

Geographical Sciences (BSEnvirSci)

This program is designed for students interested in an interdisciplinary scientific perspective on environmental and sustainability issues, analysis, and management. The degree program provides the broad foundation in physical, life, and social sciences needed for a career or graduate study in environmental science and related fields such as climate change, ecology, and conservation. Students who complete the program successfully will be able to assess environmental issues critically from multiple perspectives; to perform field, laboratory, and computer analyses; and to conduct original research. The program is designed to prepare graduates for careers in local, state, and federal government laboratories and nonprofit agencies, environmental consulting firms, environmental education and outreach agencies, and universities and other research settings. The degree is offered by the Natural Sciences with a major in biological sciences, Liberal Arts with a major in geographical sciences, and Geosciences with a major in geosciences. The degree shares common prescribed work, but each major has its own specific requirements.

Admission

Students must be admitted to the program. All students are first admitted to the University as entry-level majors in Liberal Arts with a major in geographical sciences, Geosciences with a major in geosciences, or Natural Sciences with a major in biological sciences. After completing a minimum of 24 hours in residence, students may select the major that best suits their long-term interests and, if necessary, transfer to the appropriate college or school in accordance with the regulations and procedures set forth in [General Information](#).

Geographical Sciences

Students may apply for admission after completing the following requirements: Students must earn a grade of at least C- in BIO 311C, CH 301, and M 408C or M 408N; and a grade of at least B- in GEO 401 or GEO 303. To be competitive for admission, the student must have a grade point average of at least 2.75 in these four courses.

Applications are evaluated after the end of each fall and spring semester. Students whose applications are denied may reapply through the supplemental admission process the following semester. Admission decisions are based on the student's grade point average in the basic sequence courses, his or her University grade point average, and other factors; these factors include, but are not limited to, the difficulty of the student's course load, course repetitions, and proven mathematical ability. Students should consult advisors in the Liberal Arts Student Advising Office for information about the application process and application deadlines.

Freshman Admission

Freshmen applicants seeking admission must meet the calculus readiness requirement by the official admissions application deadline. More information about the calculus readiness requirement is available through the University Admissions Office or online.

Freshmen applicants must follow the application instructions outlined on the Office of Admissions website. Applicants should apply to the EVS program in the college that best suits their anticipated area of concentration (geological sciences, geographical sciences, or biological sciences, respectively).

External Transfer Admission

Students who wish to transfer to the university from another college or university must apply to the Office of Admissions as described in [General Information](#). External transfer applicants seeking admission must demonstrate calculus readiness by the official admissions application deadline. Details regarding transfer calculus readiness are available through the University Admissions Office or [online](#).

External transfer applicants must follow the application instructions outlined on the Office of Admissions website. Applicants should apply to the program in the college that best suits their anticipated area of concentration (geological sciences, geographical sciences, or biological sciences, respectively).

Internal Transfer Admission

All internal transfer applicants should use the online EVS Program Transfer Application and must meet requirements for internal transfer given in [General Information](#).

To be competitive for admission, internal transfer applicants should have a grade point average of at least 3.0 in [Biology 311C](#), [Chemistry 301](#), [Mathematics 408C](#) or [408N](#) or [408K](#), and [Geological Sciences 401](#) or [303](#).

Entry-level admission is offered as space is available to the students who are best qualified. Decisions are based on the student's grade point average in the introductory science and math courses listed above, University grade point average, and other factors including, but not limited to, difficulty of course load, course repetitions, proven mathematical ability, and interest in the field of Environmental Science.

Additional Information for all internal transfer applicants:

- Application Deadline: May 1 for fall entry and December 1 for spring entry.
- Only currently enrolled students in good academic standing with their college of residence may apply.
- Students may apply during the semester they are completing the minimum requirements to be eligible for consideration.

Students should consult with an academic advisor for additional information on the application process and deadlines.

Total Hours Required: 126

Plan of Study

The Plan of Study is a suggested four-year course sequence to support academic planning and serves as a helpful guide. Currently enrolled students should meet with their academic advisor to tailor their course selections and timelines to their individual goals and circumstances.

Course	Title	Hours
Year 1		
Semester 1		
First-Year Signature Course (090)		3
BIO 311C	Introductory Biology I	3
CH 301	Principles of Chemistry I	3
M 408C or M 408K	Differential and Integral Calculus or Differential Calculus	4
Visual and Performing Arts (050)		3
Hours		16
Semester 2		
EVS 311	Field Seminar in Sustainability	3
BIO 311D	Introductory Biology II	3
CH 302	Principles of Chemistry II	3
RHE 306	Rhetoric and Writing	3

GRG 401C	The Natural Environment	4
Hours		16
Year 2		
Semester 1		
CH 204	Introduction to Chemical Practice	2
GRG 404E	Environmental Science: A Changing World	4
U.S. History (060)		3
Foreign Language other than English, Beginning Proficiency		6
Hours		15
Semester 2		
EVS 121	Research Methods	1
GRG 460G or GRG 462K	Environmental Geographic Information Systems or Introduction to Remote Sensing of the Environment	4
U.S. History (060)		3
Foreign Language and Culture (may not also be counted toward Cultural Expression, Human Experience, and Thought)		6
Free Elective		2
Hours		16
Year 3		
Semester 1		
PHY with a Lab course		4
GRG 335N	Landscape Ecology	3
ECO 304K	Introduction to Microeconomics	3
Policy/Ethics/History course		3
Hours chosen from:		3
E 316L	British Literature	
E 316M	American Literature	
E 316N	World Literature	
E 316P	Masterworks of Literature	
Hours		16
Semester 2		
EVS 271	Topics in Research Experience	2
MNS 320	Marine Ecology	3
MNS 120L	Laboratory Studies in Marine Ecology	1
GEO 346C	Introduction to Physical and Chemical Hydrogeology	3
GRG course		3
American and Texas Government (070)		3
Hours		15
Year 4		
Semester 1		
EVS 371	Topics in Research Experience	3
EVS 141	Environmental Science Professionalism I	1
Climates and Oceans course		3
Cultural Expression, Human Experience, and Thought (may not also be counted toward Core Curriculum)		3
American and Texas Government (070)		3
GRG course		3
Hours		16
Semester 2		
EVS 151	Environmental Science Professionalism II	1
Additional Social Science (may not also be counted toward Core Curriculum)		3
GRG course		3
GRG course		3
GRG course		3
GRG course		3
Hours		16
Total Hours		126

Requirements

All requirements are listed below, starting with the most specialized moving to the most general. Additional requirements may follow the table, so be sure to read the entire page. Some required courses listed

below may also satisfy [General Education](#) requirements, including [Core Curriculum](#).

Code	Title	Hours
Major		
GRG 401C	The Natural Environment	4
Hours chosen from:		26
<i>Geospatial methods:</i>		
GRG 440L	Landuse/Landcover Change Practicum	
GRG 350E	Geoprocessing	
GRG 356T	Topics in Geography (any topic)	
GRG 462K	Introduction to Remote Sensing of the Environment	
GRG 464K	Advanced Remote Sensing and Pattern Analysis	
GRG 369D	GIS Applications in Social and Environmental Science	
GRG 470C	Advanced Geographic Information Systems	
GRG 370D	Spatial Reasoning with Geographic Information Systems	
<i>Physical Geography:</i>		
GRG 301K	Weather and Climate	
GRG 404E	Environmental Science: A Changing World	
GRG 333C	Severe and Unusual Weather	
GRG 333K	Climate Change	
GRG 334K	Soils	
GRG 334L	Vulnerability to Natural Hazards	
GRG 335C	Quaternary Landscapes	
GRG 335K	Mountain Geoecology	
GRG 335N	Landscape Ecology	
GRG 338C	Rivers and Landscapes: Fluvial Geomorphology	
GRG 339	Process Geomorphology	
GRG 346	The Human Use of the Earth	
GRG 357	Medical Geography	
GRG 460G	Environmental Geographic Information Systems	
GRG 366C	Comparative Ecosystems	
GRG 366K	Biogeography	
GRG 367K	Vegetation Ecology	
GRG 368C	Spatial Analysis and Geographic Information Systems	
GRG 476T	Topics in Geography (any topic)	
<i>Literature and Writing:</i>		
RHE 306	Rhetoric and Writing	3
Hours chosen from: Writing intensive coursework-see course list (may also be counted toward Core Curriculum; Plan II honors requires a minimum grade of C-)		3
Hours chosen from: Upper-division Writing intensive coursework-see course list (may also be counted toward Core Curriculum; Plan II honors requires a minimum grade of C-)		6
E 316L	British Literature	
or E 316M	American Literature	
or E 316N	World Literature	
or E 316P	Masterworks of Literature	

Foreign Language and Culture (may not also be counted toward Cultural Expression, Human Experience, and Thought)	
Additional Social Science (may not also be counted toward Core Curriculum)	3

<u>Cultural Expression, Human Experience, and Thought (may not also be counted toward Core Curriculum)</u>	3
<i>Subtotal</i>	48
Degree (see details below)	61
Free electives: Additional coursework to reach total hours required.	0
<i>Subtotal</i>	61
General Education	
<u>Remaining Core Curriculum (42 hours total)</u>	17
<u>Foreign Language other than English, Beginning Proficiency</u>	
<i>Subtotal</i>	17
<u>College Requirements - Liberal Arts</u>	
<u>General University Requirements</u>	
Total Hours	126

Additional Requirements and Policy

- A grade point average of at least 2.00 in geography coursework and at least 18 upper-division hours are required for the major.
- Courses taken to attain a certain level of proficiency in a foreign language are not electives and cannot be taken on the pass/fail basis.
- Cultural Expression, Human Experience, and Thought course: The course must be in a field of study taught in the College of Liberal Arts.
- Geographical sciences majors may not use the same coursework to satisfy both the degree's environment and sustainability requirement and the major's geography hours requirement..
- Geographical sciences majors may not use the same coursework to satisfy both the degree's capstone experience and the major's geography hours requirement.
- Mathematics courses at the level of college algebra may not count toward elective hours.

Degree-Bachelor of Science in Environmental Science (BSEnvirSci)

Code	Title	Hours
Degree		
<i>Introductory Coursework</i>		
EVS 301	Introduction to Environmental Science	3
<i>Field Experience and Research Methods</i>		
EVS 311	Field Seminar in Sustainability	3
<i>Environment and sustainability</i>		
Hours chosen from: Environment and Sustainability		3
BGS 325	Social and Ethical Responsibility of Business	
BGS 372	Strategic Corporate Social Responsibility	
FIN 372T	Topics in Finance (any topic)	
GRG 309C	Creating the Sustainable Society	
GRG 320J	Environmental Justice	
GRG 342C	Sustainable Development	
GRG 342N	Sustainable Landscapes and Seascapes	
GRG 344G	Environmental Law	
Hours chosen from: Geographic information systems		3
GRG 460G	Environmental Geographic Information Systems	
GRG 462K	Introduction to Remote Sensing of the Environment	
GEO 327G	Geographic Information System and Global Positioning System Applications in Earth Sciences	

Earth Systems		
GEO 416W	Climate, Water, and the Environment (Earth system course)	4
Additional Earth system Hours chosen from:		3
GRG 330W	Water and Watersheds	
GRG 301K	Weather and Climate	
GEO 347D	Global Warming	
GEO 370E	Ecohydrology and Biometeorology	
GEO 476K	Groundwater Hydrology	
GEO 476M	Aqueous Geochemistry	
GEO 376S	Physical Hydrology	
GEO 377P	Physical Climatology	
Computational Science Hours chosen from:		6
Liberal Arts and Geosciences majors may select:		
GRG 462K	Introduction to Remote Sensing of the Environment	
GRG 364K	Advanced Remote Sensing and Pattern Analysis	
GRG 368C	Spatial Analysis and Geographic Information Systems	
GRG 369D	GIS Applications in Social and Environmental Science	
GRG 370C	Advanced Geographic Information Systems	
GRG 370D	Spatial Reasoning with Geographic Information Systems	
GEO 325G	Computational Applications in the Geosciences	
GEO 352P	Python for Geoscience Research	
GEO 455S	Introduction to Remote Sensing for Geoscientists	
PGE 338	Geostatistics and Data Analysis	
Natural Sciences honors students must select:		
SDS 320H	Elements of Statistics: Honors (required for honors; credit by exam may not be counted)	
All majors may select:		
SDS 320E	Elements of Statistics (natural sciences majors must take SDS)	
SDS 321	Introduction to Probability and Statistics (natural sciences majors must take SDS)	
<i>Environmental Science Areas</i>		
Geological Sciences		
GEO 401	Physical Geology	4
or GEO 403	Introduction to Geology	
Geography		
GRG 412E	Digital Earth	4
Ecology Hours chosen from:		6
Liberal Arts and Geosciences majors:		
MNS 320	Marine Ecology	
MNS 120L	Laboratory Studies in Marine Ecology	
All majors:		
INB 373	Ecology (required for natural sciences majors)	
INB 373L	Ecology Laboratory (required for natural sciences majors)	
Capstone Research Experience Hours chosen from: a single sequence below		5
Sequence 1		
EVS 271	Topics in Research Experience	
EVS 371	Topics in Research Experience	
Sequence 2		

EVS 171	Topics in Research Experience
EVS 471	Topics in Research Experience
Sequence 3	
EVS 172C	Senior Research Proposal in Environmental Science
EVS 472D	Senior Research in Environmental Science
Sequence 4:	
EVS 272C	Senior Research Proposal in Environmental Science
EVS 372D	Senior Research in Environmental Science
Sequence 5:	
EVS 271	Topics in Research Experience
or MNS 270	Special Studies in Marine Science
& Hours chosen from:	
All majors:	
CH 320M	Organic Chemistry I
GRG 460G	Environmental Geographic Information Systems
GRG 462K	Introduction to Remote Sensing of the Environment
GRG 368C	Spatial Analysis and Geographic Information Systems
GEO 327G	Geographic Information System and Global Positioning System Applications in Earth Sciences
M 408D	Sequences, Series, and Multivariable Calculus
M 408M	Multivariable Calculus
Liberal Arts and Geosciences majors only:	
SDS 320E	Elements of Statistics (may not be counted for natural sciences majors))
SDS 320H	Elements of Statistics: Honors (may not be counted for natural sciences majors))
SDS 321	Introduction to Probability and Statistics (may not be counted for natural sciences majors))
Mathematics	
Choose a sequence below:	
Sequence 1	
M 408C	Differential and Integral Calculus
Sequence 2	
M 408N	Differential Calculus for Science
M 408S	Integral Calculus for Science
Sequence 3	
M 408K	Differential Calculus
M 408L	Integral Calculus
Sequence 4: Honors (required for honors; credit by exam may not be counted)	
Hours chosen from: Honors mathematics	
Chemistry	
Choose a sequence below:	
Sequence 1:	
CH 301	Principles of Chemistry I
CH 302	Principles of Chemistry II
Sequence 2: Honors (required for honors; credit by exam may not be counted)	
CH 301C	Foundations of Chemistry I
CH 302C	Foundations of Chemistry II
Physics Hours chosen from: a single sequence below	
Sequence 1	

PHY 317K	General Physics I
PHY 105M	Laboratory For Physics 302K, 303K, and 317K
Sequence 2	
PHY 303K	Engineering Physics I
PHY 105M	Laboratory For Physics 302K, 303K, and 317K
Sequence 3 Honors (required for honors; credit by exam may not be counted)	
PHY 301	Mechanics
PHY 101L	Laboratory for Physics 301
Biological Sciences Hours chosen from: a single sequence below	
Sequence 1	
BIO 311C	Introductory Biology I
BIO 311D	Introductory Biology II
Sequence 2 Honors (required for honors; credit by exam may not be counted)	
BIO 315H	Advanced Introduction to Genetics: Honors
Total Hours	
61	

Additional Requirements and policy

- Students may not use the same coursework to satisfy both the degree's environment and sustainability requirement and the degree's capstone research experience.
- Students may earn only one Bachelor of Science in Environmental Science degree from the University.
- A course in one prescribed work area may not also be used to fulfill the requirements of another prescribed work area.

The following courses may substitute for [Environmental Science 271](#) and [371](#) with prior approval of the faculty advisor:

- [Biology 377](#) ([Environmental Science 271](#) only)
- [Tutorial Course 660HA](#) and [660HB](#)
- [Geological Sciences 172H](#), [173H](#), and [379H](#)
- [Natural Sciences 323](#) and [371](#)