

GEOGRAPHY - ENVIRONMENTAL SCIENCE OPTION, BA

Introduction

Please click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/geography-environmental-sciences/>) to see Geography and Environmental Sciences department information.

The Geography program (within the Department of Geography and Environmental Sciences) offers a BA degree that includes a full range of courses in the fundamentals of geography taught mainly by full-time faculty.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences reserves the right to make exceptions and substitutions as judged necessary in individual cases. Therefore, the College strongly urges students to consult regularly with their major advisor and CLAS advisor to confirm the best plans of study before finalizing them.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/#policiestext>) to go to information about declaring a major.

General Requirements

To earn a degree, students must satisfy all requirements in each of the three areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements (<http://catalog.ucdenver.edu/cu-denver/undergraduate/graduation/>)
- CU Denver Core Curriculum (<http://catalog.ucdenver.edu/cu-denver/undergraduate/graduation-undergraduate-core-requirements/>)
- College of Liberal Arts & Sciences Graduation Requirements (<http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/#graduationrequirementstext>)
- Click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/academic-policies-procedures/>) for information about Academic Policies

Program Requirements

- Students must complete a minimum of 45 credit hours from GEOG, GEOL and ENVS courses.
- Students must complete a minimum of 24 upper division (3000-level and above) credit hours from GEOG, GEOL and ENVS courses.
- Students must earn a minimum grade of C- (1.7) in all courses that apply to the major and must achieve a minimum cumulative major GPA of 2.0. Courses taken using P+/P/F or S/U grading cannot apply to program requirements.

- Students must complete a minimum of 15 GEOG, GEOL or ENVS credit hours with CU Denver faculty.

Program Restrictions, Allowances and Recommendations

- Only three credits of Travel Study may be counted toward graduation requirements.
- Undergraduate students may count up to 6 credit hours of independent study or internship (any combination of GEOG 3840 Independent Study: GEOG, GEOG 4840 Independent Study: GEOG, GEOG 4880 Directed Research, or GEOG 3939 Internship) towards elective credit in the major as approved by the undergraduate coordinator. Students may not receive more than three credit hours per independent study section. No more than three credit hours of independent study may be taken with the same instructor or in the same term.
- GEOG 3939 Internship: Community/Professional Experience optional, but highly recommended.

Code	Title	Hours
<i>Complete all of the following required courses:</i>		25
ENVS 1044 & ENVS 1045	Introduction to Environmental Sciences and Introduction to Environmental Sciences Laboratory	
GEOG 1102	World Regions Global Context	
or GEOG 1302	Introduction to Human Geography	
GEOG 1202	Introduction to Physical Geography	
GEOG 2080	Introduction to Mapping and Map Analysis	
GEOG/ENVS 3232	Weather and Climate	
GEOG 3412	Globalization and Regional Development	
GEOG 4020	Earth Environments and Human Impacts	
GEOG 4265	Sustainability in Resources Management	
<i>Complete one of the following Quantitative Methods courses:</i>		3
ANTH 4050	Quantitative Methods in Anthropology	
BANA 2010	Business Statistics	
MATH 2830	Introductory Statistics	
PSYC 2090	Statistics and Research Methods	
<i>Complete one of the following Geo-Spatial Analysis courses:</i>		3
GEOG 4060	Remote Sensing I: Introduction to Environmental Remote Sensing ¹	
GEOG 4080	Introduction to GIS ²	
GEOG 4085	GIS Applications for the Urban Environment	
GEOG 4235	GIS Applications in the Health Sciences	
<i>Complete one of the following Environmental Science Elective Courses:</i>		3
GEOG 3240	Colorado Climates	
GEOG 4010	Landscape Biogeochemistry	
GEOG/GEOL 4240	Applied Geomorphology	
GEOG/GEOL 4251	Fluvial Geomorphology	
GEOG/GEOL 4270	Glacial Geomorphology	
GEOG 4280	Environmental Hydrology	
GEOG 4305	Water Quality and Resources	

GEOG/ENVS 4720	Climate Change: Causes, Impacts and Solutions
GEOG 4731	Mountain Biogeography
GEOG/ENVS 4740	Soil Science and Geography

Complete an Introductory Biology or Chemistry Sequence. Complete the general biology or general chemistry sequence. If applying to the MS in Environmental Sciences program, students are advised to take both sequences.

<i>General Biology Sequence</i> ³	
BIOL 2010 & BIOL 2011	Organisms to Ecosystems (Gen Bio) and Organisms to Ecosystems Lab (Gen Bio)
BIOL 2020 & BIOL 2021	Molecules to Cells (Gen Bio) and Molecules to Cells Lab (Gen Bio)

<i>General Chemistry Sequence</i> ³	
CHEM 2031 & CHEM 2038	General Chemistry I and General Chemistry Laboratory I or CHEM 2031 Majors General Chemistry I Laboratory or CHEM 2038 Honors General Chemistry I Laboratory
CHEM 2061 & CHEM 2068	General Chemistry II and General Chemistry Laboratory II or CHEM 2061 Majors General Chemistry II Laboratory or CHEM 2068 Honors General Chemistry II Laboratory

Complete a minimum of one upper-division Biology or Chemistry elective course related to the student's Environmental Science interest, from the approved list.

Upper-Division Biology or Chemistry electives (p. 2)

Total Hours **45**

¹ pre-req for Remote Sensing II

² highly recommended; pre-req to most of the advanced GIS courses

³ Honors and majors versions of General Biology and General Chemistry will apply.

BIOL 2030 Honors Organisms to Ecosystems (Gen Bio) is equivalent to BIOL 2010 Organisms to Ecosystems (Gen Bio)

BIOL 2040 Honors Molecules to Cells (Gen Bio) is equivalent to BIOL 2020 Molecules to Cells (Gen Bio)

BIOL 2031 Honors Organisms to Ecosystems Lab (Gen Bio) is equivalent to BIOL 2011 Organisms to Ecosystems Lab (Gen Bio)

BIOL 2041 Honors Molecules to Cells Lab (Gen Bio) is equivalent to BIOL 2021 Molecules to Cells Lab (Gen Bio)

CHEM 2081 Honors General Chemistry I is equivalent to CHEM 2031 General Chemistry I

CHEM 2091 Honors General Chemistry II Lecture is equivalent to CHEM 2061 General Chemistry II

CHEM 2088 Honors General Chemistry I Laboratory and CHEM 2039 Majors General Chemistry I Laboratory are equivalent to CHEM 2038 General Chemistry Laboratory I

CHEM 2098 Honors General Chemistry II Laboratory and CHEM 2069 Majors General Chemistry II Laboratory are equivalent to CHEM 2068 General Chemistry Laboratory II

Upper-Division Biology or Chemistry Electives

Code	Title	Hours
Complete one of the following.		
<i>Biology</i>		
BIOL 3074	Human Reproductive Biology	3

BIOL 3104	Behavioral Genetics
BIOL 3124	Introduction to Molecular Biology
BIOL 3330	Plant Diversity
BIOL 3411	Principles of Ecology
BIOL 3445	Introduction to Evolution
BIOL 3521	Vertebrate Biology
BIOL 3525	Parasitology
BIOL 3611	General Cell Biology
BIOL 3621	Introduction to Immunology
BIOL 3640	Mammalogy
BIOL 3650 & BIOL 3651	General Microbiology and General Microbiology Lab
BIOL 3763	Biostatistics
BIOL 3804	Developmental Biology
BIOL 3832	General Genetics
BIOL 4024	Introduction to Biotechnology
BIOL 4052	Advanced Ecology
BIOL 4053	Infectious Disease Ecology
BIOL 4055	Virology
BIOL 4064	Cell Biology of Disease
BIOL 4126	Molecular Genetics
BIOL 4128	Topics in Molecular Biology
BIOL 4134	Human Genetics
BIOL 4144	Medical Microbiology
BIOL 4154	Conservation Biology
BIOL 4165	Neurobiology
BIOL 4225	Genomics and Bioinformatics
BIOL 4250	Mechanisms of Animal Behavior
BIOL 4335	Plant Structure and Development
BIOL 4345	Flora of Colorado
BIOL 4415	Applied Microbial Ecology
BIOL 4425	Biogeography
BIOL 4430	Introduction to Spatial Ecology
BIOL 4460	Environmental Toxicology
BIOL 4463	Exercise Physiology
BIOL 4475	Mechanisms of Human Pathology
BIOL 4494	Population and Evolutionary Genetics
BIOL 4550	Cell Signaling
BIOL 4622	Topics in Immunology
BIOL 4634	Biology of Cancer
BIOL 4674	Endocrinology
BIOL 4974	Advanced Evolution

Biology/Chemistry

BIOL/CHEM 4815	Structural Biology of Neurodegenerative Diseases
BIOL/CHEM 4825	Biochemistry of Metabolic Disease
BIOL/CHEM 4835	Biochemistry of Gene Regulation and Cancer
<i>Chemistry</i>	
CHEM 3011	Inorganic Chemistry
CHEM 3111	Analytical Chemistry
CHEM 3411	Organic Chemistry I

	or CHEM 341 Majors Organic Chemistry I
CHEM 3421	Organic Chemistry II
	or CHEM 349 Majors Organic Chemistry II
CHEM 3810	Biochemistry
CHEM 4010	Advanced Inorganic Chemistry
CHEM 4110	Advanced Analytical Chemistry
CHEM 4121	Instrumental Analysis
CHEM 4221	Practical Applications of Spectroscopy
CHEM 4310	Advanced Organic Chemistry
CHEM 4421	Cannabis Chemistry
CHEM 4500	Foundations of Physical Chemistry
CHEM 4510	Computational Chemistry
CHEM 4511	Physical Chemistry: Thermodynamics and Kinetics
CHEM 4521	Physical Chemistry: Quantum and Spectroscopy
CHEM 4530	Advanced Physical Chemistry
CHEM 4600	Advanced Topics in Chemistry
CHEM 4700	Environmental Chemistry
CHEM 4810	General Biochemistry I
CHEM 4820	General Biochemistry II
CHEM 4845	Molecular Modeling and Drug Design
CHEM 4860	Bioinorganic Chemistry: Bioinorganic compounds in medicine
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Total Hours	3

To learn more about the Student Learning Outcomes for this program, please visit our website (<https://clas.ucdenver.edu/ges/programs/bachelor-arts/learning-goals-outcomes/>).

To review the Degree Map for this program, please visit our website (<https://www.ucdenver.edu/student/advising/undergraduate/degree-maps/clas/>).