ENVIRONMENTAL GEOSCIENCES | BA

A Geology degree provides an understanding of issues associated with the physical earth and skills which are in demand in today's job market. The Geology graduate will have a detailed understanding of climate change, sustainability of the Earth's resources, and the close interplay between human activity and the environment.

About this Program

- **College:** Liberal Arts and Sciences (http://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/)
- **Degrees:** Bachelor of Arts (http://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/GLY_BA_BS/GLY_BA/) | Bachelor of Science (http://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/GLY_BA_BS/GLY_BS/)
- **Specializations:** Environmental Geosciences (BA) (p. 1)
- **Credits for Degree:** 120
- **More Info**

To graduate with this major, students must complete all university, college, and major requirements.

Department Information

The Department of Geological Sciences aims to provide a comprehensive understanding of Earth and Planetary sciences along with their formative and evolutionary processes. Geological Sciences trains students to excel in the geoscience workforce and create sustainable solutions to societal needs.
Website (http://geology.ufl.edu/)

CONTACT

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GAINESVILLE FL 32611-2120
Map (http://campusmap.ufl.edu/#/index/0100)

Curriculum

- Combination Degrees
- Geological Sciences Certificate
- Geology
- Geology Minor
- Geology UF Online

Techniques such as environmental assessment, geological hazard assessment, field-based techniques, and geographic information systems (GIS) are used to evaluate the impact of humans on the physical earth and hydrologic environment. The practical and flexible curriculum, small class sizes, computer-based learning, strong faculty, and coursework in several areas of General Education make this major appealing to students who want skills linked to employment or preparation for entry to professional schools (e.g., law, medicine, business).

Geology majors learn about the Earth's physical environment including climate, non-renewable geological resources, renewable geological resources, geological hazards and remediation as well as basic skills required by geologists. These skills and the geological perspective open doors to employment in government agencies and private firms that deal with water management, mining and petroleum exploration, climate change, the environment, and education.

Coursework for the Major

The Geology major has three different specializations: the Bachelor of Arts, the Bachelor of Arts in Environmental Geosciences (a joint program with the Department of Geography), and the Bachelor of Science. Students who are uncertain which program best suits them should consult the Department of Geology's undergraduate coordinator for information and guidance on curriculum planning.

Degrees and Specializations

Bachelor of Arts

This degree is the most flexible degree, and best suited for students interested in careers in education or environmental policy making. The degree also allows students flexibility to pursue advanced degrees in environmental law or environmental medicine.

Bachelor of Arts | Environmental Geosciences

Co-offered by the Department of Geography, this specialization is designed for students interested in land and water aspects of the environment. It can be tailored to focus on water and mineral exploration and management, geological hazards, environmental planning, resource sustainability, or earth science education.

Bachelor of Science

This degree is designed for students planning to take the professional geology (PG) licensure exam or to continue on to graduate study in Geology. It emphasizes a core understanding of petrology, structural geology, field methodology and paleontology, and it requires significant introductory coursework in calculus, general chemistry, and physics.

Relevant Minors and Certificates

UFTeach Program

There is a severe shortage of qualified secondary science teachers in Florida and nationwide. Students interested in becoming part of this high-demand profession should see the undergraduate coordinator about the UFTeach program. UFTeach students can complete the UFTeach minor in science teaching along with their BA or BS in Geology and have the coursework and preparation for professional teacher certification in Florida when they graduate.
More Info (http://education.ufl.edu/uf-teach/)

Research

Students in geology who wish to graduate with high or highest honors will be required to conduct an independent research project under the direction of a faculty member. Students are also afforded the opportunity to conduct research within the department's laboratories regardless of their honors status.

Bachelor of Arts: Environmental Geosciences

This specialization is well-suited for students interested in environmental science, environmental policy, Earth science teaching, or environmental law and offers a unique interdisciplinary perspective between geology and geography. The major requires a minimum of 40 credits of coursework and is a joint offering between the Department of Geological Sciences and Department of Geography. Students must earn a minimum grade of C for coursework to count toward the major.

Required Coursework

Code	Title	Credits
GEO 2200	Dynamic Planet Earth	4
& 2200L	and Dynamic Planet Earth Laboratory	
GIS 3043	Foundations of Geographic Information Systems	4
GLY 2010C	Physical Geology	4
GLY 2100C	Historical Geology	4
or GLY 3105C	Evolution of Earth and Life	
GLY 3202C	Earth Materials	3
GLY 4155C	Geology of Florida	3
Select two geology electives:		6-8
GLY 3074	Oceans and Global Climate Change	
GLY 3163	Geology American National Parks	
GLY 3603C	Paleontology	
GLY 3882C	Hydrogeology and Human Affairs	
GLY 4310C	Igneous and Metamorphic Petrology	
GLY 4400C	Structural Geology and Tectonics	
GLY 4552C	Sedimentary Geology	
GLY 4734	Coastal Morphology and Processes	
GLY 4750L	Geological Field Methods	
Select three geography electives:		9-12
GEO 3162C	Introduction to Quantitative Analysis for Geographers	
GEO 3250	Climatology	
GEO 3280	Principles of Geographic Hydrology	
GEO 3341	Extreme Floods	
GEO 3352	The Human Footprint on Landscape	
GEO 3372	Conservation of Resources	
GEO 4167C	Intermediate Quantitative Analysis for Geographers	
GLY 4734	Coastal Morphology and Processes	
GEO 4281	River Forms and Processes	

GEO 4285	Water, Risk, and Extreme Events
GEO 4300	Environmental Biogeography
GIS 4021C	Aerial Photo Interpretation
GIS 4037	Digital Image Processing
MET 3503	Weather and Forecasting
MET 4532	Hurricanes
Total Credits	**37-42**

Related Coursework

- STA 2023

Critical Tracking

Critical Tracking records each student's progress in courses that are required for progress toward each major. Please note the critical-tracking requirements below on a per-semester basis.

For degree requirements outside of the major, refer to CLAS Degree Requirements: Structure of a CLAS Degree.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites (https://cpm.flvc.org/advance-search/) may be used for transfer students.

Semester 1

- 2.0 UF GPA required

Semester 2

- Complete one critical-tracking course with laboratory (GEO 2200/GEO 2200L or GLY 2010C) with a 2.5 critical-tracking GPA
- 2.0 UF GPA required

Semester 3

- Complete the other critical-tracking course with laboratory (GEO 2200/GEO 2200L or GLY 2010C) with a 2.5 critical-tracking GPA
- 2.0 UF GPA required

Semester 4

- Complete STA 2023 and maintain a 2.5 critical-tracking GPA
- 2.0 UF GPA required

Semester 5

- Complete 2 additional GLY or GEO courses with a 2.5 critical-tracking GPA. (GLY 2100C or GLY 3105C recommended)
- 2.0 UF GPA required

Semester 6

- Complete GLY 3202C
- 2.0 UF GPA required

Semester 7

- Complete GEO level 3000 or above elective (3-4 credits)
- Complete GLY level 3000 or above elective (3-4 credits)
- 2.0 UF GPA required

Semester 8

- Complete GLY 4155C (Capstone)
- Complete any remaining GEO and GLY level 3000 or above electives
- 2.0 UF GPA required

Model Semester Plan

Students are expected to complete the Writing Requirement while in the process of taking the courses below. Students are also expected to complete the General Education International (GE-N) and Diversity (GE-D) requirements concurrently with another General Education requirement (typically, GE-C, H, or S).

3000 level or above Geography courses may count towards 3000 level electives outside of the major.

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

Course	Title	Credits
Semester One		
Quest 1 (Gen Ed Humanities)		3
State Core Gen Ed Composition (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext); Writing Requirement		3
State Core Gen Ed Mathematics (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
Foreign language		4-5
	Credits	**13-14**
Semester Two		
Select one:		4
GLY 2010C	Physical Geology (**Critical Tracking**; Gen Ed Physical Sciences; or equivalent)	
GEO 2200 & 2200L	Dynamic Planet Earth and Dynamic Planet Earth Laboratory (**Critical Tracking**; Gen Ed Physical Sciences)	
State Core Gen Ed Biological Sciences (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
Elective		3
Foreign language		3-5
State Core Gen Ed Social and Behavioral Sciences (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
	Credits	**16-18**
Semester Three		
Select one:		4
GLY 2010C	Physical Geology (**Critical Tracking**; Gen Ed Physical Sciences; or equivalent)	
GEO 2200 & 2200L	Dynamic Planet Earth and Dynamic Planet Earth Laboratory (**Critical Tracking**; Gen Ed Physical Sciences)	
Elective or foreign language if 4-3-3 option		3
Elective (3000 level or above, not in major)		3
State Core Gen Ed Humanities (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
Gen Ed Social and Behavioral Sciences		3
	Credits	**16**
Semester Four		
STA 2023	Introduction to Statistics 1 (**Critical Tracking**; Gen Ed Mathematics)	3
Gen Ed Biological Sciences		3
Gen Ed Composition		3
Gen Ed Humanities		3
Gen Ed Social and Behavioral Sciences		3
	Credits	**15**
Semester Five		
GIS 3043	Foundations of Geographic Information Systems (**Critical Tracking**)	4
Select one:		4
GLY 2100C	Historical Geology (**Critical Tracking**; Gen Ed Physical Sciences)	
GLY 3105C	Evolution of Earth and Life (**Critical Tracking**; Gen Ed Physical Sciences)	
Electives (3000 level or above, not in major)		6
	Credits	**14**
Semester Six		
GLY 3202C	Earth Materials (**Critical Tracking**)	3
Geology elective		3-4
Electives (3000 level or above, not in major)		9
	Credits	**15-16**

Semester Seven		
Geography elective (**Critical Tracking**)		3-4
Geology elective (**Critical Tracking**)		3-4
Electives		9
	Credits	**15-17**
Semester Eight		
GLY 4155C	Geology of Florida (**Critical Tracking**)	3
Geography electives		6-8
Electives		7
	Credits	**16-18**
	Total Credits	**120**

Electives to reach the 120-credit total will vary depending on whether students select minimum or maximum credit course options.

Academic Learning Compact

Bachelor of Arts

The Bachelor of Arts in Geology provides knowledge of the basic concepts related to earth materials and processes, and how to collect and organize geological data in the field. Through laboratory and field-based exercises, students will learn how to interpret geologic maps and cross sections, and to understand the application of the scientific method to solve these problems in teams and individually.

Before Graduating Students Must

- Pass GLY 4155C according to the department grading rubric.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes | SLOs

Content

1. Identify, describe and define the basic concepts related to earth materials and processes.
2. Collect data in the field.
3. Organize geologic, temporal and spatial data.

Critical Thinking

4. Interpret geologic maps and cross sections.
5. Interpret results using the scientific method.

Communication

6. Produce a clearly and effectively written synthesis of data collected in the field.
7. Work in teams to solve geologic problems and to present the results of such collaboration effectively.

Curriculum Map

I = Introduced; R = Reinforced; A = Assessed

Courses	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 6	SLO 7
GLY 2010C	I	I	I	I	I	I	I
GLY 2100C	R	R	R	R	I		R
GLY 3202C	R	R			R		R
GLY 3603	R	R			R	R	
GLY 4155C Capstone	A	A	A	A	A	A	A

Assessment Types

- Lab assignments
- Projects
- Exams

Bachelor of Science

The Bachelor of Science in Geology provides knowledge of the basic concepts, theories, observational findings related to earth materials and processes, minerals and rocks, geologic time, stratigraphy, and landforms. Through laboratory and field-based exercises, students will learn how to analyze data in the published literature, synthesize analog and digital datasets to produce geological maps, and understand the application of the scientific method to solve geological problems in teams and individually.

Before Graduating Students Must

- Pass GLY 4790 Summer Field Camp according to the department grading rubric.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes | SLOs

Content

1. Identify, describe, and define the basic concepts related to earth materials and processes.
2. Identify and describe minerals and rocks.
3. Define geologic time, stratigraphy, and landforms.

Critical Thinking

4. Analyze data in the published literature.
5. Synthesize analog and digital datasets to produce geologic maps.
6. Apply the scientific method to the analysis of published and self-generated data.

Communication

7. Use computers for the presentation of geologic maps and data.
8. Solve geologic problems in teams and present the result of such collaboration effectively.

Curriculum Map

I = Introduced; R = Reinforced; A = Assessed

Courses	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 6	SLO 7	SLO 8
GLY 2010C	I	I	I	I		I		I
GLY 2100C	R	R	R	R	I	R	I	R
GLY 3200C	R	R	R	R		R		R
GLY 4310C	R	R	R	R	R	R	R	R
GLY 4790 Capstone	A	A	A	A	A	A	A	A

Assessment Types

- Six weeks of practical field exercises and mapping, including observation and data collection in New Mexico and the western USA