Geoscience

(Bachelor of Science)

Geoscience is the study of Earth materials (e.g., rocks, minerals, soil, water, and air), the processes that shape and alter those components, and the interplay between the biosphere and the Earth. The program strongly emphasizes the fundamentals of geoscience, but also places special emphasis on groundwater management, soils, and other earth system processes.

The Geoscience program takes an application-focused, interdisciplinary approach, known as earth system science, in which the physical environment is investigated as many interacting systems. Earth system science emphasizes the interactions between the different systems that make up the Earth. Although earth system science is considered a new approach at many institutions, it has been an integral part of the Geoscience program since the very founding of UW-Green Bay. Interested students should also check Environmental Science course listings for several courses on soils, field geology, and ground water.

Geoscientists can find career opportunities in state and federal government agencies, consulting firms, and private industry. Demand for geoscientists will continue into the future, as demand for resources and energy grow with increasing population. Furthermore, responsible mining practices, remediation of contaminated sites, and forecasting the evolution of Earth conditions requires well-trained geoscientists with a broad understanding of how the Earth works.

Students interested in planning, natural resource or land management, or environmental policy issues typically select interdisciplinary minors in Environmental Science, Public and Environmental Affairs, or Urban and Regional Studies. For those interested in an earth system science perspective in business, Geoscience may also be combined with Business Administration. Many states and localities now require geoscience in their curricula, and high schools offering geoscience courses, in addition to the traditional science courses, is becoming the norm. Geoscience education includes geology, astronomy, oceanography, and weather and climate — with the goal of fostering a better understanding of our home, and encouraging responsible stewardship of our planet. Those seeking teacher certification can pursue several options:

- They can pursue a broad-field science certification in Education and take Geoscience courses to match their interests and employment goals.
- · Students interested in elementary and middle school teaching can take an Education major and Geoscience minor.
- · Students interested in teaching at the secondary level can take a Geoscience major and Education minor.

All Education students should consult with advisers in Geoscience and Education early in their studies to make sure that their academic program meets all state requirements for certification. Careful planning is essential since the Education course requirements are substantial and state requirements change periodically. Students seeking teacher certification in Geoscience should seriously consider satisfying the certification requirements in another discipline as well, because certification in additional fields will increase their employment opportunities.

Major Area of Emphasis (http://catalog.uwgb.edu/archive/2024-2025/undergraduate/programs/geoscience/major/)

Students must complete requirements in one of the following areas of emphasis: (http://catalog.uwgb.edu/archive/2024-2025/undergraduate/programs/geoscience/major/)

- Geoscience (http://catalog.uwgb.edu/archive/2024-2025/undergraduate/programs/geoscience/major/)
 - Geoscience (Accelerated) Integrated with graduate Environmental Science & Policy program (http://catalog.uwgb.edu/archive/2024-2025/ undergraduate/programs/geoscience/major/)

Minor

Code	Title	Credits		
Supporting Courses		20		
GEOSCI 202	Physical Geology			
GEOSCI 203	Earth System History			
At least 5 credits of Chemistry at the 100-200 level				
Mathematics (Choose two of the following courses):				
MATH 104	Precalculus			
MATH 202	Calculus and Analytic Geometry I			
MATH 203	Calculus and Analytic Geometry II			
MATH 260	Introductory Statistics			
Upper-Level Courses		12		
GEOSCI 340	Introduction to Mineralogy & Petrology			
Choose at least 8 additional credits from the following list:				

Total Credits		32
WATER 444	Aqueous Geochemistry	
WATER 321	Stable Isotopes in the Environment	
GEOSCI 499	Travel Course	
GEOSCI 498	Independent Study	
GEOSCI 492	Special Topics in Geoscience	
GEOSCI 491	Senior Thesis/Research in Geoscience	
GEOSCI 470	Glacial Geology & Landscapes	
GEOSCI 450	Ore Deposits	
GEOSCI 432	Hydrogeology	
GEOSCI 421	Geoscience Field Trip	
GEOSCI 402	Sedimentology & Stratigraphy	
GEOSCI 350	Structural Geology and Tectonics	
GEOSCI 301	Introduction to Geoscience Field Methods	
ENV SCI 433	Ground Water: Resources and Regulations	
ENV SCI 425	Global Climate Change	
ENV SCI 337	Environmental GIS	
ENV SCI 330	Hydrology	
ENV SCI 320	The Soil Environment	

Curriculum Guide

An example: Four year plan for Geoscience Major

120 credits necessary to graduate. Participation in field courses, the Geology Club, internships, and/or independent studies are highly recommended. Plan is a representation and categories of classes can be switched. Check with your advisor.

Course	Title	Credits
Freshman		
Fall		
GEOSCI 202	Physical Geology	4
MATH 104	Precalculus	4
or MATH 202	or Calculus and Analytic Geometry I	
WF 100	First Year Writing	3
First Year Seminar		3
General Ed		3
	Credits	17
Spring		
GEOSCI 203	Earth System History	3
GEOSCI 204	Earth System History Laboratory	1
GEOSCI 421	Geoscience Field Trip	1-3
MATH 202	Calculus and Analytic Geometry I	4
or MATH 260	or Introductory Statistics	
WF 105	Research and Rhetoric	3
or COMM 133	or Fundamentals of Public Address	
General Ed		3
	Credits	15-17
Sophomore		
Fall		
CHEM 211	Principles of Chemistry I	4
CHEM 213	Principles of Chemistry I Laboratory	1
ENV SCI 330	Hydrology	3
MATH 202	Calculus and Analytic Geometry I	4
or MATH 260	or Introductory Statistics	
General Ed		3
	Credits	15
Spring		
CHEM 212	Principles of Chemistry II	4
CHEM 214	Principles of Chemistry II Laboratory	1
General Ed		3

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		Total Credits	121-127

Faculty

John A Luczaj; Professor; Ph.D., Johns Hopkins University*

Shawn Malone; Assistant Professor; Ph.D., University of Iowa