



BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE

PRESCRIBED WORK: REQUIRED BY ALL THREE DEGREE PLANS IN THE EVS PROGRAM

Mathematics	M 408C (Differential & Integral Calculus) ¹	
Chemistry	CH 301 & CH 302 (Principles of Chemistry I & II) ² CH 204 (Introduction to Chemical Practice)	
Physics	PHY 317K & PHY 117M (General Physics I with Lab) ³	
Biology	BIO 311C & BIO 311D (Introductory Biology I & II) ⁴	
Ecology	BIO 373 & BIO 373L (Ecology & Ecology Field Lab) ⁵	
Geological Sciences	Geological Sciences Course in Sustainability (pre-approval necessary) ⁶ GEO 401 (Physical Geology) ⁷ GEO 346C (Intro to Physical & Chemical Hydrogeology)	
Geography	GRG 335N (Landscape Ecology)	
Field Experience	EVS 311 (Introductory Field Seminar)	
Research Methods	EVS 331 (Research Methods for Environmental Science)	
Environmental and Sustainable Policy, Ethics and History (choose <u>one</u>)	PHL 325C (Environmental Ethics)* GRG 334 (Conservation, Resources & Technology) * GRG 336C (National Parks) * GRG 339K (Environment, Development, & Food Prod.) GRG 340D (Political Ecology)	GRG 342C (Sustainable Development) GRG 356C (Geo-Archaeology & Environmental History)* GRG 356T (pre-approved topics only) ⁸ SOC 321K (pre-approved topics only) ⁹ MNS 367K (Human Exploration & Exploitation of the Sea) ¹⁰
Geographic Information Systems (choose <u>one</u>)	GEO 327G (Geographic Information Systems) ¹¹ GRG 360G (Environmental Geographic Systems) ¹² GRG 462K (Introduction to Remote Sensing)	
Climates & Oceans (choose <u>one</u>)	GEO 377P (Physical Climatology) GEO 371C (pre-approved topics only) ¹³ GRG 333K (Climate Change) GRG 356T (pre-approved topics only) ¹⁴ BIO 456L (Limnology)	MNS 320 (Marine Ecology) ¹⁵ MNS 440 (Limnology & Oceanography) MNS 345T (Biological Oceanography) MNS 354Q (Marine Environmental Science) MNS 352 (Ecosystem Conservation) ¹⁶
Environmental Economics & Sustainability (choose <u>one</u>)	ECO 304K (Introduction to Micro-Economics) ECO 330T (Environ. Resources & Economic Growth)*	
Senior Research Experience	EVS 371 (Research Experience) ¹⁷	
Senior Seminars	EVS 141 (Professional Development Seminar)	EVS 151 (Research & Communication Seminar)

* Course is infrequently offered by the department.

¹ The two-course sequence of *Differential Calculus* (M 408N or 408K) and *Integral Calculus* (M 408S or 408L) may be taken in place of *Differential & Integral Calculus* (M 408C).

² *Honors Chemistry I & II* (CH 301H and CH 302H) may be taken in place of *Principles of Chemistry I & II* (CH 301 & CH 302).

³ Other 4 hour calculus-based sequences may be taken instead, specifically: *Mechanics with Lab* (PHY 301 & PHY 101L); *Engineering Physics with Lab* (PHY 303K & PHY 103M).

⁴ Honors Introduction to Genetics (BIO 315H) may be taken in place of Introductory Biology (BIO 311C & BIO 311D).

⁵ *Marine Ecology* (MNS 320) and *Marine Ecology Lab* (MNS 120L) may be taken in place of *Ecology* (BIO 373) and *Ecology Field Lab* (BIO 373L).

⁶ This requirement is traditionally satisfied through the *Sustaining a Planet*, a UGS 303 signature course.

⁷ *Introduction to Geology* (GEO 303) may be taken in place of *Physical Geology* (GEO 401).

⁸ Pre-approved GRG 356T topics for this requirement include: *Farming, Food & Global Hunger*; *Human Health & the Environment*; *Environment, Development & Food Production*; and *Envir-Cultural Dynamics in Botswana*.

⁹ Pre-approved GRG SOC 321K topics for this requirement include: *Environmental Sociology*; and *Building a Sustainable City*.

¹⁰ Under the 2010-2012 and 2012-2014 catalogs *Human Exploration & Exploitation of the Sea* (MNS 367K) may be used to satisfy the Prescribed "Climates & Oceans" Requirement instead of the Prescribed "Environmental and Sustainable Policy" Requirement. Under no circumstances can MNS 367K be used to satisfy both requirements.

¹¹ The GEO 420K pre-requisite for GEO 327G has been waived for EVS students in the Biology and Geography Tracks.

¹² The GRG 310C pre-requisite for GRG 360G has been waived for all EVS students.

¹³ Pre-approved GEO 371C topics for this requirement include: *Marine Geology*; *Glaciology*; *Climate Systems Discussion*; and *Paleo-Oceanography*.

¹⁴ The only pre-approved GRG 356T topic for this requirement is *Environmental Change and Management of Large Rivers*.

¹⁵ *Marine Ecology* (MNS 320) cannot be used to fulfill both the Prescribed "Ecology" Requirement and the Prescribed "Climates & Oceans" Requirement.

¹⁶ *Ecosystem Oceanography* (MNS 352) cannot be used to satisfy both the EVS Prescribed "Climates & Oceans" Requirement and the Biology Track "Conservation" Requirement.

¹⁷ Students in the EVS Biology and Geology Tracks may take either BIO 377 (with prior approval) or BIO 478T (*Natural Resource Management*) instead of EVS 371. Students in the Geography Track may take GRG 373F (*Field Techniques*) or GRG 373K (*Field Methods in Landscape Characterization*) instead of EVS 371.



**BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE
GEOGRAPHY TRACK COURSEWORK**

ADDITIONAL PRESCRIBED REQUIREMENTS

Writing Requirement	Two courses beyond RHE 306 or its equivalent identified with a writing flag. One of these courses must be upper-division. These courses may be used simultaneously to fulfill other requirements, unless otherwise specified. ¹⁸
Foreign Language/Culture Requirement <i>(choose <u>one</u> option)</i>	(1) Second-semester-level proficiency in a foreign language; (2) First-semester-level proficiency in a foreign language and a three-semester-hour course in the culture of the same language area; or (3) Two three-semester-hour culture courses chosen from one foreign culture category from an approved list available at the College of Liberal Arts advising office. ¹⁹
Social Sciences Requirement²⁰	Three semester hours chosen from an approved list of social science courses are required, <u>in addition to the course counted toward the social science area of the core curriculum</u> . The course must be in a field of study taught in the College of Liberal Arts and must be in a different field of study from the course used to fulfill the University core social science requirement.
Cultural Expression, Human Experience and Thought Requirement¹⁴	Three semester hours of designated coursework from the cultural expression, human experience and thought area are required. The course must be in a field of study in the College of Liberal Arts. A course counted toward any core curriculum requirement or any portion of the EVS Prescribed Work may not also be counted toward this requirement.

MAJOR REQUIREMENTS

Students selecting the Geographical Sciences Track must complete thirty (30) semester hours of coursework, including at least eighteen (18) upper-division hours of approved course work in Geography and the Environment as follows:

Geographical Sciences <i>(both required)</i>	GRG 301C (The Natural Environment)	GRG 304E (A Changing World)
Coursework Options²¹	GRG 301K (Weather and Climate) GRG 333C (Severe and Unusual Weather) GRG 333K (Climate Change) GRG 334C (Environmental Hazards) GRG 334K (Soils) GRG 335C (Quaternary Landscapes) GRG 335K (Mountain Geoecology) GRG 335N (Landscape Ecology) GRG 338C (Rivers & Landscapes) GRG 339 (Process of Geomorphology) GRG 346 (Human Use of the Earth)	GRG 356T (pre-approved topics only) ²² GRG 357 (Medical Geography) GRG 360G (Environmental Geographic Info Systems) GRG 462K (Intro to Remote Sensing) GRG 464K (Advanced Remote Sensing) GRG 366C (Comparative Ecosystems) GRG 366K (Biogeography) GRG 367K (Vegetation Ecology) GRG 368C (Spatial Analysis / GIS) GRG 470C (Advanced Geographic Info Systems) GRG 476T (pre-approved topics only)
Credit Hours Requirement	Students must take enough additional coursework to make a total of 126 hours.	

¹⁸ Beginning in Spring 2014, EVS students will obtain an upper-division writing flag with *Research Methods for Environmental Scientists* (EVS 331), leaving them with one remaining writing flag to be obtained in the course of completing their remaining degree requirements.

¹⁹ These courses must be chosen from an approved list available in the dean’s office and the college advising centers. Note the College of Liberal Arts (Geography Track) list of approved foreign cultures courses differs from the list of approved foreign culture courses within the College of Natural Science (Biology Track).

²⁰ Courses used to satisfy the EVS Prescribed Requirements cannot also be used to satisfy Geography Track Additional Prescribed Requirements.

²¹ Courses used to satisfy EVS Prescribed Requirements can also be used to satisfy Geography Track Major Requirements.

²² The only pre-approved GRG 356T topic for this requirement is *Environmental Change and Management of Large Rivers*.



BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE
BIOLOGY TRACK COURSEWORK

Students selecting the Biological Sciences Track must complete twenty-six (26) semester hours of coursework, including at least fifteen (15) upper-division hours of approved course work in Biology and the Environment as follows:

Foreign Language/Culture (choose <u>one</u> option)	(1) Second-semester-level proficiency in a foreign language; (2) First-semester-level proficiency in a foreign language and a three-semester-hour course in the culture of the same language area; or (3) Two three-semester-hour courses in one foreign culture area. ²³	
Statistics (choose <u>one</u>) ²⁴	SSC 328M / BIO 328M (Biostatistics) SSC 321 (Introduction to Probability and Statistics)	
Genetics and Evolution	BIO 325 (Genetics) ²⁵ and BIO 370 (Evolution)	
Conservation (choose <u>one</u>)	BIO 351 (Economic Botany) BIO 359 (Global Environmental Change)	BIO 375 (Conservation Biology) MNS 352 (Ecosystem Conservation)
Taxon-Based Diversity (choose <u>one</u> course / pair)	BIO 321L (Aquatic Entomology) BIO 324 & BIO 124L (Plant Kingdom and Lab) BIO 327 & BIO 127L (General Phycology and Lab) BIO 337 (Topic: Natural History of the Protists) BIO 340L (Biology of Birds) BIO 342L (Field Ornithology) BIO 448L (Invertebrate Biology) BIO 353F (Field Entomology) BIO 453L (Entomology) BIO 354L (Ichthyology) BIO 455L (Vertebrate Natural History) BIO 262 & BIO 262L (Plant Systematics and Lab)	BIO 364 (Microbial Ecology) BIO 369L (Herpetology) BIO 471G (Natural History Museum Science) MNS 352 (Topic: Principles of Estuarine Ecology) MNS 352 (Topic: Marine Invertebrates) MNS 352D (Marine Botany) MNS 354 (Marine Invertebrates) MNS 354C (Biology of Fishes) MNS 354E (Aquatic Microbiology) MNS 354U (Biology of Sharks, Skates, and Rays) GEO 479M (Mammalogy) [*]
Physiology, Neurobiology, and Behavior (choose <u>one</u> course / pair)	BIO 322 & BIO 122L (Seed Plants and Lab) BIO 328 & BIO 128L (Plant Physiology and Lab) BIO 438L (Animal Communication) BIO 339 (Micro Organisms) BIO 345E (Endocrinology) BIO 346 (Human Biology) BIO 359J (Behavioral Ecology) BIO 359K (Principles of Animal Behavior)	BIO 359R (Animal Sexuality) BIO 361 (Human Infectious Diseases) BIO 361T (Comparative Animal Physiology) BIO 465M (Experimental Methods in Physiology) BIO 365R (Vertebrate Neurobiology) BIO 365S (Vertebrate Physiology) BIO 371L (Experimental Physiology) MNS 355C (Physiology of Fishes)
Writing Requirement	Two courses with a substantial writing component or writing flag (one must be upper-division) ²⁶	
Upper-Division Coursework	All majors must complete fifteen hours of upper division biology coursework, including one field/lab course. ²⁷	
Credit Hours Requirement	Student must take enough additional coursework to make a total of 126 hours	

²³ These courses must be chosen from an approved list available in the dean's office and the college advising centers. Note the College of Natural Science (Biology Track) list of approved foreign cultures courses differs from the list of approved foreign culture courses within the College of Liberal Arts (Geography Track).

²⁴ This requirement may also be fulfilled with any upper-division Statistics or Probability course with the consent of the student's undergraduate adviser.

²⁵ *Honors Genetics* (BIO 325H) can may be taken in place of *Genetics* (BIO 325) if the student took *Honors Introduction to Genetics* (BIO 315H) in place of *Introductory Biology* (BIO 311C & BIO 311D).

²⁶ Beginning in Spring 2014, EVS students will obtain an upper-division writing flag with *Research Methods for Environmental Scientists* (EVS 331), leaving them with one remaining writing flag to be obtained in the course of completing their remaining degree requirements.

²⁷ Courses used to satisfy the biology track requirements may be used to satisfy this upper division coursework component. Students seeking to maximize time for elective coursework should therefore ensure that a field or lab course is used to satisfy their Taxon-Based Diversity or Physiology, Neurobiology, and Behavior requirement.



BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE
GEOLOGY TRACK COURSEWORK

EVS students selecting the Geological Sciences Track must complete thirty-six (36) semester hours of coursework, including at least twelve (12) upper-division hours of approved coursework in the Geological Sciences as follows:

Mathematics	M 408D (Sequences, Series, and Multivariable Calculus) ²⁸
Physics	PHY 317L & PHY 117N (General Physics II and Lab) ²⁹
Geological Sciences <i>(all required)</i>	GEO 404C (Plate Tectonics & Earth History) ³⁰ GEO 416K (Earth Materials) GEO 420K (Introduction to Field & Stratigraphic Methods) GEO 416M (Sedimentary Rocks)
Climate & Water <i>(choose one)</i> ³¹	GEO 376E (Environmental Isotope Geochemistry) GEO 376S (Physical Hydrology) GEO 476K (Groundwater Hydrology) GEO 377P (Physical Climatology) GEO 476M (Chemical Hydrogeology) GEO 371C (pre-approved topics only) ³²
Upper-Division Geology Courses	All majors must complete nine <u>additional</u> hours of upper division coursework in the Geological Sciences.
Writing Requirement	Two courses with a substantial writing component or writing flag (one must be upper-division). ³³
Credit Hours Requirement	Student must take enough additional coursework to make a total of 126 hours.

²⁸ *Multivariable Calculus* (M 408M) may be taken instead of *Sequences, Series, and Multivariable Calculus* (M 408D) if the student took the two-course sequence of *Differential Calculus* (M 408N or 408K) and *Integral Calculus* (M 408S or 408L) in place *Differential & Integral Calculus* (M 408C).

²⁹ Either of the following may also be used to satisfy the second-semester Physics requirement: *Electricity and Magnetism with Lab* (PHY 316 & PHY 361L); *Engineering Physics II with Lab* (PHY 303L & PHY 103N).

³⁰ *Life Through Time* (GEO 405) may be taken in place of *Plate Tectonics & Earth History* (GEO 404C).

³¹ Note that the same course cannot be used to satisfy the Prescribed “Climate & Oceans” Requirement and the Geology Track “Climate & Water” Requirement.

³² Pre-approved GEO 371C topics for this requirement include: *Marine Geology*; *Glaciology*; *Climate Systems Discussion*; and *Paleo-Oceanography*.

³³ Beginning in Spring 2014, EVS students will obtain an upper-division writing flag with *Research Methods for Environmental Scientists* (EVS 331), leaving them with one remaining writing flag to be obtained in the course of completing their remaining degree requirements.