

# Geoscience

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(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/2021-2022/undergraduate/programs/geoscience/major/>)

Students must complete requirements in one of the following areas of emphasis:

- Geoscience Emphasis
  - Geoscience Emphasis (Accelerated) - Integrated with graduate Environmental Science & Policy program
- Geoscience Emphasis for Students Seeking Teaching Certification

## Minor Area of Emphasis (<http://catalog.uwgb.edu/archive/2021-2022/undergraduate/programs/geoscience/minor/>)

Students must complete requirements in one of the following areas of emphasis:

- Geoscience Emphasis
- Geoscience Emphasis for Students Seeking Teaching Certification

## 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

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MATH 104 or MATH 202	Precalculus or Calculus and Analytic Geometry I	4
WF 100	First Year Writing	3
First Year Seminar		3
General Ed		3
<b>Credits</b>		<b>17</b>
<b>Spring</b>		
GEOSCI 203	Earth System History	3
GEOSCI 204	Earth System History Laboratory	1
MATH 202 or MATH 260	Calculus and Analytic Geometry I or Introductory Statistics	4
ENV SCI 421	Geoscience Field Trip	1
WF 105 or COMM 133	Research and Rhetoric or Fundamentals of Public Address	3
General Ed		3
<b>Credits</b>		<b>15</b>
<b>Sophomore</b>		
<b>Fall</b>		
CHEM 211	Principles of Chemistry I	4
CHEM 213	Principles of Chemistry I Laboratory	1
ENV SCI 330	Hydrology	3
MATH 202 or MATH 260	Calculus and Analytic Geometry I or Introductory Statistics	4
General Ed		3
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
CHEM 212	Principles of Chemistry II	4
CHEM 214	Principles of Chemistry II Laboratory	1
General Ed		3
Elective		3
Elective		3
ENV SCI 421	Geoscience Field Trip	1
<b>Credits</b>		<b>15</b>
<b>Junior</b>		
<b>Fall</b>		
GEOSCI 340	Introduction to Mineralogy & Petrology	4
ENV SCI 320	The Soil Environment	4
PHYSICS 201	Principles of Physics I	5
General Ed		3
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
GEOSCI/ENV SCI Upper Level Elective		3
GEOSCI/ENV SCI Upper Level Elective		3
Elective		3
Elective		3
Elective		3
ENV SCI 421	Geoscience Field Trip	1
<b>Credits</b>		<b>16</b>
<b>Senior</b>		
<b>Fall</b>		
GEOSCI/ENV SCI Upper Level Elective		3
Elective		3
Elective		3
Elective		3

General Ed		3
	<b>Credits</b>	<b>15</b>
<b>Spring</b>		
GEOSCI 432	Hydrogeology	3
GEOSCI/ENV SCI Upper Level Elective		3
Elective		3
Elective		3
	<b>Credits</b>	<b>12</b>
	<b>Total Credits</b>	<b>121</b>

## Faculty

**Kevin J Fermanich**; Professor; Ph.D., University of Wisconsin - Madison, chair\*

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

**Steven J Meyer**; Associate Professor; Ph.D., University of Nebraska - Lincoln\*

**Keith West**; Associate Professor; Ph.D., University of Wisconsin - Milwaukee

**Kelly Deuerling**; Assistant Professor; Ph.D., University of Florida

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