</td>
</tr>
<tr>
<td>ENGS 146</td>
<td>19th Century British Novel</td>
</tr>
<tr>
<td>ENGS 161</td>
<td>20th-Century British Novel</td>
</tr>
<tr>
<td>ENGS 162</td>
<td>20th-Century Irish Literature</td>
</tr>
<tr>
<td>ENGS 221</td>
<td>Seminar in Literature to 1800</td>
</tr>
<tr>
<td>ENGS 222</td>
<td>Seminar in Literature to 1800</td>
</tr>
<tr>
<td>ENGS 241</td>
<td>Seminar in 19th Century Lit</td>
</tr>
<tr>
<td>ENGS 242</td>
<td>Seminar in 19th Century Lit (when the content is European)</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>HS 112</td>
<td>D2: History of Zionism to 1948</td>
</tr>
<tr>
<td>HS 115</td>
<td>History of Poland</td>
</tr>
<tr>
<td>HS 117</td>
<td>German Literature: Translation</td>
</tr>
<tr>
<td>HS 119</td>
<td>D2: Modern Jewish History</td>
</tr>
<tr>
<td>HS 139</td>
<td>Modern Germany</td>
</tr>
<tr>
<td>HS 180</td>
<td>Moral&amp;Rel Persp on Holocaust</td>
</tr>
<tr>
<td>HS 190</td>
<td>The Holocaust</td>
</tr>
<tr>
<td>HS 191</td>
<td>World War II</td>
</tr>
<tr>
<td>HS 226</td>
<td>Seminar in Modern Europe</td>
</tr>
<tr>
<td>HS 227</td>
<td>Seminar in Modern Europe</td>
</tr>
<tr>
<td>HS 281</td>
<td>Sem: Lit Genre, Period or Theme</td>
</tr>
<tr>
<td>HS 282</td>
<td>Sem: Lit Genre, Period or Theme</td>
</tr>
<tr>
<td>ITAL 121</td>
<td>Issues in Italian Culture</td>
</tr>
<tr>
<td>ITAL 122</td>
<td>History of Italian Cinema</td>
</tr>
<tr>
<td>ITAL 157</td>
<td>Modern Italian Fictions</td>
</tr>
<tr>
<td>ITAL 158</td>
<td>Early Italian Lit in Context</td>
</tr>
<tr>
<td>ITAL 170</td>
<td>Cultures of Women in Italy</td>
</tr>
<tr>
<td>Latin</td>
<td>all courses above 100-level</td>
</tr>
<tr>
<td>MU 111</td>
<td>Music History &amp; Literature I</td>
</tr>
<tr>
<td>MU 112</td>
<td>Music History &amp; Literature II</td>
</tr>
<tr>
<td>PHIL 101</td>
<td>History of Ancient Philosophy</td>
</tr>
<tr>
<td>PHIL 102</td>
<td>History of Modern Philosophy</td>
</tr>
<tr>
<td>PHIL 105</td>
<td>History of Medieval Philosophy</td>
</tr>
<tr>
<td>PHIL 140</td>
<td>Social &amp; Political Philosophy</td>
</tr>
<tr>
<td>PHIL 160</td>
<td>Continental Philosophy</td>
</tr>
<tr>
<td>POLS 141</td>
<td>History of Political Thought</td>
</tr>
<tr>
<td>POLS 142</td>
<td>History of Political Thought</td>
</tr>
<tr>
<td>REL 027</td>
<td>Integ Humanities</td>
</tr>
<tr>
<td>REL 028</td>
<td>Integrated Humanities</td>
</tr>
<tr>
<td>REL 111</td>
<td>Western Religious Thought</td>
</tr>
<tr>
<td>REL 116</td>
<td>Judaism</td>
</tr>
<tr>
<td>REL 124</td>
<td>Christianity</td>
</tr>
<tr>
<td>REL 173</td>
<td>Studies in Gender &amp; Religion (when the content is European)</td>
</tr>
<tr>
<td>REL 180</td>
<td>Moral&amp;Rel Persp on Holocaust</td>
</tr>
<tr>
<td>REL 224</td>
<td>Studies in Christianity</td>
</tr>
<tr>
<td>REL 228</td>
<td>Studies in Western Rel Thought</td>
</tr>
<tr>
<td>SPAN 141</td>
<td>Intro To Literature of Spain</td>
</tr>
<tr>
<td>SPAN 236</td>
<td>Poetic Voices/Cultural Change</td>
</tr>
<tr>
<td>SPAN 237</td>
<td>Issues in Early Spanish Lit</td>
</tr>
<tr>
<td>SPAN 246</td>
<td>Reading Cervantes</td>
</tr>
<tr>
<td>SPAN 250</td>
<td>Dilemmas of Mrnty in Span Lit</td>
</tr>
<tr>
<td>SPAN 252</td>
<td>Span Lit:Dictatorship-Democracy</td>
</tr>
<tr>
<td>SPAN 291</td>
<td>Early Cultures of Spain</td>
</tr>
<tr>
<td>SPAN 292</td>
<td>Modern Cultures of Spain</td>
</tr>
<tr>
<td>THE 150</td>
<td>Hist I:Class/Med/Ren Thtr</td>
</tr>
<tr>
<td>THE 180</td>
<td>Eurotheatre</td>
</tr>
<tr>
<td>WLIT 011</td>
<td>French Lit in Translation</td>
</tr>
<tr>
<td>WLIT 013</td>
<td>Italian Lit in Translation</td>
</tr>
<tr>
<td>WLIT 014</td>
<td>Spanish Lit in Translation</td>
</tr>
<tr>
<td>WLIT 017</td>
<td>German Lit in Translation</td>
</tr>
<tr>
<td>WLIT 024</td>
<td>Myths &amp; Legends of Trojan War</td>
</tr>
<tr>
<td>WLIT 035</td>
<td>The End of the Roman Republic</td>
</tr>
<tr>
<td>WLIT 037</td>
<td>Early Roman Emp:Lit&amp;Translat’n</td>
</tr>
<tr>
<td>WLIT 042</td>
<td>Mythology</td>
</tr>
<tr>
<td>WLIT 114</td>
<td>Spanish Lit in Translation</td>
</tr>
<tr>
<td>WLIT 117</td>
<td>German Lit in Translation</td>
</tr>
<tr>
<td>WLIT 122</td>
<td>Dante’s Comedy</td>
</tr>
<tr>
<td>WLIT 153</td>
<td>Greek Drama</td>
</tr>
<tr>
<td>WLIT 155</td>
<td>Ancient Epic</td>
</tr>
<tr>
<td>WLIT 156</td>
<td>Greek &amp; Roman Satiric Spirit</td>
</tr>
<tr>
<td>WLIT 157</td>
<td>Greek Feminism</td>
</tr>
</tbody>
</table>

**European History and Society**

Twelve credits from the approved list to include six credits at the 100-level or higher:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAS 121</td>
<td>History of Greece</td>
</tr>
<tr>
<td>CLAS 122</td>
<td>History of Rome</td>
</tr>
<tr>
<td>FREN 292</td>
<td>Topics in French Culture</td>
</tr>
<tr>
<td>GEOG 159</td>
<td>Europe</td>
</tr>
<tr>
<td>HS 139</td>
<td>Modern Germany</td>
</tr>
<tr>
<td>HS 190</td>
<td>The Holocaust</td>
</tr>
<tr>
<td>HS 191</td>
<td>World War II</td>
</tr>
<tr>
<td>HS 226</td>
<td>Seminar in Modern Europe</td>
</tr>
<tr>
<td>HST 013</td>
<td>Ideas in the Western Tradition</td>
</tr>
</tbody>
</table>
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 157  Greek Feminism
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 257  Pol of European Integration
POLS 276  British Politics

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.

GLOBAL STUDIES B.A.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

Thirty credits, including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRS 001</td>
<td>D2: Intro to Global Studies</td>
<td>3</td>
</tr>
<tr>
<td>GRS 200</td>
<td>D2: Seminar in Global Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Four core courses drawn from disciplines relevant to Global Studies. To fulfill these core requirements, students should take one course from each of the following three thematic areas, and a fourth core course in the thematic area of their choice:

- **Political-Economic Perspectives on Globalization:**
  - POLS 051  Intro International Relations
  - EC 040    D2: Economics of Globalization
  - CDAE 002  D2: World Food, Pop & Develop

- **Human and Environmental Perspectives on Globalization:**
  - ANTH 021  D2: Cultural Anthropology
  - GEOG 050  D2: World Regional Geography
  - ENVS 002  D2: International Env Studies

- **Humanities Perspectives on Globalization:**
  - HST 010  D2: Global History Since 1500
  - WLIT 020  D2: Literatures of Globalization

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.

LATIN AMERICAN AND CARIBBEAN STUDIES B.A.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)
MAJOR REQUIREMENTS

Twelve credits selected from the following five courses: 12

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 161</td>
<td>D2: Cultures of South America</td>
</tr>
<tr>
<td>HST 062</td>
<td>D2: Colonial Latin Amer Hist</td>
</tr>
<tr>
<td>HST 063</td>
<td>D2: Modern Latin Amer History</td>
</tr>
<tr>
<td>GEOG 156</td>
<td>D2: Latin America</td>
</tr>
<tr>
<td>POLS 174</td>
<td>D2: Latin American Politics</td>
</tr>
</tbody>
</table>

Two additional semester courses selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRS 195</td>
<td>Intermediate Special Topics</td>
</tr>
<tr>
<td>GRS 196</td>
<td>Intermediate Special Topics</td>
</tr>
<tr>
<td>GRS 197</td>
<td>Readings &amp; Research</td>
</tr>
<tr>
<td>GRS 198</td>
<td>Readings &amp; Research</td>
</tr>
</tbody>
</table>

Or from courses recommended by the Program of Latin American and Caribbean Studies

Plus six credits of advanced Spanish: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 142</td>
<td>Intro To Lit Spanish America</td>
</tr>
<tr>
<td>SPAN 279</td>
<td>Performance and Politics</td>
</tr>
<tr>
<td>SPAN 281</td>
<td>Contemp Spanish-Amer Fiction</td>
</tr>
<tr>
<td>SPAN 286</td>
<td>Writing Revolution-Latin Amer</td>
</tr>
<tr>
<td>SPAN 287</td>
<td>Early Span Narratives Americas</td>
</tr>
<tr>
<td>SPAN 293</td>
<td>Early Latin-American Cultures</td>
</tr>
<tr>
<td>SPAN 294</td>
<td>Modern Latin-American Cultures</td>
</tr>
</tbody>
</table>

An additional twelve credits from related courses chosen in consultation with an advisor 12

RUSSIAN AND EAST EUROPEAN STUDIES B.A.
All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

Required Courses (30 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose two of the following:</td>
<td></td>
</tr>
<tr>
<td>ANTH 151</td>
<td>Anth of East Europe</td>
</tr>
<tr>
<td>HST 114</td>
<td>East European Nationalism</td>
</tr>
<tr>
<td>HST 137</td>
<td>History of Russia to 1917</td>
</tr>
<tr>
<td>HST 138</td>
<td>History of Russia since 1917</td>
</tr>
<tr>
<td>EC 011</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>or EC 012</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>POLS 177</td>
<td>D2: Pol Sys of Trop Africa (presumes completion of prerequisite)</td>
</tr>
<tr>
<td>REL 026</td>
<td>D2: Intro Rel:African Religions</td>
</tr>
<tr>
<td>REL 026</td>
<td>D2: Intro Rel:African Religions</td>
</tr>
</tbody>
</table>

The program also offers an interdisciplinary Individually Designed major in Russian and East European Studies and Business. The program of study must be planned with a member of the Russian and East European Studies faculty.

Required Courses for the IDM (35 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose two courses in Russian at the intermediate level</td>
<td></td>
</tr>
<tr>
<td>Four courses in economics including EC 011 or EC 012</td>
<td></td>
</tr>
<tr>
<td>One Russian and East European Studies course other than those in economics</td>
<td></td>
</tr>
<tr>
<td>Two courses in business administration</td>
<td></td>
</tr>
<tr>
<td>Two approved electives at the 100-level or higher</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 162</td>
<td>D2: Cultures of Africa (presumes completion of prerequisite)</td>
</tr>
<tr>
<td>ARBC 002</td>
<td>Elementary Arabic II (presumes completion of prerequisite)</td>
</tr>
<tr>
<td>ENGS 061</td>
<td>D2: Intro to African Literature</td>
</tr>
<tr>
<td>GEOG 150</td>
<td>D2: Geography of Africa (presumes completion of prerequisite)</td>
</tr>
<tr>
<td>HST 040</td>
<td>D2: African History to C-1870</td>
</tr>
<tr>
<td>or HST 041</td>
<td>D2: Africa C-1870 to Present</td>
</tr>
<tr>
<td>POLS 177</td>
<td>D2: Pol Sys of Trop Africa (presumes completion of prerequisite)</td>
</tr>
<tr>
<td>REL 026</td>
<td>D2: Intro Rel:African Religions</td>
</tr>
</tbody>
</table>

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.

**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.

**GLOBAL STUDIES MINOR REQUIREMENTS**

Eighteen credits, including:

- GRS 001 D2: Intro to Global Studies 3
- Six credits drawn from list of core courses: 6
- ANTH 021 D2: Cultural Anthropology
- CDAE 002 D2: World Food, Pop & Develop
- EC 040 D2: Economics of Globalization
- ENVS 002 D2: International Env Studies
- GEOG 050 D2: World Regional Geography
- 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

**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

Students who are not Spanish majors

Eighteen credits (six courses)

<table>
<thead>
<tr>
<th>Completion of SPAN 052 or above (three credits)</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of five of the following courses:</td>
<td>15</td>
</tr>
<tr>
<td>ANTH 161 D2: Cultures of South America</td>
<td></td>
</tr>
<tr>
<td>HST 062 D2: Colonial Latin Amer Hist</td>
<td></td>
</tr>
<tr>
<td>HST 063 D2: Modern Latin Amer History</td>
<td></td>
</tr>
<tr>
<td>GEOG 156 D2: Latin America</td>
<td></td>
</tr>
<tr>
<td>POLS 174 D2: Latin American Politics</td>
<td></td>
</tr>
<tr>
<td>SPAN 142 Intro To Lit Spanish America</td>
<td></td>
</tr>
<tr>
<td>SPAN 279 Performance and Politics</td>
<td></td>
</tr>
<tr>
<td>SPAN 281 Contemp Spanish-American Fiction</td>
<td></td>
</tr>
<tr>
<td>SPAN 286 Writing Revolution-Latin Amer</td>
<td></td>
</tr>
<tr>
<td>SPAN 287 Early Span Narratives Americas</td>
<td></td>
</tr>
<tr>
<td>SPAN 293 Early Latin-American Cultures</td>
<td></td>
</tr>
<tr>
<td>SPAN 294 Modern Latin-American Cultures</td>
<td></td>
</tr>
<tr>
<td>GRS 195 Intermediate Special Topics</td>
<td></td>
</tr>
<tr>
<td>GRS 196 Intermediate Special Topics</td>
<td></td>
</tr>
</tbody>
</table>

Students who are Spanish majors

Eighteen credits (six courses)

| Completion of one of the following courses:      | 3 |
| SPAN 279 Performance and Politics               |   |
| SPAN 281 Contemp Spanish-American Fiction       |   |
| SPAN 286 Writing Revolution-Latin Amer           |   |
| SPAN 287 Early Span Narratives Americas          |   |
| SPAN 293 Early Latin-American Cultures          |   |
| SPAN 294 Modern Latin-American Cultures         |   |
| Completion of five of the following courses:    | 15 |
| ANTH 161 D2: Cultures of South America          |   |
| HST 062 D2: Colonial Latin Amer Hist            |   |
| HST 063 D2: Modern Latin Amer History           |   |
| GEOG 156 D2: Latin America                      |   |
| POLS 174 D2: Latin American Politics            |   |

RESTRICTIONS

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: Hist Islam&Middle E to 1258           |   |
| or HST 046 D2: Hist 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 |
| WLIT 118 Russian Lit in Translation                |   |
| HST 137 History of Russia to 1917                  |   |
HST 138  History of Russia since 1917  
POLS 172  Politics & Society in Russian Federation

**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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS 052</td>
<td>Introduction to Vermont</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Choose three of the following</td>
<td>9-10</td>
</tr>
<tr>
<td>VS 055</td>
<td>Environmental Geology</td>
<td></td>
</tr>
<tr>
<td>VS 064</td>
<td>D1: Native Americans of Vermont</td>
<td></td>
</tr>
<tr>
<td>VS 092</td>
<td>Vermont Field Studies</td>
<td></td>
</tr>
<tr>
<td>or VS 192</td>
<td>Vermont Field Studies</td>
<td></td>
</tr>
<tr>
<td>VS 123</td>
<td>The Vermont Political System</td>
<td></td>
</tr>
<tr>
<td>VS 158</td>
<td>History of New England</td>
<td></td>
</tr>
<tr>
<td>VS 160</td>
<td>The Literature of Vermont</td>
<td></td>
</tr>
<tr>
<td>VS 184</td>
<td>Vermont History</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two additional courses from an approved list chosen in consultation with the Vermont Studies advisor</td>
<td>6</td>
</tr>
</tbody>
</table>

**HISTORY B.A.**  
All students must meet the University Requirements. (p. 339)  
All students must meet the College Requirements. (p. 196)

**MAJOR REQUIREMENTS**  
Thirty-three credits to include:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>One course at the introductory level (below 100)</td>
<td>3</td>
</tr>
<tr>
<td>One history methods course:</td>
<td>3</td>
</tr>
<tr>
<td>HST 101  History Methods</td>
<td></td>
</tr>
<tr>
<td>Nine additional credits at the intermediate 100-level</td>
<td>9</td>
</tr>
<tr>
<td>Three credits at the advanced 200-level</td>
<td>3</td>
</tr>
</tbody>
</table>

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.)

**HISTORY MINOR REQUIREMENTS**  
Eighteen credits to include:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three credits in any course at the introductory (below 100) level</td>
<td>3</td>
</tr>
<tr>
<td>Plus nine credits at the intermediate (100) or advanced (200) level</td>
<td>9</td>
</tr>
<tr>
<td>These must also include six credits in each of the two of the Department’s areas of study (the Americas; Europe; Africa/Asia/Middle East/Global)</td>
<td>6</td>
</tr>
</tbody>
</table>

**RESTRICTIONS**  
Ineligible Major: History

**HOLOCAUST STUDIES MINOR REQUIREMENTS**  
Eighteen credits of relevant course work:  
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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HST 016</td>
<td>Modern Europe</td>
<td>3</td>
</tr>
</tbody>
</table>

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.**  
All students must meet the University Requirements. (p. 339)  
All students must meet the College Requirements. (p. 196)

The IDM is a nondepartmental, interdisciplinary major for those College of Arts and Sciences Bachelor of Arts candidates whose academic interests are not met by the major programs currently offered by the college. An IDM may not be a program of narrow professional training. Rather, it must lead to an intensive investigation of some broad area of human knowledge which is not covered by a single departmental discipline. During the senior year, IDM majors
engage in a three-credit tutorial for which they complete a paper or an equivalent project which demonstrates the essential coherence of the major. A college Honors project (six credits) may be substituted for the tutorial requirement. Application to pursue an IDM should be approved by the Committee on Honors and Individual Studies before the end of the candidate’s junior year. No more than eighteen credits of the proposed major may be completed at the time of application. For more information, contact cas@uvm.edu.

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

An application must be submitted to the Committee on Honors and Individual Studies for approval. For more information, contact 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.

CAS 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. 236)

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://catalog.uvm.edu/graduate) for more information.

MATHEMATICS B.A.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 052</td>
<td>Fundamentals of Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 124</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

Eighteen additional credits in mathematics/statistics courses at the 100-level or higher, with at least twelve credits numbered 200 or higher

Statistics Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121</td>
<td>Calculus III</td>
<td>3</td>
</tr>
</tbody>
</table>

Thirty-three credits of mathematics/statistics courses numbered MATH 021 or higher, including:
MATH 124  Linear Algebra  
STAT 141  Basic Statistical Methods  
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  
or STAT 227  Adv 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 at the University of Vermont will capture your imagination, whether your 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, and Jazz Studies. 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. 237)
Music Performance B.Mus. (p. 238)

MINORS

MUSIC AND DANCE MINORS
Dance (p. 239)
Music (p. 239)

MUSIC B.A.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)
In the Bachelor of Arts program, music majors may choose from four concentrations:

Concentration in Music History and Literature (p. 238)
Concentration in Music Performance (p. 238)
Concentration in Theory and Composition (p. 238)
Concentration in Jazz Studies (p. 238)

MAJOR REQUIREMENTS
All students interested in majoring in music must first pass an entrance audition on an instrument or voice. In order to complete the major, all students must attain intermediate level on a single instrument or voice; must have or acquire piano skills sufficient to pass the piano proficiency examination; and must pass a junior standing examination, usually at the end of the sophomore year, before being permitted to declare a concentration.

Forty credits in music. Majors in all concentrations except Jazz Studies (see below) must take the following core courses:

<table>
<thead>
<tr>
<th>History:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MU 111</td>
<td>Music History &amp; Literature I</td>
</tr>
<tr>
<td>MU 112</td>
<td>Music History &amp; Literature II</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theory:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MU 054</td>
<td>Harmony and Form Lab I</td>
</tr>
<tr>
<td>MU 056</td>
<td>Harmony and Form Lab II</td>
</tr>
</tbody>
</table>
### 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

Students must attain intermediate level on an instrument chosen from the department’s offerings.

### Concentration in Music Performance

- **Six additional credits at the 100-level in performance study (lessons only)**: 6
- **Three credits in a music concentration other than performance**: 3
- **MU 250 Senior Recital**: 1

Students must appear each year in departmental recitals.

### 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

Additionally, students must attain intermediate level on an instrument chosen from the department’s offerings.

### Concentration in Jazz Studies

**Theory:**
- **MU 054 Harmony and Form Lab I**
- **MU 056 Harmony and Form Lab II**
- **MU 109 Harmony and Form I**
- **MU 110 Harmony and Form II**

**History:**
- **MU 111 Music History & Literature I**
- **or MU 112 Music History & Literature II**

Additionally, students must appear each year in departmental recitals.

### MUSIC PERFORMANCE B.MUS.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

**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 | 14 |
| Applied lessons | 4 |
| Secondary instrument or voice | 4 |
| (four semesters of half-hour lessons) | |
| Sophomore Recital/Performance Seminar | 1 |
| Junior Recital | 1 |
| Senior Recital | 1 |
DANCE MINOR
REQUIREMENTS
Eighteen credits in dance (DNCE). Nine credits must be at the 100-level or above.

<table>
<thead>
<tr>
<th>Three credits in dance history:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNCE 050 Dance History &amp; Legends</td>
<td></td>
</tr>
<tr>
<td>Five - six credits in dance technique:</td>
<td>5-6</td>
</tr>
<tr>
<td>Choose two of the following:</td>
<td></td>
</tr>
<tr>
<td>DNCE 012 Contemporary Dance II</td>
<td></td>
</tr>
<tr>
<td>DNCE 111 Contemporary Dance III</td>
<td></td>
</tr>
<tr>
<td>DNCE 112 Contemporary Dance IV</td>
<td></td>
</tr>
<tr>
<td>Three credits in dance composition:</td>
<td>3</td>
</tr>
<tr>
<td>DNCE 060 Movement &amp; Improvisation</td>
<td></td>
</tr>
<tr>
<td>or DNCE 160 Dance Composition</td>
<td></td>
</tr>
<tr>
<td>Six - seven additional credits from remaining DNCE courses</td>
<td>6-7</td>
</tr>
</tbody>
</table>

MUSIC MINOR
REQUIREMENTS
Eighteen credits in music composed of:

| Six credits in music history/literature | 6 |
| Six credits in music theory/composition | 6 |
| Six credits in applied lessons or performing ensemble | 6 |

Nine credits must be at the 100-level above.

RESTRICTIONS
Ineligible Majors: Music (B.A., B.Mus.)

NEUROSCIENCE IN THE COLLEGE OF ARTS AND SCIENCES
http://www.uvm.edu/~nsmajor/

The neuroscience major at UVM was designed as a collaborative effort of faculty in Biology and Psychology in the College of Arts and Sciences, and Communication Sciences in College of Nursing and Health Sciences, and will be joining ranks with a strong neuroscience graduate program and an active, energetic neuroscience research community within the university.

CAS NEUROSCIENCE MAJOR

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. Psychology and Biology have been the 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.

The Neuroscience major at UVM is a cooperative effort by faculty in the Departments of Biology, Psychology, Communication Sciences, Anatomy and Neurobiology, 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 courses in Communication Sciences which are unique to UVM and give our students more knowledge about and appreciation for the more clinically oriented areas of Neuroscience. The curriculum also 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.

MAJORS

NEUROSCIENCE MAJOR

Neuroscience B.S. (p. 239)

GRADUATE

Neuroscience M.S.

Neuroscience Ph.D.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

NEUROSCIENCE B.S.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Twenty-five credits of fundamental courses including:</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011 Exploring Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>BCOR 012</td>
<td>Exploring Biology</td>
</tr>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 032</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>MATH 019</td>
<td>Fundamentals of Calculus I</td>
</tr>
<tr>
<td>MATH 020</td>
<td>Fundamentals of Calculus II</td>
</tr>
<tr>
<td>PSYC 001</td>
<td>General Psychology</td>
</tr>
</tbody>
</table>

Fourteen credits of foundation courses including:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 110</td>
<td>Exploring Neuroscience</td>
</tr>
<tr>
<td>BCOR 101</td>
<td>Genetics</td>
</tr>
<tr>
<td>PSYC 104</td>
<td>Learning, Cognition &amp; Behavior</td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
</tr>
</tbody>
</table>

Experimental design and statistics courses out of one of the following categories: 6-9

**Category A**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 109</td>
<td>Psychology Research Methods I</td>
</tr>
<tr>
<td>PSYC 110</td>
<td>Psychology Research Methods II</td>
</tr>
</tbody>
</table>

**Category B**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods</td>
</tr>
<tr>
<td>or STAT 211</td>
<td>Statistical Methods I</td>
</tr>
<tr>
<td>STAT 221</td>
<td>Statistical Methods II</td>
</tr>
<tr>
<td>STAT 231</td>
<td>Experimental Design</td>
</tr>
</tbody>
</table>

**Category C**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 109</td>
<td>Psychology Research Methods I</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>Quantitative Biology</td>
</tr>
</tbody>
</table>

Advanced Core neuroscience courses: 12-13

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 270</td>
<td>Diseases of the Nervous System</td>
</tr>
</tbody>
</table>

Choose nine credits from the following:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 261</td>
<td>Neurobiology</td>
</tr>
<tr>
<td>CSD 281</td>
<td>Cognitive Neuroscience</td>
</tr>
<tr>
<td>PSYC 221</td>
<td>Physiological Psychology I</td>
</tr>
<tr>
<td>NSCI 225</td>
<td>Human Neuroanatomy</td>
</tr>
</tbody>
</table>

Twelve credits of optional neuroscience courses, with at least one from each of the following categories: 12

**Category A**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CSD 101</td>
<td>Speech &amp; Hearing Science</td>
</tr>
<tr>
<td>CSD 208</td>
<td>Cognition &amp; Language</td>
</tr>
<tr>
<td>PSYC 205</td>
<td>Learning</td>
</tr>
</tbody>
</table>

---

### 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. 241)

MINORS

PHILOSOPHY MINOR

Philosophy (p. 241)

PHILOSOPHY B.A.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

Thirty credits in philosophy including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 013</td>
<td>Introduction to Logic</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 101</td>
<td>History of Ancient Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 102</td>
<td>History of Modern Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>At least four 200-level courses (twelve credits) in philosophy</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Two additional courses at/above the 100-level (six credits)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>One additional course at any level</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose one of the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>PHIL 101</td>
<td>History of Ancient Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 102</td>
<td>History of Modern Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 140</td>
<td>Social &amp; Political Philosophy</td>
<td></td>
</tr>
<tr>
<td>One additional course at/above the 100-level</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>One course at the 200-level</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Three courses at any level</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

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. 241)

Physics B.S. (p. 242)

MINORS

PHYSICS MINORS

Astronomy (p. 243)

Physics (p. 243)

GRADUATE

Physics AMP

Physics M.S.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

PHYSICS B.A.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

Choose one of the following sequences: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 051 &amp;</td>
<td>Fundamentals of Physics I</td>
</tr>
<tr>
<td>PHYS 152</td>
<td>and Fundamentals of Physics II</td>
</tr>
</tbody>
</table>

241
### PHYSICS B.S.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

### MAJOR REQUIREMENTS

All courses in core and all courses in one of the listed options.

<table>
<thead>
<tr>
<th>Core</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose one of the following sequences:</td>
<td>8</td>
</tr>
<tr>
<td>PHYS 051 &amp; PHYS 152</td>
<td>Fundamentals of Physics I and Fundamentals of Physics II</td>
</tr>
<tr>
<td>PHYS 031 &amp; PHYS 125 &amp; PHYS 022</td>
<td>Physics for Engineers I and Physics for Engineers II and Introductory Lab II</td>
</tr>
<tr>
<td>PHYS 128</td>
<td>Waves and Quanta</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>Classical Mechanics</td>
</tr>
<tr>
<td>PHYS 213</td>
<td>Electricity &amp; Magnetism</td>
</tr>
<tr>
<td>PHYS 273</td>
<td>Quantum Mechanics I</td>
</tr>
<tr>
<td>PHYS 214</td>
<td>Electromagnetism</td>
</tr>
<tr>
<td>or PHYS 274</td>
<td>Applications of Quantum Mechanics</td>
</tr>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
</tr>
<tr>
<td>MATH 121</td>
<td>Calculus III</td>
</tr>
<tr>
<td>MATH 271</td>
<td>Advanced Engineering Mathematics</td>
</tr>
<tr>
<td>or MATH 230</td>
<td>Ordinary Differential Equation</td>
</tr>
<tr>
<td>MATH 124</td>
<td>Linear Algebra</td>
</tr>
</tbody>
</table>

or MATH 272 | Applied Analysis |

CHEM 031 | General Chemistry I |

One additional course in chemistry (CHEM 032 recommended) |

CS 021 | Computer Programming I |

### Options

**Pure Physics:**

PHYS 201 | Experimental Physics I |

PHYS 202 | Experimental Physics II |

PHYS 265 | Thermal & Statistical Physics |

Twelve credits of approved physics electives |

### Mechanical Engineering:

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:

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):

EE 003 | Linear Circuit Analysis I |

EE 004 | Linear Circuit Analysis II |

EE 081 | Linear Circuits Laboratory I |

EE 082 | Linear Circuits Laboratory II |
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 120</td>
<td>Electronics I</td>
</tr>
<tr>
<td>EE 121</td>
<td>Electronics II</td>
</tr>
<tr>
<td>EE 171</td>
<td>Signals &amp; Systems</td>
</tr>
<tr>
<td>EE 174</td>
<td>Communication Systems</td>
</tr>
<tr>
<td>EE 275</td>
<td>Digital Signal Processing</td>
</tr>
<tr>
<td></td>
<td>Choose one of the following:</td>
</tr>
<tr>
<td>EE 276</td>
<td>Image Processing &amp; Coding</td>
</tr>
<tr>
<td>EE 277</td>
<td>Image A&amp;n&amp;Pattern Recognition</td>
</tr>
<tr>
<td>EE 295</td>
<td>Special Topics</td>
</tr>
</tbody>
</table>

**Electrical Engineering (Circuits and Devices):** 30

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 003</td>
<td>Linear Circuit Analysis I</td>
</tr>
<tr>
<td>EE 004</td>
<td>Linear Circuit Analysis II</td>
</tr>
<tr>
<td>EE 081</td>
<td>Linear Circuits Laboratory I</td>
</tr>
<tr>
<td>EE 082</td>
<td>Linear Circuits Laboratory II</td>
</tr>
<tr>
<td>EE 120</td>
<td>Electronics I</td>
</tr>
<tr>
<td>EE 121</td>
<td>Electronics II</td>
</tr>
<tr>
<td>EE 131</td>
<td>Fundamentals of Digital Design</td>
</tr>
<tr>
<td>EE 163</td>
<td>Solid State Phys Electronics I</td>
</tr>
<tr>
<td>EE 183</td>
<td>Electronics Laboratory I</td>
</tr>
<tr>
<td>EE 184</td>
<td>Electronics Laboratory II</td>
</tr>
<tr>
<td>EE 221</td>
<td>Prin VLSI Digital Circuit Des</td>
</tr>
</tbody>
</table>

**Astrophysics:** 27

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 257</td>
<td>Modern Astrophysics</td>
</tr>
<tr>
<td>PHYS 201</td>
<td>Experimental Physics I</td>
</tr>
<tr>
<td>PHYS 214</td>
<td>Electromagnetism</td>
</tr>
<tr>
<td>PHYS 265</td>
<td>Thermal &amp; Statistical Physics</td>
</tr>
</tbody>
</table>

Nine credits of approved science or mathematics electives

---

1 PHYS 202 and CS 021 may be waived in favor of credit in readings and research.

---

**ASTRONOMY MINOR REQUIREMENTS**

Sixteen credits in astronomy including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 005</td>
<td>Exploring the Cosmos</td>
</tr>
<tr>
<td>ASTR 023</td>
<td>Astr Lab I:Measuring the Sky</td>
</tr>
<tr>
<td>or ASTR 024</td>
<td>Astronomy Lab II:Imaging Sky</td>
</tr>
</tbody>
</table>

Choose three of the following: 9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 153</td>
<td>Moons &amp; Planets</td>
</tr>
<tr>
<td>ASTR 155</td>
<td>The Big Bang</td>
</tr>
<tr>
<td>ASTR 157</td>
<td>Stars &amp; Galaxies</td>
</tr>
<tr>
<td>ASTR 177</td>
<td>Spacecraft Astronomy</td>
</tr>
</tbody>
</table>

Three additional credits in ASTR

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

**Option A**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 051</td>
<td>Fundamentals of Physics I</td>
</tr>
<tr>
<td>PHYS 152</td>
<td>Fundamentals of Physics II</td>
</tr>
</tbody>
</table>

**Option B**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 031</td>
<td>Physics for Engineers I</td>
</tr>
<tr>
<td>PHYS 125 &amp; PHYS 022</td>
<td>Physics for Engineers II and Introductory Lab II</td>
</tr>
<tr>
<td>PHYS 128</td>
<td>Waves and Quanta</td>
</tr>
</tbody>
</table>

Three additional credits at the PHYS 200-level excluding PHYS 201 and PHYS 202

---

**RESTRICTIONS**

Ineligible Majors: Physics (B.A., B.S.)

---

**PRE/CO-REQUISITES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121</td>
<td>Calculus III</td>
<td>4</td>
</tr>
</tbody>
</table>

---

**PLANT BIOLOGY IN THE COLLEGE OF ARTS AND SCIENCES**

http://www.uvm.edu/~plantbio/

This integrated program leads to a B.A. offered by the College of Arts and Sciences, and a B.S. offered by the College of Agriculture and Life Sciences.

---

**CAS 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. The great variety of courses offered allows students to master subdisciplines within plant biology, such as
ecology, genetics, growth and development, physiology, and evolution. Students can anticipate a great deal of personalized study and individualized attention. All classes in the Department are taught by professors, who lecture in a variety of courses, including fern systematics and evolution, forest and theoretical ecology, plant biodiversity, field botany, and genetics.

The Bachelor of Science in Plant Biology is offered by the College of Agriculture and Life Sciences. The Bachelor of Arts in Plant Biology is offered by the College of Arts and Sciences.

MAJORS

PLANT BIOLOGY MAJOR

Plant Biology B.A. (p. 244)

MINORS

PLANT BIOLOGY MINOR

Plant Biology (p. 245)

GRADUATE

Plant Biology M.S.

Plant Biology Ph.D.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

PLANT BIOLOGY B.A.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

This page includes specific requirements for the three Plant Biology concentrations:

- General Plant Biology Concentration (p. 244)
- Ecology and Evolutionary Biology of Plants Concentration (p. 244)
- Plant Molecular Biology Concentration (p. 244)

MAJOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011</td>
<td>Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 012</td>
<td>Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 101</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>PBIO 104</td>
<td>Plant Physiology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 032</td>
<td>General Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Organic Chemistry 1</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following sequences:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 142</td>
<td>Organic Chemistry 2</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following options:

**Option 1**

- STAT 141 Basic Statistical Methods
- STAT 211 Statistical Methods I

**Option 2**

- NR 140 Applied Environ Statistics
- PHYS 011 Elementary Physics
- PHYS 021 Introductory Lab I

**Option 3**

- PHYS 051 Fundamentals of Physics I

1 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 142.

Students must also complete the requirements for one of the following concentrations:

General Plant Biology Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 102</td>
<td>Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>PBIO 108</td>
<td>Morph &amp; Evo of Vascular Plants</td>
<td>4</td>
</tr>
<tr>
<td>or PBIO 109</td>
<td>Plant Systematics</td>
<td>4</td>
</tr>
</tbody>
</table>

At least eighteen credits (including at least two 200-level plant biology courses) selected in consultation with the student’s advisor

Ecology and Evolutionary Biology of Plants Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 102</td>
<td>Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>PBIO 108</td>
<td>Morph &amp; Evo of Vascular Plants</td>
<td>4</td>
</tr>
<tr>
<td>PBIO 109</td>
<td>Plant Systematics</td>
<td>4</td>
</tr>
</tbody>
</table>

Plus at least fifteen credits (including at least two 200-level plant biology courses) selected in consultation with the student’s advisor

Plant Molecular Biology Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBIO 185</td>
<td>Survey of Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>&amp; PBIO 187</td>
<td>Survey of Biochemistry: Lab</td>
<td>4</td>
</tr>
</tbody>
</table>

Choose one of the following sequences:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBIO 185</td>
<td>Survey of Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>&amp; PBIO 187</td>
<td>Survey of Biochemistry: Lab</td>
<td>4</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Choose one introductory semester course:</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBIO 004 Intro to Botany</td>
<td></td>
</tr>
<tr>
<td>BIOL 001 Principles of Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 002 Principles of Biology</td>
<td></td>
</tr>
<tr>
<td>BCOR 011 Exploring Biology</td>
<td></td>
</tr>
<tr>
<td>BCOR 012 Exploring Biology</td>
<td></td>
</tr>
</tbody>
</table>

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. 245)

**MINORS**

**POLITICAL SCIENCE MINOR**

Political Science (p. 246)

**POLITICAL SCIENCE B.A.**

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

**MAJOR REQUIREMENTS**

Thirty credits in political science and completion of the additional skill requirement:

<table>
<thead>
<tr>
<th>Core Courses:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>POLS 021</td>
<td>American Political System</td>
</tr>
<tr>
<td>POLS 041</td>
<td>Intro to Political Theory</td>
</tr>
<tr>
<td>POLS 051</td>
<td>Intro International Relations</td>
</tr>
<tr>
<td>POLS 071</td>
<td>Comparative Political Systems</td>
</tr>
</tbody>
</table>

At least fifteen credits at the advanced 100- or 200-level in political science subject to the following restrictions:

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; readings and research)

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

Note: Internships will not count toward the thirty credits required for the major.

**POLITICAL SCIENCE MINOR REQUIREMENTS**

Eighteen credits in political science, including:

<table>
<thead>
<tr>
<th>At least six credits from the core courses:</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLS 021 American Political System</td>
<td></td>
</tr>
<tr>
<td>POLS 041 Intro to Political Theory</td>
<td></td>
</tr>
<tr>
<td>POLS 051 Intro International Relations</td>
<td></td>
</tr>
<tr>
<td>POLS 071 Comparative Political Systems</td>
<td></td>
</tr>
</tbody>
</table>

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

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.

Study abroad, transfer credit, readings and research credits do not 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 coping with HIV/AIDS.

The faculty includes widely published experts, several holding leadership positions within their professional associations.

**MAJORS**

**PSYCHOLOGICAL SCIENCE MAJORS**

Psychological Science B.A. (p. 246)

Psychological Science B.S. (p. 247)

**MINORS**

**PSYCHOLOGICAL SCIENCE MINOR**

Psychological Science (p. 247)

**GRADUATE**

Psychology M.A. (earned as prerequisite to the Psychology Ph.D)

Psychology Ph.D.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

**PSYCHOLOGICAL SCIENCE B.A.**

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

**MAJOR REQUIREMENTS**

Thirty-four credits of psychology including:

<table>
<thead>
<tr>
<th>PSYC 001</th>
<th>General Psychology</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 109</td>
<td>Psychology Research Methods I</td>
</tr>
<tr>
<td>PSYC 110</td>
<td>Psychology Research Methods II</td>
</tr>
<tr>
<td>PSYC 104</td>
<td>Learning, Cognition &amp; Behavior</td>
</tr>
<tr>
<td>PSYC 121</td>
<td>Biopsychology</td>
</tr>
<tr>
<td>PSYC 130</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>PSYC 152</td>
<td>Abnormal Psychology</td>
</tr>
</tbody>
</table>
PSY 161 \: Developmental Psych: Childhood

Two courses (three or four credits each) at the 200-level \: 6-8
One additional course at/above the 100-level \: 3

**PSYCHOLOGICAL SCIENCE B.S.**

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

**MAJOR REQUIREMENTS**

<table>
<thead>
<tr>
<th>Choose one of the following sequences: : 6-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 019 &amp; MATH 020 : Fundamentals of Calculus I and Fundamentals of Calculus II</td>
</tr>
<tr>
<td>MATH 021 &amp; MATH 022 : Calculus I and Calculus II</td>
</tr>
</tbody>
</table>

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. \: 3

Forty-six credits of psychology including: \: 46

- PSYC 001 \: General Psychology
- PSYC 104 \: Learning, Cognition & Behavior
- PSYC 109 \: Psychology Research Methods I
- PSYC 110 \: Psychology Research Methods II
- PSYC 121 \: Biopsychology
- PSYC 130 \: Social Psychology
- PSYC 152 \: Abnormal Psychology
- PSYC 161 \: Developmental Psych: Childhood

Choose three courses from at least two of the following categories: \: 9-10

**Category A**

- PSYC 205 \: Learning
- PSYC 206 \: Motivation
- PSYC 207 \: Cognition
- PSYC 215 \: Cognition & Aging
- PSYC 220 \: Animal Behavior
- PSYC 221 \: Physiological Psychology I
- PSYC 222 \: Self Topics Behavioral Neurosci
- PSYC 223 \: Psychopharmacology

**Category B**

- PSYC 224 \: Hormones and Behavior
- PSYC 230 \: Advanced Social Psychology
- PSYC 233 \: Experience & Creativity
- PSYC 236 \: Theories of Human Comm
- PSYC 237 \: Cross-Cultural Communication
- PSYC 240 \: Organizational Psychology
- PSYC 241 \: Org Psych: Glob/Cultural/Loc Force
- PSYC 254 \: Prim Prevent & Mental Health Promo
- PSYC 261 \: Cognitive Development
- PSYC 262 \: Social Development
- PSYC 264 \: Psychology of Gender
- PSYC 265 \: Infant Development
- PSYC 266 \: Communication & Children
- PSYC 267 \: Adolescence
- PSYC 268 \: Psychology Adult Dev & Aging

**Category C**

- PSYC 250 \: Intro to Clinical Psychology
- PSYC 251 \: Behav Disorders of Childhood
- PSYC 254 \: Prim Prevent & Mental Health Promo
- PSYC 255 \: Intro to Health Psychology

Nine additional credits at or above the 100-level \: 9

1. For a list of approved offerings in science and statistics, consult the Department of Psychological Science website.
2. PSYC 254 can count for either Category B or C but not both.

Students opting for a Bachelor of Science degree in psychology may not use psychology courses to fulfill the College of Arts and Sciences social sciences Distribution Requirements.

Approved offerings in science and statistics: biology (any except BIOL 001 and BIOL 002), chemistry (any), geology (any), physics (any), statistics (STAT 141 and any at the 200-level), neurobiology (any), animal science (ASCI 122, ASCI 141), computer science (any except CS 002, CS 005, CS 014)

**PSYCHOLOGICAL SCIENCE MINOR REQUIREMENTS**

Eighteen credits including:

- PSYC 001 \: General Psychology \: 3
- PSYC 109 \: Psychology Research Methods I \: 3
Choose three of the following: 

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 104</td>
<td>Learning, Cognition &amp; Behavior</td>
</tr>
<tr>
<td>PSYC 119</td>
<td>History of Psychology</td>
</tr>
<tr>
<td>PSYC 121</td>
<td>Biopsychology</td>
</tr>
<tr>
<td>PSYC 130</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>PSYC 152</td>
<td>Abnormal Psychology</td>
</tr>
<tr>
<td>PSYC 161</td>
<td>Developmental Psych:Childhood</td>
</tr>
</tbody>
</table>

One course (three or four credits) at the 200-level: 

- Students earning the minor may substitute SOC 100 for PSYC 109.

**Restrictions**

Ineligible Majors: Psychology (B.A., B.S.)

Arts and Sciences students only.

**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. 248)

---

**MINORS**

**Religion Minor**

Religion (p. 249)

**Religion B.A.**

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

**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):

### Category A: Introduction to Religion

Choose one of the following: 

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL 020</td>
<td>D2: Intro Rel:Comparative</td>
</tr>
<tr>
<td>REL 021</td>
<td>D2: Intro Rel:Asian Traditions</td>
</tr>
<tr>
<td>REL 023</td>
<td>Intro Rel:Bible</td>
</tr>
<tr>
<td>REL 026</td>
<td>D2: Intro Rel:African Religions</td>
</tr>
<tr>
<td>REL 027</td>
<td>Integr Humanities</td>
</tr>
<tr>
<td>REL 028</td>
<td>Integrated Humanities</td>
</tr>
<tr>
<td>REL 029</td>
<td>D2: Intro Rel:Global Religion</td>
</tr>
<tr>
<td>REL 080</td>
<td>Religion &amp; Race in America</td>
</tr>
<tr>
<td>REL 085</td>
<td>On the Meaning of Life</td>
</tr>
<tr>
<td>REL 086</td>
<td>Phil Questions &amp; Rel Responses</td>
</tr>
<tr>
<td>REL 095</td>
<td>Intro Special Topics</td>
</tr>
<tr>
<td>REL 096</td>
<td>Intro Special Topics</td>
</tr>
</tbody>
</table>

### Category B: Investigating Traditions and Cultures

Choose three of the following (only one REL 000-level course can count toward this requirement): 

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL 021</td>
<td>D2: Intro Rel:Asian Traditions</td>
</tr>
<tr>
<td>REL 023</td>
<td>Intro Rel:Bible</td>
</tr>
<tr>
<td>REL 026</td>
<td>D2: Intro Rel:African Religions</td>
</tr>
<tr>
<td>REL 111</td>
<td>Western Religious Thought</td>
</tr>
<tr>
<td>REL 114</td>
<td>Hebrew Scriptures</td>
</tr>
<tr>
<td>REL 116</td>
<td>Judaism</td>
</tr>
<tr>
<td>REL 124</td>
<td>Christianity</td>
</tr>
<tr>
<td>REL 125</td>
<td>Women in Christianity to 1500</td>
</tr>
<tr>
<td>REL 128</td>
<td>Religion in America</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>REL 129</td>
<td>Religion &amp; Pop Culture in the US</td>
</tr>
<tr>
<td>REL 130</td>
<td>D2: Islam</td>
</tr>
<tr>
<td>REL 131</td>
<td>Studies in Hindu Tradition</td>
</tr>
<tr>
<td>REL 132</td>
<td>D2: Buddhist Traditions</td>
</tr>
<tr>
<td>REL 141</td>
<td>D2: Religion in Japan</td>
</tr>
<tr>
<td>REL 145</td>
<td>D2: Religion in China</td>
</tr>
<tr>
<td>REL 163</td>
<td>D2: Women &amp; Religion in Africa</td>
</tr>
<tr>
<td>REL 167</td>
<td>D2: Christianity in Africa</td>
</tr>
<tr>
<td>REL 214</td>
<td>Studies in Judaica</td>
</tr>
<tr>
<td>REL 224</td>
<td>Studies in Christianity</td>
</tr>
<tr>
<td>REL 228</td>
<td>Studies in Western Rel Thought</td>
</tr>
<tr>
<td>REL 230</td>
<td>Studies in Islam</td>
</tr>
<tr>
<td>REL 234</td>
<td>D2: Buddhism in Sri Lanka</td>
</tr>
<tr>
<td>REL 240</td>
<td>Studies in Asian Religions</td>
</tr>
<tr>
<td>REL 259</td>
<td>Religion and Secular Culture</td>
</tr>
<tr>
<td>REL 291</td>
<td>Tpcs in Hist &amp; Phenom of Rel</td>
</tr>
<tr>
<td>REL 292</td>
<td>Tpcs in Hist &amp; Phenom of Rel</td>
</tr>
<tr>
<td>REL 297</td>
<td>Interdisciplinary Seminar</td>
</tr>
<tr>
<td>REL 298</td>
<td>Interdisciplinary Seminar</td>
</tr>
</tbody>
</table>

**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):

**Category A: Introduction to Religion**

Choose one of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL 020</td>
<td>D2: Intro Rel: Comparative</td>
</tr>
<tr>
<td>REL 021</td>
<td>D2: Intro Rel: Asian Traditions</td>
</tr>
<tr>
<td>REL 023</td>
<td>Intro Rel: Bible</td>
</tr>
<tr>
<td>REL 026</td>
<td>D2: Intro Rel: African Religions</td>
</tr>
<tr>
<td>REL 027</td>
<td>Integr Humanities</td>
</tr>
<tr>
<td>REL 028</td>
<td>Integrated Humanities</td>
</tr>
<tr>
<td>REL 029</td>
<td>D2: Intro Rel: Global Religion</td>
</tr>
<tr>
<td>REL 080</td>
<td>Religion &amp; Race in America</td>
</tr>
<tr>
<td>REL 085</td>
<td>On the Meaning of Life</td>
</tr>
<tr>
<td>REL 086</td>
<td>Phil Questions &amp; Rel Responses</td>
</tr>
<tr>
<td>REL 095</td>
<td>Intro Special Topics</td>
</tr>
<tr>
<td>REL 096</td>
<td>Intro Special Topics</td>
</tr>
</tbody>
</table>

**Category B: Investigating Traditions and Cultures**

Choose one of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL 021</td>
<td>D2: Intro Rel: Asian Traditions</td>
</tr>
<tr>
<td>REL 023</td>
<td>Intro Rel: Bible</td>
</tr>
<tr>
<td>REL 026</td>
<td>D2: Intro Rel: African Religions</td>
</tr>
<tr>
<td>REL 111</td>
<td>Western Religious Thought</td>
</tr>
<tr>
<td>REL 114</td>
<td>Hebrew Scriptures</td>
</tr>
</tbody>
</table>

**Category C: Analyzing Problems in Religion**

Choose two of the following (only one REL 000-level course can count toward this requirement): 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL 020</td>
<td>D2: Intro Rel: Comparative</td>
</tr>
<tr>
<td>REL 029</td>
<td>D2: Intro Rel: Global Religion</td>
</tr>
<tr>
<td>REL 080</td>
<td>Religion &amp; Race in America</td>
</tr>
<tr>
<td>REL 085</td>
<td>On the Meaning of Life</td>
</tr>
<tr>
<td>REL 086</td>
<td>Phil Questions &amp; Rel Responses</td>
</tr>
<tr>
<td>REL 103</td>
<td>Sacred Sounds</td>
</tr>
<tr>
<td>REL 104</td>
<td>Mysticism, Shamanism &amp; Possessn</td>
</tr>
<tr>
<td>REL 107</td>
<td>Rel Perspectives on Death</td>
</tr>
<tr>
<td>REL 108</td>
<td>Myth, Symbol &amp; Ritual</td>
</tr>
<tr>
<td>REL 109</td>
<td>Ritualization: Rel, Body, Culture</td>
</tr>
<tr>
<td>REL 173</td>
<td>Studies in Gender &amp; Religion</td>
</tr>
<tr>
<td>REL 180</td>
<td>Moral &amp; Rel Persp on Holocaust</td>
</tr>
<tr>
<td>REL 291</td>
<td>Tpcs in Hist &amp; Phenom of Rel</td>
</tr>
<tr>
<td>REL 292</td>
<td>Tpcs in Hist &amp; Phenom of Rel</td>
</tr>
</tbody>
</table>

**Category D: Theories and Research in Religion**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL 100</td>
<td>Interpretation of Religion</td>
</tr>
<tr>
<td>REL 202</td>
<td>Research in Religion Practicum (taken concurrently with one course in Category E)</td>
</tr>
<tr>
<td>REL 203</td>
<td>Senior Colloquium (taken in Senior year following completion of REL 202)</td>
</tr>
</tbody>
</table>

**Category E: Advanced Seminars in Religion**

Choose two of the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL 214</td>
<td>Studies in Judaica</td>
</tr>
</tbody>
</table>
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  Studies in Hindu Tradition
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

Category C: Analyzing Problems in Religion
Choose one of the following: 3
REL 020  D2: Intro Rel: Comparative
REL 029  D2: Intro Rel: Global Religion
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 & Possesn
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

Category D: Theories in Religion
REL 100  Interpretation of Religion 3

Category E: Advanced Seminars in Religion
Choose one of the following: 3

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
French B.A. (p. 251)
Italian Studies B.A. (p. 251)
Linguistics B.A. (p. 252)
Spanish B.A. (p. 252)

Minors
Romance Languages and Linguistics
French (p. 253)
Italian (p. 253)
Italian Studies (p. 254)
Linguistics (p. 254)
Spanish (p. 254)

**FRENCH B.A.**

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

**MAJOR REQUIREMENTS**

Thirty-three credits in French numbered 100 or higher of which fifteen credits must be at the 200-level.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 101</td>
<td>Writing Workshop</td>
</tr>
<tr>
<td>FREN 141</td>
<td>French Lit in Context I</td>
</tr>
<tr>
<td>or FREN 142</td>
<td>French Lit in Context II</td>
</tr>
</tbody>
</table>

**Literature Requirement**

Twelve credits including:

| FREN 141         | French Lit in Context I |
| or FREN 142      | French Lit in Context II |

**Culture Requirement**

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. 339)
All students must meet the College Requirements. (p. 196)

**MAJOR REQUIREMENTS**

Thirty-three credits chosen from the categories below. Among the courses taught in English, no more than twelve credits may be applied from any one academic discipline. Students should consult with their Italian advisor to assist in selecting a program of courses. Other equivalent courses may be accepted with permission of an Italian advisor and the chair of the Department of Romance Languages and Linguistics.

**Category A - Courses in Italian**

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>At least fifteen credits in courses taught in Italian at the 100-level or higher</td>
</tr>
</tbody>
</table>

One course from the following may be applied to this category:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 197</td>
<td>Readings &amp; Research</td>
</tr>
<tr>
<td>ITAL 198</td>
<td>Readings &amp; Research</td>
</tr>
</tbody>
</table>

A college Honors Thesis may be applied to this category if written in Italian.

**Category B - Significant Italian Content**

Up to eighteen credits from among the following courses:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>ARTH 149, Roman Art</td>
</tr>
<tr>
<td></td>
<td>ARTH 162, Italian Early Renaissance Art</td>
</tr>
<tr>
<td></td>
<td>ARTH 163, Italian High and Late Ren Art</td>
</tr>
<tr>
<td></td>
<td>CLAS 023, Classical Roman Civilization</td>
</tr>
<tr>
<td></td>
<td>CLAS 035, The End of the Roman Republic</td>
</tr>
<tr>
<td></td>
<td>CLAS 037, Early Roman Empire: Lit Trans</td>
</tr>
<tr>
<td></td>
<td>CLAS 042, Mythology</td>
</tr>
<tr>
<td></td>
<td>CLAS 122, History of Rome</td>
</tr>
</tbody>
</table>

Up to six credits of Latin language/literature at any level

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>ENGS 163, Topics:20C American Studies (if significant Italian content)</td>
</tr>
<tr>
<td></td>
<td>HST 125, The Renaissance</td>
</tr>
<tr>
<td></td>
<td>MU 128, Opera Workshop</td>
</tr>
<tr>
<td></td>
<td>MU 228, Opera Workshop</td>
</tr>
<tr>
<td></td>
<td>PHIL 105, History of Medieval Philosophy</td>
</tr>
<tr>
<td></td>
<td>REL 124, Christianity</td>
</tr>
<tr>
<td></td>
<td>THE 150, Hist I:Class/Med/Ren Thtr</td>
</tr>
<tr>
<td></td>
<td>WLIT 013, Italian Lit in Translation</td>
</tr>
<tr>
<td></td>
<td>WLIT 113, Italian Lit in Translation</td>
</tr>
<tr>
<td></td>
<td>WLIT 122, Dante’s Comedy</td>
</tr>
</tbody>
</table>

A college Honors Thesis may be applied to this category if written in English.

**Category C - Partial Italian Content**

Up to nine credits from among the following courses:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>ARTH 005, Western Art:Ancient - Medieval</td>
</tr>
<tr>
<td></td>
<td>ARTH 006, Western Art:Renaissance-Modern</td>
</tr>
<tr>
<td></td>
<td>ARTH 155, Topics in Medieval Art (Category B if significant Italian Content)</td>
</tr>
<tr>
<td></td>
<td>CLAS 154, Stories and Histories</td>
</tr>
</tbody>
</table>
LINGUISTICS B.A.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

This page also includes specific requirements for the four Linguistics concentrations:

- Sociolinguistics Concentration (p. 252)
- Psycholinguistics Concentration (p. 252)
- Language Studies Concentration (p. 252)
- Formal Linguistics Concentration (p. 252)

MAJOR REQUIREMENTS

Thirty-three credits, including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 080</td>
<td>Introduction to Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>Choose three of the following:</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>LING 165</td>
<td>Phonetic Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>LING 166</td>
<td>Introduction to Syntax</td>
<td></td>
</tr>
<tr>
<td>LING 168</td>
<td>Introduction to Pragmatics</td>
<td></td>
</tr>
<tr>
<td>LING 169</td>
<td>Phonology &amp; Morphology</td>
<td></td>
</tr>
<tr>
<td>Twelve credits of linguistics electives</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Nine credits of concentration courses</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 084</td>
<td>Language &amp; Arabic Culture</td>
<td>3</td>
</tr>
<tr>
<td>LING 135</td>
<td>D1: Language &amp; Ethnicity</td>
<td>3</td>
</tr>
<tr>
<td>LING 162</td>
<td>American English Dialects</td>
<td>3</td>
</tr>
<tr>
<td>LING 176</td>
<td>D1: African American English</td>
<td>3</td>
</tr>
<tr>
<td>LING 178</td>
<td>Sociolinguistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Psycholinguistics Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSD 094</td>
<td>Dev of Spoken Language</td>
<td>3</td>
</tr>
<tr>
<td>CSD 208</td>
<td>Cognition &amp; Language</td>
<td>3</td>
</tr>
<tr>
<td>CSD 281</td>
<td>Cognitive Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>LING 171</td>
<td>Intro to Psycholinguistics</td>
<td>3</td>
</tr>
<tr>
<td>LING 177</td>
<td>Second Language Acquisition</td>
<td>3</td>
</tr>
</tbody>
</table>

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. 339)

All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS

A minimum of thirty-three credits of courses numbered above the 100-level of which: twelve must be in literature and eighteen must be in courses numbered above 200. Required courses among those thirty-three credits:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 140</td>
<td>Analyzing Hispanic Literatures</td>
<td>3</td>
</tr>
<tr>
<td>Three credits in Latin-American literature:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SPAN 142</td>
<td>Intro To Lit Spanish America</td>
<td></td>
</tr>
<tr>
<td>SPAN 274</td>
<td>Latin-American Poetry</td>
<td></td>
</tr>
<tr>
<td>SPAN 279</td>
<td>Performance and Politics</td>
<td></td>
</tr>
<tr>
<td>SPAN 281</td>
<td>Contemp Spanish-Amer Fiction</td>
<td></td>
</tr>
</tbody>
</table>
**SPAN 286**  Writing Revolution-Latin Amer  
**SPAN 287**  Early Span Narratives Americas  
**SPAN 287**  Early Span Narratives Americas  
Or Special Topics  
Three credits in Spanish Peninsular Literature:  
**SPAN 141**  Intro To Literature of Spain  
**SPAN 236**  Poetic Voices/Cultural Change  
**SPAN 237**  Issues in Early Spanish Lit  
**SPAN 250**  Dilemmas of Mdnrty in Span Lit  
**SPAN 252**  Span Lit:Dictatorshp-Democracy  
Or Special Topics  
Three credits in culture or the arts:  
**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  
**SPAN 299**  Topics in Hispanic Cultures  
At least one of the literature courses must be a survey:  
**SPAN 141**  Intro To Literature of Spain  
**SPAN 142**  Intro To Lit Spanish America  
One of the literature or culture courses must be devoted to a pre-1800 topic, examples are:  
**SPAN 236**  Poetic Voices/Cultural Change  
**SPAN 237**  Issues in Early Spanish Lit  
**SPAN 287**  Early Span Narratives Americas  
**SPAN 291**  Early Cultures of Spain  
**SPAN 293**  Early Latin-American Cultures  
Or Special Topics

---

1 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 101</td>
<td>Writing Workshop</td>
<td>3</td>
</tr>
<tr>
<td>or FREN 132</td>
<td>Contemporary France</td>
<td></td>
</tr>
<tr>
<td>FREN 141</td>
<td>French Lit in Context I (one 100-level literature course)</td>
<td>3</td>
</tr>
<tr>
<td>or FREN 142</td>
<td>French Lit in Context II</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 197</td>
<td>Readings &amp; Research</td>
<td>1-6</td>
</tr>
<tr>
<td>FREN 198</td>
<td>Readings &amp; Research</td>
<td>1-6</td>
</tr>
<tr>
<td>FREN 297</td>
<td>Advanced Readings &amp; Research</td>
<td>1-6</td>
</tr>
<tr>
<td>FREN 298</td>
<td>Advanced Readings &amp; Research</td>
<td>1-6</td>
</tr>
</tbody>
</table>

**PRE/CO-REQUISITES**

Through FREN 052

**ITALIAN MINOR REQUIREMENTS**

Eighteen credits in courses taught in the Italian language and numbered 100 or above

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 197</td>
<td>Readings &amp; Research</td>
<td>1-6</td>
</tr>
<tr>
<td>ITAL 198</td>
<td>Readings &amp; Research</td>
<td>1-6</td>
</tr>
</tbody>
</table>

**RESTRICTIONS**

Ineligible Major: Italian

May not be counted toward a minor:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 197</td>
<td>Readings &amp; Research</td>
<td>1-6</td>
</tr>
<tr>
<td>ITAL 198</td>
<td>Readings &amp; Research</td>
<td>1-6</td>
</tr>
</tbody>
</table>

**PRE/CO-REQUISITES**

Through ITAL 052

**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.

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.

---

253
ITALIAN STUDIES MINOR

REQUIREMENTS
Eighteen credits of which at least nine credits must be at the 100-level or above from the following categories:

<table>
<thead>
<tr>
<th>Category A - Courses in Italian</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least six credits in courses taught in Italian at the 100-level or above</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category B - Significant Italian content</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to twelve credits from among the courses listed under Category B in the description of the Italian Studies major</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category C - Partial Italian content</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>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</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>LING 080</th>
<th>Introduction to Linguistics</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fifteen additional credits of Linguistics courses:</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

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

PSYC 109 or PSYC 161 (or permission) required for CSD 208

PSYC 001 and either PSYC 109 or PSYC 130 required for PSYC 236 and PSYC 237

SPANISH MINOR

REQUIREMENTS
Eighteen credits in Spanish in courses at the 100-level or above, of which nine must be in courses at or above the 200-level. Courses to include:

<table>
<thead>
<tr>
<th>Category A - Six credits of advanced language study from:</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 101 Composition &amp; Conversation</td>
<td></td>
</tr>
<tr>
<td>SPAN 105 Phonetics &amp; Phonology</td>
<td></td>
</tr>
<tr>
<td>SPAN 109 Spanish Grammar</td>
<td></td>
</tr>
<tr>
<td>SPAN 201 Adv Composition &amp; Conversation</td>
<td></td>
</tr>
<tr>
<td>SPAN 202 Topics in Spanish Lang Study</td>
<td></td>
</tr>
</tbody>
</table>

| Category B - Six credits of literature (three of those credits must be in SPAN 140) | 6 |
| Category C - Six additional elective credits. | 6 |

RESTRICTIONS
Ineligible Major: Spanish

No more than six credits from Category A may be counted toward the minor.

May not be counted toward the minor:

<table>
<thead>
<tr>
<th>SPAN 197</th>
<th>Readings &amp; Research</th>
<th>1-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 198</td>
<td>Readings &amp; Research</td>
<td>1-6</td>
</tr>
<tr>
<td>SPAN 297</td>
<td>Advanced Readings &amp; Research</td>
<td>1-6</td>
</tr>
<tr>
<td>SPAN 298</td>
<td>Advanced Readings &amp; Research</td>
<td>1-6</td>
</tr>
</tbody>
</table>

PRE/CO-REQUISITES

Through SPAN 052

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.

DEPARTMENT OF SOCIOLOGY

http://www.uvm.edu/~soceval/

Have you ever talked about "role models" or "self-fulfilling prophecies?" Have you ever said to someone "it’s not what you know,
it’s who you know?” Have you ever talked about “glass ceilings?” If you’ve used any of these ideas, you’ve used sociology. These 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 between 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. 255)

**MINORS**

**SOCIOLOGY MINORS**

Gerontology (p. 255)

Sociology (p. 256)

**SOCIOLOGY B.A.**

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 196)

Specific requirements for an optional concentration is included on this page:

Concentration in Social Gerontology (p. 255)

**MAJOR REQUIREMENTS**

Thirty-one credits in sociology including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 001</td>
<td>Introduction to Sociology <strong>1</strong></td>
<td>3</td>
</tr>
<tr>
<td>SOC 100</td>
<td>Fund of Social Research <strong>1</strong></td>
<td>4</td>
</tr>
<tr>
<td>SOC 101</td>
<td>Developmnt Sociological Theory <strong>1</strong></td>
<td>3</td>
</tr>
<tr>
<td>STAT 051</td>
<td>Probability With Statistics (or higher which is required as a prerequisite for taking SOC 100)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Nine additional credits at the 100-level</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Nine credits at the 200-level</td>
<td>9</td>
</tr>
</tbody>
</table>

Students planning postgraduate training in sociology or related areas are strongly encouraged to take at least two courses from the advanced Theory/Methods area:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 274</td>
<td>Qualitative Research Methods</td>
</tr>
<tr>
<td>SOC 275</td>
<td>Meth of Data Anly in Soc Rsch</td>
</tr>
<tr>
<td>SOC 279</td>
<td>Contemporary Sociological Thry</td>
</tr>
</tbody>
</table>

Only three credits of the following courses may count toward the 200-level requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 285</td>
<td>Internship</td>
</tr>
<tr>
<td>SOC 286</td>
<td>Internship</td>
</tr>
<tr>
<td>SOC 288</td>
<td>Rsch Meth Teaching Sociology</td>
</tr>
<tr>
<td>SOC 289</td>
<td>Rsch Meth Teaching Sociology</td>
</tr>
</tbody>
</table>

**Concentration in Social Gerontology**

Twelve credits in Social Gerontology including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 020</td>
<td>Aging: Change &amp; Adaptation</td>
<td>3</td>
</tr>
<tr>
<td>SOC 120</td>
<td>Aging in Modern Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 220</td>
<td>Internship in Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>or SOC 222</td>
<td>Aging &amp; Ethical Issues</td>
<td>3</td>
</tr>
<tr>
<td>SOC 154</td>
<td>Social Org of Death &amp; Dying</td>
<td>3</td>
</tr>
<tr>
<td>or SOC 254</td>
<td>Sociology of Health &amp; Medicine</td>
<td></td>
</tr>
<tr>
<td>or SOC 255</td>
<td>Soc of Mental Health</td>
<td></td>
</tr>
</tbody>
</table>

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):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 020</td>
<td>Aging: Change &amp; Adaptation</td>
<td></td>
</tr>
<tr>
<td>or HDFS 020</td>
<td>Aging:Change &amp; Adaptation</td>
<td></td>
</tr>
<tr>
<td>SOC 120</td>
<td>Aging in Modern Society</td>
<td></td>
</tr>
<tr>
<td>SOC 220</td>
<td>Internship in Gerontology</td>
<td></td>
</tr>
<tr>
<td>SOC 222</td>
<td>Aging &amp; Ethical Issues</td>
<td></td>
</tr>
</tbody>
</table>

**Electives (six credits):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 189</td>
<td>D2:Aging in Cross-Cultrl Persp</td>
<td>6</td>
</tr>
</tbody>
</table>
HDFS 266  Seminar in Human Development
HDFS 152  Biology of Aging
SOC 154  Social Org of Death & Dying
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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 001</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 090</td>
<td>Intro to Soc Theory/Methods</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Nine additional credits at the 100-level</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Three credits at any level</td>
<td>3</td>
</tr>
</tbody>
</table>

RESTRICTIONS
Ineligible Major: Sociology

PRE/CO-REQUISITES
Choose one of the following sequences:

SOC 001  Introduction to Sociology
SOC 090  Intro to Soc Theory/Methods

SOC 001  Introduction to Sociology
SOC 101  Developm't Sociological Theory

SOC 001 and either SOC 090, SOC 100 or SOC 101, or instructor’s permission, is a prerequisite 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. 256)

MINORS
THEATRE MINORS
Speech and Debate (p. 256)
Theatre (p. 257)

THEATRE B.A.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 196)

MAJOR REQUIREMENTS
A total of forty-two credits to include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE 010</td>
<td>Acting I: Intro to Acting</td>
<td>3</td>
</tr>
<tr>
<td>THE 020</td>
<td>Fundamentals of Lighting</td>
<td>4</td>
</tr>
<tr>
<td>THE 030</td>
<td>Fundamentals of Scenery</td>
<td>4</td>
</tr>
<tr>
<td>THE 040</td>
<td>Fundamentals of Costuming</td>
<td>0 or 4</td>
</tr>
<tr>
<td>THE 050</td>
<td>Dramatic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>THE 150</td>
<td>Hist I:Class/Med/Ren Thtr</td>
<td>3</td>
</tr>
<tr>
<td>THE 252</td>
<td>History II:17th - 21st Century</td>
<td>3</td>
</tr>
<tr>
<td>THE 284</td>
<td>Seminar</td>
<td>3</td>
</tr>
<tr>
<td>THE 190</td>
<td>Theatre Practicum</td>
<td>3</td>
</tr>
</tbody>
</table>

Twelve additional credits (four courses, two of which must be at the 100-level or above)

SPEECH AND DEBATE MINOR
REQUIREMENTS
Eighteen credits to include:
Choose nine credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPCH 011</td>
<td>Effective Speaking</td>
</tr>
<tr>
<td>SPCH 031</td>
<td>Argument &amp; Decision</td>
</tr>
<tr>
<td>SPCH 051</td>
<td>Persuasion</td>
</tr>
<tr>
<td>SPCH 071</td>
<td>Fundamentals of Debate</td>
</tr>
<tr>
<td>SPCH 072</td>
<td>Citizen Advocacy &amp; Debate</td>
</tr>
<tr>
<td>SPCH 082</td>
<td>African American Rhetoric</td>
</tr>
<tr>
<td>SPCH 083</td>
<td>Rhetoric of Reggae Music</td>
</tr>
</tbody>
</table>

Nine credits at or above the 100-level 9

THEATRE MINOR

REQUIREMENTS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE 050</td>
<td>Dramatic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>THE 150</td>
<td>Hist I: Class/Med/Ren Thtr</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose two of the following: 7-8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE 010</td>
<td>Acting I: Intro to Acting</td>
</tr>
<tr>
<td>THE 020</td>
<td>Fundamentals of Lighting</td>
</tr>
<tr>
<td>THE 030</td>
<td>Fundamentals of Scenery</td>
</tr>
<tr>
<td>THE 040</td>
<td>Fundamentals of Costuming</td>
</tr>
</tbody>
</table>

Two additional three credit courses above level 100 6

RESTRICTIONS

Ineligible Major: Theatre
BUSINESS ADMINISTRATION

http://www.uvm.edu/business/

The School of Business Administration at the University of Vermont prepares students to be business leaders in a complex and dynamic global environment. To accomplish this, we cultivate awareness of the importance of creating sustainable businesses that value ethical, social, and environmental responsibilities. We infuse innovation and leadership in our curriculum, and develop graduates who are skilled at identifying problems and opportunities, and who make decisions based on adept analysis. Our faculty strive to achieve teaching excellence, promote thought leadership, and advance management practice.

LEARNING GOALS AND OBJECTIVES

The faculty and staff are committed to developing leaders prepared for a dynamic, global workplace. Our curriculum is designed to support the following learning outcomes:

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. They partially complete general education requirements and learn required skills for upper level business courses. Students take Business Field courses and/or Interdisciplinary Theme courses in the junior year and Interdisciplinary Theme or Business Concentration courses in their junior and senior years.

The School of Business Administration cooperates with the College of Engineering and Mathematical Sciences in offering a B.S. in Engineering Management. The school offers two minors: a minor in Accounting, and a minor in Business Administration.

The undergraduate and graduate programs offered by the school are accredited by AACSB International: the International Association to Advance Collegiate Schools of Business.

The offices of the School of Business Administration are located in Kalkin Hall.

STUDY ABROAD

Students interested in global business as a future career are expected to participate in a study abroad experience. The university participates in a number of exchange programs with institutions around the world. It is also possible for students to spend a semester at other approved international universities. It is recommended that students complete BSAD 120, BSAD 150, and BSAD 180 before going abroad.

MAJORS

- Business Administration B.S.BA. (p. 259)

MINORS

- Accounting (p. 261)
- Business Administration (p. 262)

GRADUATE

Business Administration MBA

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

REQUIREMENTS

SCHOOL OF BUSINESS ADMINISTRATION

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 50 credits of course work must be taken in subjects other than business. Students must complete 30 of the last 45 credits in residence at UVM as a matriculated student.

A Basic Business Core grade-point average of 2.25 with no one grade lower than a C- is required by the completion of 60 credits in order to remain enrolled in the School of Business Administration.
The Business Field requirements, the Interdisciplinary Theme courses, and the optional Business Concentration courses must be filled with at least 50 percent of business administration courses taken at UVM. The Business Field courses, the Interdisciplinary Theme courses, and the optional Business Concentration courses must be completed with a 2.00 grade-point average or higher. Other UVM courses may be used towards these requirements if approved by the Undergraduate Studies committee.

Students choosing a Global Business interdisciplinary theme may take business credits at an approved institution abroad. However, they will be required to complete 75 percent of their Business Field course credits in UVM business courses or in other UVM courses approved by the Undergraduate Studies committee.

MOBILE COMPUTING REQUIREMENT

Students are asked to purchase a portable computer and the software suite that meets the requirements of the School of Business Administration.

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 TO BUSINESS ADMINISTRATION

Students planning to transfer to the School of Business Administration from another college or school on campus must meet the prerequisite requirements. Internal Transfer applicants must complete MATH 019 and MATH 020 (Calculus I and II) and EC 011 and EC 012 (Macro and Micro Economics) before being considered for transfer. Applications may be found on the School of Business Administration website.

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 within the time frame stipulated in the dismissal letter if there are circumstances supporting an extension of trial status. Detailed information on the criteria for dismissal may be obtained from the School of Business Administration Student Services office.

Regulations Governing Academic Standards

The following are criteria for academic trial. Allowances for the student in the first semester are designed to encourage academic work of quality at least equal to the minimum required for graduation.

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.

2. 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 will be dismissed for low scholarship. The period of dismissal is one year. Dismissed students must receive prior written approval from the School of Business Administration Student Services office before enrolling in any university course.

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 the School of Business Administration Student Services office.

BUSINESS ADMINISTRATION B.S.BA.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 258)

MAJOR REQUIREMENTS

Bachelor of Science in Business Administration with interdisciplinary themes of:
- Entrepreneurship
- Global Business
- Sustainable Business

BASIC BUSINESS CORE

Thirty-one to thirty-three credits. To be completed by the end of the sophomore year or the completion of 60 credits, with a grade-point average of at least 2.25 and no grade lower than C-. If a student does
not successfully meet these criteria s/he will be required to transfer out of the School of Business Administration.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 019 &amp; MATH 020</td>
<td>Fundamentals of Calculus I and Fundamentals of Calculus II</td>
<td>4-6</td>
</tr>
<tr>
<td>or MATH 021</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>EC 011</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EC 012</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 010</td>
<td>The Business Enterprise</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 015</td>
<td>Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 025</td>
<td>Sustainable Bus Strategies</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 030</td>
<td>Decision Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 060</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 061</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>

**BUSINESS FIELD COURSES**

Fifteen credits. Students must have junior status and have completed the Basic Business Core before taking Business Field courses. The Business Field Courses must be completed with a grade-point average of at least 2.00.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 120</td>
<td>Leadership &amp; Org Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 141</td>
<td>Info, Technology &amp; Bus Systems</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 150</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 173</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 180</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
</tbody>
</table>

**BUSINESS INTERDISCIPLINARY THEME COURSES**

All students must choose one of the following interdisciplinary themes by their junior year:

- Entrepreneurship
- Global Business
- Sustainable Business

All students must complete four (4) courses within their chosen theme, including one interdisciplinary “capstone” course in the fourth year. Students are required to earn a grade-point average of at least 2.00 in these four courses.

**OPTIONAL BUSINESS CONCENTRATION**

Students have the option to pursue a second concentration in a specific discipline (e.g., accounting, business analytics, finance or marketing). The student must complete the requirements of the specific concentration. They must earn twelve credits with a grade-point average of at least 2.00. Students may be permitted to combine Interdisciplinary Theme courses and electives to complete the concentration.

- Business Concentrations:
  - Accounting
  - Business Analytics
  - Finance
  - Marketing

**Accounting Concentration**

A student who plans to become a Certified Public Accountant (CPA) may complete an Accounting undergraduate concentration plus the Master’s of Accountancy (MAcc) in a fifth year. The MAcc fulfills the 150 credit requirement of the American Institute of Certified Public Accountants (see the Graduate Catalogue for additional information on the MAcc). The specific requirements to sit for the CPA examination vary among states. Students who plan to sit for the CPA exam are advised to contact the Board of Accountancy for the state in which they plan to work.

The Accounting concentration consists of twelve credits of accounting course work:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 161</td>
<td>Intermediate Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 162</td>
<td>Intermediate Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>Two other accounting courses to be selected in consultation with the student’s accounting faculty advisor</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**BASIC GENERAL EDUCATION CORE**

At least nineteen credits; six courses. Each requirement must be filled with a course worth at least three credits. The laboratory science requirement is four credits. One from each of the following:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>History course (any below 100-level)</td>
<td>3</td>
</tr>
<tr>
<td>English course that emphasizes practice in writing from:</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td></td>
</tr>
<tr>
<td>ENGS 050 Expository Writing</td>
<td></td>
</tr>
<tr>
<td>ENGS 053 Intro to Creative Writing</td>
<td></td>
</tr>
<tr>
<td>ENGS 120 Writer’s Workshop</td>
<td></td>
</tr>
<tr>
<td>Or the First Year Honors College Seminar</td>
<td></td>
</tr>
<tr>
<td>Social Science from anthropology, economics, environmental studies, geography, political science, psychology, sociology, and Gender, Sexuality, and Women’s Studies</td>
<td>3</td>
</tr>
<tr>
<td>Language or Literature from Arabic, Chinese, American Sign Language, French, German, Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish or any English or World Literature course</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science that includes a laboratory or field experience from:</td>
<td>4.5</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>ASTR 005 &amp; ASTR 023</td>
<td>Exploring the Cosmos and Astr Lab I: Measuring the Sky</td>
</tr>
<tr>
<td>BIOL 001</td>
<td>Principles of Biology</td>
</tr>
<tr>
<td>BIOL 004 &amp; BIOL 014</td>
<td>The Human Body and The Human Body Laboratory</td>
</tr>
<tr>
<td>BIOL 002</td>
<td>Principles of Biology</td>
</tr>
<tr>
<td>BIOL 003 &amp; BIOL 013</td>
<td>Human Biology and Human Biology Laboratory</td>
</tr>
<tr>
<td>CHEM 023</td>
<td>Outline of General Chemistry</td>
</tr>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 035</td>
<td>General Chemistry for Majors 1</td>
</tr>
<tr>
<td>GEOL 001</td>
<td>Earth System Science</td>
</tr>
<tr>
<td>GEOL 055</td>
<td>Environmental Geology</td>
</tr>
<tr>
<td>NR 001</td>
<td>Natural Hist &amp; Field Ecology</td>
</tr>
<tr>
<td>PHYS 011 &amp; PHYS 021</td>
<td>Elementary Physics and Introductory Lab I</td>
</tr>
<tr>
<td>PSS 010 &amp; PSS 015</td>
<td>Home &amp; Garden Horticulture and Home &amp; Garden Horticulture Lab</td>
</tr>
<tr>
<td>PBIO 004</td>
<td>Intro to Botany</td>
</tr>
</tbody>
</table>

Note: Cross-listed courses may count for only one Basic General Education Core requirement. Any course which meets a business requirement cannot also meet a Basic General Education Core requirement.

**REQUIRED MINOR**

A student must complete a minor in a discipline outside the School of Business Administration by fulfilling the requirements specified by the department or program supervising the minor. A student must earn a cumulative grade-point average of 2.00 in the courses used to complete the minor and half of these courses must be completed at UVM. One course from the Basic General Education Core requirements may be used toward the completion of the minor.

The student must contact the appropriate department to obtain more information and declare the minor online through the UVM registrar’s website. Minors in psychology, and in Film and Television Studies are restricted to students enrolled in the College of Arts and Sciences. The following minors through Community Development and Applied Economics are also restricted: Community Entrepreneurship, Public Communications, Consumer and Advertising. Please consult with your faculty advisor to select an appropriate minor.

**DIVERSITY REQUIREMENT**

The University of Vermont has a six credit diversity requirement. For students enrolled in the School of Business Administration, three credits must be completed from the offerings in the Race and Racism category, and three credits should be selected from either the Race and Racism in the U.S. or the Human and Societal Diversity category.

**ELECTIVES**

Students need to take at least 50 elective credits outside of the School of Business Administration. The rest of their electives can be taken from either inside or outside of the school.

**Restrictions on Electives**

1. No credit will be granted for PEAC (physical education activity courses).

2. No credit will be granted for a course that substantially duplicates material in courses offered in business administration or in other previously completed courses.
   - Students cannot receive credit for both CS 014 and BSAD 142.
   - Students cannot receive credit for a course that is prerequisite knowledge for a course already completed, for example FREN 001 after FREN 002.
   - Students cannot receive credit for a course offered in another department that substantially duplicates material in business administration.
   - Students cannot earn credit for both CDAE 127 and BSAD 153.
   - Students cannot earn credit for both CDAE 128 and BSAD 155.
   - Credit cannot be received for CDAE 167 if taken after BSAD 180.
   - Credit cannot be received for CDAE 168 if taken after BSAD 150.
   - Credit cannot be received for CS 042; CDAE 169 or CDAE 266.

3. See Student Services for a list of restrictions.

**GRADUATE**

Accountancy AMP

Accountancy M.Acc.

Business Administration MBA

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information

**ACCOUNTING MINOR REQUIREMENTS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 161</td>
<td>Intermediate Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 162</td>
<td>Intermediate Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>An additional two accounting courses of at least three credits each numbered above BSAD 162</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
RESTRICTIONS
Ineligible Major: Business Administration

PRE/CO-REQUISITES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC 011</td>
<td>Principles of Macroeconomics ¹</td>
<td>3</td>
</tr>
<tr>
<td>EC 012</td>
<td>Principles of Microeconomics ¹</td>
<td>3</td>
</tr>
<tr>
<td>MATH 019</td>
<td>Fundamentals of Calculus I ¹</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 021</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods ¹,²</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 060</td>
<td>Financial Accounting ³</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 061</td>
<td>Managerial Accounting ³</td>
<td>3</td>
</tr>
</tbody>
</table>

¹ EC 011, EC 012, MATH 019 or MATH 021, and STAT 141 must be completed with an overall GPA of 2.00 or higher.
² EC 170, NR 140, STAT 143, or completion of both PSYC 109 and PSYC 110 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.

OTHER INFORMATION

Mobile Computing Requirement

Students are asked to purchase a portable computer and the software suite that meets the requirements of the School of Business Administration.

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 060</td>
<td>Financial Accounting</td>
</tr>
</tbody>
</table>

Choose one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 120</td>
<td>Leadership &amp; Org Behavior</td>
</tr>
<tr>
<td>BSAD 132</td>
<td>Political Environ of Business</td>
</tr>
<tr>
<td>BSAD 141</td>
<td>Info, Technology &amp; Bus Systems</td>
</tr>
<tr>
<td>BSAD 150</td>
<td>Marketing Management</td>
</tr>
<tr>
<td>BSAD 173</td>
<td>Operations Management</td>
</tr>
<tr>
<td>BSAD 180</td>
<td>Managerial Finance</td>
</tr>
</tbody>
</table>

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.

RESTRICTIONS
Ineligible Major: Business Administration

PRE/CO-REQUISITES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC 011</td>
<td>Principles of Macroeconomics ¹</td>
<td>3</td>
</tr>
<tr>
<td>EC 012</td>
<td>Principles of Microeconomics ¹</td>
<td>3</td>
</tr>
<tr>
<td>MATH 019</td>
<td>Fundamentals of Calculus I ¹</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 021</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods ¹,²</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 060</td>
<td>Financial Accounting ³</td>
<td>3</td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods ¹,²</td>
<td>3</td>
</tr>
</tbody>
</table>

¹ EC 011, EC 012, MATH 019 or MATH 021, and STAT 141 must be passed with a cumulative GPA of at least 2.00
² EC 170, NR 140, STAT 143, or completion of both PSYC 109 and PSYC 110 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 School of Business Administration.

Computer Competency

Students are presumed to have basic microcomputer literacy, including working knowledge of word processing and spreadsheet software. Students lacking this basic knowledge are responsible for attaining it through course work, self study, tutorials or workshops.
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, Social Work, and Teacher Education (Art, Early Childhood Education, Early Childhood Special Education, Elementary, Middle Level, Music, Physical Education, and Secondary Education). First-year students may elect an Undecided major while exploring the above options within the college. All programs require course work in the liberal arts and sciences along with professional preparation through courses and internships in school and community settings.

Enrolled UVM students wanting to transfer to CESS should complete the online transfer form available on the CESS Student Services Office website. Students enrolled in appropriate programs in other academic units may apply to complete 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 licensure 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.

MAJORS
- Human Development and Family Studies B.S. (p. 278)
- Social Work B.S. (p. 280)
- Teacher Education: Art Education (PreK-Grade 12) B.S.AE. (p. 265)
- Teacher Education: Early Childhood Education (Birth-Grade 3) B.S. (p. 266)
- Teacher Education: Early Childhood Special Education (Birth-Age 6) B.S. (p. 268)
- Teacher Education: Elementary Education (K-Grade 6) B.S.Ed. (p. 269)
- Teacher Education: Middle Level Education (Grades 5-9) B.S.Ed. (p. 271)
- Teacher Education: Music Education (Pre-K- Grade 12) B.S.MS. (p. 273)
- Teacher Education: Physical Education (Pre-K- Grade12) B.S.Ed. (p. 274)
- Teacher Education: Secondary Education (Grades 7-12) B.S.Ed. (p. 275)

MINORS
- Coaching (p. 277)
- Human Development and Family Studies (p. 280)
- Special Education (p. 277)

REQUIREMENTS

Students must meet standards and requirements for each program approved by the College Academic Affairs committee, the college faculty, the dean, and the University Academic Affairs committee. Nine of the CESS undergraduate majors are nationally accredited and meet the standards of their professional group as follows:
- Social Work by the Council on Social Work Education (CSWE)
- Teacher Education programs by 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 may be required by individual agencies to complete the CRC to be eligible for a placement in a specific agency. It is also important to note that membership in professional associations upon graduation, at least in the case of most social work organizations, typically requires a criminal background check as does employment in an ever-increasing number of human service agencies.

REGULATIONS

ACADEMIC PERFORMANCE DISCIPLINARY ACTION

A student, regardless of class standing, is subject to academic disciplinary action, including 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 course work in a given semester.

Students who do not follow course requirements or who have not earned the required grade-point-average for their program of study will be warned of pending disenrollment. If a student remains on academic disciplinary action for two (2) successive semesters, a student will be reviewed for disenrollment or dismissal from the CESS.
Students with unsatisfactory academic records 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 criteria for admittance into the professional portion of their enrolled program, for a teaching internship placement, as well as for licensure recommendation.

**REQUIREMENTS FOR TEACHER PREPARATION PROGRAMS**

**Candidacy**

The professional programs begin with the student enrolling in the College of Education and Social Services as a candidate for licensure. Candidacy status is the stage prior to acceptance into the Professional Education sequence and, for some programs, may also be available to students enrolled in other colleges at UVM.

**Intercollege Transfer**

Students transferring to the College of Education and Social Services for any Teacher Education program is required to have a minimum overall grade-point average of 2.50 or higher and it must be possible to earn an overall grade-point average of 3.00 before reaching student teaching and program completion.

**Academic Major/Major Concentration**

All students who enroll in a Teacher Education program are required to complete a thirty credit (minimum) academic major/major concentration in the liberal arts and sciences. 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 major/major concentration.

Students are encouraged to meet with their academic advisor prior to the selection of an Academic Major/Major Concentration.

- Students in Art Education and Music Education have the Major Concentration embedded throughout the plan of study.
- Students in Elementary Education must complete content area coursework (Major Concentration) in English/Language Arts, Mathematics, Science and Social Studies.
- Students in Middle Level Education complete an Individually Designed Interdisciplinary Major Concentration (IDIMC) which consists of two Highly Qualified Teacher (HQT) content areas (English, mathematics, social studies, science).
- Students in Secondary Education complete an Academic Major and may also complete an minor.

- Students in Early Childhood, Early Childhood Special Education, and Physical Education complete a Major Concentration.

**Portfolio Development and Professional Licensure**

In accordance with the Standards for Vermont Educators (Vermont State Board of Education, 1991), students seeking a license to teach must develop documentation that they can perform in ways that address state standards. Each candidate must assemble that documentation in a pre-professional portfolio according to program guidelines. While students have candidacy status, they should maintain a file which includes all materials from courses completed so that selected items can be included in the portfolio. Portfolio preparation will be reviewed with students at various points in each program.

**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 the CESS; and students in other colleges on campus who plan to maintain their primary affiliation with their home college while completing the SDE approved requirements in the CESS.

**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 appeal through the College Student Affairs Committee.
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 Education 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 appeal for conditional placement.

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. 265)
Teacher Education: Early Childhood Education (Birth-Grade 3) B.S. (p. 266)
Teacher Education: Early Childhood Special Education (Birth-Age 6) B.S. (p. 268)
Teacher Education: Elementary Education (K- Grade 6) B.S.Ed. (p. 269)
Teacher Education: Middle Level Education (Grades 5-9) B.S.Ed. (p. 271)
Teacher Education: Music Education (Pre-K-Grade 12) B.S.MS. (p. 273)
Teacher Education: Physical Education (Pre-K-Grade 12) B.S.Ed. (p. 274)
Teacher Education: Secondary Education (Grades 7-12) B.S.Ed. (p. 275)

MINORS
EDUCATION MINORS
Coaching (p. 277)
Special Education (p. 277)

GRADUATE
Post-Baccalaureate Teacher Preparation (http://catalog.uvm.edu/undergraduate/educationandsocialservices/education/postbacteacherprep)
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://catalog.uvm.edu/graduate) for more information.

TEACHER EDUCATION / ART EDUCATION (GRADES PREK-12) B.S.AE.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 263)
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

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>HDFS 005 Human Development</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 001 Drawing (Studio Art Foundation)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 005 Western Art: Ancient - Medieval (Art History)</td>
<td>3</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>6</td>
</tr>
<tr>
<td>ARTS 012 Perspectives on Art Making</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 006 Western Art: Renaissance-Modern (Art History)</td>
<td>3</td>
</tr>
<tr>
<td>EDSP 005 D2: Iss Aff Persons W/Disabil</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>Diversity Course</td>
<td>3</td>
</tr>
<tr>
<td>Studio Art</td>
<td>6</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>6</td>
</tr>
<tr>
<td>Art History Elective</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EDAR 177 Curriculum &amp; Pract in Elem Art</td>
<td>4</td>
</tr>
<tr>
<td>Elective¹</td>
<td>3</td>
</tr>
<tr>
<td>EDAR 178 Curriculum&amp;Pact Middle/HS Art</td>
<td>4</td>
</tr>
<tr>
<td>Studio Art</td>
<td>6</td>
</tr>
<tr>
<td>EDAR 283 Current Issues in Art &amp; Ed</td>
<td>3</td>
</tr>
<tr>
<td>EDAR 284 Current Issues in Art &amp; Ed</td>
<td>3</td>
</tr>
</tbody>
</table>

Art History Elective | 3 |
Year Total: | 17 | 15 |

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EDFS 203 Soc, Hst &amp; Phil Found of Educ</td>
<td>3</td>
</tr>
<tr>
<td>Studio Art²</td>
<td>6</td>
</tr>
<tr>
<td>Electives¹</td>
<td>6</td>
</tr>
<tr>
<td>EDSC 226 Teaching Internship</td>
<td>12</td>
</tr>
<tr>
<td>EDSC 230 Teaching for Results</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
</tbody>
</table>

**Total Credits in Sequence:** 122

¹ 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.
² 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. 339)

All students must meet the College Requirements. (p. 263)

The Early Childhood program is designed to provide students with the perspectives, knowledge and skills necessary to work with families and children from birth through grade 3 in a variety of classroom and community-based settings. Students will learn to:

- Develop an understanding of social constructivism as it relates to teaching and learning;
- Facilitate all domains of children’s development;
- Promote young children’s knowledge, skills and literacy across all subject areas;
- Develop meaningful and engaging learning experiences in inclusive environments;
- Use assessment to individualize instruction;
- Value, respect and foster individual and family diversity.

The program involves a substantial field-based experience and makes significant use of the UVM Campus Children’s Center and area public elementary 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. The first component is foundational to the education of children and includes an introduction to an early education course, a course in child development and a course in family relations. The child development course introduces students to the concepts that form the practical and theoretical foundation of the program’s educational approach. The family relations course provides students a foundation in family dynamics and parent-child relationships and serves to emphasize the important links between children’s family and cultural identity and school experiences.

The second component introduces students to the rationale, practices, and approaches used in the provision of meaningful, engaging and inclusive learning experiences for young children. Students learn observation and documentation skills, as well as approaches to curriculum development that reflect children’s diverse interests and abilities. Beginning in their first year in the program, students are offered opportunities to observe and work with children in community settings, the UVM Campus Children’s Center, and local elementary schools. Through a series of courses and related practicum experiences, students explore topics such as: the role of materials and the classroom environment in fostering relationships and meaningful learning; the multiple roles of the teacher; developing curriculum and learning encounters that build on each child’s strengths; effective practices that promote knowledge and skills in the areas of literacy, numeracy, and inquiry; the central role of the family and culture in children’s learning and development.

The third component includes two student teaching practica. One practicum typically takes place in the UVM Campus Children’s Center, which provides education and care to children 6 weeks to 5 years old. The second practicum is based in a local elementary school in grades K though grade 3.

The course of study consists of 121 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

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.
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 102, 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 102, 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 189) is a full semester full-time student teaching experience in either one of the rooms of the UVM Campus Children’s Center or in a community placement. Over the course of the semester, students, under the supervision and mentorship of the classroom teachers, gradually assume more responsibility for all aspects of the curriculum as well as contact with families.

Once students complete EDEC 189, their professional course work becomes increasingly focused on learning to design services and supports for young children with diverse abilities and their families. EDSP 005 helps students gain a fuller appreciation for the issues affecting persons with disabilities, including the legal issues affecting the provision of services to individuals. 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

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.

**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.
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 120 credits which are divided into the following categories:

- General Education Courses
- Professional Preparation Sequence
- Major Concentration (student must consult advisor for options)
- Diversity Courses
- Electives

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

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 063 Child Development</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDSP 005 D2: Iss Aff Persons W/Disabil</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDTE 056 D1: Lang Policy Issues,Race&amp;Sch</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Education Courses</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>HDFS 060 Family Context of Development</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major Concentration</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDEC 001 Intro to Early Education</td>
<td>0 or 4</td>
<td>0 or 4</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
<td>12-16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Course</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDEC 101 Multiple Roles of Tcher in ECE</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDEC 102 Curriculum in ECE</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDEC 103 Early Education Internship</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major Concentration</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

| Year Total: | 15 | 15 |

### TEACHER EDUCATION / ELEMENTARY EDUCATION (GRADES K-6) B.S.ED.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 263)

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 classes in the content areas of the curriculum and combined them with a clinical experience. 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 thus learn the portfolio as a method of documenting and assessing their own learning, while also learning to apply it within their public school classes.

**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 Endorsement that makes them eligible for both a K-6 general education and a Special Education (K-8) endorsement.

**CONTENT AREA COURSE WORK (MAJOR CONCENTRATION)**

The content area course work for Elementary Education students is comprised of four disciplines: English/Language Arts, Mathematics, Science and Social Studies. Students must consult their advisors to develop a plan to complete course work in all four disciplines.

The course of study consists of a minimum of 120 credits which are divided into the following categories:

- General Education Courses
- Professional Preparation Sequence
- Content Area Course work (student must consult advisor for options)
- Diversity Courses
- Electives

1 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 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.

**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 (656-3356) of a general meeting and are expected to attend to initiate this process. Students will follow the requirements specified in the Application to Student Teaching.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EDSP 005 D2: Iss Aff Persons W/Disab</td>
<td>3</td>
</tr>
<tr>
<td>EDTE 056 D1: Lang Policy Issues, Race &amp; Sch</td>
<td>3</td>
</tr>
<tr>
<td>Content Area Coursework</td>
<td>3</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>6</td>
</tr>
<tr>
<td>EDFS 002 School and Society</td>
<td>3</td>
</tr>
<tr>
<td>Pedagogy Course</td>
<td>3</td>
</tr>
<tr>
<td>Year Total</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EDEL 178 Mtg Indiv Needs Asst &amp; Instruct</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 056 Teachers &amp; the Teaching Process</td>
<td>3</td>
</tr>
<tr>
<td>Content Area Coursework</td>
<td>6</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>3</td>
</tr>
<tr>
<td>EDTE 074 Science of Sustainability</td>
<td>3</td>
</tr>
</tbody>
</table>

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.
### Year Total:

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
</tr>
<tr>
<td>15</td>
</tr>
</tbody>
</table>

### Junior

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEL 156 Teaching Math for Meaning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDEL 157 Social Educ and Social Studies</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDEL 155 Lab Experience in Inquiry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Content Area Coursework</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 177 Children’s Lit &amp; Literacy</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDEL 158 Teaching Science for Meaning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDEL 175 Lab Experience in Literacy</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDEL 176 Language Arts&amp;Literacy Skills</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Year Total:** 15 18

### Senior

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective¹</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Content Area Coursework</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>EDEL 187 Plan,Adapt,Deliv Lit Instruct (must be taken after completion of the Literacy Block and prior to student teaching.)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDEL 188 Principles of Classroom Mgmt³</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDEL 185 Student Teaching Internship³</td>
<td>12</td>
<td>15</td>
</tr>
</tbody>
</table>

**Year Total:** 12 15

**Total Credits in Sequence:** 120

1 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.

2 EDEL 187 must be taken after completion of the Literacy Block and prior to student teaching.

3 Courses taken concurrently

### TEACHER EDUCATION / MIDDLE LEVEL EDUCATION (GRADES 5-9) B.S.ED.

All students must meet the University Requirements. (p. 339)

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 124 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, they enroll in a required advising course where 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**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EDML 056 Teachers &amp; Teaching Process (If not offered during semester, will take during Sophomore year)</td>
<td>3</td>
</tr>
<tr>
<td>EDSP 005 D2: Iss Aff Persons W/Disabil</td>
<td>3</td>
</tr>
<tr>
<td>EDTE 056 D1: Lang Policy Issues, Race &amp; Sch</td>
<td>3</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>9</td>
</tr>
<tr>
<td>EDML 024 Learners, Development &amp; Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDFS 002 School and Society</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDML 177 Adolescent Lit and Literacy</td>
<td>3</td>
</tr>
<tr>
<td>IDIMC Courses</td>
<td>6</td>
</tr>
<tr>
<td>Electives¹</td>
<td>3</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>6</td>
</tr>
<tr>
<td>Year Total:</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDML 171 Teaching Practicum II</td>
<td>3</td>
</tr>
<tr>
<td>Elective¹</td>
<td>1</td>
</tr>
<tr>
<td>EDML 270 Middle School Org &amp; Pedagogy</td>
<td>3</td>
</tr>
<tr>
<td>EDML 200 Contemporary Issues (Curriculum Methods in Teaching)</td>
<td>3</td>
</tr>
<tr>
<td>IDIMC Courses</td>
<td>6</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDIMC Course</td>
<td>3</td>
</tr>
<tr>
<td>EDML 260 Teaching Young Adolescents</td>
<td>3</td>
</tr>
<tr>
<td>EDML 200 Contemporary Issues (Social Studies and Science Methods)</td>
<td>3</td>
</tr>
<tr>
<td>EDML 261 Middle Level Teaching Pract</td>
<td>3</td>
</tr>
<tr>
<td>EDML 286 Internship Support Seminar</td>
<td>3</td>
</tr>
<tr>
<td>EDML 287 Literacy &amp; Mathematics (Content Literacy OR Math Methods)</td>
<td>3</td>
</tr>
<tr>
<td>EDML 285 Middle Level Student Teaching</td>
<td>12</td>
</tr>
<tr>
<td>Year Total:</td>
<td>12</td>
</tr>
</tbody>
</table>

| Total Credits in Sequence: | 124 |

¹ The number of electives depends on the degree of course overlap in the general education, IDIMC, and diversity requirements. It is possible to have one course fulfill two requirements but the credits only count once.
# TEACHER EDUCATION / MUSIC EDUCATION (GRADES PREK-12)

## B.S.M.S.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 263)

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

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 005 Human Development</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 109 Harmony and Form I</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 134 Applied Lessons</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Techniques</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MU 041 Piano Proficiency I</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 054 Harmony and Form Lab I</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 085 Intro to Music Education</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 110 Harmony and Form II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 056 Harmony and Form Lab II</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 042 Piano Proficiency 2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| General Education Course | Credits | 3 |
| Diversity Course | 3 | |
| Year Total: | | 17 18 |

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>MU 060 Intro to Music Technology</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 134 Applied Lessons</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Techniques</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MU 111 Music History &amp; Literature I</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 209 Harmony and Form III</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 154 Harmony and Form Lab III</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 043 Piano Proficiency 3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 112 Music History &amp; Literature II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 210 Harmony and Form IV</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 156 Harmony and Form Lab IV</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 181 Conducting</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td></td>
<td>16 15</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose one of the following:</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 281 Advanced Conducting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 272 Choral Music Methods &amp; MU 273 Choral Music Practicum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDSP 005 D2:Iss Aff Persons W/Disabil</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 034 Required Secondary Lessons</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MU 234 Applied Lessons</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>General Education Courses</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MU 270 General Music Methods</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 271 General Music Practicum</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 159 Theory/Prac Jazz Improv I</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>17</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Credits</td>
<td>Fall</td>
<td>Spring</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 234 Applied Lessons</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 250 Senior Recital</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 274 Instrumental Music Methods</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 275 Instrumental Music Practicum</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 281 Advanced Conducting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 272 Choral Music Methods &amp; MU 273 Choral Music Practicum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDFS 203 Soc, Hst &amp; Phil Found of Educ</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Elective¹</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MU 290 Teaching Internship²</td>
<td>12</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits in Sequence: 125

¹ 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.

² 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. 339)

All students must meet the College Requirements. (p. 263)

The Physical Education program qualifies candidates for licensure to teach in grades PreK-12. Course work around the program theme “Moving and Learning” includes a series of courses designed to provide a background to the field of physical education. Specialty courses assist the student in the development of Physical Education program content and teaching skills important in providing developmentally appropriate programs of physical education to children and youth in today’s schools. Laboratory experiences in schools throughout the program aid students in recognizing the relationship between theory and practice. Students also receive a solid foundation in exercise science allowing a broader depth of knowledge in physical activity. The opportunity to pursue a concentration in exercise science is available. The Physical Education program also boasts of a Coaching minor (non-endorsement) 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 program. 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
- Electives¹

¹ 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

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 005 Human Development</td>
<td>3</td>
</tr>
<tr>
<td>EDSP 005 D2: Iss Aff Persons W/Disabil</td>
<td>3</td>
</tr>
<tr>
<td>Elective: Proof of American Red Cross Basic Emergency Response Certification or completion of EDPE 023</td>
<td>3</td>
</tr>
<tr>
<td>EDET E056 D1: Lang Policy Issues, Race &amp; Sch</td>
<td>3</td>
</tr>
<tr>
<td>General Education Courses</td>
<td></td>
</tr>
<tr>
<td>EDHE 046 Personal Health</td>
<td></td>
</tr>
<tr>
<td>RMS 157 Prevention &amp; Care Athletic Inj</td>
<td></td>
</tr>
<tr>
<td>EDPE 055 Special Topics I (Games Education)</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANPS 019 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>EDPE 055 Special Topics I (Fitness Education)</td>
<td>3</td>
</tr>
</tbody>
</table>
The University of Vermont
Undergraduate Catalogue 2014-15

ARC Emergency Response Requirement: Proof of American Red Cross Basic Emergency Response Certification or completion of EDPE 023

<table>
<thead>
<tr>
<th>Major Concentration</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPE 166 Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>ANPS 020 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>EDPE 104 Phys Educ Teaching Experience</td>
<td>5</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16 18</td>
</tr>
</tbody>
</table>

Junior

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPE 167 Exercise Physiology</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EDPE 220 Sport in Society</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDPE 105 Phys Educ Teaching Experience</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>EXMS 260 Adapted Physical Activity</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Education Courses</td>
<td>3 3</td>
<td></td>
</tr>
<tr>
<td>EXMS 240 Motor Skill Learning &amp; Control</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Diversity Course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major Concentration</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDPE 155 Phys Educ in Secondary Schl</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>18 15</td>
<td></td>
</tr>
</tbody>
</table>

Senior

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students are required to complete a student teaching application before being assigned a placement.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDFS 203 Soc, Hst &amp; Phil Found of Educ (or EDFS Elective)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDPE 055 Special Topics I (Methods of Dance &amp; Gymnastics)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major Concentration</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>EDSC 215 Reading in Secondary Schools or EDML 177 Adolescent Lit and Literacy or EDLT 236 Multicultural Children’s Lit</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>EDPE 181 Student Teaching</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>EDPE 182 Student Teaching Seminar</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>15-16 14</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits in Sequence: 126-127

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. 339)

All students must meet the College Requirements. (p. 263)

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, S28 Waterman. Program information is also available from the Secondary Education program, 405A 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 overtime.

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
- 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 highly 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 056, EDFS 002, EDSP 005, EDSC 011, EDSC 207. 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,
  - and favorable reviews from faculty teaching EDSC 011 and EDSC 207,

  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,
  - speech competence (described below),
  - and favorable reviews from faculty teaching in EDSC 209, EDSC 215, and EDSC 216,

  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.

  Prior to being recommended for license, students must earn:
  - 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 405A Waterman. Students are responsible for obtaining information regarding the process and requirements, and for notifying the Secondary Education Office as to changes in their status, address, or intentions for completion of the program.

Language Proficiency
A Language Proficiency Test is required for the Secondary Education Foreign Language majors.

Speech Competence
All students must demonstrate competence in communication by either taking a speech or theatre course or by submitting evidence of competence (contact the Secondary Education Office at 405A Waterman for more information).

PLAN OF STUDY
A POSSIBLE CURRICULUM IN SECONDARY EDUCATION

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EDTE 056 D1: Lang Policy Issues, Race &amp; Sch</td>
<td>3</td>
</tr>
<tr>
<td>EDFS 005 D2: Iss Aff Persons W/Disabil</td>
<td>3</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>9</td>
</tr>
<tr>
<td>EDSC 002 School and Society</td>
<td>3</td>
</tr>
<tr>
<td>Academic Major</td>
<td>6</td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EDSC 011 Ed Tech in Sec Ed Classroom</td>
<td>3</td>
</tr>
<tr>
<td>Academic Major</td>
<td>3</td>
</tr>
<tr>
<td>Academic Major or Minor</td>
<td>3</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>6</td>
</tr>
<tr>
<td>EDSC 207 Development: Theory &amp; Applctn</td>
<td>4</td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
</tbody>
</table>
**COACHING MINOR REQUIREMENTS**

Completion of fifteen (or up to sixteen) credits from the following tracks is required for the Coaching minor:

<table>
<thead>
<tr>
<th>Core courses:</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPE 197 Readings &amp; Research (Coaching Practicum)</td>
<td>3</td>
</tr>
<tr>
<td>EDPE 200 Contemporary Issues (Coaching Ethics &amp; Legal Issues)</td>
<td>3</td>
</tr>
<tr>
<td>EDPE 230 Philosophy of Coaching</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose one Anatomy and Fitness course (credits vary depending on course):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPE 055 Special Topics I (Fitness Education)</td>
<td>3-4</td>
</tr>
<tr>
<td>EDPE 166 Kinesiology</td>
<td></td>
</tr>
<tr>
<td>EDPE 167 Exercise Physiology</td>
<td></td>
</tr>
</tbody>
</table>

Choose one Coaching and Training course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPE 055 Special Topics I (Games Education)</td>
<td></td>
</tr>
<tr>
<td>EDPE 265 Exercise &amp; Sport Science (Sports Performance Seminar)</td>
<td></td>
</tr>
</tbody>
</table>

**PRE/CO-REQUISITES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 005 Human Development</td>
<td>3</td>
</tr>
<tr>
<td>EDPE 220 Sport in Society</td>
<td>3</td>
</tr>
</tbody>
</table>

**OTHER INFORMATION**

The Coaching minor is open to any student at UVM.

**SPECIAL EDUCATION MINOR REQUIREMENTS**

Choose two core courses, as approved by the minor advisor, from the following areas:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSP 202 Severe Disabil Char&amp;Intervent</td>
<td></td>
</tr>
<tr>
<td>EDSP 200 Contemporary Issues (Special Education Law or other topic)</td>
<td></td>
</tr>
<tr>
<td>EDSP 217 Behavior Analysis in SpecialEd</td>
<td></td>
</tr>
<tr>
<td>EDSP 224 Meeting Inst Needs/All Stdnts</td>
<td></td>
</tr>
<tr>
<td>EDSP 274 D2:Culture of Disability</td>
<td></td>
</tr>
<tr>
<td>EDSP 280 Assessment in Special Ed</td>
<td></td>
</tr>
<tr>
<td>EDSP 290 Early Lit and Math Curriculum</td>
<td></td>
</tr>
<tr>
<td>EDSP 295 Laboratory Exp in Education</td>
<td></td>
</tr>
<tr>
<td>EDSP 297 Adolescent Lit &amp; Math Curric</td>
<td></td>
</tr>
</tbody>
</table>

Choose three elective courses from any of the above courses and/or the following elective courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASL 001 American Sign Language I</td>
<td></td>
</tr>
<tr>
<td>ASL 002 American Sign Language II</td>
<td></td>
</tr>
<tr>
<td>CSD 020 Intro to Disordered Comm</td>
<td></td>
</tr>
<tr>
<td>CSD 022 Introduction to Phonetics</td>
<td></td>
</tr>
<tr>
<td>CSD 094 Dev of Spoken Language</td>
<td></td>
</tr>
<tr>
<td>CSD 023 Linguistics for Clinicians</td>
<td></td>
</tr>
<tr>
<td>CSD 313 Augmentative Communication</td>
<td></td>
</tr>
<tr>
<td>CSD 299 Autism Spect Dis:Assess&amp;Interv</td>
<td></td>
</tr>
<tr>
<td>LING 080 Introduction to Linguistics</td>
<td></td>
</tr>
<tr>
<td>ASL 051 American Sign Language III</td>
<td></td>
</tr>
<tr>
<td>ASL 052 American Sign Language IV</td>
<td></td>
</tr>
<tr>
<td>CSD 101 Speech &amp; Hearing Science</td>
<td></td>
</tr>
<tr>
<td>ASL 195 Intermediate Special Topics</td>
<td></td>
</tr>
<tr>
<td>CSD 208 Cognition &amp; Language</td>
<td></td>
</tr>
</tbody>
</table>
LING 162 American English Dialects
LING 165 Phonetic Theory and Practice
LING 166 Introduction to Syntax
LING 168 Introduction to Pragmatics
EXMS 260 Adapted Physical Activity

PRE/CO-REQUISITES
Completion or enrollment in EDSP 005 and an overall GPA of 3.00 or above.

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. The number of students accepted to the minor is contingent on available space, with priority given to students in the College of Education and Social Services. Students apply to the minor by completing an application available through the Special Education program (special.education@uvm.edu). Fall applications are due November 1; Spring applications are due March 1.

The Special Education minor includes an option for teacher licensure candidates to obtain a Dual Endorsement in a general area based on degree program and special education based on appropriate grade levels. Students wishing to pursue this option need to immediately work with their minor advisor to ensure that they complete required courses. Dual Endorsement applications are due by November 1 of the student’s junior year in order to be placed in an approved internship site.

Acceptance into the Dual Endorsement option requires a grade point average of 3.50 or better in required special education courses. Accepted students are assigned a minor advisor who must approve all program plans. Students in CESS Teacher Licensure programs who are interested in learning more about obtaining an endorsement in Special Education should contact the program for further information regarding application to our Dual Endorsement Minor and/or master’s degree option. There may be a $150.00 lab fee for students who include the 60 hour practicum above and beyond the minor.

DEPARTMENT OF LEADERSHIP AND DEVELOPMENTAL SCIENCES
http://www.uvm.edu/~dlds/

This program examines the way people grow and develop, form relationships and families, and learn to cope with the common and uncommon events of life.

MAJORS
LEADERSHIP AND DEVELOPMENTAL SCIENCES MAJOR
Human Development and Family Studies B.S. (p. 278)

MINORS
LEADERSHIP AND DEVELOPMENTAL STUDIES MINOR
Human Development and Family Studies (p. 280)

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://catalog.uvm.edu/graduate) for more information.

HUMAN DEVELOPMENT AND FAMILY STUDIES B.S.
All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 263)

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, all while attending to an ecological perspective. Students learn basic and applied concepts of human development and acquire skills in working with individuals and families of different ages and backgrounds in a variety of settings. Field experience is required of all students.

Human Development and Family Studies is also available as a major concentration for students in the Early Childhood Education, Early Childhood Special Education, and Physical Education licensure programs, and as a minor available to students across the university.

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, behavioral and social sciences, communication skills, humanities, physical and biological sciences and research methods. They also enroll in a sequence of professional course requirements designed to provide a comprehensive understanding of individual and family development across the life span and in diverse socio-cultural contexts. These
courses are arranged in three blocks: introductory, intermediate, and advanced.

The introductory block includes four core courses in Human Development and Family Studies (HDFS). The first, “Introduction to Human Development and Family Studies and Academic Service-Learning” (HDFS 001 and a linked 1-credit Service-Learning course), provides majors with an introduction to the discipline and practice of HDFS, with special emphasis on preparing students for more advanced coursework 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 individual-level experiences, changes and challenges at different points in the life course and to various factors, such as gender, race and social class, that influence individual development. Furthermore, these introductory courses are designed to examine how questions are pursued from a human development perspective, how they relate to everyday life settings, how knowledge in the discipline is constructed, and the types of skills necessary to both acquire and appropriately and effectively use this knowledge.

The intermediate block builds upon the introductory block through the next set of four professional course requirements. In HDFS 161, students are offered a deeper introduction to and opportunity to critically analyze the major social institutions and cultural contexts that affect human development. HDFS 141 focuses in depth on White identity and the context of privileging whiteness. The remaining two courses in this intermediate block introduce students to major theories of development relied upon to help us understand individual development in context (HDFS 189) and to the HDFS profession through the study and practice of essential helping relationship skills 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 level experience. Taken for a minimum of six credits and typically completed over the course of one semester, students engage in direct field work (for a minimum of 12 hours per week) and related academic work (approximately 6 hours per week) that focuses on deepening students’ knowledge, understanding, and the 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**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>HDFS 001 Int Hum Dev &amp; Fam Std &amp; Acad Serv (taken concurrently with Academic Service-Learning Course)</td>
<td>3</td>
</tr>
<tr>
<td>Academic Service-Learning Course (taken concurrently with HDFS 001)</td>
<td>1</td>
</tr>
<tr>
<td>HDFS 005 Human Development</td>
<td>3</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>3</td>
</tr>
<tr>
<td>Diversity Courses</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 060 Family Context of Development</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 065 Human Relationships &amp; Sexuality</td>
<td>3</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>HDFS 141 D1: Interrogating White Identity</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 161 Social Context of Development</td>
<td>3</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 189 Theories of Human Development</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 101 The Helping Relationship</td>
<td>3</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>HDFS Upper Level Courses/Seminars</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>9</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>HDFS Upper Level Course/Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>
Electives | 12 | 9
HDFS 296 Field Experience | 6
Year Total: | 15 | 15

Total Credits in Sequence: 121

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:

**Track A**
- Complete any three 100 level HDFS courses

**Track 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)

RESTRICTIONS

This minor is available to students in all majors. HDFS cannot be the sole minor for sociology or psychology majors but is acceptable as a second minor, especially for persons interested in careers involving work with families and youth.

DEPARTMENT OF SOCIAL WORK

http://www.uvm.edu/~socwork/

The principal educational objective of the program is to prepare students for beginning social work practice with individuals, families, small groups, organizations, and communities.

MAJORS

SOCIAL WORK MAJOR

Social Work B.S. (p. 280)

GRADUATE

Social Work M.S.W.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

SOCIAL WORK B.S.

All students must meet the University Requirements. (p. 339)

All students must meet the College Requirements. (p. 263)

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 122 approved credits comprised of:

- 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.
- 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.
- Social Work Coursework: Earning course specific minimum grades as outlined below
  - Complete all social work courses (SWXX) 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

#### First Year

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities Course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SOC 001 Introduction to Sociology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 002 Foundations of Social Work</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>POLS 021 American Political System</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSYC 001 General Psychology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 003 Human Needs &amp; Social Services</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

#### Sophomore

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGS 050 Expository Writing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSYC 152 Abnormal Psychology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 060 D1: Racism &amp; Contemporary Issue (Diversity Courses-6 credits required)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Non-European/Non-Western Culture Course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BIOL 003 Human Biology or SWSS 005 Biosociopolitical Issues SW</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EC 011 Principles of Macroeconomics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

#### Junior

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typically, students apply for SWSS 173 Field Experience in the spring of junior year. Application for the field experience requires consultation with the student’s advisor to determine that all introductory and intermediate professional and required courses have been successfully completed. The process includes a written statement by the student describing his/her interests and qualifications. The advisor and Field Education coordinator also review professional readiness issues, including strengths, conduct, maturity, and areas to strengthen. When there are concerns about a student’s field readiness, these concerns will be reviewed by the Undergraduate Field committee, and recommendations will be made.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Senior

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWSS 168 Social Work Practice I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 171 Field Experience Seminar I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 173 Field Experience I</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>SWSS 169 Social Work Practice II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 172 Field Experience Seminar II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 174 Field Experience II</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total Credits in Sequence:</strong></td>
<td>122</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWSS 168 Social Work Practice I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 171 Field Experience Seminar I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 173 Field Experience I</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

In the spring semester, students must enroll concurrently in:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWSS 169 Social Work Practice II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 172 Field Experience Seminar II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SWSS 174 Field Experience II</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
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 and statistics. An engineering education combines the study of mathematics and the physical, life, and engineering sciences with application to the analysis and design of devices, equipment, processes, and complete systems to serve the needs of humanity. The breadth and flexibility of the engineering programs at UVM provide a sound background for engineering practice in public or private domains, for graduate study in engineering and science, and for further professional study in such fields as business, law, or medicine. Computer science develops creative problem-solving ability, along with essential skills in current programming and computing environments. It offers the flexibility to gear studies toward business, science, engineering, mathematics, and the arts. The study of mathematics and statistics is designed to train students in critical thinking, problem solving, and sound reasoning, while developing a strong level of technical competence and a substantial breadth of exposure to other fields. Degrees in each of these disciplines provide distinctive recognition based on challenging course work, valuable field experience, and intensive student-faculty interaction.

HONORS THESIS PROGRAM

The undergraduate Honors Thesis program, designed for the superior student with unusual initiative and intellectual curiosity, provides an opportunity to pursue a special program without the restrictions of classroom routine. The Honors Thesis program consists of reading, research, design, or creation in a curricular area of the student’s choice, leading to a written thesis. At the time of graduation, the student’s transcript and the graduation program will be appropriately denoted with “Honors Thesis” and the title of the thesis, provided that Honor’s level performance has been demonstrated.

The student must be matriculated in the college at the time of application for the program and have a cumulative grade-point average of at least 3.00 for sophomore and junior work. The curriculum committee of the area offering the thesis course establishes the mechanics for thesis review and awarding of the grade. The thesis proposal must be approved by the College of Engineering and Mathematical Sciences Honors and Awards committee prior to the Add/Drop deadline of the student’s first semester of matriculation into the Honor’s Thesis program.

A thesis committee consists of at least three UVM faculty members, at least two of whom are from the offering area. The chair of the committee, a permanent UVM faculty member, is also from the offering area. This committee serves to advise the student, approves of the thesis proposal before its submission to the Honors and Awards committee, and approves of the oral defense of the thesis. The course grade is assigned by the committee chair based on consultation with the thesis committee. Six credits of effort are expected for the thesis, usually apportioned evenly over two semesters. Some programs within the college require senior projects as part of their prescribed curricula. Such projects can provide alternative opportunities to students interested in a design or research challenge.

MAJORS

- Civil Engineering B.S.C.E. (p. 294)
- Computer Science B.S.CS. (p. 283)
- Computer Science and Information Systems B.S. (p. 284)
- Electrical Engineering B.S.EE. (p. 295)
- Engineering B.A.E. (p. 297)
- Engineering B.S.E. (p. 298)
- Engineering Management B.S.EM. (p. 299)
- Environmental Engineering B.S.EV. (p. 302)
- Mathematics B.S.M. (p. 287)
- Mathematics: Statistics B.S.M. (p. 290)
- Mechanical Engineering B.S.ME. (p. 304)

MINORS

- Computer Science (p. 285)
- Electrical Engineering (p. 305)
- Geospatial Technologies (p. 305)
- Mathematics: Pure (p. 291)
- Statistics (p. 291)

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 as 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. 283)
- Computer Science and Information Systems B.S. (p. 284)

**MINORS**

**COMPUTER SCIENCE MINOR**

- Computer Science (p. 285)

**GRADUATE**

- Computer Science AMP
- Computer Science M.S.
- Computer Science Ph.D.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

**COMPUTER SCIENCE B.S.CS.**

All students must meet the University Requirements (p. 339).

A minimum of 120 credits are required and must include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommended:</strong></td>
<td></td>
</tr>
<tr>
<td>CS 050</td>
<td>Seminar for New CS Majors</td>
</tr>
<tr>
<td><strong>Core:</strong></td>
<td></td>
</tr>
<tr>
<td>CS 021</td>
<td>Computer Programming I</td>
</tr>
<tr>
<td>CS 064</td>
<td>Discrete Structures</td>
</tr>
<tr>
<td>CS 110</td>
<td>Intermediate Programming</td>
</tr>
<tr>
<td>CS 121</td>
<td>Computer Organization</td>
</tr>
<tr>
<td>CS 124</td>
<td>Data Structures &amp; Algorithms</td>
</tr>
<tr>
<td>CS 125</td>
<td>Computability and Complexity</td>
</tr>
<tr>
<td>CS 201</td>
<td>Operating Systems</td>
</tr>
<tr>
<td>CS 224</td>
<td>Algorithm Design &amp; Analysis</td>
</tr>
<tr>
<td>or CS 243</td>
<td>Theory of Computation</td>
</tr>
<tr>
<td>CS 292</td>
<td>Senior Seminar</td>
</tr>
</tbody>
</table>
Eighteen additional credits, including three at the 0XX-level (or above), three at the 1XX-level (or above), and twelve credits at the 2XX-level

<table>
<thead>
<tr>
<th>Mathematics (fourteen credits)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>Choose two of the following:</td>
<td>6-7</td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH 124 Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 173 Basic Combinatorial Theory</td>
<td></td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td></td>
</tr>
</tbody>
</table>

Statistics (three to six credits)

<table>
<thead>
<tr>
<th>STAT 143 Statistics for Engineering</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>or one course in statistics (e.g. STAT 141) and one course in probability (e.g. CS 128 or STAT 151)</td>
<td></td>
</tr>
</tbody>
</table>

Natural Science (thirteen credits)

Chosen from courses in astronomy, biology (or BioCore), chemistry, environmental science, geology, microbiology and molecular genetics, plant biology, or physics, including one of the following laboratory science sequences:

<table>
<thead>
<tr>
<th>BIOL 001 &amp; BIOL 002 Principles of Biology and Principles of Biology</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>or BCOR 011 &amp; BCOR 012 Exploring Biology and Exploring Biology</td>
<td></td>
</tr>
<tr>
<td>CHEM 031 &amp; CHEM 032 General Chemistry 1 and General Chemistry 2</td>
<td></td>
</tr>
<tr>
<td>or CHEM 035 &amp; CHEM 036 General Chemistry for Majors 1 and General Chemistry for Majors 2</td>
<td></td>
</tr>
<tr>
<td>PHYS 031 &amp; PHYS 125 Physics for Engineers I and Physics for Engineers II</td>
<td></td>
</tr>
<tr>
<td>or PHYS 051 &amp; PHYS 152 Fundamentals of Physics I and Fundamentals of Physics II</td>
<td></td>
</tr>
</tbody>
</table>

Writing (three credits)

| ENGS 001 Written Expression | 3 |
| or ENGS 050 Expository Writing | |
| or ENGS 053 Intro to Creative Writing | |

Fine Arts, Humanities and Social Sciences (eighteen credits)

Chosen from courses in ALANA U.S. Ethnic Studies; anthropology; art history; art studio; classics; communication sciences and disorders; dance; economics; English; Film and Television Studies; foreign language; geography; global and regional studies; history; Holocaust Studies; linguistics; music; philosophy; political science; psychology; religion; sociology; theatre; Gender, Sexuality, and Women’s Studies; and World Literature

Credits used to fulfill the university’s diversity requirement (one three-credit course Diversity Category 1 and a second three-credit course from Diversity Category 1 or 2) may also be applied to the above distribution requirements as appropriate.

Students must complete a university approved minor (excluding computer science); courses used to fulfill the minor can also satisfy other requirements.

No more than three grades of D+, D, or D- in computer science courses numbered CS 124 and higher.

**COMPUTER SCIENCE AND INFORMATION SYSTEMS B.S.**

All students must meet the University Requirements (p. 339).

A minimum of 120 credits are required and must include the following:

| Computer Science (minimum thirty-eight credits) |
|-----------------------------------------------|--|
| Recommended: | 1 |
| CS 050 Seminar for New CS Majors | 1 |
| Core: | 23 |
| CS 008 Intro to Web Site Development | 3 |
| CS 021 Computer Programming I | 3 |
| CS 064 Discrete Structures | 3 |
| CS 110 Intermediate Programming | 4 |
| CS 121 Computer Organization | 3 |
| CS 124 Data Structures & Algorithms | 3 |
| CS 148 Database Design for the Web | 3 |
| CS 292 Senior Seminar | 1 |

Fifteen additional credits including:

| Six credits at the 1XX-level or above (CS 125 is recommended for students who wish to pursue graduate study in computer science) | |

Nine credits at the 2XX-level

**Business Administration (twenty-seven credits)**

| BSAD 060 Financial Accounting | 3 |
| BSAD 061 Managerial Accounting | 3 |
| BSAD 120 Leadership & Org Behavior | 3 |
| BSAD 132 Political Envir of Business | 3 |
| BSAD 141 Info, Technology & Bus Systems | 3 |
| BSAD 150 Marketing Management | 3 |
| BSAD 173 Operations Management | 3 |
| BSAD 180 Managerial Finance | 3 |
BSAD elective at the 1XX-level or above 3

Economics (six credits)
EC 011 Principles of Macroeconomics 3
EC 012 Principles of Microeconomics 3

Mathematics (eight credits)
MATH 021 Calculus I 4
MATH 022 Calculus II 4

Statistics (three credits)
STAT 143 Statistics for Engineering 3

or one course in statistics (e.g. STAT 141) and one course in probability (e.g. CS 128 or STAT 151)

Natural Science (eight to ten credits)
One laboratory science sequence, selected from the following: 8-10

BIOL 001 & BIOL 002 Principles of Biology and Principles of Biology
or BCOR 011 & BCOR 012 Exploring Biology and Exploring Biology
CHEM 031 & CHEM 032 General Chemistry 1 and General Chemistry 2
or CHEM 035 & CHEM 036 General Chemistry for Majors 1 and General Chemistry for Majors 2
PHYS 031 & PHYS 125 Physics for Engineers I and Physics for Engineers II
or PHYS 051 & PHYS 152 Fundamentals of Physics I and Fundamentals of Physics II

Writing (three credits)
ENGS 001 Written Expression 3
or ENGS 050 Expository Writing
or ENGS 053 Intro to Creative Writing

Fine Arts, Humanities and Social Sciences (eighteen credits)
Chosen from courses in ALANA U.S. Ethnic Studies, anthropology, art history, art studio, classics, communication sciences, dance, economics, English, Film and Television Studies, foreign language, geography, Global and Regional Studies, history, Holocaust Studies, linguistics, music, philosophy, political science, psychology, religion, sociology, theatre, Women’s and Gender Studies, and World Literature 18

Credits used to fulfill the university’s diversity requirement (one three-credit course Diversity Category 1 and a second three-credit course from Diversity Category 1 or 2) may also be applied to the above distribution requirements as appropriate.

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.

COMPUTER SCIENCE MINOR
REQUIREMENTS
Eighteen credits in computer science including nine credits at the 100-level or above.

Minor curricula must be approved by a Computer Science advisor. Pre-approved tracks are available on the Computer Science department’s website.

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 Mathematics. The Statistics program offers a major in statistics within this degree.

Accelerated Master’s Programs in mathematics, statistics, and biostatistics are also offered. These programs allow students to earn both their B.S. and M.S. degrees in as little as five years. Details are given in the following sections for mathematics and statistics.

A Handbook for Mathematics and Statistics majors, available on the department website or from the department office, provides additional information on the mathematics and statistics degree programs, Honors in mathematics and statistics, mathematics and statistics courses, advising and other support for students, extracurricular activities, career options, and other material of interest to potential majors.

The following outlines the curriculum for the B.S. in Mathematics, and the B.S. in Mathematics with a major in statistics. Candidates for these degrees must meet the Core Curriculum and requirements A, B, C 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**

**Mathematics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 052</td>
<td>Fundamentals of Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 121</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 124</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 241</td>
<td>Anyl in Several Real Vars I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 251</td>
<td>Abstract Algebra I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Statistics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 124</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>CS 021</td>
<td>Computer Programming I</td>
<td>0 or 3</td>
</tr>
</tbody>
</table>

Choose one of each of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 143</td>
<td>Statistics for Engineering</td>
<td></td>
</tr>
<tr>
<td>or STAT 211</td>
<td>Statistical Methods I</td>
<td></td>
</tr>
<tr>
<td>STAT 151</td>
<td>Applied Probability</td>
<td></td>
</tr>
<tr>
<td>or STAT 251</td>
<td>Probability Theory</td>
<td></td>
</tr>
<tr>
<td>STAT 201</td>
<td>Stat Computing &amp; Data Analysis</td>
<td></td>
</tr>
<tr>
<td>STAT 221</td>
<td>Statistical Methods II</td>
<td></td>
</tr>
<tr>
<td>or STAT 227</td>
<td>Adv Statistical Methods II</td>
<td></td>
</tr>
<tr>
<td>STAT 241</td>
<td>Statistical Inference</td>
<td></td>
</tr>
<tr>
<td>or STAT 261</td>
<td>Statistical Theory</td>
<td></td>
</tr>
<tr>
<td>STAT 281</td>
<td>Statistics Practicum</td>
<td></td>
</tr>
<tr>
<td>or STAT 293</td>
<td>Undergrad Honors Thesis</td>
<td></td>
</tr>
</tbody>
</table>

Students may substitute an advisor-approved 200-level STAT course for STAT 281/STAT 293 requirement

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.

<table>
<thead>
<tr>
<th>I. Language and Literature</th>
<th>II. Fine Arts, Philosophy and Religion</th>
<th>III. Social Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>Art History</td>
<td>ALANA U.S. Ethnic Studies</td>
</tr>
<tr>
<td>Chinese</td>
<td>Dance</td>
<td>Anthropology</td>
</tr>
<tr>
<td>Classics</td>
<td>Film and Television Studies</td>
<td>Communication Sciences and Disorders</td>
</tr>
<tr>
<td>English</td>
<td>Music</td>
<td>Economics</td>
</tr>
<tr>
<td>French</td>
<td>Philosophy</td>
<td>Gender, Sexuality and Women’s Studies</td>
</tr>
<tr>
<td>German</td>
<td>Religion</td>
<td>Geography</td>
</tr>
<tr>
<td>Greek</td>
<td>Speech</td>
<td>Global and Regional Studies</td>
</tr>
<tr>
<td>Hebrew</td>
<td>Studio Art</td>
<td>History</td>
</tr>
<tr>
<td>Italian</td>
<td>Theatre</td>
<td>Holocaust Studies</td>
</tr>
<tr>
<td>Japanese</td>
<td></td>
<td>Human Development and Family Studies</td>
</tr>
<tr>
<td>Latin</td>
<td></td>
<td>Political Science</td>
</tr>
<tr>
<td>Linguistics</td>
<td></td>
<td>Psychology</td>
</tr>
<tr>
<td>Portuguese</td>
<td></td>
<td>Sociology</td>
</tr>
<tr>
<td>Russian</td>
<td></td>
<td>Vermont Studies</td>
</tr>
<tr>
<td>Spanish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>World Literature</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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).

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 MAJOR
Mathematics B.S.M. (p. 287)
Mathematics: Statistics B.S.M. (p. 290)

MINORS

MATHEMATICS AND STATISTICS MINOR
Mathematics: Pure
Statistics (p. 291)

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://catalog.uvm.edu/graduate) for more information.

MATHEMATICS B.S.M.
All students must meet the University Requirements. (p. 339)

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>Real Analysis in One Variable</td>
<td>3</td>
</tr>
<tr>
<td>MATH 151</td>
<td>Groups and Rings</td>
<td>3</td>
</tr>
<tr>
<td>MATH 173</td>
<td>Basic Combinatorial Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 236</td>
<td>Calculus of Variations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 240</td>
<td>Fourier Series &amp; Integral Trans</td>
<td>3</td>
</tr>
<tr>
<td>MATH 241</td>
<td>Analy in Several Real Vars I *</td>
<td>3</td>
</tr>
<tr>
<td>MATH 242</td>
<td>Analy in Several Real Variables II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 251</td>
<td>Abstract Algebra I *</td>
<td>3</td>
</tr>
<tr>
<td>MATH 252</td>
<td>Abstract Algebra II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 255</td>
<td>Elementary Number Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 257</td>
<td>Topics in Group Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 260</td>
<td>Foundations of Geometry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 264</td>
<td>Vector Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 273</td>
<td>Combinatorial Graph Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 331</td>
<td>Theory of Func of Complex Var</td>
<td>4</td>
</tr>
<tr>
<td>MATH 353</td>
<td>Point-Set Topology</td>
<td>3</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 230</td>
<td>Ordinary Differential Equation *</td>
<td>3</td>
</tr>
<tr>
<td>MATH 236</td>
<td>Calculus of Variations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 237</td>
<td>Intro to Numerical Analysis *</td>
<td>3</td>
</tr>
<tr>
<td>MATH 238</td>
<td>Applied Computational Methods</td>
<td>3</td>
</tr>
<tr>
<td>MATH 240</td>
<td>Fourier Series &amp; Integral Trans</td>
<td>3</td>
</tr>
<tr>
<td>MATH 272</td>
<td>Applied Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 273</td>
<td>Combinatorial Graph Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 274</td>
<td>Numerical Linear Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 173</td>
<td>Basic Combinatorial Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 230</td>
<td>Ordinary Differential Equation</td>
<td>3</td>
</tr>
<tr>
<td>MATH 237</td>
<td>Intro to Numerical Analysis *</td>
<td>3</td>
</tr>
<tr>
<td>MATH 238</td>
<td>Applied Computational Methods</td>
<td>3</td>
</tr>
<tr>
<td>MATH 274</td>
<td>Numerical Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>STAT 201</td>
<td>Stat Computing &amp; Data Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 173</td>
<td>Basic Combinatorial Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 273</td>
<td>Combinatorial Graph Theory</td>
<td>3</td>
</tr>
<tr>
<td>CS 224</td>
<td>Algorithm Design &amp; Analysis *</td>
<td>3</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 173</td>
<td>Basic Combinatorial Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 221</td>
<td>Deterministic Models of Oper Rsch</td>
<td>3</td>
</tr>
<tr>
<td>MATH 222</td>
<td>Stochastic Models in Oper Rsch</td>
<td>3</td>
</tr>
<tr>
<td>MATH 230</td>
<td>Ordinary Differential Equation</td>
<td>3</td>
</tr>
<tr>
<td>MATH 236</td>
<td>Calculus of Variations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 273</td>
<td>Combinatorial Graph Theory</td>
<td>3</td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 211</td>
<td>Statistical Methods I</td>
<td></td>
</tr>
<tr>
<td>STAT 151</td>
<td>Applied Probability</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 207</td>
<td>Probability Theory</td>
<td></td>
</tr>
<tr>
<td>STAT 224</td>
<td>Stats for Quality &amp; Productivity</td>
<td>3</td>
</tr>
<tr>
<td>STAT 241</td>
<td>Statistical Inference</td>
<td>3</td>
</tr>
<tr>
<td>STAT 253</td>
<td>Appl Time Series &amp; Forecasting</td>
<td>3</td>
</tr>
</tbody>
</table>

6. ACTUARIAL MATHEMATICS

Actuaries use quantitative skills to address a variety of risk related problems within financial environments. A unique feature of the actuarial profession is that a considerable amount of the formal training is typically completed after graduation “on-the-job”.

The Society of Actuaries is an international organization that regulates education and advancement within the profession. Candidates may earn designation as an Associate of the Society of Actuaries (ASA) by satisfying three general requirements. These are:

1. Preliminary Education Requirements, PE;
2. the Fundamentals of Actuarial Practice Course, FAP; and
3. the Associateship Professionalism Course, APC.

The multiple component FAP is based on an e-learning format, and can be pursued independently. After completing the PE and at least one of the FAP components, candidates are eligible to register for the one-half day APC.

The Preliminary Education Requirements consist of

1. prerequisites
2. subjects to be validated by educational experience (VEE), and
3. four examinations.

While at the university, students can satisfy the prerequisites, the VEE courses, and the first two preliminary examinations. The following courses are recommended as preparation for the specific requirements.

### Prerequisites

#### Calculus

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121</td>
<td>Calculus III</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Linear Algebra

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 124</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Introductory Accounting

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 060</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 061</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Mathematical Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 261</td>
<td>Statistical Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

These are topics that will assist candidates in their exam progress and work life but will not be directly tested or validated.

### Subjects Validated by Educational Experience

#### Economics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC 011</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EC 012</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Corporate Finance

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 180</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 181</td>
<td>Intermediate Financial Mgmt</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Applied Statistical Methods

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 221</td>
<td>Statistical Methods II</td>
<td>3</td>
</tr>
<tr>
<td>STAT 253</td>
<td>Appl Time Series &amp; Forecasting</td>
<td>3</td>
</tr>
</tbody>
</table>

Candidates will demonstrate proficiency in these subjects by submitting transcripts.

### Preliminary Examinations

#### Exam P - Probability

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 151</td>
<td>Applied Probability</td>
<td>3</td>
</tr>
<tr>
<td>STAT 251</td>
<td>Probability Theory</td>
<td>3</td>
</tr>
</tbody>
</table>
BSAD 180  Managerial Finance  3
BSAD 181  Intermediate Financial Mgmt  3

Other applicable departmental courses include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 195</td>
<td>Intermediate Special Topics</td>
<td>1-18</td>
</tr>
<tr>
<td>STAT 201</td>
<td>Stat Computing &amp; Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 225</td>
<td>Applied Regression Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 229</td>
<td>Survival/Logistic Regression</td>
<td>3</td>
</tr>
<tr>
<td>STAT 235</td>
<td>Categorical Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 237</td>
<td>Nonparametric Statistical Mthd</td>
<td>3</td>
</tr>
<tr>
<td>MATH 173</td>
<td>Basic Combinatorial Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 221</td>
<td>Deterministic Mods Oper Rsch</td>
<td>3</td>
</tr>
<tr>
<td>MATH 222</td>
<td>Stochastic Models in Oper Rsch</td>
<td>3</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222</td>
<td>Stochastic Models in Oper Rsch</td>
<td>3</td>
</tr>
<tr>
<td>MATH 241</td>
<td>Anyl in Several RealVars I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 242</td>
<td>Anyl Several Real Variables II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 207</td>
<td>Probability Theory *</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 151</td>
<td>Applied Probability</td>
<td></td>
</tr>
<tr>
<td>STAT 241</td>
<td>Statistical Inference *</td>
<td>3</td>
</tr>
<tr>
<td>STAT 252</td>
<td>Appl Discr Stochas Proc Models (a)</td>
<td>1</td>
</tr>
<tr>
<td>STAT 252</td>
<td>Appl Discr Stochas Proc Models (b)</td>
<td>1</td>
</tr>
<tr>
<td>STAT 261</td>
<td>Statistical Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

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.

MATHEMATICS: STATISTICS B.S.M.

All students must meet the University Requirements (p. 339).

The statistics major offers two concentrations:

- Pre-Medical Concentration (p. 291)
- Quality Concentration (p. 291)

MAJOR REQUIREMENTS

Students receiving the B.S. in Mathematics 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 base. Statisticians become involved in efforts to solve real world problems by designing surveys and experimental plans, constructing and interpreting descriptive statistics, developing and applying statistical inference procedures, and developing and investigating stochastic models or computer simulations. To investigate new statistical procedures requires a knowledge of mathematics and computing as well as statistical theory. To apply concepts and procedures effectively also calls for an understanding of the field of application.

The curriculum is designed for students who plan to enter business, industry, or government as statisticians; to become professional actuaries; or to continue on to graduate school in statistics/biostatistics or another field where 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 052</td>
<td>Fundamentals of Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 121</td>
<td>Calculus III</td>
<td>4</td>
</tr>
</tbody>
</table>

Credits in mathematics at the 100-level  

6
Since statistics majors normally take MATH 021, MATH 022, MATH 121 and MATH 124, they just need two more mathematics courses at the 100-level or above.

Students may earn a double major in mathematics and statistics by meeting the requirements of the statistics major and earning an additional fifteen credits in mathematics, to include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 052</td>
<td>Fundamentals of Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Choose two of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 230</td>
<td>Ordinary Differential Equation</td>
<td>1</td>
</tr>
<tr>
<td>MATH 237</td>
<td>Intro to Numerical Analysis</td>
<td>1</td>
</tr>
<tr>
<td>MATH 241</td>
<td>Anyl in Several Real Vars I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 251</td>
<td>Abstract Algebra I</td>
<td>1</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two semesters of general chemistry and two semesters of organic chemistry with laboratory:</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Choose one of the following sequences:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 031 &amp; CHEM 032</td>
<td>General Chemistry 1 and General Chemistry 2</td>
<td></td>
</tr>
<tr>
<td>CHEM 035 &amp; CHEM 036</td>
<td>General Chemistry for Majors 1 and General Chemistry for Majors 2</td>
<td></td>
</tr>
<tr>
<td>Complete the following sequence:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 141 &amp; CHEM 142</td>
<td>Organic Chemistry 1 and Organic Chemistry 2</td>
<td></td>
</tr>
<tr>
<td>Choose one of the following physics sequences with laboratory:</td>
<td>7-8</td>
<td></td>
</tr>
<tr>
<td>PHYS 031 &amp; PHYS 125</td>
<td>Physics for Engineers I and Physics for Engineers II</td>
<td></td>
</tr>
<tr>
<td>PHYS 051 &amp; PHYS 152</td>
<td>Fundamentals of Physics I and Fundamentals of Physics II</td>
<td></td>
</tr>
<tr>
<td>At least one year of biology with laboratory:</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>BIOL 001</td>
<td>Principles of Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 002</td>
<td>Principles of Biology</td>
<td></td>
</tr>
</tbody>
</table>

Exposure to medical research problems may be provided through supervised experiences in the College of Medicine’s Medical Biostatistics and Bioinformatics facility.

**CONCENTRATION IN QUALITY**

Students interested in methods of quality control and quality improvement are encouraged to develop a concentration in Quality. Regularly offered courses include STAT 224 and related courses in business administration such as BSAD 178 and others in the Production and Operations Management and Quantitative Method areas. Project experience in industrial quality control or in health care quality can be gained in STAT 191 and STAT 281, or STAT 293 - STAT 294.

**MATHEMATICS: PURE MINOR REQUIREMENTS**

Choose one of the following sequences: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021 &amp; MATH 022</td>
<td>Calculus I and Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH 019 &amp; MATH 023</td>
<td>Fundamentals of Calculus I and Transitional Calculus</td>
<td></td>
</tr>
</tbody>
</table>

Choose one of the following: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 052</td>
<td>Fundamentals of Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH 121</td>
<td>Calculus III</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 019</td>
<td>Fundamentals of Calculus I</td>
<td></td>
</tr>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>Or equivalent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total of fifteen credits of statistics courses

One introductory statistics course such as: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 051</td>
<td>Probability With Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT 111</td>
<td>Elements of Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods</td>
<td></td>
</tr>
<tr>
<td>STAT 143</td>
<td>Statistics for Engineering</td>
<td></td>
</tr>
<tr>
<td>STAT 211</td>
<td>Statistical Methods I</td>
<td></td>
</tr>
</tbody>
</table>
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. Note that current netbooks will not have sufficient computational resources to meet the requirements. As part of the laptop requirement, students must also purchase a student version of MATLAB® (a high-level programming language and interactive computational environment). MATLAB® is available through the MathWorks™ website. The school also recommends that students have word processing, presentation and spreadsheet software on their laptop.

<table>
<thead>
<tr>
<th>EC 170</th>
<th>Economic Methods $^1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>No more than seven credits of introductory courses may count toward the required fifteen credits</td>
<td></td>
</tr>
<tr>
<td>STAT 201 or a computer programming course such as CS 020 or CS 021 (or higher) $^2$</td>
<td>3</td>
</tr>
</tbody>
</table>

1 EC 170 counts toward the fifteen credits of statistics course work.
2 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. Mathematics 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. In addition, the College offers three interdisciplinary 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).

HUMANITIES AND SOCIAL SCIENCE REQUIREMENTS

To complement the technical content of the engineering curriculum, all B.S. programs require a Humanities and Social Science (HSS) component that encourages the exploration of the Humanities and Social Sciences and the appreciation of diversity in society. HSS electives may not be taken on a pass/no pass basis. A minimum of fifteen credits are required and at least six credits must be from the same department. A current list of approved HSS electives is available on the CEMS Student Services website or in the CEMS Student Services office (Votey 301).

Students’ HSS 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.

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-. Transfer students entering the sophomore year engineering curriculum must complete the PET requirement during their first semester at UVM. Transfer students are encouraged to make up missing courses during the summer preceding their arrival at UVM.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>CS 020</td>
<td>Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 031</td>
<td>Physics for Engineers I</td>
<td>4</td>
</tr>
</tbody>
</table>

Successful completion of the PET requirement is prerequisite to taking any of the following engineering courses that are typically taken in the sophomore year. Students will be disenrolled from these courses if the PET requirement has not been successfully completed.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 003</td>
<td>Linear Circuit Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>EE 004</td>
<td>Linear Circuit Analysis II</td>
<td>0 or 3</td>
</tr>
<tr>
<td>EE 081</td>
<td>Linear Circuits Laboratory I</td>
<td>0 or 2</td>
</tr>
<tr>
<td>EE 082</td>
<td>Linear Circuits Laboratory II</td>
<td>0 or 2</td>
</tr>
<tr>
<td>EE 100</td>
<td>Electrical Engr Concepts</td>
<td>0 or 4</td>
</tr>
<tr>
<td>EE 131</td>
<td>Fundamentals of Digital Design</td>
<td>3</td>
</tr>
<tr>
<td>EE 134</td>
<td>Microcontroller Systems</td>
<td>4</td>
</tr>
<tr>
<td>CE 001</td>
<td>Statics</td>
<td>0 or 3</td>
</tr>
<tr>
<td>CE 010</td>
<td>Geomatics</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CE 132</td>
<td>Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>ME 012</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 014</td>
<td>Mechanics of Solids</td>
<td>3</td>
</tr>
<tr>
<td>ME 040</td>
<td>Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 042</td>
<td>Applied Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 081</td>
<td>Mech Engr Shop Experience</td>
<td>1</td>
</tr>
<tr>
<td>ME 083</td>
<td>Computational Mech. Engr. Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

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

Civil Engineering B.S.CE. (p. 294)
Electrical Engineering B.S.EE. (p. 295)
Engineering B.A.E. (p. 297)
Engineering B.S.E. (p. 298)
Engineering Management B.S.EM. (p. 299)
Environmental Engineering B.S.EV. (p. 302)
Mechanical Engineering B.S.ME. (p. 304)

MINORS

ENGINEERING MINOR

Electrical Engineering (p. 305)
Geospatial Technologies Minor (p. 305)

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://catalog.uvm.edu/graduate) for more information

**CIVIL ENGINEERING B.S.CE.**

All students must meet the University Requirements. (p. 339)

The curriculum in civil engineering provides a strong foundation in mathematics, and physical, natural and engineering sciences. Instruction in civil engineering disciplines includes structural engineering, soil mechanics, hydraulics, environmental engineering, and transportation engineering.

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 engineering solutions. As part of this approach, service-learning projects with local communities and non-profit groups are incorporated into 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 125 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 to analysis, design, construction, management, and preservation of engineered and natural systems;
3. Participate in comprehensive design activities carried out in interdisciplinary settings that involve applying current and emerging practices in civil engineering;
4. Actively participate in professional and/or community-based service (local, national or global) that benefits the profession and the public;
5. Be capable of effective leadership and communication;
6. Be capable of professional licensure, and eager and able to engage in further study and professional development;
7. Consider the social, economic, and environmental aspects as part of the engineering solution and problem definition.

**PLAN OF STUDY**

**THE CURRICULUM FOR THE B.S. IN CIVIL ENGINEERING**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>CE 003 Intro to Civil &amp; Envir Engr</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 031 General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
</tr>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>HSS Electives</td>
<td>3</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>MATH 022 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 031 Physics for Engineers I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 030 Physics Problem Solving I (Optional)</td>
<td>0-1</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>16</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
</tr>
<tr>
<td>CE 001 Statics</td>
<td>3</td>
</tr>
<tr>
<td>CE 010 Geomatics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>STAT 143 Statistics for Engineering</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective</td>
<td>3</td>
</tr>
<tr>
<td>CE 132 Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 100 Electrical Engr Concepts</td>
<td>4</td>
</tr>
<tr>
<td>MATH 124 Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>ME 012 Dynamics</td>
<td>3</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>CE 001 Statics</td>
<td>3</td>
</tr>
<tr>
<td>CE 010 Geomatics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>STAT 143 Statistics for Engineering</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective</td>
<td>3</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>CE 001 Statics</td>
<td>3</td>
</tr>
<tr>
<td>CE 010 Geomatics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>STAT 143 Statistics for Engineering</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective</td>
<td>3</td>
</tr>
<tr>
<td>CE 132 Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 100 Electrical Engr Concepts</td>
<td>4</td>
</tr>
<tr>
<td>MATH 124 Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>ME 012 Dynamics</td>
<td>3</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>17</td>
</tr>
</tbody>
</table>
### Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 100 Mechanics of Materials</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 133 Transportation Systems</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 134 Sustainable Eng. Economics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 160 Hydraulics</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOL 001 Earth System Science or BIOL 001 Principles of Biology or BIOL 002 Principles of Biology</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 101 Materials and Structures Lab</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 151 Water &amp; Wastewater Engineering</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 170 Structural Analysis</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 180 Geotechnical Principles</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 040 Thermodynamics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td><strong>17</strong></td>
<td><strong>16</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 172 Structural Steel Design or CE 173 Reinforced Concrete</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science/Tech Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Electives</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Professional Electives</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HSS Electives</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CE 175 Senior Design Project</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td><strong>15</strong></td>
<td><strong>12</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits in Sequence:** 125-126

4. Typical Design electives include CE 241, CE 256, CE 261, CE 265, CE 273, CE 281, CE 284, CE 285 and some CE 295 courses (consult advisor). CE 173 is a design elective if CE 172 has also been taken.

5. Professional electives include all Design electives, CE 191, CE 192 and any 200-level CE course.

### ELECTRICAL ENGINEERING B.S.EE.

All students must meet the University Requirements (p. 339).

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 127 credits including 24 credits of technical electives. Students may pursue a minor provided that they fulfill all electrical engineering degree requirements.

Engineering design is developed and integrated into each student’s program and culminates in a required major design experience which draws upon prior course work and which focuses on the issues and expectations of professional practice.

### ELECTRICAL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES

The Electrical Engineering program is based on a solid foundation of the mathematical and physical sciences, engineering science and design, principles of professional engineering practice, and liberal education which together prepare graduates to:

1. Succeed in careers as practicing electrical and/or computer engineers in a wide range of industrial, governmental, and educational work environments;
2. Participate as active and effective members of engineering teams (possibly multi-disciplinary), which may be composed of people of diverse educational and cultural backgrounds;
3. Lead engineering teams in an effective, fair, and responsible manner;
4. Communicate effectively, in both written and oral forms, about their engineering activities and the results of those activities;
5. Educate themselves throughout their careers about advancements within their discipline and the role of their discipline in society in general;
6. Practice their profession in an ethically, socially, and environmentally responsible manner.

---

1. Required Humanities and Social Science (HSS): fifteen credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2. Six HSS credits must be from the same offering department (e.g. ANTH or GEOG).
2. Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.
3. Science/Tech elective: ME 042, PSS 161, PSS 264, PSS 266, PSS 268, PSS 269 or any 100-level or above course in engineering or BIOL, CHEM, GEOL, PHYS.
### PLAN OF STUDY

**THE CURRICULUM FOR THE B.S. IN ELECTRICAL ENGINEERING**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031 General Chemistry I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HSS Electives</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE 001 First-year Design Experience</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 022 Calculus II</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 030 Physics Problem Solving I (Optional)</td>
<td>0-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 031 Physics for Engineers I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
<td>16-17</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 031 C Programming</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 003 Linear Circuit Analysis</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 081 Linear Circuits Laboratory I</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 131 Fundamentals of Digital Design</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 123 Physics Problem Solving II (Optional)</td>
<td>0-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 125 Physics for Engineers II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 004 Linear Circuit Analysis II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 082 Linear Circuits Laboratory II</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 134 Microcontroller Systems</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 151 Applied Probability</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>16-17</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 187 Capstone Design I</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose two HSS Electives</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech Elective</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Choose two EE Technical Electives</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>EE 188 Capstone Design II</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HSS Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>18</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits in Sequence:** 127-129

1. Required Humanities and Social Science (HSS): fifteen credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2. Six HSS credits must be from the same offering department (e.g. ANTH or GEOG).

2. 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.

3. Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

4. Technical Electives: All EE Technical Electives and CS 064, CS 100, CS 110, CS 121, CS 123, CS 124; PHYS 128; ME 014, ME 040; MATH 124; ANPS 019; ANPS 020; BSAD 180; CHEM 032, CHEM 042, CHEM 141, CHEM 142; all 200-level engineering, CS, MATH, STAT, CHEM, and PHYS courses except for practicum and seminar.

5. EE Technical Electives: EE 113, EE 164, EE 195, and all 200-level, 3-4 credit EE courses. At least 9 credits must be at the 200-level or above.
ENGINEERING B.A.E.

All students must meet the University Requirements (p. 339).

The Bachelor of Arts in Engineering degree is intended to provide an engineering background for students who desire more educational breadth in the liberal arts than is possible with the various engineering B.S. degrees. Students graduating with this degree might pursue more advanced studies in engineering, or they might go on to advanced studies in fields such as business, law, environmental science, medicine, etc. The degree is not ABET-accredited and is not intended to produce students prepared to work as practicing engineers immediately upon graduation. The degree requires 120-124 credits.

Engineering B.A. students declare a primary concentration of study in engineering and a minor in liberal arts. The primary concentration can be within one of the following four areas of engineering: civil, electrical, environmental, or mechanical systems. Alternatively, students may request to develop their own tailored primary concentration in engineering. The required course work for each primary concentration area will be determined by a committee of SoE faculty with research and teaching interests in areas relevant to the concentration topic. The minor must be selected from the liberal arts minors offered by the College of Arts and Sciences (natural science and mathematical science minors may not be selected). Engineering B.A. students complete a specified set of course work in the mathematics and basic sciences and in engineering, as well as complete the B.A. distribution requirements of the College of Arts and Sciences.

PLAN OF STUDY

THE CURRICULUM FOR THE B.A. IN ENGINEERING

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>CE 003 Intro to Civil &amp; Envir Engr or ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 031 General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
</tr>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>HSS Electives (Social Science)¹</td>
<td>3</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 022 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>ME 001 First-Year Design Experience or EE 001 First-year Design Experience or ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>PHYS 030 Physics Problem Solving I (Optional)</td>
<td>0-1</td>
</tr>
<tr>
<td>PHYS 031 Physics for Engineers I</td>
<td>4</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EE 003 Linear Circuit Analysis I² or EE 100 Electrical Engr Concepts</td>
<td>3-4</td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 123 Physics Problem Solving II (Optional)</td>
<td>0-1</td>
</tr>
<tr>
<td>PHYS 125 Physics for Engineers II</td>
<td>3</td>
</tr>
<tr>
<td>Choose two HSS Electives (Humanities)¹</td>
<td>6</td>
</tr>
<tr>
<td>CE 001 Statics²</td>
<td>3</td>
</tr>
<tr>
<td>Engineering Science³,⁴</td>
<td>3</td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>ME 040 Thermodynamics³</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective (Fine Arts)¹</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16-18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>Choose two Engineering Science courses³</td>
<td>6</td>
</tr>
<tr>
<td>Minor⁴</td>
<td>3</td>
</tr>
<tr>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective (Foreign Lang)¹</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>Engineering Science³</td>
<td>3</td>
</tr>
<tr>
<td>Senior Thesis/Design (ME/EE focus) or Free Elective (CE/EENV focus)³</td>
<td>3</td>
</tr>
<tr>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>Choose two minor courses⁴</td>
<td>6</td>
</tr>
<tr>
<td>Choose two Engineering Science courses³</td>
<td>6</td>
</tr>
<tr>
<td>Senior Design/Thesis⁵</td>
<td>2-3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
</tbody>
</table>

Total Credits in Sequence: 122-126
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 HSS or minor requirements to satisfy diversity requirement (three credits of D1 and three credits of D1 or D2).

Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

Engineering Science: All CE, EE, ME and ENGR courses (except ENGR 010). Must have a minimum of 9 credits at the 200-level.

Minor in a liberal arts field is required. BAE students should use HSS or minor requirements to satisfy diversity requirement (three credits of D1 and three credits of D1 or D2).

Senior Design/Thesis credits vary depending upon program (consult advisor).

ENGINEERING B.S.E.

All students must meet the University Requirements (p. 339).

The College of Engineering and Mathematical Sciences offers instruction leading to the Bachelor of Science in Engineering degree. This degree is designed for those students desiring a program with a strong engineering science base in preparation for an interdisciplinary engineering specialty. Each student will be expected to declare a concentration before completing the first four semesters of study. At that time, the student and advisor will plan an integrated series of courses directed towards the concentration. Among the possible engineering concentrations are: aeronautical engineering, bioengineering, chemical engineering, computer engineering, power engineering, traffic engineering, geological engineering, etc. Other concentrations may be approved upon application to the College of Engineering and Mathematical Sciences Studies Committee.

Candidates for this degree must fulfill the following requirements, which include the core program, and present a total of at least 122 credits. Any substitutions in the engineering core program require the approval of the College’s Studies Committee.

PLAN OF STUDY

THE CURRICULUM FOR THE B.S. IN ENGINEERING

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>CHEM 031 General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CE 003 Intro to Civil &amp; Envir Engr or ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
</tr>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>HSS Electives¹</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EE 003 Linear Circuit Analysis I² or EE 100 Electrical Engr Concepts</td>
<td>3-4</td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 123 Physics Problem Solving II (Optional)</td>
<td>0-1</td>
</tr>
<tr>
<td>PHYS 125 Physics for Engineers II</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective³</td>
<td>3</td>
</tr>
<tr>
<td>Free Electives</td>
<td>3</td>
</tr>
<tr>
<td>CE 001 Statics²</td>
<td>3</td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>ME 040 Thermodynamics²</td>
<td>3</td>
</tr>
<tr>
<td>STAT 143 Statistics for Engineering or STAT 151 Applied Probability</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16-18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>Technical Elective⁴</td>
<td>3</td>
</tr>
<tr>
<td>Choose three Engineering Science courses³</td>
<td>9</td>
</tr>
<tr>
<td>HSS Electives¹</td>
<td>3</td>
</tr>
<tr>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>Senior Design (ME/EE focus) or Free Elective (CE/EENV focus)³</td>
<td>3</td>
</tr>
<tr>
<td>Choose two Technical Electives⁴</td>
<td>6</td>
</tr>
</tbody>
</table>

1. 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 HSS or minor requirements to satisfy diversity requirement (three credits of D1 and three credits of D1 or D2).
2. Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.
3. Engineering Science: All CE, EE, ME and ENGR courses (except ENGR 010). Must have a minimum of 9 credits at the 200-level.
4. Minor in a liberal arts field is required. BAE students should use HSS or minor requirements to satisfy diversity requirement (three credits of D1 and three credits of D1 or D2).
5. Senior Design/Thesis credits vary depending upon program (consult advisor).
Choose two Engineering Science courses\(^3\) & 6 & 6 \\
Senior Design\(^3\) & & 2-3 \\
Technical Elective\(^4\) & & 3 \\
Free Elective & & 3 \\
Year Total: & & 15 | 14-15 \\

Total Credits in Sequence: & & 122-126 \\

---

\(^1\) Required Humanities and Social Science (HSS): fifteen credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2. Six HSS credits must be from the same offering department (e.g. ANTH or GEOG).

\(^2\) Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

\(^3\) Engineering Science: All CE, EE, ME and ENGR courses (except ENGR 010). Must include a minimum of 9 credits at the 200-level.

\(^4\) Technical Electives: Any 100-level or higher course in CEMS or BSAD; natural or physical sciences courses with advisor approval.

\(^5\) Senior Design credits vary depending upon program.

**ENGINEERING MANAGEMENT**  
**B.S.EM.**

All students must meet the University Requirements (p. 339).

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. )
- Electrical Engineering Concentration (p. )
- Mechanical Engineering Concentration (p. )

---

**CIVIL AND ENVIRONMENTAL ENGINEERING CONCENTRATION**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>CE 003 Intro to Civil &amp; Envir Engr</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 031 General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>EC 011 Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
</tr>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>EC 012 Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>MATH 022 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 030 Physics Problem Solving I (Optional)</td>
<td>0-1</td>
</tr>
<tr>
<td>PHYS 031 Physics for Engineers I</td>
<td>4</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>BSAD 060 Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>CE 001 Statics(^1)</td>
<td>3</td>
</tr>
<tr>
<td>CE 010 Geomatics(^1)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 123 Physics Problem Solving II (Optional)</td>
<td>0-1</td>
</tr>
<tr>
<td>PHYS 125 Physics for Engineers II</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 061 Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>CE 132 Environmental Systems(^1)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 143 Statistics for Engineering or STAT 211 Statistical Methods I</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective(^5)</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>17-18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>CE 100 Mechanics of Materials</td>
<td>3</td>
</tr>
</tbody>
</table>
CE 133 Transportation Systems 3
CE 134 Sustainable Eng. Economics 3
CE 160 Hydraulics 4
STAT 143 Statistics for Engineering or STAT 211 Statistical Methods I 3
BSAD 120 Leadership & Org Behavior 3
BSAD 141 Info, Technology & Bus Systems 3
BSAD 173 Operations Management 3
CE 151 Water & Wastewater Engineering 3
CE 170 Structural Analysis 3
Year Total: 16 15

Senior

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 178 Quality Control or STAT 224 Stats for Quality &amp; Productivity</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CE Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EE 100 Electrical Engr Concepts</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EMGT 185 Senior Project</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HSS Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BSAD 270 Quant Analy for Managerial Dec</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Choose two EMGT Electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
<td>16-17</td>
</tr>
</tbody>
</table>

Total Credits in Sequence: 123-125

1 Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.
2 Required Humanities and Social Science (HSS): nine credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2.
3 CE Concentration electives: CE 172, CE 175, CE 180, any 200-level CE course.
4 Engineering Management electives: BSAD 143, BSAD 144, BSAD 145, BSAD 170, BSAD 192, BSAD 268; and STAT 221, STAT 224, STAT 225, STAT 229, STAT 231, STAT 233, STAT 237, STAT 253; EMGT 175.

ELECTRICAL ENGINEERING
CONCENTRATION

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031 General Chemistry I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC 011 Principles of Macroeconomics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC 012 Principles of Microeconomics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 001 First-year Design Experience</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 022 Calculus II</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 030 Physics Problem Solving I (Optional)</td>
<td>0-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 031 Physics for Engineers I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
<td>16-17</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 060 Financial Accounting</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 003 Linear Circuit Analysis I</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 081 Linear Circuits Laboratory I</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HSS Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSAD 061 Managerial Accounting</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 004 Linear Circuit Analysis II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 082 Linear Circuits Laboratory II</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 123 Physics Problem Solving II (Optional)</td>
<td>0-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 125 Physics for Engineers II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
<td>14-15</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 141 Info, Technology &amp; Bus Systems</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 120 Electronics I</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### MECHANICAL ENGINEERING CONCENTRATION

<table>
<thead>
<tr>
<th></th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 031 General Chemistry I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC 011 Principles of Macroeconomics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC 012 Principles of Microeconomics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 022 Calculus II</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 001 First-Year Design Experience</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 030 Physics Problem Solving I (Optional)</td>
<td>0-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 031 Physics for Engineers I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>16</td>
<td>16-17</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Sophomore</strong></th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 060 Financial Accounting</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CE 001 Statics¹</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 081 Mech Engr Shop Experience</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 123 Physics Problem Solving II (Optional)</td>
<td>0-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 125 Physics for Engineers II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSAD 061 Managerial Accounting</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 012 Dynamics¹</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 040 Thermodynamics¹</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 083 Computational Mech. Engr. Lab</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HSS Elective²</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>14-15</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Junior</strong></th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 100 Electrical Engr Concepts¹</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

1. Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

2. Required Humanities and Social Science: Nine credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2.

3. EE Conc. Electives: EE 113, EE 141, EE 163 (if not used to fulfill another requirement), EE 164, EE 171 (if not used to fulfill another requirement), EE 174, both EE 183 & EE 184, any 200-level EE course.

4. Engineering Management electives: BSAD 143, BSAD 144, BSAD 145, BSAD 170, BSAD 192, BSAD 268; and STAT 221, STAT 224, STAT 225, STAT 229, STAT 231, STAT 233, STAT 237, STAT 253; EMGT 175.
### MATH 124 Linear Algebra 3
### ME 111 System Dynamics 3
### ME 161 Modern Manufacturing Processes 3
### STAT 143 Statistics for Engineering or STAT 211 Statistical Methods I 3
### BSAD 141 Info, Technology & Bus Systems 3
### BSAD 173 Operations Management 3
### BSAD 180 Managerial Finance 3
### ME 014 Mechanics of Solids 3
### HSS Elective 2

**Year Total:**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

### Senior Credits

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSAD 120 Leadership &amp; Org Behavior</td>
<td>BSAD 178 Quality Control or STAT 224 Stats for Quality &amp; Productivity</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 178 Quality Control or STAT 224 Stats for Quality &amp; Productivity</td>
<td>EMGT 185 Senior Project</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>EMGT 185 Senior Project</td>
<td>ME 101 Materials Engineering</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective</td>
<td>BSAD 270 Quant Anyl for Managerial Dec</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>BSAD 270 Quant Anyl for Managerial Dec</td>
<td>ME 171 Design of Elements</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 171 Design of Elements</td>
<td>Choose two EMGT Electives</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Choose two EMGT Electives</td>
<td>ME Electives</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>ME Electives</td>
<td>Year Total:</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
</tbody>
</table>

**Total Credits in Sequence:** 123-125

---

### ENVIRONMENTAL ENGINEERING B.S.EV.

All students must meet the University Requirements. (p. 339)

The curriculum leading to a B.S. degree in Environmental Engineering provides a strong foundation in mathematics, physical, natural and engineering sciences. Instruction in environmental engineering includes air pollution, surface and groundwater hydrology, water and wastewater engineering and waste management.

An Environmental Engineering degree is excellent preparation for immediate employment in 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 engineering solutions. As part of this approach, service-learning projects with local communities and non-profit groups are incorporated into 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 125 credits. Students are encouraged to pursue minors or focus areas in other disciplines that complement their engineering experience. International education and work experiences are also encouraged. Students should consult their advisors early in their program in order to plan accordingly.

**ENVIRONMENTAL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES**

Graduates of the program are expected to:

1. Practice environmental engineering, use their program knowledge in other areas, or enter graduate school;
2. Apply engineering principles and an understanding of environmental issues to analysis, design, construction, management, and preservation of engineered and natural systems;
3. Participate in comprehensive design activities carried out in interdisciplinary settings that involve applying current and emerging practices in environmental engineering;
4. Actively participate in professional and/or community-based service (local, national or global) that benefits the profession and the public;
5. Be capable of effective leadership and communication;
6. Be capable of professional licensure, and eager and able to engage in further study and professional development;

---

1. Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.
2. Required Humanities and Social Science (HSS): fifteen credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2.
3. ME electives: 200-level or higher.
4. Engineering Management electives: BSAD 143, BSAD 144, BSAD 145, BSAD 170, BSAD 192, BSAD 268; and STAT 221, STAT 224, STAT 225, STAT 229, STAT 231, STAT 233, STAT 237, STAT 253; EMGT 175.
7. Consider the social, economic, and environmental aspects as part of the engineering solution and problem definition.

## PLAN OF STUDY

### THE CURRICULUM FOR THE B.S. IN ENVIRONMENTAL ENGINEERING

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>CE 003 Intro to Civil &amp; Envir Engr</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 031 General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective 1</td>
<td>3</td>
</tr>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 032 General Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>MATH 022 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 030 Physics Problem Solving I (Optional)</td>
<td>0-1</td>
</tr>
<tr>
<td>PHYS 031 Physics for Engineers I</td>
<td>4</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>BIOL 001 Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>CE 010 Geomatics 2</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>STAT 143 Statistics for Engineering</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective 1</td>
<td>3</td>
</tr>
<tr>
<td>CE 001 Statics 2</td>
<td>3</td>
</tr>
<tr>
<td>CE 132 Environmental Systems 2</td>
<td>3</td>
</tr>
<tr>
<td>EE 100 Electrical Engr Concepts</td>
<td>4</td>
</tr>
<tr>
<td>MATH 124 Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>CE 100 Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>CE 133 Transportation Systems</td>
<td>3</td>
</tr>
<tr>
<td>CE 134 Sustainable Eng. Economics</td>
<td>3</td>
</tr>
<tr>
<td>CE 160 Hydraulics</td>
<td>4</td>
</tr>
<tr>
<td>CE 151 Water &amp; Wastewater Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CE 180 Geotechnical Principles</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 001 Earth System Science or PSS 161 Fundamentals of Soil Science</td>
<td>4</td>
</tr>
<tr>
<td>ME 040 Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>HSS Elective 1</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>CE 254 Environmental Quantitive Anyl</td>
<td>4</td>
</tr>
<tr>
<td>Science/Tech Elec 3</td>
<td>3</td>
</tr>
<tr>
<td>Env Design Electives 4</td>
<td>3</td>
</tr>
<tr>
<td>Env Prof Electives 5</td>
<td>3</td>
</tr>
<tr>
<td>HSS Electives 1</td>
<td>3</td>
</tr>
<tr>
<td>CE 175 Senior Design Project</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
</tr>
</tbody>
</table>

Total Credits in Sequence: 125-126

1. Required Humanities and Social Science (HSS): fifteen credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2. Six HSS credits must be from the same offering department (e.g. ANTH or GEOG).

2. Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

3. Science/Tech elective: ME 042, PSS 264, PSS 266, PSS 268, PSS 269 or PSS 161 (if not previously taken), or any 100-level or above course in engineering or BIOL, CHEM, GEOL, PHYS.

4. Typical Design electives include CE 251, CE 253, CE 256, CE 261, CE 265, CE 284, CE 285 and some CE 295 courses (consult advisor).

5. Professional electives include all Design electives, CE 191, CE 192, and any 200-level CE course.
MECHANICAL ENGINEERING B.S.ME.

All students must meet the University Requirements. (p. 339)

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 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

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 031 General Chemistry I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 001 Statics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 040 Thermodynamics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 081 Mech Engr Shop Experience</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 123 Physics Problem Solving II (Optional)</td>
<td>0-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 125 Physics for Engineers II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 012 Dynamics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 014 Mechanics of Solids</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 042 Applied Thermodynamics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 083 Computational Mech. Engr. Lab</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HSS Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>14-15</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 100 Electrical Engr Concepts</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 124 Linear Algebra</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 101 Materials Engineering</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 111 System Dynamics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 123 Thermo-Fluid Lab</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 143 Fluid Mechanics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 101 Digital Control w/Embedded Sys</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 124 Materials and Mechanics Lab</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 144 Heat Transfer</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### ELECTRICAL ENGINEERING MINOR REQUIREMENTS

Eighteen credits in Electrical Engineering consisting of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 003 &amp; EE 081</td>
<td>3</td>
</tr>
<tr>
<td>EE 004 &amp; EE 082</td>
<td>3</td>
</tr>
</tbody>
</table>

**Choose one of the following sequences:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Circuit Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>and Linear Circuits Laboratory I</td>
<td>3</td>
</tr>
<tr>
<td>Linear Circuit Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>and Linear Circuits Laboratory II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Select remaining credits from EE courses numbered above 101**

### PRE/CO-REQUISITES

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 021 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 022 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 121 Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 271 Adv Engineering Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 031 Physics for Engineers I</td>
<td>0-4</td>
</tr>
<tr>
<td>PHYS 105 Fundamentals of Physics I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 152 Fundamentals of Physics II</td>
<td>3</td>
</tr>
</tbody>
</table>

### GEOSPATIAL TECHNOLOGIES MINOR REQUIREMENTS

Five courses (fifteen credits with at least nine credits at 100-level or above) which must include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 025 Measurements &amp; Mapping</td>
<td>3-4</td>
</tr>
<tr>
<td>GEOG 081 Geotechniques</td>
<td></td>
</tr>
<tr>
<td>CE 010 Geomatics</td>
<td></td>
</tr>
<tr>
<td>ENSC 130 Global Environmental Assessment</td>
<td></td>
</tr>
<tr>
<td>GEOL 151/ GEOG 144 Geomorphology</td>
<td></td>
</tr>
</tbody>
</table>

Any one Geographic Information Systems course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 184 Geog Info:Cncpts &amp; Applic</td>
<td>3</td>
</tr>
<tr>
<td>or NR 143 Intro to Geo Info Systems</td>
<td></td>
</tr>
</tbody>
</table>

Any one course from Remote Sensing:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 146 Remote Sensing of Natural Res</td>
<td>3</td>
</tr>
<tr>
<td>or GEOG 185 Remote Sensing</td>
<td></td>
</tr>
</tbody>
</table>

Any two electives (either two from Group A or one course each from Group A and Group B):

**Group A:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 243 GIS Practicum</td>
<td>3</td>
</tr>
<tr>
<td>NR 245 Integrating GIS &amp; Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

---

1. Required Humanities and Social Science (HSS): fifteen credits of approved HSS electives, including three credits of D1 and three credits of D1 or D2. Six HSS credits must be from the same offering department (e.g. ANTH or GEOG).

2. 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.

3. Pre-Engineering Technical (PET) requirements: MATH 021 and MATH 022, CHEM 031, PHYS 031 and CS 020. All PET courses must be completed with C- or better before any sophomore engineering courses may be taken.

4. ME Course 200-level or higher.

5. Any 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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 287</td>
<td>Spatial Analysis</td>
</tr>
<tr>
<td>GEOG 281</td>
<td>Adv Topic: GIS &amp; Remote Sensing (a, Satellite Climatology/Land Surface Applications)</td>
</tr>
<tr>
<td>GEOG 281</td>
<td>Adv Topic: GIS &amp; Remote Sensing (b, Advanced GIS Applications)</td>
</tr>
<tr>
<td>NR 242</td>
<td>Adv Geospatial Techniques</td>
</tr>
</tbody>
</table>

**Group B:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 021</td>
<td>Computer Programming I</td>
</tr>
<tr>
<td>CS 042</td>
<td>Dynamic Data on the Web</td>
</tr>
<tr>
<td>CS 148</td>
<td>Database Design for the Web</td>
</tr>
<tr>
<td>CS 189</td>
<td>CS for Geospatial Technologies</td>
</tr>
<tr>
<td>ENGR 002</td>
<td>Graphical Communication</td>
</tr>
<tr>
<td>CDAE 101</td>
<td>Computer Aided Drafting &amp; Design</td>
</tr>
</tbody>
</table>

**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.
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; Communication Sciences and Disorders; 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 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 Education.

MAJORS
- Athletic Training Education B.S. (p. 317)
- Communication Sciences and Disorders B.S. (p. 308)
- Exercise and Movement Science B.S. (p. 319)
- Medical Laboratory Science B.S. (p. 310)
- Medical Radiation Sciences B.S. (p. 312)
- Nursing B.S. (p. 315)
- Nursing (for Registered Nurses) B.S. (p. 316)

MINORS
- Communication Sciences and Disorders (p. 310)

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.

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.

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 Communications 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. 308)

**MINORS**

**COMMUNICATION SCIENCES AND DISORDERS MINOR**

Communication Sciences and Disorders (p. 310)

**GRADUATE**

Communication Sciences and Disorders M.S.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

**COMMUNICATION SCIENCES AND DISORDERS B.S.**

All students must meet the University Requirements (p. 339).

All students must meet the College Requirements. (p. 307)

This major leads to a Bachelor of Science. A minimum of 120 credits and a GPA of 2.50 are required for the Communication Sciences and Disorders major. In addition, this degree provides a good foundation for graduate work in other fields such as psychology, linguistics, cognitive science, or medicine, given some extra undergraduate preparation. (Note: a B.A. in Communication Sciences is not an option for students who enter UVM after the 2010-2011 academic year.)

Working as a speech-language pathologist (SLP) requires a master’s degree, clinical certification from the American Speech-Language-Hearing Association, and state licensure. Positions in audiology 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.

Employment as a pre-professional is possible in many settings without the master’s degree. Many students, even those firmly committed to the idea of eventually doing graduate work, take interim jobs upon graduation as speech-language assistants in schools or medical centers, or as audiology assistants. Supplemental coursework is available for students interested in pursuing these options.

PLAN OF STUDY
A MODEL CURRICULUM IN COMMUNICATION SCIENCES AND DISORDERS

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 080 Introduction to Linguistics or CSD 023 Linguistics for Clinicians</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSYC 001 General Psychology</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH 050 App to Hlth: From Pers to Syst</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives/Diversity/Minor/Distribution</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>CSD 094 Dev of Spoken Language</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Science Course</td>
<td>3-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSD 020 Intro to Disordered Comm</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
<td>15-16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSD 101 Speech &amp; Hearing Science</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH 120 Health Care Ethics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 111 Elements of Statistics or STAT 141 Basic Statistical Methods</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives/Diversity/Minor/Distribution</td>
<td>6</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>BIOL 004 The Human Body or ANPS 019 Ugr Hum Anatomy &amp; Physiology</td>
<td>3-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Biology Lab (recommended)</td>
<td>0-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSYC 161 Developmental Psych:Childhood</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
<td>15-17</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 081 Structure of English Language or LING 166 Introduction to Syntax</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSD 271 Introduction to Audiology</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LING 165 Phonetic Theory and Practice or CSD 022 Introduction to Phonetics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSD 262 Measurement of Comm Processes</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives/Diversity/Minor/Distribution</td>
<td>3</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>CSD 208 Cognition &amp; Language</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSD 272 Hearing Rehabilitation</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSD 281 Cognitive Neuroscience</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended for Fall:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSD 295 Advanced Special Topics or CSD 287 D2:Mindfulness&amp;Helping Skills</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives/Diversity/Minor/Distribution</td>
<td>9</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Recommended for Spring:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSD 274 D2: Culture of Disability or CSD 287 D2:Mindfulness&amp;Helping Skills or CSD 299 Autism Spect Dis:Assess&amp;Interv or CSD 295 Advanced Special Topics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

| Total Credits in Sequence: | 120-123 | |

Distribution courses include the following: Fine Arts (three credits); Foreign Language (six to eight credits); Literature (three credits); Humanities (six credits).

University minor required.

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

LING 080 Introduction to Linguistics  3
CSD 094 Dev of Spoken Language  3

Three courses at the 100-level or above, including any three of the following:

CSD 020 Intro to Disordered Comm (This course is accepted as a course at the 100-level)

Any two LING courses

ANTH 176 Topics in Linguistic Anthro

Any two of the following:  6
PSYC 121 Biopsychology
PSYC 130 Social Psychology
PSYC 161 Developmental Psyc:Childhood

One course at the 200-level or above

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

DEPARTMENT OF MEDICAL LABORATORY AND RADIATION SCIENCES

http://www.uvm.edu/~cnhs/mlrs/

Graduates of all three programs are prepared for immediate employment, as well as the pursuit of post-baccalaureate education in the health sciences or professional education in fields such as medicine. Courses in the humanities and basic sciences are taken in the department and throughout the university, including the College of Medicine.

Requirements for admission are the same as the general university requirements, with the addition that applicants must have taken high school biology, mathematics through trigonometry or precalculus, and chemistry; physics is highly recommended.

MAJORS

MEDICAL LABORATORY AND RADIATION SCIENCES MAJORS

Medical Laboratory Science B.S. (p. 310)
Medical Radiation Sciences B.S. (p. 312)

MEDICAL LABORATORY SCIENCE B.S.

All students must meet the University Requirements (p. 339).
All students must meet the College Requirements. (p. 307)

A minimum of 121 credits including six credits of University Approved Diversity courses, an overall grade-point average of 2.30, and grades of C or better in professional courses are required for graduation in both areas of study. Professional courses are denoted in the plan of study.

PLAN OF STUDY

The Medical Laboratory Science major offers two concentrations:

Clinical Laboratory Science Concentration (p. )
Public Health Laboratory Science Concentration (p. )

CLINICAL LABORATORY SCIENCE CONCENTRATION

The medical laboratory scientist is involved in the development, performance, and evaluation of laboratory tests that lead to assessment of health status, diagnosis of disease, and monitoring of therapeutic treatment. The clinical laboratory experience is obtained at one of the college’s hospital affiliates located within the northeast.

This four-year curriculum leading to the baccalaureate degree is accredited by the National Accrediting Agency for Clinical Laboratory Sciences.

Clinical Affiliations

Brigham and Women’s Hospital, Boston, MA
Elliot Hospital, Manchester, NH
Fletcher Allen Health Care, Burlington, VT
Glens Falls Hospital, Glens Falls, NY
St. Peter’s Hospital, Albany, NY
A Model Curriculum in Medical Laboratory Science / Clinical Laboratory Science Concentration

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>CHEM 031 General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>ENGS 001 Written Expression (or higher)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 019 Fundamentals of Calculus I (or higher)</td>
<td>3</td>
</tr>
<tr>
<td>NH 003 Medical Terminology</td>
<td>2</td>
</tr>
<tr>
<td>NH 050 App to Hlth: From Pers to Syst</td>
<td>1</td>
</tr>
<tr>
<td>Electives/Diversity Courses</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 032 General Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>MLRS 034 Human Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>STAT 111 Elements of Statistics or STAT 141 Basic Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>NH 120 Health Care Ethics</td>
<td>3</td>
</tr>
<tr>
<td>MMG 101 Microbiol &amp; Infectious Disease</td>
<td>4</td>
</tr>
<tr>
<td>ANPS 019 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 042 Intro Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MLS 255 Clinical Microbiology II or MMG 222 Clinical Microbiology I</td>
<td>4</td>
</tr>
<tr>
<td>ANPS 020 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>MLRS 281 Applied Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>MLRS 282 Applied Molecular Biology Lab</td>
<td>1</td>
</tr>
<tr>
<td>MLRS 296 Leadership &amp; Mgt in Hlth Care</td>
<td>3</td>
</tr>
<tr>
<td>PATH 101 Intro to Human Disease</td>
<td>3</td>
</tr>
<tr>
<td>PBIO 185 Survey of Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td>16</td>
</tr>
<tr>
<td><strong>Total Credits in Sequence:</strong></td>
<td>121</td>
</tr>
</tbody>
</table>

1. Professional courses are used in calculating core GPA as it relates to successful progression in the program.

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.

Practicum Affiliates

Sites for Public Health are established throughout the Northeast United States and are based on the future goals of students and their geographical preference.
A Model Curriculum in Medical Laboratory Science / Public Health Laboratory Science Concentration

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>CHEM 031 General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>ENGS 001 Written Expression (or higher)</td>
<td>3</td>
</tr>
<tr>
<td>NH 050 App to Hlth: From Pers to Syst</td>
<td>1</td>
</tr>
<tr>
<td>MATH 019 Fundamentals of Calculus I (or higher)</td>
<td>3</td>
</tr>
<tr>
<td>NH 003 Medical Terminology</td>
<td>2</td>
</tr>
<tr>
<td>Electives / Diversity courses</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 032 General Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>MLRS 034 Human Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>ANPS 019 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>MMG 101 Microbiol &amp; Infectious Disease</td>
<td>4</td>
</tr>
<tr>
<td>NH 120 Health Care Ethics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 141 Basic Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>ANPS 020 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 042 Intro Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MLRS 255 Clinical Microbiology II(^1) or MMG 222 Clinical Microbiology I</td>
<td>4</td>
</tr>
<tr>
<td>Year Total:</td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>BCOR 102 Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>PATH 101 Intro to Human Disease</td>
<td>3</td>
</tr>
<tr>
<td>MLRS 296 Leadership &amp; Mgt in Hlth Care(^1)</td>
<td>3</td>
</tr>
<tr>
<td>P990 185 Survey of Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>BCOR 101 Genetics</td>
<td>3</td>
</tr>
<tr>
<td>MLRS 242 Immunology(^1) or MMG 223 Immunology</td>
<td>3</td>
</tr>
</tbody>
</table>

| Year Total: | 16 | 14 |

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>BIOL 254 Population Genetics</td>
<td>4</td>
</tr>
<tr>
<td>STAT 200 Med Biostatistics&amp;Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>NFS 295 Advanced Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
<tr>
<td>MLRS 250 Clin Practicum:Microbiology(^1) or MLRS 299 Advanced Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>MLRS 282 Public Health Lab Practicum(^1)</td>
<td>12</td>
</tr>
<tr>
<td>Year Total:</td>
<td>14</td>
</tr>
</tbody>
</table>

Total Credits in Sequence: 121

\(^1\) Professional courses are used in calculating core GPA as it relates to successful progression in the program.

MEDICAL RADIATION SCIENCES B.S.

All students must meet the University Requirements (p. 339).

All students must meet the College Requirements. (p. 307)

A minimum of 121 credits including six credits of University Approved Diversity courses, an overall grade-point average of 2.30, and grades of C or better in professional courses are required for graduation in all three areas of study. Professional courses are denoted in the plan of study.

PLAN OF STUDY

The Medical Radiation Sciences major offers two concentrations:

- Nuclear Medicine Technology Concentration (p. 313)
- Radiation Therapy Concentration (p. 314)

NUCLEAR MEDICINE TECHNOLOGY CONCENTRATION

Nuclear medicine technology is the medical specialty concerned with the use of small amounts of radioactive materials for diagnosis, therapy, and research. Nuclear medicine provides valuable information about both the structure and function of major organ systems.
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 Fletcher Allen Health Care (FAHC). At least one experience will be at an affiliate outside of Burlington, which will require additional room, meals, and transportation expenses.

**Clinical Affiliations**

Catholic Medical Center, Manchester, NH*
Dartmouth-Hitchcock Medical Center, Hanover, NH*
Fletcher Allen Health Care, Burlington, VT*
Hartford Hospital, Hartford, CT*
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**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>CHEM 023 Outline of General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MATH 019 Fundamentals of Calculus I (or higher)</td>
<td>3</td>
</tr>
<tr>
<td>ENGS 001 Written Expression (or higher)</td>
<td>3</td>
</tr>
<tr>
<td>NH 050 App to Hlth: From Pers to Syst</td>
<td>1</td>
</tr>
<tr>
<td>NH 003 Medical Terminology</td>
<td>2</td>
</tr>
<tr>
<td>Elective/Diversity courses</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 026 Outline of Organic &amp; Biochem or CHEM 042 Intro Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MLRS 034 Human Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 001 General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16 14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>ANPS 019 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>MLRS 140 Radiation Science</td>
<td>3</td>
</tr>
<tr>
<td>NH 120 Health Care Ethics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 111 Elements of Statistics or STAT 141 Basic Statistical Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

| Electives | 3 3 |
| ANPS 020 Ugr Hum Anatomy & Physiology | 4 |
| MLRS 141 Advanced Radiation Science | 3 |
| NMT 162 Introduction to Clinical NMT | 1 |
| PHYS 013 Conceptual Physics | 3 |
| Year Total: | 16 14 |

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>MLRS 175 Medical Imaging</td>
<td>3</td>
</tr>
<tr>
<td>PATH 101 Intro to Human Disease</td>
<td>3</td>
</tr>
<tr>
<td>NMT 163 Nuclear Med Clin Practicum I</td>
<td>1</td>
</tr>
<tr>
<td>NMT 153 Nuclear Med Clin Procedures I</td>
<td>3</td>
</tr>
<tr>
<td>NMT 152 Radiopharmaceuticals</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>NMT 164 Nuclear Med Clin Practicum II</td>
<td>3</td>
</tr>
<tr>
<td>NMT 160 Patient Care Seminar</td>
<td>1</td>
</tr>
<tr>
<td>NMT 174 Nuclear Cardiology</td>
<td>3</td>
</tr>
<tr>
<td>NMT 155 Instrumentation I</td>
<td>3</td>
</tr>
<tr>
<td>MLRS 215 CT Procedures</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>14 16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>MLRS 296 Leadership &amp; Mgt in Hlth Care</td>
<td>3</td>
</tr>
<tr>
<td>NMT 154 Nuclear Med Clin Procedures II</td>
<td>3</td>
</tr>
<tr>
<td>NMT 156 Instrumentation II</td>
<td>3</td>
</tr>
<tr>
<td>NMT 252 Senior Seminar</td>
<td>2</td>
</tr>
<tr>
<td>NMT 263 Adv Nuclear Med Clin Pract III</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>NMT 264 Clinical Practicum IV</td>
<td>14</td>
</tr>
<tr>
<td>Year Total:</td>
<td>17 14</td>
</tr>
</tbody>
</table>

**Total Credits in Sequence:** 121
Professional courses are used in calculating core GPA as it relates to successful progression in the program.

**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 Fletcher Allen Health Care (FAHC). At least one experience will be at an affiliate outside of Burlington which will require additional room, meals, and transportation expenses.

**Clinical Affiliations**

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  
Fletcher Allen Health Care, 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**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>CHEM 023 Outline of General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
</tr>
<tr>
<td>Elective/Diversity course</td>
<td>3</td>
</tr>
<tr>
<td>MATH 019 Fundamentals of Calculus I (or higher)</td>
<td>3</td>
</tr>
<tr>
<td>NH 003 Medical Terminology</td>
<td></td>
</tr>
<tr>
<td>NH 050 App to Hlth: From Pers to Syst</td>
<td></td>
</tr>
<tr>
<td>PSYC 001 General Psychology</td>
<td></td>
</tr>
<tr>
<td>MLRS 034 Human Cell Biology</td>
<td></td>
</tr>
<tr>
<td>NFS 043 Fundamentals of Nutrition</td>
<td></td>
</tr>
<tr>
<td>SOC 001 Introduction to Sociology</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>ANPS 019 Ugr Hum Anatomy &amp; Physiology¹</td>
<td>4</td>
</tr>
<tr>
<td>NH 120 Health Care Ethics</td>
<td></td>
</tr>
<tr>
<td>MLRS 140 Radiation Science¹</td>
<td></td>
</tr>
<tr>
<td>STAT 111 Elements of Statistics or STAT 141 Basic Statistical Methods</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>ANPS 020 Ugr Hum Anatomy &amp; Physiology¹</td>
<td></td>
</tr>
<tr>
<td>MLRS 141 Advanced Radiation Science¹</td>
<td></td>
</tr>
<tr>
<td>PHYS 013 Conceptual Physics</td>
<td></td>
</tr>
<tr>
<td>RADT 152 Prin of Radiation Therapy¹</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>RADT 270 Dosimetry Concepts¹</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>PATH 101 Intro to Human Disease</td>
<td></td>
</tr>
<tr>
<td>MLRS 175 Medical Imaging¹</td>
<td></td>
</tr>
<tr>
<td>RADT 173 Intro to Clinical Practice¹</td>
<td></td>
</tr>
<tr>
<td>RADT 275 Dosimetry¹</td>
<td></td>
</tr>
<tr>
<td>RADT 176 Clinical Radiation Oncology¹</td>
<td></td>
</tr>
<tr>
<td>MLRS 215 CT Procedures¹</td>
<td></td>
</tr>
<tr>
<td>RADT 174 Clinical Practicum¹</td>
<td></td>
</tr>
<tr>
<td>RADT 244 Patient Care Seminar¹</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
</tr>
</tbody>
</table>
1  Professional courses are used in calculating core GPA as it relates to successful progression in the program.

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

• Students are expected to maintain a cumulative GPA of at least 2.50 with a grade no lower than C in all required courses (except free electives). If a student’s GPA is below 2.50, the student will be placed “on trial” for one semester. The inability to raise the cumulative GPA to 2.50 during the “on trial” semester is grounds for dismissal.

• Receiving a grade of C- or lower in the same required or nursing course twice, or in two different courses, is grounds for dismissal. General electives do not apply to this policy.

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.

NURSING B.S.

All students must meet the University Requirements (p. 339).

All students must meet the College Requirements. (p. 307)

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:

<table>
<thead>
<tr>
<th>Major nursing courses</th>
<th>67</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required non-nursing courses</td>
<td>48</td>
</tr>
<tr>
<td>Elective courses</td>
<td>12</td>
</tr>
<tr>
<td>Courses meeting University Approved Diversity requirements must be met through select required non-nursing and elective courses</td>
<td>6</td>
</tr>
</tbody>
</table>

PLAN OF STUDY

A MODEL CURRICULUM IN NURSING (127 CREDITS)

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>CHEM 023 Outline of General Chemistry</td>
<td>0 or 4</td>
</tr>
</tbody>
</table>
### Undergraduate Catalogue 2014-15

#### The University of Vermont

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 001</td>
<td>General Psychology</td>
<td>0 or 3</td>
</tr>
<tr>
<td>HDFS 005</td>
<td>Human Development</td>
<td>3</td>
</tr>
<tr>
<td>NH 050</td>
<td>App to Hlth: From Pers to Syst</td>
<td>1</td>
</tr>
<tr>
<td>ENGS 001</td>
<td>Written Expression</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 152</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 026</td>
<td>Outline of Organic &amp; Biochem</td>
<td>0 or 4</td>
</tr>
<tr>
<td>SOC 001</td>
<td>Introduction to Sociology(^1)</td>
<td>3</td>
</tr>
<tr>
<td>NFS 043</td>
<td>Fundamentals of Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>Philosophy or Religion or Ethics Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td></td>
<td>7-14 12-16</td>
</tr>
</tbody>
</table>

#### Sophomore

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANPS 019</td>
<td>Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>MMG 065</td>
<td>Microbiology &amp; Pathogenesis</td>
<td>4</td>
</tr>
<tr>
<td>STAT 111</td>
<td>Elements of Statistics</td>
<td>3</td>
</tr>
<tr>
<td>PRNU 110</td>
<td>Art &amp; Science of Nursing</td>
<td>3</td>
</tr>
<tr>
<td>Elective/Environmental Studies(^2)</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>ANPS 020</td>
<td>Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>PRNU 111</td>
<td>Research in Nursing</td>
<td>3</td>
</tr>
<tr>
<td>PRNU 113</td>
<td>Health Assessment</td>
<td>3</td>
</tr>
<tr>
<td>PRNU 114</td>
<td>Intro to Clinical Practice</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td></td>
<td>17-18 16</td>
</tr>
</tbody>
</table>

#### Junior

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 120</td>
<td>Pathophysiology</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>3 or 3</td>
</tr>
<tr>
<td>PRNU 121</td>
<td>Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>PRNU 128</td>
<td>Pharmacology</td>
<td>4 or 0</td>
</tr>
<tr>
<td>PRNU 129</td>
<td>Women &amp; Newborn Nursing</td>
<td>4</td>
</tr>
<tr>
<td>PRNU 131</td>
<td>Health Alterations</td>
<td>3</td>
</tr>
<tr>
<td>PRNU 134</td>
<td>Adult Health Nursing I</td>
<td>6</td>
</tr>
<tr>
<td>PRNU 132</td>
<td>Child &amp; Adolescent Nursing or PRNU 235 Psychiatric Mental Hlth Nurs</td>
<td>5</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td></td>
<td>13-17 17</td>
</tr>
</tbody>
</table>

#### Senior

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRNU 231</td>
<td>Chronic &amp; Palliative Care Nurs</td>
<td>3</td>
</tr>
<tr>
<td>PRNU 234</td>
<td>Adult Health Nursing II</td>
<td>6</td>
</tr>
<tr>
<td>PRNU 235</td>
<td>Psychiatric Mental Hlth Nurs or PRNU 132 Child &amp; Adolescent Nursing</td>
<td>5</td>
</tr>
<tr>
<td>PRNU 240</td>
<td>Contemp Iss&amp;Ldrsh Prof Nursing</td>
<td>6</td>
</tr>
<tr>
<td>PRNU 241</td>
<td>D2:Public Health Nursing</td>
<td>6</td>
</tr>
<tr>
<td>PRNU 243</td>
<td>Transition to Prof Practice</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Year Total:</strong></td>
<td></td>
<td>14 16</td>
</tr>
</tbody>
</table>

**Total Credits in Sequence:** 112-128

---

1. Any sociology course under 100 can be substituted for SOC 001.
2. A 3-4 credit environmental studies or environmental science course required before graduation.

Six credits meeting diversity requirements must be taken prior to graduation (3 credits D1 and 3 credits D1 or D2)

### Nursing (for Registered Nurses)

#### B.S.

All students must meet the University Requirements (p. 339).

All students must meet the College Requirements. (p. 307)

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRNU 060</td>
<td>Trans to Cntmp Prof Nursing</td>
<td>3</td>
</tr>
<tr>
<td>PRNU 111</td>
<td>Research in Nursing</td>
<td>3</td>
</tr>
<tr>
<td>PRNU 113</td>
<td>Health Assessment</td>
<td>0 or 3</td>
</tr>
</tbody>
</table>

---

---
THE UNIVERSITY OF VERMONT

PRNU 241  D2: Public Health Nursing  0-6
PRNU 263  Prof Nursing Pract & Soc Justice  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  3
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. 317)
Exercise and Movement Science B.S. (p. 319)

GRADUATE

Physical Therapy D.P.T.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information

ATHLETIC TRAINING EDUCATION B.S.

All students must meet the University Requirements (p. 339).

All students must meet the College Requirements. (p. 307)

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. At the end of the first year, students matriculate into the clinical portion of the program, where they are assigned to a different clinical preceptor each semester at both on- and off-campus clinical sites.

Our more than 20 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 experience hours are completed within a minimum of five semesters. 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

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 023 Outline of General Chemistry*</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH 050 App to Hlth: From Pers to Syst</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 155 Emergency Med. Response in AT</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 168 Directed Obsv. in Athl Trng</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 009 College Algebra (or higher)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 158 Fundamentals of Athletic Trng</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 013 Conceptual Physics</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH 003 Medical Terminology*</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFS 043 Fundamentals of Nutrition*</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSYC 001 General Psychology*</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>15</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANPS 019 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities or Diversity Elective</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AT 159 Practicum in Athletic Trng</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 169 Clinical Experience in AT</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 184 Injury Eval &amp; Recognition</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFS 163 Sports Nutrition*</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANPS 020 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 160 Practicum in Athletic Trng II</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 170 Clinical Experience in AT II</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 185 Injury Eval &amp; Recognition II</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMS 244 Patient Mgmt Therapeutic Modal*</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>16</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT 161 Practicum in Athletic Trng III</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXMS 242 Exercise and Sport Psychology</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMS 213 Biomechanics of Human Movement</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 111 Elements of Statistics*</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 171 Clinical Experience in AT III</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 187 Rehabilitation Techniques</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 189 Recog &amp; Tx of Med Cond in AT</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 162 Practicum in Athletic Trng IV</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 172 Clinical Experience in AT IV</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMS 188 D2:Org&amp;Ldrship in AthTrn&amp;Ex Sc</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMS 220 Research I or SURG 200 Emergency Medicine Research I</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMS 250 Exercise Physiology*</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective (if necessary)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>17</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT 190 Senior Seminar in AT</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 173 Clinical Experience in AT V (variable credit: 6-12)*</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH 120 Health Care Ethics*</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective (if necessary)</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>AT 192 Senior Seminar in AT II (or electives)</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 174 Clinical Experience in AT VI (variable credit: 6-12; or electives)</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>14</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits in Sequence:** 122

---

1 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.

* Course can be taken fall or spring.

6 credits of Human/Behav Science: 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)
122 total credit hours required for graduation

EXERCISE AND MOVEMENT SCIENCE
B.S.

All students must meet the University Requirements. (p. 339)
All students must meet the College Requirements. (p. 307)

The Exercise and Movement Science (EXMS) major comprises in-depth study of the theory and applications of Exercise and Movement Science in health, fitness and illness prevention in diverse populations. Students can tailor their educational experience to individual goals, including mentored internship and research experiences. Graduates of the EXMS major may pursue careers in related areas of fitness and health, such as health promotion, adapted physical activity, recreation management, and health and fitness business ventures. They may also pursue one of several professional certifications, such as ACSM Exercise Specialist, or NSCA certified Strength and Conditioning Training Specialist. Finally, students graduating from this program may be qualified for graduate work in Exercise and Movement Sciences, Physical Therapy, and other health care programs.

Applicants must meet the general admission requirements for the University of Vermont. In addition, students must have one year of high school biology and one year of chemistry.

Students in Exercise and Movement Science must achieve a cumulative GPA of 2.50 or better by the end of their first year and maintain a 2.50 cumulative GPA thereafter to remain in good standing in the program.

PLAN OF STUDY
A MODEL CURRICULUM IN EXERCISE AND MOVEMENT SCIENCE

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>CHEM 023 Outline of General Chemistry or CHEM 031 General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>RMS 157 Prevention &amp; Care Athletic Inj</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>NH 050 App to Hlth: From Pers to Syst</td>
<td>1</td>
</tr>
<tr>
<td>NFS 043 Fundamentals of Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>BIO (any 3-credit Biology course)</td>
<td>3</td>
</tr>
<tr>
<td>EXMS 150 Intro to Exercise Science</td>
<td>1</td>
</tr>
<tr>
<td>ENGS 001 Written Expression</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 001 General Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

| Electives | 6 |
| Year Total: | 14 16 |

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>ANPS 019 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>EXMS 244 Nutrition for Health &amp; Fitness</td>
<td>3</td>
</tr>
<tr>
<td>STAT 111 Elements of Statistics or STAT 141 Basic Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>EXMS 242 Exercise and Sport Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Diversity 1 or Human/Behav Sci Elective</td>
<td>3 3</td>
</tr>
<tr>
<td>ANPS 020 Ugr Hum Anatomy &amp; Physiology</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 013 Conceptual Physics</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>Year Total:</td>
<td>16 16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EXMS 240 Motor Skill Learning &amp; Control</td>
<td>3</td>
</tr>
<tr>
<td>EXMS 260 Adapted Physical Activity</td>
<td>3</td>
</tr>
<tr>
<td>RMS 213 Biomechanics of Human Movement</td>
<td>3</td>
</tr>
<tr>
<td>Elective or Human/Behav Sci Elective</td>
<td>3</td>
</tr>
<tr>
<td>Choose one of the following:</td>
<td>3-4 3-4</td>
</tr>
<tr>
<td>RMS 250 Exercise Physiology (taken in either semester)</td>
<td></td>
</tr>
<tr>
<td>or Elective (taken in the semester when not taking RMS 250)</td>
<td></td>
</tr>
<tr>
<td>RMS 188 D2:Org&amp;Ldrship in AthTrn&amp;Ex Sc</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>15-16 15-16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>EXMS 245 Evaluation &amp; Prescription</td>
<td>3</td>
</tr>
<tr>
<td>EXMS 263 Fitness for Spec Populations</td>
<td>3</td>
</tr>
<tr>
<td>NH 120 Health Care Ethics</td>
<td>3</td>
</tr>
</tbody>
</table>
Choose one of the following: | 6 | 6 |
--- | --- | ---
EXMS 272 Senior Capstone Experience (taken in either semester)\(^1\) | | |
| Electives (taken in the semester when not taking EXMS 272) | | |
| EXMS 262 Human Perf & Ergogenic Aids | 3 | |
| EDPE 267 Sci Strength Training&Condtng or EXMS 264 Health Fitness Specialist | 3 | |
| EXMS 268 Exercise Program Design | 3 | |
| Year Total: | 15 | 15 |
| Total Credits in Sequence: | 122-124 | |

\(^1\) If EXMS 272 is taken in the Fall, then 3-6 credits of electives need to be taken in the Spring. If EXMS 272 is taken in the Spring, then 3-6 credits of electives need to be taken in the Fall.

\(^2\) 6 credits of Human/Behav Science: any course with the abbreviations ANTH, HST, LANG, PHIL, POLS,PSYC, REL, SOC, THE
RMS 280 Senior Research Experience, 1-4 credits, available as an elective under faculty mentor
6 credits meeting diversity requirements must be taken prior to graduation (3 cr. D1 and 3 cr. D1 or D2)
In the Rubenstein School of Environment and Natural Resources (RSENR), excitement for discovery and a commitment to life-long learning are central. Our emphasis on the integration of natural science, social science, and cultural and political perspectives reflects the interdisciplinary context in which ecosystem management, resource planning, and environmental concerns must be addressed. We believe that there is a strong interplay between teaching and scholarship and that each is vital to the other.

The Rubenstein School of Environment and Natural Resources seeks to cultivate an appreciation and enhanced understanding of ecological and social processes and values aimed at maintaining the integrity of natural systems and achieving a sustainable human community. We pursue this goal by generating and broadly disseminating knowledge and by challenging students, colleagues, and citizens to acquire knowledge, skills, and values to become innovative, environmentally responsible, and accountable leaders.

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. 323)
- Environmental Studies B.S. (p. 324)
- Forestry B.S. (p. 325)
- Natural Resources B.S. (p. 326)
- Parks, Recreation and Tourism B.S. (p. 328)
- Wildlife and Fisheries Biology B.S. (p. 329)

MINORS

- Environmental Studies (p. 324)
- Forestry (p. 325)
- Geospatial Technologies (p. 330)
- Parks, Recreation, and Tourism (p. 328)
- Wildlife Biology (p. 330)

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://catalog.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. RSENR core curriculum
2. RSENR general education courses, including the University Approved Diversity requirement
3. 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 a body of knowledge, skills, and values that the faculty believe are central to the study of natural resources and the environment.

Eight courses are required (23 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 001</td>
<td>Natural Hist &amp; Field Ecology</td>
<td>0 or 4</td>
</tr>
<tr>
<td>NR 002</td>
<td>Nature &amp; Culture</td>
<td>0 or 3</td>
</tr>
<tr>
<td>NR 006</td>
<td>D1: Race &amp; Culture in NR ¹</td>
<td>0 or 2</td>
</tr>
<tr>
<td>NR 103</td>
<td>Ecology, Ecosystems &amp; Environ</td>
<td>3</td>
</tr>
<tr>
<td>NR 104</td>
<td>Social Proc &amp; the Environment</td>
<td>3</td>
</tr>
<tr>
<td>NR 206</td>
<td>Env Prob Sol &amp; Impact Assessmt</td>
<td>0 or 4</td>
</tr>
<tr>
<td>NR 207</td>
<td>D1: Power, Privilege &amp; Envrnmt ²</td>
<td>1</td>
</tr>
</tbody>
</table>

¹ 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 requirements¹:

<table>
<thead>
<tr>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGS 001 Written Expression 3</td>
</tr>
<tr>
<td>or ENGS 050 Expository Writing</td>
</tr>
<tr>
<td>or ENGS 053 Intro to Creative Writing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Speaking</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPCH 011 Effective Speaking 2-3</td>
</tr>
<tr>
<td>or CALS 183 Communication Methods</td>
</tr>
<tr>
<td>or NR 021 Speaking and Listening</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race and Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 006 D1: Race &amp; Culture in NR ² 2</td>
</tr>
<tr>
<td>NR 207 D1: Power, Privilege &amp; Envrnmt ² 1</td>
</tr>
</tbody>
</table>

One additional course from the approved list of University Approved Diversity courses 3

<table>
<thead>
<tr>
<th>Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 009 College Algebra (or higher, but not MATH 017. Individual majors may specify a higher math requirement.) 3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 140 Applied Environ Statistics (Individual majors may be more restrictive) 3-4</td>
</tr>
<tr>
<td>or STAT 111 Elements of Statistics</td>
</tr>
<tr>
<td>or STAT 141 Basic Statistical Methods</td>
</tr>
</tbody>
</table>
or STAT 211

Statistical Methods I

Self-Designed General Education Sequence

Each student defines a personal learning objective and selects at least nine credits from departments outside RSENR to meet that objective. This sequence of courses must be approved in advance.  

1. 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.

2. 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.

3. 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.

MAJORS

ENVIRONMENTAL SCIENCE MAJOR

Environmental Sciences B.S. (p. 323)

ENVIRONMENTAL SCIENCES B.S.

All students must meet the University Requirements (p. 339).

All students must meet the College Requirements. (p. 322)

MAJOR REQUIREMENTS

A total of 120 credits is required for the degree.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOR 011</td>
<td>Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>BCOR 012</td>
<td>Exploring Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 031</td>
<td>General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 032</td>
<td>General Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 042</td>
<td>Intro Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 055</td>
<td>Environmental Geology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 019</td>
<td>Fundamentals of Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 020</td>
<td>Fundamentals of Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>NR 140</td>
<td>Applied Environ Statistics</td>
<td>3-4</td>
</tr>
<tr>
<td>STAT 141</td>
<td>Basic Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 001</td>
<td>Intro Environmental Sciences</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 009</td>
<td>Orientation to Env Sciences</td>
<td>1</td>
</tr>
<tr>
<td>ENSC 130</td>
<td>Global Environmental Assessmnt</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 160</td>
<td>Pollutant Mvmt/Air, Land&amp;Wtr</td>
<td>4</td>
</tr>
<tr>
<td>ENSC 201</td>
<td>Recovery&amp;Restor Altered Ecosys</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 202</td>
<td>Ecological Risk Assessment</td>
<td>3</td>
</tr>
</tbody>
</table>

Fourteen to seventeen credits in one of the following concentrations: 14-17


1. Students interested in areas such as environmental analysis and assessment should consider taking more advanced courses, such as CHEM 141/CHEM 142.

2. MATH 019/MATH 020 and NR 140 (or STAT 141) also fulfill RSENR general education requirements.

3. 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. 324)

MINORS
ENVIRONMENTAL STUDIES MINOR
Environmental Studies (p. 324)

ENVIRONMENTAL STUDIES B.S.
All students must meet the University Requirements (p. 339).
All students must meet the College Requirements. (p. 322)

MAJOR REQUIREMENTS
A total of 120 credits is required for the degree.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS 001</td>
<td>Intro to Environmental Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENVS 002</td>
<td>D2: International Env Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENVS 151</td>
<td>Intermed Environmental Studies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Nine credits of a senior capstone</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Thirty credits of approved environmentally-related courses at the 100- or 200-level, including:</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Three credits at the 200-level</td>
<td></td>
</tr>
<tr>
<td></td>
<td>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)</td>
<td></td>
</tr>
</tbody>
</table>

1 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS 001</td>
<td>Intro to Environmental Studies</td>
<td>4</td>
</tr>
<tr>
<td>ENVS 002</td>
<td>D2: International Env Studies</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>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.)</td>
<td>9</td>
</tr>
</tbody>
</table>

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. 325)

**MINORS**

**FORESTRY MINOR**

Forestry (p. 325)

**FORESTRY B.S.**

All students must meet the University Requirements (p. 339).

All students must meet the College Requirements. (p. 322)

**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 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, an appropriate university minor, or a natural resource oriented study abroad experience.

A total of 124 credits is required for the degree.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBIO 004</td>
<td>Intro to Botany</td>
<td>4-8</td>
</tr>
<tr>
<td>or BIOL 001</td>
<td>Principles of Biology</td>
<td></td>
</tr>
<tr>
<td>&amp; BIOL 002</td>
<td>Principles of Biology</td>
<td></td>
</tr>
<tr>
<td>CHEM 023</td>
<td>Outline of General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MATH 018</td>
<td>Basic Mathematics 3</td>
<td>3</td>
</tr>
<tr>
<td>NR 140</td>
<td>Applied Environ Statistics 3</td>
<td>4</td>
</tr>
<tr>
<td>FOR 185</td>
<td>Undergrad Special Topics (Nat Res Ecol and Assessment 1)</td>
<td>4</td>
</tr>
<tr>
<td>FOR 185</td>
<td>Undergrad Special Topics (Nat Res Ecol and Assessment 2)</td>
<td>4</td>
</tr>
</tbody>
</table>

1. 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.
2. The self-designed sequence of course work for the student’s concentration should be at least nine credits at the 100-level or higher.
3. MATH 018 and NR 140 also fulfill the RSENR general education requirements.
4. 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOR 021</td>
<td>Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>FOR 185</td>
<td>Undergrad Special Topics (Nat Res Ecol and Assessment 1)</td>
<td>4</td>
</tr>
<tr>
<td>FOR 223</td>
<td>Multi-Resource Silviculture</td>
<td>4</td>
</tr>
<tr>
<td>Additional forestry courses to total sixteen credits</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**PRE/CO-REQUISITES**

Variable, depending on upper level courses chosen. Typically, these might include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 103</td>
<td>Ecology, Ecosystems &amp; Environ</td>
<td>3</td>
</tr>
</tbody>
</table>
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

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. 326)

GRADUATE
Natural Resources M.S.
Natural Resources Ph.D.

See the online Graduate Catalogue (http://catalog.uvm.edu/graduate) for more information.

NATURAL RESOURCES B.S.
All students must meet the University Requirements (p. 339).
All students must meet the College Requirements. (p. 322)
There are three concentrations available under the Natural Resources major:

- Integrated Natural Resources Concentration (p. 326)
- Resource Ecology Concentration (p. 326)
- Resource Planning Concentration (p. 327)

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 001</td>
<td>Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 002</td>
<td>Principles of Biology</td>
<td>4</td>
</tr>
</tbody>
</table>
GEOL 001 Earth System Science 4
or PSS 161 Fundamentals of Soil Science
MATH 019 Fundamentals of Calculus I 1 3
NR 140 Applied Environ Statistics 1 4
CHEM 023 Outline of General Chemistry 4-8
or CHEM 031 & CHEM 032 General Chemistry 1 and General Chemistry 2
CHEM 026 Outline of Organic & Biochem 4-8
or CHEM 042 Intro Organic Chemistry
or CHEM 141 & CHEM 142 Organic Chemistry 1 and Organic Chemistry 2
NR 025 Measurements & Mapping 4
NR 143 Intro to Geog Info Systems 3
or NR 146 Remote Sensing of Natural Res
Twenty-seven additional credits in Optional Electives to be chosen from an approved list in consultation with the student’s academic advisor. This list is available on the RSENR website. 27

1 MATH 019 and NR 140 also fulfill RSENR general education requirements.

Any course substitution request should be approved prior to the end of the add/drop period for the semester in which the student plans to enroll in the substitute course.

RESOURCE PLANNING CONCENTRATION
The Resource Planning curriculum explores interactions among individuals, communities, and society with nature, resources, and the environment. It allows students to select courses around specific individual interests such as natural resource planning and community, policy and economic dimensions of resource planning, and international dimensions of resource planning.

A total of 120 credits is required for the degree.

Required Courses

ANTH 021 D2: Cultural Anthropology 3
or GEOG 050 D2: World Regional Geography
CDAE 002 D2: World Food, Pop & Develop 3-4
or ENVS 002 D2: 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
PSYC 001 General Psychology 3
or PSYC 104 Learning, Cognition & Behavior
or PSYC 130 Social Psychology
or PSYC 161 Developmental Psych: Childhood
SOC 001 Introduction to Sociology 3
or SOC 011 Social Problems

Twenty-seven additional credits in Optional Electives to be chosen from an approved list in consultation with the student’s academic advisor. This list is available on the RSENR website.

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

The field of Parks, Recreation and Tourism is growing as the nation becomes increasingly concerned about balancing the public’s desire for recreation with the need for both economic and environmental sustainability. Parks, Recreation and Tourism blends studies of the environment, environmentally-based tourism, and outdoor recreation to train students to become leaders in ecological management practice. Students may specialize in Public Outdoor Recreation or Private Outdoor Recreation and Tourism. Public recreation resources include parks, forests, wilderness areas, and other outdoor recreation environments at the local, regional, state, and federal government levels. Private resources include ski areas, campgrounds, resorts, and other natural resource-based recreation facilities.

MAJORS
PARKS, RECREATION AND TOURISM MAJOR
Parks, Recreation and Tourism B.S. (p. 328)

MINORS
PARKS, RECREATION AND TOURISM MINOR
Parks, Recreation and Tourism (p. 328)
PARKS, RECREATION AND TOURISM
B.S.

All students must meet the University Requirements (p. 339).

All students must meet the College Requirements. (p. 322)

There are two concentrations available under the Parks, Recreation and Tourism Major:

Private Outdoor Recreation and Tourism Concentration (p. 328)

Public Outdoor Recreation Concentration (p. 328)

MAJOR REQUIREMENTS

A total of 124 credits is required for the degree.

Courses required for both concentrations:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to Recreation &amp; Tourism</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Tourism Planning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Ski Area Management</td>
<td>0-4</td>
<td></td>
</tr>
<tr>
<td>Resort Mgmt &amp; Marketing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Parks, Rec &amp; Tourism Practicum (Minimum of 3 credits required)</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td>Ecotourism</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship Rec &amp; Tourism</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Choose three of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park &amp; Recreation Design</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Recreation Admin &amp; Operations</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Parks, Rec &amp; Tourism Practicum (Minimum of 3 credits required)</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td>Outdoor Recreation Planning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Park and Wilderness Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Environmental Interpretation</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Nine additional credits of professional electives to be chosen in consultation with an advisor

PUBLIC OUTDOOR RECREATION CONCENTRATION

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to Recreation &amp; Tourism</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Park &amp; Recreation Design</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Recreation Admin &amp; Operations</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Parks, Rec &amp; Tourism Practicum (Minimum of 3 credits required)</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td>Outdoor Recreation Planning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Park and Wilderness Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Environmental Interpretation</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Choose three of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourism Planning</td>
<td>9-10</td>
<td></td>
</tr>
<tr>
<td>Ski Area Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Resort Mgmt &amp; Marketing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Ecotourism</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship Rec &amp; Tourism</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Nine additional credits of professional electives to be chosen in consultation with an advisor

Public Internship must be approved in advance with required documentation complete.

PARKS, RECREATION, AND TOURISM MINOR

REQUIREMENTS

A minimum of nine semester credits are required from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to Recreation &amp; Tourism</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Tourism Planning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Park &amp; Recreation Design</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Recreation Admin &amp; Operations</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Ski Area Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Resort Mgmt &amp; Marketing</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

A minimum of six semester credits to be selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotourism</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Outdoor Recreation Planning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Park and Wilderness Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Environmental Interpretation</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Entrepreneurship Rec &amp; Tourism</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
PRE/CO-REQUISITES
None. However, some optional courses may have additional prerequisites. Please check individual course information.

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. 329)

MINORS
WILDLIFE AND FISHERIES BIOLOGY MINOR
Wildlife Biology (p. 330)

WILDLIFE AND FISHERIES BIOLOGY B.S.
All students must meet the University Requirements (p. 339).
All students must meet the College Requirements. (p. 322)
There are two concentrations available under the Wildlife and Fisheries Major:

Fisheries Biology Concentration (p. 329)
Wildlife Biology Concentration (p. 329)

MAJOR REQUIREMENTS
A total of 120 credits is required for the degree.

Courses required for both concentrations:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 002</td>
<td>Principles of Biology</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CHEM 023</td>
<td>Outline of General Chemistry</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CHEM 026</td>
<td>Outline of Organic &amp; Biochem</td>
<td>0-4</td>
</tr>
<tr>
<td>or CHEM 042</td>
<td>Intro Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>FOR 185</td>
<td>Undergrad Special Topics (Nat Res Ecol and Assessment 1)</td>
<td>3-4</td>
</tr>
<tr>
<td>or NR 143</td>
<td>Intro to Geog Info Systems</td>
<td></td>
</tr>
<tr>
<td>FOR 185</td>
<td>Undergrad Special Topics (Nat Res Ecol and Assessment 2)</td>
<td>4</td>
</tr>
<tr>
<td>WFB 161</td>
<td>Fisheries Biology &amp; Techniques</td>
<td>0 or 4</td>
</tr>
<tr>
<td>WFB 174</td>
<td>Prin of Wildlife Management</td>
<td>3</td>
</tr>
<tr>
<td>WFB 224</td>
<td>Conservation Biology</td>
<td>0 or 4</td>
</tr>
</tbody>
</table>

1 MATH 019 (or MATH 021) and NR 140 also fulfill the RSENР general education requirements.

FISHERIES BIOLOGY CONCENTRATION

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFB 261</td>
<td>Fisheries Management</td>
<td>3</td>
</tr>
<tr>
<td>WFB 232</td>
<td>Ichthyology</td>
<td>3</td>
</tr>
<tr>
<td>NR 250</td>
<td>Limnology</td>
<td>4</td>
</tr>
<tr>
<td>or NR 280</td>
<td>Stream Ecology</td>
<td></td>
</tr>
<tr>
<td>WFB 285</td>
<td>Advanced Special Topics (Wetlands Wildlife and Ecology)</td>
<td>1-6</td>
</tr>
<tr>
<td>or NR 260</td>
<td>Wetlands Ecology &amp; Mgmt</td>
<td></td>
</tr>
<tr>
<td>WFB 279</td>
<td>Marine Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose two of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 270</td>
<td>Toxic&amp;Hrds Subst in Srf Water</td>
<td></td>
</tr>
<tr>
<td>NR 250</td>
<td>Limnology</td>
<td></td>
</tr>
<tr>
<td>or NR 280</td>
<td>Stream Ecology</td>
<td></td>
</tr>
<tr>
<td>BIOL 264</td>
<td>Community Ecology</td>
<td></td>
</tr>
<tr>
<td>WFB 285</td>
<td>Advanced Special Topics (Wetlands Wildlife and Ecology)</td>
<td></td>
</tr>
<tr>
<td>or NR 260</td>
<td>Wetlands Ecology &amp; Mgmt</td>
<td></td>
</tr>
<tr>
<td>WFB 285</td>
<td>Advanced Special Topics</td>
<td></td>
</tr>
<tr>
<td>CE 260</td>
<td>Hydrology</td>
<td></td>
</tr>
</tbody>
</table>

WILDLIFE BIOLOGY CONCENTRATION

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOR 021</td>
<td>Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>WFB 130</td>
<td>Ornithology</td>
<td>3</td>
</tr>
<tr>
<td>WFB 131</td>
<td>Field Ornithology</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 002</td>
<td>Principles of Biology</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CHEM 023</td>
<td>Outline of General Chemistry</td>
<td>0 or 4</td>
</tr>
<tr>
<td>CHEM 026</td>
<td>Outline of Organic &amp; Biochem</td>
<td>0-4</td>
</tr>
<tr>
<td>or CHEM 042</td>
<td>Intro Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>FOR 185</td>
<td>Undergrad Special Topics (Nat Res Ecol and Assessment 1)</td>
<td>3-4</td>
</tr>
<tr>
<td>or NR 143</td>
<td>Intro to Geog Info Systems</td>
<td></td>
</tr>
<tr>
<td>FOR 185</td>
<td>Undergrad Special Topics (Nat Res Ecol and Assessment 2)</td>
<td>4</td>
</tr>
<tr>
<td>WFB 161</td>
<td>Fisheries Biology &amp; Techniques</td>
<td>0 or 4</td>
</tr>
<tr>
<td>WFB 174</td>
<td>Prin of Wildlife Management</td>
<td>3</td>
</tr>
<tr>
<td>WFB 224</td>
<td>Conservation Biology</td>
<td>0 or 4</td>
</tr>
</tbody>
</table>

1 MATH 019 (or MATH 021) and NR 140 also fulfill the RSENР general education requirements.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFB 150</td>
<td>Wldlf Habitat &amp; Pop Measrmnt</td>
<td>1</td>
</tr>
<tr>
<td>PBio 109</td>
<td>Plant Systematics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 217</td>
<td>Mammalogy</td>
<td>4</td>
</tr>
<tr>
<td>WFB 185</td>
<td>Special Topics (Herpetology/Field Herpetology)</td>
<td>1-2</td>
</tr>
<tr>
<td>WFB 285</td>
<td>Advanced Special Topics (Wetlands Wildlife and Ecology)</td>
<td>1-6</td>
</tr>
<tr>
<td>WFB 283</td>
<td>Terrestrial Wildlife</td>
<td>2</td>
</tr>
<tr>
<td>WFB 275</td>
<td>Wildlife Behavior</td>
<td>3</td>
</tr>
<tr>
<td>WFB 279</td>
<td>Marine Ecology</td>
<td>3</td>
</tr>
<tr>
<td>WFB 131</td>
<td>Field Ornithology</td>
<td>2</td>
</tr>
<tr>
<td>WFB 150</td>
<td>Wldlf Habitat &amp; Pop Measrmnt</td>
<td>1</td>
</tr>
<tr>
<td>WFB 176</td>
<td>Florida Ecology Field Trip</td>
<td>2</td>
</tr>
<tr>
<td>WFB 177</td>
<td>Texas Wildlife Field Trip</td>
<td>2</td>
</tr>
<tr>
<td>WFB 185</td>
<td>Special Topics</td>
<td>1-6</td>
</tr>
<tr>
<td>WFB 187</td>
<td>Undergrad Special Projects</td>
<td>1-5</td>
</tr>
<tr>
<td>WFB 224</td>
<td>Conservation Biology</td>
<td>4</td>
</tr>
<tr>
<td>WFB 274</td>
<td>Terrestrial Wildlife Lab</td>
<td>1</td>
</tr>
<tr>
<td>WFB 275</td>
<td>Wildlife Behavior</td>
<td>3</td>
</tr>
<tr>
<td>WFB 279</td>
<td>Marine Ecology</td>
<td>3</td>
</tr>
<tr>
<td>WFB 283</td>
<td>Terrestrial Wildlife</td>
<td>4</td>
</tr>
<tr>
<td>WFB 285</td>
<td>Advanced Special Topics</td>
<td>1-6</td>
</tr>
<tr>
<td>WFB 287</td>
<td>Advanced Special Projects</td>
<td>1-6</td>
</tr>
</tbody>
</table>

1 Field intensive courses (WFB 131 and WFB 150) are offered only during the summer session.

2 WFB 185, WFB 285 and WFB 283 are laboratory courses.

**WILDLIFE BIOLOGY MINOR REQUIREMENTS**

Fifteen credits.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFB 130</td>
<td>3</td>
</tr>
<tr>
<td>WFB 174</td>
<td>3</td>
</tr>
<tr>
<td>WFB 285</td>
<td>1-6</td>
</tr>
<tr>
<td>or WFB 283</td>
<td></td>
</tr>
<tr>
<td>or WFB 283</td>
<td></td>
</tr>
<tr>
<td>or WFB 283</td>
<td></td>
</tr>
</tbody>
</table>

**Elective Courses**

<table>
<thead>
<tr>
<th>Elective Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WFB 131</td>
<td>2</td>
</tr>
<tr>
<td>WFB 150</td>
<td>1</td>
</tr>
<tr>
<td>WFB 176</td>
<td>2</td>
</tr>
<tr>
<td>WFB 177</td>
<td>2</td>
</tr>
<tr>
<td>WFB 185</td>
<td>1-6</td>
</tr>
<tr>
<td>WFB 187</td>
<td>1-5</td>
</tr>
<tr>
<td>WFB 224</td>
<td>4</td>
</tr>
<tr>
<td>WFB 274</td>
<td>1</td>
</tr>
<tr>
<td>WFB 275</td>
<td>3</td>
</tr>
<tr>
<td>WFB 279</td>
<td>3</td>
</tr>
<tr>
<td>WFB 283</td>
<td>4</td>
</tr>
<tr>
<td>WFB 285</td>
<td>1-6</td>
</tr>
<tr>
<td>WFB 287</td>
<td>1-6</td>
</tr>
</tbody>
</table>

**PRE/CO-REQUISITES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 001</td>
<td>Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>Biol 002</td>
<td>Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 011</td>
<td>Exploring Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 012</td>
<td>Exploring Biology</td>
<td></td>
</tr>
<tr>
<td>NR 103</td>
<td>Ecology, Ecosystems &amp; Environ</td>
<td>3-4</td>
</tr>
<tr>
<td>or BCOR 102</td>
<td>Ecology and Evolution</td>
<td></td>
</tr>
</tbody>
</table>

**GEOSPATIAL TECHNOLOGIES MINOR REQUIREMENTS**

Five courses (fifteen credits with at least nine credits at 100-level or above) which must include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 025</td>
<td>Measurements &amp; Mapping</td>
<td>3-4</td>
</tr>
<tr>
<td>GEOG 081</td>
<td>Geotechniques</td>
<td></td>
</tr>
<tr>
<td>CE 010</td>
<td>Geomatics</td>
<td></td>
</tr>
<tr>
<td>ENSC 130</td>
<td>Global Environmental Assessment</td>
<td></td>
</tr>
<tr>
<td>GEOL 151/GEOG 144</td>
<td>Geomorphology</td>
<td></td>
</tr>
<tr>
<td>Any one Geographic Information Systems course:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GEOG 184</td>
<td>Geog Info:Cncpts &amp; Applic</td>
<td></td>
</tr>
<tr>
<td>or NR 143</td>
<td>Intro to Geog Info Systems</td>
<td></td>
</tr>
<tr>
<td>Any one course from Remote Sensing:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>NR 146</td>
<td>Remote Sensing of Natural Res</td>
<td></td>
</tr>
<tr>
<td>or GEOG 185</td>
<td>Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>Any two electives (either two from Group A or one course each from Group A and Group B):</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**Group A:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NR 243</td>
<td>GIS Practicum</td>
<td></td>
</tr>
<tr>
<td>NR 245</td>
<td>Integrating GIS &amp; Statistics</td>
<td></td>
</tr>
<tr>
<td>GEOG 287</td>
<td>Spatial Analysis</td>
<td></td>
</tr>
<tr>
<td>GEOG 281</td>
<td>Adv Topic:GIS &amp; Remote Sensing (a, Satellite Climatology/Land Surface Applications)</td>
<td></td>
</tr>
<tr>
<td>GEOG 281</td>
<td>Adv Topic:GIS &amp; Remote Sensing (b, Advanced GIS Applications)</td>
<td></td>
</tr>
<tr>
<td>NR 242</td>
<td>Adv Geospatial Techniques</td>
<td></td>
</tr>
</tbody>
</table>

**Group B:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 021</td>
<td>Computer Programming I</td>
<td></td>
</tr>
<tr>
<td>CS 042</td>
<td>Dynamic Data on the Web</td>
<td></td>
</tr>
</tbody>
</table>
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.
HONORS COLLEGE

http://www.uvm.edu/~honcoll/

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.

ACADEMIC STANDARDS

A cumulative grade-point average (GPA) of 3.20 is required to remain in good standing in the Honors College. Students whose overall GPA falls below 3.20 will be given one semester to raise it back over this level. Failure to do so will make them subject to dismissal from the HC. The dean has discretion to take personal considerations into account prior to dismissal for low achievement. Students will be subject to dismissal from the HC if they receive grades of C- or below for more than eight credits of course work or if they are not making satisfactory progress towards completion of Honors College requirements. Students with a serious academic integrity offense, determined by standard university procedure, will be dismissed from the HC.

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 disciplinary courses and seminars that broaden intellectual horizons and stimulate discussion, debate, writing, research and reflection. Honors College courses are taught by distinguished faculty drawn from the range of academic disciplines at UVM. Enrollment in seminars 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

The first semester seminar provides a common experience (three credits) for all first year students in the Honors College. This course examines knowledge acquisition from the perspective of different disciplines through reading and discussion of classic works and contemporary writings. It is taught in small seminars (about 20 students in each section) intended to promote intellectual dialogue. The seminar, which fulfills the university’s first-year writing requirement, requires multiple drafts of papers that encourage students to develop their reasoning and sharpen their focus through their writing. It is designed to guide students in thinking rigorously from many contexts. The course is supplemented by plenary lectures by professionals, visiting faculty and university faculty. The entire university community is invited to these lectures. The second semester offers a choice of seminars on the theme of diversity, allowing students to progress toward completing the University Approved Diversity requirements.

Sophomore Seminar

Sophomores take two three-credit seminars, one in the fall and one in the spring, selected from an extensive slate of offerings created for HC students by faculty in schools and colleges university-wide. Topics vary from year to year.

Junior and Senior Year

Typically, in the junior year, students take a minimum of three credits of course work in their home school or college that prepares them for their senior year Honors project. Senior students complete a six-credit research thesis or senior project approved by their home school or college. Requirements for both years vary slightly across the schools and colleges.

Residential Component

The Honors College is housed in a residential complex at University Heights. This beautiful facility provides housing for HC students, as well as permanent office space for the HC administration and staff. In addition, the complex includes classroom space, lounges, and meeting 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. It advises undergraduates interested in pursuing research under the mentorship of a faculty member by maintaining a database of research opportunities and administering funding programs. It also provides mentoring for students applying for nationally
competitive fellowships and scholarships (e.g., Fulbright, Truman, Udall, Goldwater, and Rhodes).

**PLAN OF STUDY**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>HCOL 085 Honors College First Year Sem (Fulfills University FY Writing Requirement and may count toward specific degree requirements in home college/school)</td>
<td>3</td>
</tr>
<tr>
<td>HCOL 086 Honors College First Year Sem (may count toward specific degree requirements in home college/school)</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>HCOL 185 Honors College Sophomore Sem (may count toward specific degree requirements in home college/school)</td>
<td>3</td>
</tr>
<tr>
<td>HCOL 186 Honors College Sophomore Sem (may count toward specific degree requirements in home college/school)</td>
<td></td>
</tr>
<tr>
<td>Year Total:</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>HCOL 101 Honors College Thesis Prep Sem (may be completed either fall or spring)</td>
<td>0-1</td>
</tr>
<tr>
<td>1-3 credits related to research and thesis preparation, offered in the home college/school (may be completed either fall or spring)</td>
<td>0-3</td>
</tr>
<tr>
<td>Year Total:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall</td>
</tr>
<tr>
<td>Three credits of honors thesis. May count toward specific degree requirements.</td>
<td>3</td>
</tr>
<tr>
<td>Year Total:</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits in Sequence:** 18-26
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 an undergraduate minor in pharmacology as well as a variety of courses available to undergraduate students.

MINORS

• Pharmacology (p. 334)

PHARMACOLOGY MINOR

REQUIREMENTS

Fifteen credits are required for the minor, including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHRM 201</td>
<td>Introduction to Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>PHRM 272</td>
<td>Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>PHRM 290</td>
<td>Topics Molecular &amp; Cell Pharm</td>
<td>3</td>
</tr>
<tr>
<td>Additional courses may be selected from:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>PHRM 240</td>
<td>Molecules &amp; Medicine</td>
<td></td>
</tr>
<tr>
<td>PHRM 297</td>
<td>Advanced Pharmacology Research</td>
<td></td>
</tr>
<tr>
<td>PHRM 305</td>
<td>Milestones in Pharmacology</td>
<td></td>
</tr>
<tr>
<td>PHRM 372</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>PHRM 373</td>
<td>Readings in Pharmacology</td>
<td></td>
</tr>
<tr>
<td>PHRM 381</td>
<td>Seminar</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 323</td>
<td>Neurochemistry</td>
</tr>
<tr>
<td>BIOC 212</td>
<td>Biochemistry of Human Disease</td>
</tr>
<tr>
<td>BIOL 288</td>
<td>Seminar in Forensic Biology</td>
</tr>
<tr>
<td>CHEM 205</td>
<td>Biochemistry I</td>
</tr>
<tr>
<td>MPBP 295</td>
<td>Advanced Special Topics</td>
</tr>
<tr>
<td>NFS 263</td>
<td>Nutritional Biochemistry</td>
</tr>
<tr>
<td>PSYC 223</td>
<td>Psychopharmacology</td>
</tr>
</tbody>
</table>

PRE/CO-REQUISITES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 001 &amp; BIOL 002</td>
<td>Principles of Biology and Principles of Biology (or equivalent)</td>
<td>8</td>
</tr>
<tr>
<td>CHEM 031 &amp; CHEM 032</td>
<td>General Chemistry 1 and General Chemistry 2</td>
<td>8</td>
</tr>
</tbody>
</table>
ACADEMIC INFORMATION

This section of the undergraduate catalogue includes academic policies, procedures and related information. You can access this information by scrolling down the left-hand menu.

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 is not granted for the general exams.

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

CREDIT 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. Veterans should present form DD 214 to the Office of Transfer Affairs; active duty personnel should have form DD 295 sent directly from the educational officer on the base. Army personnel seeking credit other than for physical education should have an AARTS transcript sent directly from:

AARTS Transcript Manager
AARTS Operations Center

298 Grant Ave.
Ft. Leavenworth, KS 66027-1254

Transcripts of exams sponsored by the Defense Activity for Non-Traditional Educational Support (DANTES) are available at a nominal charge from:

DANTES Contractor Representative
Educational Testing Service
P.O. Box 6605
Princeton, NJ 08541-6605

All documents except form DD 214 should be sent directly to:

University of Vermont
Office of Transfer Affairs
360 Waterman Building
Burlington, VT 05405

Students should contact the Office of Transfer Affairs, (802) 656-0867, or email: 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 (Human and Societal Diversity). These requirements will apply as well to undergraduate transfer students receiving bachelor’s degrees from May 2012 onward. (See the diversity 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 will complete a three-credit course addressing foundational writing and information literacy goals.

**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/~uvmpg/ppg/student/ferpa.pdf) policy webpage.

**EXAMS AND GRADING**

**EXAMS**

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

9. If the absence is not reported as provided above, or is not excused by the instructor, the exam is regarded as failed.

10. No student shall be required to take three or more final exams in one 24-hour period.

11. If a student has three or more finals in a 24-hour period then, unless a mutually agreeable alternative time can be reached by the student and one instructor, the make-up will be scheduled for the next day after the regularly-scheduled exam. These considerations are subject to the constraints that all exams will be given in the final exam period and all conflicts must be resolved before the start of the final exam period. Students will select which of the three exams they wish to take at an alternative time. In cases where the instructors in all three sections feel it is impossible to give the exam at an alternative time, and all conflicts are in the same academic unit, the appropriate dean’s office, in consultation with the faculty involved, will establish which of the three exams will be taken as a make-up. If the unresolved conflict involves more than one college, the deans of the units in question will resolve the matter. If the deans involved cannot reach agreement, then a person from the provost’s office will establish which of the three exams will be taken as a make-up.

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

**GRADING**

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points/Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>Excellent</td>
</tr>
<tr>
<td>A</td>
<td>Excellent</td>
</tr>
<tr>
<td>A-</td>
<td>Excellent</td>
</tr>
<tr>
<td>B+</td>
<td>Good</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
</tr>
<tr>
<td>B-</td>
<td>Good</td>
</tr>
<tr>
<td>C+</td>
<td>Fair</td>
</tr>
<tr>
<td>C</td>
<td>Fair</td>
</tr>
<tr>
<td>C-</td>
<td>Fair</td>
</tr>
<tr>
<td>D+</td>
<td>Poor</td>
</tr>
<tr>
<td>D</td>
<td>Poor</td>
</tr>
<tr>
<td>D-</td>
<td>Poor</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
</tr>
</tbody>
</table>

**XF** Failure resulting from academic dishonesty.¹

¹ 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:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>Audit (see below)</td>
</tr>
<tr>
<td>INC</td>
<td>Incomplete (see below)</td>
</tr>
<tr>
<td>P/NP</td>
<td>Pass/No Pass (see below)</td>
</tr>
<tr>
<td>S/U</td>
<td>Satisfactory/Unsatisfactory (see below)</td>
</tr>
<tr>
<td>SP/UP</td>
<td>Satisfactory Progress/Unsatisfactory Progress (see below)</td>
</tr>
<tr>
<td>M</td>
<td>Missing (grade not turned in by the instructor)</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn</td>
</tr>
</tbody>
</table>

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

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

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

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

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

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

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

S/U: These grades are used in courses where the A-F grade is inappropriate, such as in seminars, internships, practica, etc. For graduate students, S and U are used to indicate levels of performance for credits received in Thesis or Dissertation Research and may be used to indicate levels of performance in a Seminar. There are no quality points associated with the letter grades of S and U. For undergraduates, the S/U is available only on a whole course basis and is available for courses that count toward degree requirements.

SP/UP: These grades are used in courses with a linkage in credits to multiple semesters. Neither SP nor UP will be included in the student’s GPA. The grade of SP will be assigned when a student has made satisfactory progress during a semester prior to the final semester of the linked courses; credit will be awarded with the grade of SP. The grade of UP will be assigned when the student’s progress has been unsatisfactory and no credit will be awarded. 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 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.

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; total enrollment including the graduate course must not exceed twelve credits in the semester in which the course is taken; and the course must not be computed as part of the bachelor’s degree. Permission to seek graduate credit must be obtained from the 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.

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/studentlife/orientation) website. Students enrolling in the spring semester are strongly encouraged to attend January orientation held prior to the start of spring semester.

HOUSING

First-time, first-year and second-year students are required to live in on-campus housing. On-campus housing is not required for transfer students. Transfer students who are under the age of 20 prior to the first day of classes are guaranteed housing, but must submit an on-campus housing request. Those 20 years old and older 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.

Intercolleges Transfers

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

Readmission to the University

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

Withdrawal from the University

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

Medical Withdrawal

Degree students who wish to withdraw from all current courses at the university for medical reasons must first notify their academic dean in person or 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 Education is necessary for a student to exceed the six-credit maximum. Credits earned by non-degree students who later apply and gain admission to a degree program will be evaluated and, if appropriate, will be accepted toward completion of their degree. Non-degree students may enroll for a maximum of six credits or two courses per semester in the day program. Selection of courses for those having long-range plans of earning a degree in the daytime program should be made on the basis of information given in this catalogue. Students interested in making a formal application for admission to the university should contact the admissions office.

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

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

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

**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. Written approval of the student’s dean is required to register for more than eighteen credits.

Students with disabilities, who are in receipt of appropriate medical certification from the Director of the Student Health Center, will be approved to enroll for a course load of less than twelve credits (FTE). Such students will be afforded full-time status in accordance with Section 504 of the Rehabilitation Act of 1973.

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

**CLASS STANDING**

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

<table>
<thead>
<tr>
<th>Class</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-year</td>
<td>0-26.9</td>
</tr>
<tr>
<td>Sophomore</td>
<td>27.0-56.9</td>
</tr>
<tr>
<td>Junior</td>
<td>57.0-86.9</td>
</tr>
<tr>
<td>Senior</td>
<td>87.0 and over</td>
</tr>
</tbody>
</table>

**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 Withdrawal 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).

**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 2014

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Day of Classes</td>
<td>August 25</td>
<td>Monday</td>
</tr>
<tr>
<td>Last Day to Add Classes without Instructor Permission</td>
<td>August 29</td>
<td>Friday</td>
</tr>
<tr>
<td>Labor Day Holiday</td>
<td>September 1</td>
<td>Monday</td>
</tr>
<tr>
<td>Add/Drop, Audit, Pass/No Pass Deadline</td>
<td>September 8</td>
<td>Monday</td>
</tr>
<tr>
<td>Last Day to Withdraw</td>
<td>October 27</td>
<td>Monday</td>
</tr>
<tr>
<td>Thanksgiving Recess</td>
<td>November 24-28</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Last Day of Classes</td>
<td>December 3</td>
<td>Wednesday</td>
</tr>
<tr>
<td>Reading and Exam Period</td>
<td>December 4-12</td>
<td>Thursday-Friday</td>
</tr>
<tr>
<td>Reading Days</td>
<td>December 4, 10</td>
<td>Thursday-Wednesday</td>
</tr>
<tr>
<td>Exam Days</td>
<td>December 5, 8, 9, 11, 12</td>
<td>Fri., Mon., Tues., Th., Fri.</td>
</tr>
</tbody>
</table>

### WINTER 2015

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Day of Classes</td>
<td>December 26</td>
<td>Friday</td>
</tr>
<tr>
<td>Last Day of Classes</td>
<td>January 9</td>
<td>Friday</td>
</tr>
</tbody>
</table>

### SPRING 2015

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Day of Classes</td>
<td>January 12</td>
<td>Monday</td>
</tr>
<tr>
<td>Last Day to Add Classes without Instructor Permission</td>
<td>January 16</td>
<td>Friday</td>
</tr>
<tr>
<td>Martin Luther King Holiday</td>
<td>January 19</td>
<td>Monday</td>
</tr>
<tr>
<td>Add/Drop, Pass/No Pass, Audit Deadline</td>
<td>January 26</td>
<td>Monday</td>
</tr>
<tr>
<td>President’s Day Holiday</td>
<td>February 16</td>
<td>Monday</td>
</tr>
<tr>
<td>Town Meeting Day Recess</td>
<td>March 3</td>
<td>Tuesday</td>
</tr>
<tr>
<td>Spring Recess</td>
<td>March 2-6</td>
<td>Monday-Friday</td>
</tr>
<tr>
<td>Last Day to Withdraw</td>
<td>March 27</td>
<td>Friday</td>
</tr>
<tr>
<td>Honors Day</td>
<td>April 17</td>
<td>Friday</td>
</tr>
<tr>
<td>Last Day of Classes</td>
<td>April 29</td>
<td>Wednesday</td>
</tr>
<tr>
<td>Reading and Exam Period</td>
<td>April 30-May 8</td>
<td>Th., Fri.-Fri.</td>
</tr>
<tr>
<td>Reading Days</td>
<td>April 30, May 6</td>
<td>Th., Wed.</td>
</tr>
<tr>
<td>Exam Days</td>
<td>May 1, 4, 5, 7, 8</td>
<td>Fri., Mon., Tues., Th., Fri.</td>
</tr>
<tr>
<td>Graduate Commencement</td>
<td>May 16</td>
<td>Saturday</td>
</tr>
<tr>
<td>Undergraduate Commencement</td>
<td>May 17</td>
<td>Sunday</td>
</tr>
</tbody>
</table>

### MEDICAL COLLEGE COMMENCEMENT 2015

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical College Commencement</td>
<td>May 17</td>
<td>Sunday</td>
</tr>
</tbody>
</table>

### SUMMER 2015

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Day of Classes</td>
<td>May 18</td>
<td>Monday</td>
</tr>
<tr>
<td>Memorial Day Holiday</td>
<td>May 25</td>
<td>Monday</td>
</tr>
<tr>
<td>Fourth of July Holiday</td>
<td>July 4</td>
<td>Saturday</td>
</tr>
<tr>
<td>Last Day of Classes</td>
<td>August 14</td>
<td>Friday</td>
</tr>
</tbody>
</table>

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. 343) section of the Catalogue for the policy on class attendance and for information regarding observance of religious holidays and participation in intercollegiate athletics.
ADMISSION INFORMATION

The University of Vermont welcomes applications from students of diverse backgrounds. Through a holistic admissions review, UVM selects students with potential for academic success who will contribute to UVM’s community. The rigor of an applicant’s academic program, class standing and grades, standardized test results, and trends in performance are considered. Essays, a letter of recommendation, and other evidence of each student’s life experience also assist 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 admission decisions. Academic unit representatives are consulted on a case-by-case basis when a candidate’s credentials are inconclusive. Admission policies are developed by the Office of Admissions in collaboration with the schools and colleges that constitute the University of Vermont and are subject to review by the University of Vermont Faculty Senate, the vice president for Enrollment Management, and the provost’s office.

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

ADMISSIONS REQUIREMENTS AND RECOMMENDATIONS BY COLLEGE/SCHOOL

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

COLLEGE OF AGRICULTURE AND LIFE SCIENCES

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

**Recommended:** Candidates are strongly encouraged to take one year of physics and at least one year of math beyond algebra II (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.

SCHOOL OF BUSINESS ADMINISTRATION

**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:** One year of biology for Human Development and Family Studies and Social Work majors. Math and science course work beyond the minimum for teacher education majors.

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.

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; one year of physics for Exercise and Movement Science majors.

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

**MINIMUM ENTRANCE REQUIREMENTS**

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

- 4 years of English
- 3 years of mathematics (algebra I, geometry, algebra II, or equivalent courses)
- 3 years of social science
- 2 years of natural or physical science, including a lab science
- 2 years of the same foreign language; (American Sign Language meets this requirement)

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

Course work not completed at the high school level may be fulfilled by equivalent college-level academic work. In general, one semester of college work is considered the equivalent of one year of high school study.

**MATRICULATION STATUS**

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

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

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

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

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

**Standardized testing results** (First-Year candidates only): The university requires first-year candidates to submit results from either the SAT or ACT (with the writing component). UVM’s code for the SAT is 3290 and 4322 for the ACT. Standardized test scores are considered official only if submitted directly from the testing agency. For further information regarding these tests, contact a high school 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 extended essay as part of the Common Application.

**Music majors** Candidates for the Bachelor of Arts in Music or Bachelor of Science in Music Education must contact the music department to arrange for an audition or submit an audition CD or DVD before an application is considered complete. These materials become property of UVM and will not be returned. More information is available at 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) are assigned an in-state or out-of-state status classification consistent with these regulations. The establishment of domicile in Vermont is necessary, but not sufficient, for a student to qualify for in-state status.

### IN-STATE STATUS CLASSIFICATION REGULATIONS

1. **Domicile** shall mean a person’s true, fixed, and permanent home. It is the place at which one intends to remain indefinitely and to which one intends to return when absent.

2. In addition to establishing domicile, an in-state status applicant must reside in Vermont continuously for one full year prior to the semester for which in-state status is sought.

3. A residence or domicile established for the purpose of attending UVM shall not qualify a student for in-state status.

4. An in-state status applicant who applies for admission or registers for class within one year of first moving to the state shall have created a rebuttable presumption that residency in Vermont is for the purpose of attending UVM and/or acquiring in-state status for tuition purposes.

5. A domicile or residency classification assigned by a public or private authority other than UVM neither qualifies nor disqualifies a student for UVM in-state status. Such classification may be taken into consideration, however, in determining the student’s status at UVM.

6. It shall be presumed that a student who has not reached the age of majority (18) holds the domicile of his/her parents or legal guardian(s).

7. Receipt of financial support by a student from his/her family shall create a rebuttable presumption that the student’s domicile is with his/her family, regardless of whether the student has reached the age of 18.

8. A student who has not reached the age of 18 whose parents are legally separated or divorced shall be rebuttably presumed to hold the domicile of the parent with legal custody.

9. A student of parents legally separated or divorced may be granted in-state status if a non-custodial or joint custodial parent is domiciled in Vermont and has contributed more than 50 percent of financial support for at least one year prior to the semester for which in-state status is sought.

10. The burden of proof as to eligibility for in-state status rests with the student. Eligibility must be established by clear and convincing evidence.

## RESIDENCY RULES FOR MEMBERS OF THE ARMED FORCES AND THEIR FAMILY MEMBERS

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

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 who is eligible for in-state tuition under this paragraph will continue to be eligible for in-state tuition as long as the individual is continuously
enrolled, even if there is a subsequent change in the permanent duty station of the member to a location outside of the state of Vermont.

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.

IN-STATE STATUS CLASSIFICATION

IN-STATE STATUS CLASSIFICATION DOCUMENTATION

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

APPEAL OF IN-STATE STATUS CLASSIFICATION

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

IN-STATE STATUS RECLASSIFICATION

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

RE-EXAMINATION OF CLASSIFICATION STATUS

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

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.

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.

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

UVM bachelor’s degree programs offered for the 2014-15 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.
Guaranteed Admission Program (GAP) The Guaranteed Admission program provides advising services and guarantees admission after successful completion of approved academic credit courses taken through Continuing and Distance Education. The program is administered cooperatively by Continuing and Distance Education, Undergraduate Admissions, and the deans’ offices of the colleges and schools within UVM.

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

A few majors may have additional restrictions or may not be accessible through the Guaranteed Admission Program. Please visit the Continuing and Distance Education (http://www.uvm.edu/~learn) website.

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

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

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

October 15 — First-year and Transfer international candidates. Notification is on a rolling basis. Payment of a $475 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.

November 1 — First-year and Transfer domestic candidates. Notification is on a rolling basis. Payment of a $475 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 $475 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 the end of March. A $475 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 $475 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.

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/admissions/undergraduate/AP_Guide.pdf) for specifics. Official AP score reports from the College Board must
be sent directly to the Office of Transfer Affairs in order to receive credit. AP course equivalencies are determined by the faculty of the corresponding subject area and are awarded by the Office of Transfer Affairs. AP credit is assigned a UVM course equivalency and applicability to the degree program is determined by the dean’s office of the student’s college or school. Students receiving transfer credit for AP may not receive credit for the same course at UVM. Students who complete International Baccalaureate (IB) coursework 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 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.

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/DEPT. OF COMMUNICATION SCIENCES AND DISORDERS (COLLEGE OF NURSING AND HEALTH SCIENCES)

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/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. 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 I 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:

<table>
<thead>
<tr>
<th>BS Engineering</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>EE 003 Linear Circuit Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>or EE 100 Electrical Engr Concepts</td>
<td></td>
</tr>
<tr>
<td>CE 001 Statics</td>
<td>3</td>
</tr>
<tr>
<td>ME 040 Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Civil Engineering</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 001 Statics</td>
<td>3</td>
</tr>
<tr>
<td>CE 010 Geometrics</td>
<td>4</td>
</tr>
<tr>
<td>CE 132 Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>ME 012 Dynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental Engineering</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 001 Statics</td>
<td>3</td>
</tr>
<tr>
<td>CE 010 Geometrics</td>
<td>4</td>
</tr>
<tr>
<td>CE 132 Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 032 General Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>ME 012 Dynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical Engineering</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 003 Linear Circuit Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>EE 004 Linear Circuit Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>EE 081 Linear Circuits Laboratory I</td>
<td>2</td>
</tr>
<tr>
<td>EE 082 Linear Circuits Laboratory II</td>
<td>2</td>
</tr>
<tr>
<td>EE 131 Fundamentals of Digital Design</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mechanical Engineering</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 012 Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 014 Mechanics of Solids</td>
<td>3</td>
</tr>
<tr>
<td>ME 040 Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 042 Applied Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 081 Mech Engr Shop Experience</td>
<td>1</td>
</tr>
<tr>
<td>ME 083 Computational Mech. Engr. Lab</td>
<td>1</td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td>2</td>
</tr>
<tr>
<td>CE 001 Statics</td>
<td>3</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engineering Management</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CE option:</td>
<td>18</td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td></td>
</tr>
<tr>
<td>CE 001 Statics</td>
<td>3</td>
</tr>
<tr>
<td>CE 010 Geometrics</td>
<td>4</td>
</tr>
<tr>
<td>CE 132 Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ME 012 Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>EE option:</td>
<td>18</td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td></td>
</tr>
<tr>
<td>EE 003 Linear Circuit Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>EE 004 Linear Circuit Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>EE 081 Linear Circuits Laboratory I</td>
<td>2</td>
</tr>
<tr>
<td>EE 082 Linear Circuits Laboratory II</td>
<td>2</td>
</tr>
<tr>
<td>EE 131 Fundamentals of Digital Design</td>
<td>3</td>
</tr>
<tr>
<td>CS 020 Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ME option:</td>
<td>17</td>
</tr>
<tr>
<td>ENGR 002 Graphical Communication</td>
<td></td>
</tr>
<tr>
<td>CE 001 Statics</td>
<td>3</td>
</tr>
</tbody>
</table>
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.

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 requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 012</td>
<td>Dynamics</td>
</tr>
<tr>
<td>ME 040</td>
<td>Thermodynamics</td>
</tr>
<tr>
<td>ME 081</td>
<td>Mech Engr Shop Experience</td>
</tr>
<tr>
<td>ME 083</td>
<td>Computational Mech. Engr. Lab</td>
</tr>
<tr>
<td>CS 020</td>
<td>Programming for Engineers</td>
</tr>
</tbody>
</table>
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 2.70 on a four-point scale. Generally, a 3.00 average or above is recommended to be competitive. Transfer applicants are encouraged to review progression and graduation requirements for each college or school.

ADDITIONAL TRANSFER REQUIREMENTS

College of Nursing and Health Sciences

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

School of Business Administration

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

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

College of Engineering and Mathematical Sciences

Students transferring to UVM under articulation agreements should be aware of the School of Engineering’s Pre-Engineering Technical (PET) requirement. In order to take sophomore or higher level engineering courses, students must have transfer credits for Calculus I and II (i.e., MATH 021 and 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 grade-point average of 3.40 from their former institution are eligible to apply for sophomore admission to the Honors College. Students with junior or senior standing cannot be considered for the Honors College as they are not able to complete the necessary curricular requirements to become Honors College Scholars. Admission to the university is a prerequisite for applying to the Honors College. Students may work on both applications concurrently, but no action will be taken on the Honors College application until the student is admitted to the university.

TRANSFER CREDIT POLICY

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.

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

INTERNATIONAL STUDENT ADMISSIONS

The university 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.

**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 with second-year status upon successful completion. The two-term Global Gateway Program (GGP) is designed to prepare students for the progression to 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 2.7 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 two-term GGP should have an iBT score of 65-89, 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 an iBT score of 55-64, an IELTS of 5.5 or a Password Test of 5.5 on both sections.

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 of 2.5, and a B- or higher in English Language study for the final GGP semester. The application for the UVM Global Gateway Program can be found at [http://globalgateway.uvm.edu](http://globalgateway.uvm.edu). For more information, contact the UVM Global Gateway Program Office at uvmadmissions@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, Stevens Institute of Technology, 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 UVM campus. Successful completion of the Summer Bridge program will lead to matriculation in the fall semester with second-year status. Students are offered conditional admission to UVM on the basis of their performance in the credit-bearing courses taken during the fall and spring semesters in China or Nigeria with at least a 3.0 cumulative grade-point average. Final admission is granted on the basis of grades earned in the UVM Summer Bridge program. USPP students must meet the minimum entrance requirements for the college or school they choose. Students who matriculate into UVM through the U.S. Pathway Program are considered for merit-based scholarship assistance. For more details, visit the following website: [http://www.uvm.edu/sfs/scholarships](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 or at the IHC website at [http://www.ihc-dubai.com](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. 354) section of this catalogue.

REAPPLYING TO THE UNIVERSITY AS AN UNDERGRADUATE

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

Under certain conditions, candidates offered admission who choose not to attend in a given semester can defer entry for up to two semesters with permission of the admissions office. Students who defer admission are required to pay the acceptance fee for the semester to which they applied and may not enroll in another degree program at another college or university. 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 see the dean 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 2014-2015 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 2014 board meeting please visit the Student Financial Services (http://catalog.uvm.edu/undergraduate/financialinformation/ http://www.uvm.edu/sfs) website.

Acceptance Fee

To reserve a space in the class or semester admitted, students must submit an acceptance fee of $475 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 admissions office. See the Paying Your Acceptance Fee at UVM (http://www.uvm.edu/admissions/undergraduate/admitted/?Page=enroll.html) 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 2014.

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.

<table>
<thead>
<tr>
<th></th>
<th>Resident</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$14,184</td>
<td>$35,832</td>
</tr>
<tr>
<td>Housing/Average Room and Meal</td>
<td>$10,810</td>
<td>$10,810</td>
</tr>
<tr>
<td>Comprehensive Student Fee</td>
<td>$2,012</td>
<td>$2,012</td>
</tr>
<tr>
<td>Inter-Residence Association Fee</td>
<td>$30</td>
<td>$30</td>
</tr>
<tr>
<td>Student Government Association Fee</td>
<td>$174</td>
<td>$174</td>
</tr>
<tr>
<td>Textbooks and Supplies (Estimated)</td>
<td>$1,200</td>
<td>$1,200</td>
</tr>
<tr>
<td>Optional Student Health Insurance Plan ('13 - '14 cost)</td>
<td>$2,740¹</td>
<td>$2,740¹</td>
</tr>
</tbody>
</table>

¹ This reflects the UVM Student Health Insurance Plan for the 2013-2014 school year. For 2014-2015 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 2014.

In-State Students: $591 per credit through 11.5 credits. From twelve-eighteen credits — $7,092 per semester plus $591 per credit for each credit in excess of eighteen credits.

Out-of-State Students: $1,493 per credit through 11.5 credits. From twelve-eighteen credits — $17,916 per semester plus $1,493 per credit for each credit in excess of eighteen credits.

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

Housing Charges

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

For information related to housing, visit the ResLife (http://reslife.uvm.edu) website.

For information related to meal plans, visit the University Dining Services (http://uds.uvm.edu) 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%20_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/~stdfsnv/?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 $30 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 $100. 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.

**SCHOOL OF BUSINESS ADMINISTRATION**

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

**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 2014

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:

<table>
<thead>
<tr>
<th>Credits Enrolled/Semester</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>$391</td>
</tr>
<tr>
<td>6</td>
<td>$436</td>
</tr>
<tr>
<td>7</td>
<td>$492</td>
</tr>
<tr>
<td>8</td>
<td>$545</td>
</tr>
<tr>
<td>9 to 11.5</td>
<td>$597</td>
</tr>
</tbody>
</table>

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 room and board charges are payable in full upon billing. Students who enroll in advance for courses will receive notification at their university email address when itemized statements of applicable charges are ready to view online. The 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 registration and access to grades and transcripts and may have their enrollment cancelled. Disenrollment will automatically place a registration hold on a student’s account that will prevent re-enrolling until the student has contacted Student Financial Services to discuss the account. A $50 fee must be paid to allow re-registration.

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

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

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 admissions office postmarked on or before May 1. After May 1, the acceptance fee is non-refundable.

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

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. Phone: (802) 656-5700; fax: (802) 656-4076.

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 students should apply on the Vermont Student Assistance Corporation (VSAC) (http://services.vsac.org/wps/wcm/connect/vsac/VSAC/Pay+for+College/Funding+Sources/Grants) website.

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

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

SATISFACTORY ACADEMIC PROGRESS STANDARD FOR FINANCIAL AID RECIPIENTS

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) 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/sfs/scholarships) website. Samples of scholarships available to new students include:

**Dean’s Merit Scholarship** Students who apply as 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 3.00 grade-point average 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 academically strongest student at each accredited high school in Vermont with 4-year, full tuition scholarships, currently valued at over $54,000. At the end of the academic year, the principal of each school submits a nominee who has completed the 11th grade. The primary criteria for determining a nominee is limited to academic performance in high school, including rank in class, grade-point average, rigor of course work and standardized testing. Green and Gold nominees are awarded four-year full tuition scholarships upon admission to the university. The scholarships are renewable annually providing that the recipient maintains a 3.00 overall grade-point average and full-time enrollment.

**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 Scholarship Information (http://www.uvm.edu/sfs/scholarships) website.

**Justin Morrill Scholarship** This scholarship is awarded to Vermont residents of high 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 $1,500 annually for four years (eight semesters). A cumulative 3.00 grade-point average 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 $3,000 per year for four years. A cumulative 3.00 grade-point average and enrollment in twelve or more credits per semester is required for renewal.

**Presidential Scholarship** Out-of-state students with a superior record of scholastic achievement are eligible for consideration for the UVM Presidential Scholarship. Letters of recommendation, secondary school record, and extracurricular participation are among the criteria used in making scholarship selections. Presidential Scholars receive a merit scholarship for four years (eight semesters) or until graduation (whichever comes first) providing they maintain a cumulative 3.00 grade-point average and full-time enrollment, and continue to make satisfactory progress toward the completion of their degree requirements. Scholarship recipients are awarded a four year (eight semester) merit scholarship of up to $12,000 annually.

**Trustees Scholarship** Academically talented out-of-state students are eligible for consideration for the UVM Trustees Scholarship. Letters of recommendation, secondary school record, and extracurricular participation are among the criteria used in making scholarship selections. Trustees Scholars receive a merit scholarship for four years (eight semesters) or until graduation (whichever comes first) providing they maintain a cumulative 3.00 grade-point average and full-time enrollment. Scholarship values range from $2,000-$8,000 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, perform 80 hours of community service annually while at the university, and enroll in two one-credit seminars across each of the first and second academic years. First-year Community Service Scholars live and participate in the Dewey House for Civic Engagement. Community Service Scholars will be selected by the UVM Office of Community-University Partnerships and Service Learning.

**Vermont Scholars** Each year, UVM names a select group of outstanding Vermont high school students as Vermont Scholars, an academic honor that carries a four-year scholarship. To qualify, candidates generally rank in the top 15% percent of their graduating class and present superior scores on the SAT Reasoning Test (SAT). Comparable ACT scores are acceptable. Final selection is based on such factors as secondary school record, recommendations, admissions essays, extracurricular participation and academic potential. Scholarship recipients are notified by mid-March.

Vermont Scholars receive a merit scholarship of $5,000 annually. The scholarship is renewable up to four years (eight semesters) or until the student graduates (whichever comes first) provided a 3.00 cumulative grade-point average and full-time enrollment is maintained.

**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/VSC) 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. You can access this information by scrolling down the left-hand menu.

ACCELERATED DEGREE PROGRAMS

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

Accelerated Licensure/Master of Arts in Teaching (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.

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 adjoined to 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.


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 Center’s website and join the pre-health mailing list.

Pre-Law preparation and advising is offered 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 Center’s website.

Pre-Vet preparation and advising is offered to students of any 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 Undergraduate Research Endeavor Competitive Awards (URECA) Program, the Pre-medical Enhancement Program (PEP), Summer Research Awards, 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; (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 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 eligibility requirements for study abroad, visit the Office of International Education (http://www.uvm.edu/oie) 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, Universitatis 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.

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.

During the 2013-14 academic year, the university enrolled approximately 9,970 undergraduate students, 1,300 graduate students, and 450 medical students. The university’s academic units include: the Colleges of Agriculture and Life Sciences; Arts and Sciences; Education and Social Services; Engineering and Mathematical Sciences; Medicine; Nursing and Health Sciences; the Rubenstein School of Environment and Natural Resources; the School of Business Administration; the Honors College; the Graduate College; the University of Vermont Extension; the Division of Continuing Education; and the UVM Libraries. UVM is the nation’s smallest land grant institution with a medical school. UVM is classified as a “Doctorate-granting University” by the Carnegie Foundation for the Advancement of Teaching, and is one of about 70 institutions in the U.S., out of over 4,300, that combine a “high research” profile with a “high undergraduate” enrollment mix. The university employs over 3,800 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 2015
Carolyn W. Branagan  Georgia, Vermont
Christopher A. Bray  New Haven, Vermont
David E. Potter  North Clarendon, Vermont
Raj Kiran Thakrar  Westford, Massachusetts
Mark S. Young  Orwell, Vermont

Term Ending March 2016
David A. Daigle  Greenwich, Connecticut
Samantha W. Lucas  Media, Pennsylvania
Deborah H. McAneny  Southborough, Massachusetts
Dale A. Rocheleau  South Burlington, Vermont

Term Ending March 2017
Bill Botzow  Bennington, Vermont
Frank J. Cioffi  St. Albans, Vermont
Joan G. Lenes  Shelburne, Vermont
Kesha K. Ram  Burlington, Vermont

Term Ending March 2018
Richard L. Gamelli  Burr Ridge, Illinois
Lisa M. Ventress  South Burlington, Vermont

Term Ending March 2019
Carolyn K. Dwyer  Essex Junction, Vermont
Anne T. O’Brien  Richmond, Vermont
Donna Sweeney  Windsor, Vermont
Jeff Wilson  Manchester Center, Vermont

Term Ending March 2020
Ron E. Lumbr  Rye, New York
Donald H. McCree  Rye, New York

ADMINISTRATION

Sullivan, E. Thomas, J.D.  President
Rosowsky, David V., Ph.D.  Senior Vice President and Provost
Bazlute, 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
Ryan, John F., Ph.D.  Interim Vice President for Enrollment Management
Evans, John, Ph.D.  Interim 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
UNIVERSITY PROFESSORSHIPS

- 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. Dr. Alfred C. Snider is the Lawrence Professor.
- The Sanders Professorship was established in 1968 by UVM alumni, honoring the Rev. Daniel Clarke Sanders, first president of the University. Dr. Pramodita Sharma is the Sanders Professor.
- The John L. Beckley Professorship in American Business was established in 1983 by John L. Beckley, 1934 graduate of UVM a trustee from 1966 to 1970, to encourage economic education. Dr. James M. Sinkula is the Beckley Professor.
- The Bishop Robert F. Joyce Distinguished University Professorship of Gerontology was established in 1983 by alumni and friends, honoring Robert F. Joyce, 1917 graduate, a trustee from 1948 to 1954, and Bishop of the R. C. Diocese of Burlington for 15 years. Dr. Betsy Hoza is the Bishop Joyce Professor.
- The Ernest Hiram Butts Chair in Pathology was established in 1984 to honor Ernest Hiram Butts, Professor of Pathology and Bacteriology, 1921 to 1946. John Henry Lunde, M.D. is the Butts Chair in Pathology.
- The McClure Professorship in Musculoskeletal Research was established in 1988 by J. Warren and Lois H. McClure. Dr. Bruce David Beynon is the McClure Professor.
- The E. L. Amidon Chair in the Department of Medicine was established in 1989 to honor Dr. E. L. Amidon, a revered teacher and former chair of the Department of Medicine. Polly E. Parsons, M.D. is the Amidon Chair.
- The Roger H. Allbee ’31 Professorship in Surgery was created in 1992 by Roger H. Allbee, M.D. ’31, to provide support for a research fellow in the Department of Surgery.
- The Gund Chair in Liberal Arts, established in 1995 by Gordon and Lulie Gund, provides the College of Arts and Sciences with the opportunity to attract a leading teacher-scholar to one of the liberal arts disciplines. Dr. Robert V. Bartlett is the Gund Chair.
• The Harry W. Wallace Professorship in Neonatology was established in the Department of Pediatrics 1995 by the family of Harry W. Wallace to represent Mr. Wallace’s philanthropic interests. Roger F. Soll, M.D. is the Wallace Professor.

• The Dorothean 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.

• The Duncan W. Persons, M.D. ’34 Green and Gold Professorship in Ophthalmology was established in 2003.

• The Endowed Professorship in Radiation Therapy was established in the College of Nursing and Health Sciences in 2003 by an anonymous donor. Dr. M. Ahmad Chaudhry is the Endowed Professor in Radiation Therapy.

• The Irwin H. Krakoff, M.D. Green 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. Neil H. Hyman, 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 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.

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 have proven their ability to do research in one of the sciences, including students who have a high scholastic standing.

National honorary societies represented on campus are as follows:

Other honorary societies include: Alpha Kappa Delta (sociology), Alpha Omega Alpha (medical), Alpha Zeta (agriculture), Beta Gamma Sigma (business administration), Chi Epsilon (civil engineering), Eta Sigma Phi (classical studies), Delta Sigma Rho (debating), Gamma Theta Upsilon (geography), Justin Morrill Honors program (College of Agriculture and Life Sciences), Kappa Delta Pi (education), Lambda Alpha (anthropology), Lola Aiken Scholars program (Rubenstein School of Environmental and Natural Resources), Omicron Nu (home economics), Order of Omega (fraternities and sororities), Phi Alpha Theta (history), Phi Beta 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

BUSINESS ADMINISTRATION

- 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

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

MEDICINE

- Liaison Committee on Medical Education
- American Medical Association
- Association of American Medical Colleges

NURSING AND HEALTH SCIENCES

- Athletic Training Education Program — Commission on Accreditation of Athletic Training Education
- Radiation Therapy — Joint Review Committee on Education in Radiologic Technology
- Medical Laboratory Science — National Accrediting Agency for Clinical Laboratory Science
- Nuclear Medicine Technology — Joint Review Committee on Education Programs in Nuclear Medicine Technology
- 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
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
cosmetically 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) web page.
INDEX

A

A&S Interdisciplinary (AS) ............................................................... 27
About the University ................................................................. 373
Academic Calendar ................................................................. 349
Academic Honors ................................................................. 336
Academic Information ............................................................. 336
Academic Internships ............................................................. 336
Academic Minors ................................................................. 337
Academic Offerings ............................................................... 9
Academic Standing ............................................................... 337
Accelerated Degree Programs .................................................. 369
Acceptable Proof of Graduation ............................................. 351
Accounting Minor ................................................................. 261
Accreditations ....................................................................... 378
Admission Information ........................................................... 350
Admission to the Honors College ........................................... 354
Admissions Programs for Undergraduate Students ............... 353
Admissions Requirements and Recommendations by College/School ......................................................... 350
African Studies Minor ............................................................ 232
Agriculture & Life Science (CALS) ............................................ 16
Agriculture and Life Sciences .................................................. 164
ALANA U.S. Ethnic Studies (ALAN) ......................................... 17
ALANA U.S. Ethnic Studies Minor ........................................... 201
Alternative Methods for Earning Academic Credit ............... 338
American Sign Language (ASL) .............................................. 17
Anatomy & Neurobiology (ANNB) .......................................... 18
Anatomy/Physiology (ANPS) ................................................... 18
Animal Science ................................................................. 169
Animal Science Major ............................................................ 170
Animal Science Minor ........................................................... 174
Animal Sciences (ASCI) ........................................................ 18
Anthropology .............................................................. 201
Anthropology (ANTH) .......................................................... 20
Anthropology Major ............................................................. 202
Anthropology Minor ............................................................ 203
Application and Supporting Materials for Undergraduates .......................................................... 351
Application Deadlines and Notification Dates for Undergraduates .................................................. 354
Applied Design Minor .......................................................... 179
Arabic (ARBC) ................................................................. 23
Art and Art History ............................................................. 203
Art Education (EDAR) ........................................................... 24
Art History (ARTH) .............................................................. 24
Art History Major ............................................................... 203
Art History Minor .............................................................. 205
Art Studio (ARTS) ............................................................... 26
Articulation Agreements .......................................................... 355
Arts and Sciences ............................................................... 194
Asian Languages and Literatures ........................................... 205
Asian Studies Major ............................................................. 228
Asian Studies Minor ........................................................... 233
Astronomy (ASTR) ............................................................... 27
Astronomy Minor ................................................................. 243
Athletic Training (AT) ........................................................... 28
Athletic Training Education Major ........................................ 317

B

Biochemistry ................................................................. 174
Biochemistry ................................................................. 206
Biochemistry (BIOC) ........................................................... 29
Biochemistry Major ............................................................. 175
Biochemistry Major ............................................................. 207
Biochemistry Minor ............................................................. 175
Biochemistry Minor ............................................................. 207
Biochemistry Minor ............................................................. 207
Biochemistry Minor ............................................................. 207
Biochemistry Minor ............................................................. 207
Biochemistry Minor ............................................................. 207
Biochemistry Minor ............................................................. 207
Biological Science ............................................................. 176
Biological Science B.S. Major ................................................. 209
Biological Science Major ........................................................ 176
Biological Sciences (BSCI) ..................................................... 30
Biology .............................................................. 207
Biology .............................................................. 31
Biology B.A. Major ............................................................. 208
Biology Minor ................................................................. 210
Biomedical Technologies (BMT) .......................................... 33
Biomedical Technology (BMD) .............................................. 33
Business Administration ....................................................... 258
Business Administration ....................................................... 33
Business Administration Major .............................................. 259
Business Administration Minor .............................................. 262

C

Canadian Studies Minor ........................................................ 233
Chemistry ................................................................. 211
Chemistry ................................................................. 37
Chemistry (CHEM) ............................................................. 37
Chemistry B.A. Major ........................................................... 211
Chemistry B.S. Major ........................................................... 212
<table>
<thead>
<tr>
<th>Course</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Sciences: Geology Minor</td>
<td>221</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>183</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>221</td>
</tr>
<tr>
<td>Environmental Studies</td>
<td>324</td>
</tr>
<tr>
<td>Environmental Studies (ENVS)</td>
<td>67</td>
</tr>
<tr>
<td>Environmental Studies Major</td>
<td>221</td>
</tr>
<tr>
<td>Environmental Studies Major</td>
<td>324</td>
</tr>
<tr>
<td>Environmental Studies Minor</td>
<td>183</td>
</tr>
<tr>
<td>Environmental Studies Minor</td>
<td>221</td>
</tr>
<tr>
<td>French Minor</td>
<td>253</td>
</tr>
<tr>
<td>French Major</td>
<td>251</td>
</tr>
<tr>
<td>French (FREN)</td>
<td>73</td>
</tr>
<tr>
<td>Foundations (EDFS)</td>
<td>73</td>
</tr>
<tr>
<td>Food Systems Minor</td>
<td>187</td>
</tr>
<tr>
<td>Food Systems Minor</td>
<td>190</td>
</tr>
<tr>
<td>Foreign Language (LANG)</td>
<td>71</td>
</tr>
<tr>
<td>Forestry</td>
<td>324</td>
</tr>
<tr>
<td>Forestry (FOR)</td>
<td>72</td>
</tr>
<tr>
<td>Forestry Major</td>
<td>325</td>
</tr>
<tr>
<td>Forestry Minor</td>
<td>325</td>
</tr>
<tr>
<td>Geology</td>
<td>244</td>
</tr>
<tr>
<td>Geography</td>
<td>223</td>
</tr>
<tr>
<td>Geography (GEOG)</td>
<td>75</td>
</tr>
<tr>
<td>Geography Major</td>
<td>223</td>
</tr>
<tr>
<td>Geospatial Technologies Minor</td>
<td>233</td>
</tr>
<tr>
<td>German (GERM)</td>
<td>79</td>
</tr>
<tr>
<td>German and Russian</td>
<td>226</td>
</tr>
<tr>
<td>German Major</td>
<td>226</td>
</tr>
<tr>
<td>German Minor</td>
<td>227</td>
</tr>
<tr>
<td>Gerontology Minor</td>
<td>255</td>
</tr>
<tr>
<td>Global Studies Major</td>
<td>221</td>
</tr>
<tr>
<td>Global and Regional Studies</td>
<td>227</td>
</tr>
<tr>
<td>Global and Regional Studies (GRS)</td>
<td>81</td>
</tr>
<tr>
<td>Global Studies Major</td>
<td>231</td>
</tr>
<tr>
<td>Global Studies Minor</td>
<td>233</td>
</tr>
<tr>
<td>Green Building and Community Design Minor</td>
<td>181</td>
</tr>
<tr>
<td>Greek (GRK)</td>
<td>83</td>
</tr>
<tr>
<td>Greek Language and Literature Minor</td>
<td>215</td>
</tr>
<tr>
<td>Greek Major</td>
<td>214</td>
</tr>
<tr>
<td>Health (HLTH)</td>
<td>84</td>
</tr>
<tr>
<td>Health Education (EDHE)</td>
<td>84</td>
</tr>
<tr>
<td>Hebrew (HEBR)</td>
<td>86</td>
</tr>
<tr>
<td>HELIX (HLX)</td>
<td>86</td>
</tr>
<tr>
<td>Higher Education (EDHI)</td>
<td>87</td>
</tr>
<tr>
<td>History (HST)</td>
<td>87</td>
</tr>
<tr>
<td>History Major</td>
<td>235</td>
</tr>
<tr>
<td>History Minor</td>
<td>235</td>
</tr>
<tr>
<td>Holocaust Studies (HS)</td>
<td>92</td>
</tr>
<tr>
<td>Holocaust Studies Minor</td>
<td>235</td>
</tr>
<tr>
<td>Honorary and Recognition Societies</td>
<td>377</td>
</tr>
<tr>
<td>Honors College</td>
<td>332</td>
</tr>
</tbody>
</table>
Mechanical Engineering (ME) .............................................................. 102
Matriculation Status ................................................................................................................. 351
Mathematics: Statistics Major ................................................................................................290
Mathematics: Pure Minor .......................................................................................................291
Mathematics Major .................................................................................................................. 287
Mathematics and Statistics ..................................................................................................... 285
Mathematics and Statistics ..................................................................................................... 236
Mathematics (MATH) .............................................................................................................. 99
Living/Learning Center ...........................................................................................................370
Linguistics Minor ...................................................................................................................... 254
Linguistics Major .......................................................................................................................252
Learning Studies (EDLS) ..........................................................................................................98
Linguistics (LING) .....................................................................................................................98
Latin (LAT) ...............................................................................................................................97
Latin American and Caribbean Studies Major ............................................................. 231
Latin American and Caribbean Studies Minor ............................................................. 234
Latin Language and Literature Minor .................................................................................. 215
Latin Major ...............................................................................................................................214
Leadership and Developmental Sciences ................................................................. 278
Learning Studies (EDLS) ..........................................................................................................98
Linguistics Major .......................................................................................................................252
Linguistics Minor ......................................................................................................................254
Living/Learning Center ...........................................................................................................370
Majors ................................................................................................................................. 9
Mathematics (MATH) .......................................................................................................... 99
Mathematics and Statistics ................................................................................................ 236
Mathematics and Statistics ................................................................................................ 285
Mathematics Major .............................................................................................................. 236
Mathematics Major .............................................................................................................. 287
Mathematics: Pure Minor ................................................................................................... 291
Mathematics: Statistics Major ......................................................................................... 290
Matriculation Status ........................................................................................................... 351
Mechanical Engineering (ME) ...................................................................................... 102
Mechanical Engineering Major ...................................................................................... 304
Medical Lab & Radiation Sci (MLRS) ............................................................................ 105
Medical Laboratory and Radiation Sciences ................................................................. 310
Medical Laboratory Science (MLS) ............................................................................... 106
Medical Laboratory Science Major .............................................................................. 310
Medical Radiation Sciences Major .............................................................................. 312
Medicine .............................................................................................................................. 334
Microbiology & Molecular Genetics (MMG) ................................................................. 106
Microbiology and Molecular Genetics .............................................................................. 184
Microbiology Major .......................................................................................................... 184
Microbiology Minor ........................................................................................................... 185
Middle East Studies Minor .............................................................................................. 234
Middle Level Teacher Education (EDML) ........................................................................... 108
Military Studies .................................................................................................................... 370
Military Studies (MS) .......................................................................................................... 109
Minimum Entrance Requirements .................................................................................. 351
Minors ............................................................................................................................... 11
Molecular Genetics Major ................................................................................................. 184
Molecular Genetics Minor ................................................................................................. 185
Molecular Physiology & Biophysics (MPBP) ................................................................. 109
Movement Sciences & Rehabilitation (MVS) ................................................................. 110
Music (MU) ......................................................................................................................... 110
Music and Dance ............................................................................................................... 237
Music Education (EDMU) ............................................................................................ 110
Music Major ....................................................................................................................... 237
Music Minor ..........................................................................................................................239
Music Performance Major ............................................................................................ 238
Natural Resources .............................................................................................................. 326
Natural Resources (NR) ...................................................................................................... 115
Natural Resources Major ................................................................................................. 326
Neurology (NEUR) ............................................................................................................ 117
Neuroscience ....................................................................................................................... 239
Neuroscience (NSCI) ........................................................................................................ 117
Neuroscience Major .......................................................................................................... 239
Nontraditional Undergraduate Student Admissions ...................................................... 362
Nuclear Medicine Technology (NMT) .......................................................... 118
Nursing .............................................................................................................................. 315
Nursing & Health Sciences (NH) .................................................................................... 118
Nursing (for Registered Nurses) Major ........................................................................ 316
Nursing (NURS) .............................................................................................................. 119
Nursing and Health Sciences ......................................................................................... 307
### THE UNIVERSITY OF VERMONT

<table>
<thead>
<tr>
<th>Undergraduate Catalogue 2014-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Major</td>
</tr>
<tr>
<td>Nutrition and Food Sciences</td>
</tr>
<tr>
<td>Nutrition and Food Sciences (NFS)</td>
</tr>
<tr>
<td>Nutrition and Food Sciences Major</td>
</tr>
<tr>
<td>Nutrition and Food Sciences Minor</td>
</tr>
<tr>
<td>O</td>
</tr>
<tr>
<td>Optional and Unique Fees</td>
</tr>
<tr>
<td>Overseas Study Program (OSSP)</td>
</tr>
<tr>
<td>P</td>
</tr>
<tr>
<td>Parks, Recreation and Tourism</td>
</tr>
<tr>
<td>Parks, Recreation and Tourism (PRT)</td>
</tr>
<tr>
<td>Parks, Recreation and Tourism Major</td>
</tr>
<tr>
<td>Parks, Recreation, and Tourism Minor</td>
</tr>
<tr>
<td>Part-Time Student Fees</td>
</tr>
<tr>
<td>Pathology (PATH)</td>
</tr>
<tr>
<td>Payments</td>
</tr>
<tr>
<td>Pharmacology Minor</td>
</tr>
<tr>
<td>Philosophy</td>
</tr>
<tr>
<td>Philosophy (PHIL)</td>
</tr>
<tr>
<td>Philosophy Major</td>
</tr>
<tr>
<td>Philosophy Minor</td>
</tr>
<tr>
<td>Physical Education Activities (PEAC)</td>
</tr>
<tr>
<td>Physical Education-Prof (EDPE)</td>
</tr>
<tr>
<td>Physical Therapy (PT)</td>
</tr>
<tr>
<td>Physics</td>
</tr>
<tr>
<td>Physics (PHYS)</td>
</tr>
<tr>
<td>Physics B.A. Major</td>
</tr>
<tr>
<td>Physics B.S. Major</td>
</tr>
<tr>
<td>Physics Minor</td>
</tr>
<tr>
<td>Plant &amp; Soil Science (PSS)</td>
</tr>
<tr>
<td>Plant and Soil Science</td>
</tr>
<tr>
<td>Plant Biology</td>
</tr>
<tr>
<td>Plant Biology</td>
</tr>
<tr>
<td>Plant Biology (PBIO)</td>
</tr>
<tr>
<td>Plant Biology Major</td>
</tr>
<tr>
<td>Plant Biology Major</td>
</tr>
<tr>
<td>Plant Biology Minor</td>
</tr>
<tr>
<td>Plant Biology Minor</td>
</tr>
<tr>
<td>Political Science</td>
</tr>
<tr>
<td>Political Science (POLIS)</td>
</tr>
<tr>
<td>Political Science Major</td>
</tr>
<tr>
<td>Political Science Minor</td>
</tr>
<tr>
<td>Portuguese (PORT)</td>
</tr>
<tr>
<td>Pre-Professional Options for Undergraduate Students</td>
</tr>
<tr>
<td>Professional Nursing (PRNU)</td>
</tr>
<tr>
<td>Psychological Science</td>
</tr>
<tr>
<td>Psychological Science B.A. Major</td>
</tr>
<tr>
<td>Psychological Science B.S. Major</td>
</tr>
<tr>
<td>Psychology (PSYC)</td>
</tr>
<tr>
<td>Psychology Minor</td>
</tr>
<tr>
<td>Public Administration (PA)</td>
</tr>
<tr>
<td>Public Communication Major</td>
</tr>
<tr>
<td>Public Communication Minor</td>
</tr>
<tr>
<td>Public Health (PH)</td>
</tr>
<tr>
<td>R</td>
</tr>
<tr>
<td>Radiation Therapy (RADT)</td>
</tr>
<tr>
<td>Reapplying to the University as an Undergraduate</td>
</tr>
<tr>
<td>Refund and Bill Adjustment Policies</td>
</tr>
<tr>
<td>Registration</td>
</tr>
<tr>
<td>Rehabilitation &amp; Movement Sci (RMS)</td>
</tr>
<tr>
<td>Rehabilitation and Movement Science</td>
</tr>
<tr>
<td>Religion</td>
</tr>
<tr>
<td>Religion (REL)</td>
</tr>
<tr>
<td>Religion Major</td>
</tr>
<tr>
<td>Religion Minor</td>
</tr>
<tr>
<td>Repeated Courses</td>
</tr>
<tr>
<td>Research Opportunities for Undergraduate Students</td>
</tr>
<tr>
<td>Residency Regulations, In-State Status Regulations</td>
</tr>
<tr>
<td>Residential Learning Communities</td>
</tr>
<tr>
<td>Romance Languages and Linguistics</td>
</tr>
<tr>
<td>Rubenstein School of Environment and Natural Resources</td>
</tr>
<tr>
<td>Russian (RUSS)</td>
</tr>
<tr>
<td>Russian and East European Studies Major</td>
</tr>
<tr>
<td>Russian Major</td>
</tr>
<tr>
<td>Russian Minor</td>
</tr>
<tr>
<td>Russian/East European Studies Minor</td>
</tr>
<tr>
<td>S</td>
</tr>
<tr>
<td>Scholarships</td>
</tr>
<tr>
<td>Secondary Education (EDSC)</td>
</tr>
<tr>
<td>Sexuality and Gender Identity Studies Minor</td>
</tr>
<tr>
<td>Social Work</td>
</tr>
<tr>
<td>Social Work (SWSS)</td>
</tr>
<tr>
<td>Social Work Major</td>
</tr>
<tr>
<td>Sociology</td>
</tr>
</tbody>
</table>