

# Geology

Charles A. Dana Professor Richard K. Dunn; Associate Professors G. Christopher Koteas (Chair) and Laurie D. Grigg; Lecturer, John Gartner; Research Assistant Professor George E. Springston

The Geology major provides a broad background in the physical sciences, with a strong focus on geology and its pivotal role in understanding our environment. Our graduates enter graduate school for continuing education, or move into the workforce prepared to contribute as leaders addressing the many local and global issues facing society.

The major emphasizes experiential learning through field studies and outdoor education. Courses include real projects and original research participation. The program is enriched through department field trips across New England, eastern Canada, and the western United States. All Geology majors take a pair of capstone courses involving an original research project and a seminar designed to synthesize their education and tie scientific thought to issues in society.

Students majoring in Geology have access to equipment for analyses of ground and surface water, soil, sediment, and rock. This equipment enables terrestrial and lake coring, collection of hydro-geochemical data, determination of sediment characteristics, subsurface studies, geological mapping, and more. Specific analytical tools include X-ray diffractometer, scanning electron microscope, and inductively coupled plasma spectrophotometer. The program also has a range of geophysical exploration equipment, including a gravity meter, seismographs, electromagnetometers, a magnetometer, and ground-penetrating radar instruments.

**Goals:**

- To provide a Liberal Arts degree program in Geology having a broad background in the physical sciences

with a focus on geology and its pivotal role in understanding our environment.

- To provide instruction and experiences with emphasis on field studies, solution of active problems, and communication in a professional format.

**Outcomes:**

- Know the procedures for identification of rocks, minerals and fossils
- Understand the stresses produced in a dynamic Earth and their resulting products, and know the fundamentals of plate tectonic theory
- Understand the materials and processes involved in the constitution and transformation of the Earth, both on the surface and within
- Know how to define a problem, design a study to acquire data, critically analyze and interpret data, and discuss the implications of results
- Be able to think critically about published professional work, synthesize the content of such work, and present findings at a professional level both in writing and orally
- Meet the University's General Education Goals

**Careers for this Major:**

- Graduate school
- State and federal surveys
- Military
- Teaching
- Industry and consulting

**Major**

**Geology (B.S.) – Curriculum Map 2021-2022 Catalog**

Course	Cr. Comp.	Course	Cr. Comp.
<b>FRESHMAN</b>			
<b>Fall</b>		<b>Spring</b>	
GL 110 Introduction to Geology (General Education Lab Science)	4	GL 156 Introduction to Earth Evolution (General Education Lab Science)	4
CH 103 General Chemistry I	4	CH 104 General Chemistry II	4
EN 110 Writing and Inquiry in Public Contexts	3	EN 111 Writing and Inquiry in Academic Contexts	3
MA 107 Precalculus Mathematics (General Education Math)	4	MA 108 Applied Calculus (General Education Math)	4
<b>Fall Semester Total Cr.:</b>	<b>15</b>	<b>Spring Semester Total Cr.:</b>	<b>15</b>
<b>SOPHOMORE</b>			
<b>Fall</b>		<b>Spring</b>	
GL 251 Sophomore Seminar in Geology	1	GL 200 level Elective <sup>1</sup>	4
GL 200 level Elective <sup>1</sup>	4	PS 202 General Physics II	4
PS 201 General Physics I	4	General Education Arts & Humanities ( <a href="http://catalog.norwich.edu/residentialprograms/catalog/generaleducationgoals/">http://catalog.norwich.edu/residentialprograms/catalog/generaleducationgoals/</a> )	3
General Education Social Science ( <a href="http://catalog.norwich.edu/residentialprograms/catalog/generaleducationgoals/">http://catalog.norwich.edu/residentialprograms/catalog/generaleducationgoals/</a> )	3	Technical Elective <sup>2</sup>	3-4
Free Elective	3		
<b>Fall Semester Total Cr.:</b>	<b>15</b>	<b>Spring Semester Total Cr.:</b>	<b>14-15</b>

JUNIOR			
Fall		Spring	
GL 200 level Elective <sup>1</sup>	4	GL 340 Project Development in Geology	1
Technical Elective <sup>2</sup>	3-4	GL 200 level Elective <sup>1</sup>	4
MA 232 Elementary Statistics	3	GL 200 level Elective <sup>1</sup>	3-4
General Education Ethics ( <a href="http://catalog.norwich.edu/residentialprograms/catalog/generaleducationgoals/">http://catalog.norwich.edu/residentialprograms/catalog/generaleducationgoals/</a> )	3	General Education History ( <a href="http://catalog.norwich.edu/residentialprograms/catalog/generaleducationgoals/">http://catalog.norwich.edu/residentialprograms/catalog/generaleducationgoals/</a> )	3
Free Elective	3	Technical Elective <sup>2</sup>	3-4
		Free Elective	3-4
<b>Fall Semester Total Cr.:</b>	<b>16-17</b>	<b>Spring Semester Total Cr.:</b>	<b>17-20</b>
SENIOR			
Fall		Spring	
GL 440 Research Project in Geology (General Education Capstone)	3	GL 451 Geology Seminar ((General Education Capstone))	3
GL 200 level Elective <sup>1</sup>	4	GL 460 Project Completion in Geology	1
Technical Elective <sup>2</sup>	3-4	GL 200 level Elective <sup>1</sup>	4
General Education Leadership ( <a href="http://catalog.norwich.edu/residentialprograms/catalog/generaleducationgoals/">http://catalog.norwich.edu/residentialprograms/catalog/generaleducationgoals/</a> )	1-3	Technical Elective <sup>2</sup>	3-4
Free Elective	3	Technical Elective <sup>2</sup>	3-4
<b>Fall Semester Total Cr.:</b>	<b>14-17</b>	<b>Spring Semester Total Cr.:</b>	<b>14-16</b>
<b>TOTAL CREDITS FOR THIS MAJOR: 120-130</b>			

1 Geology 200-Level courses: GL 253, GL 255, GL 257, GL 258, GL 261, GL 262, GL 265, GL 267.

2 Technical Electives include courses in BI, CE, CH, CS 140 or 200-level or higher, EE, EG, EM, ES, GL, MA (108 or higher), ME, PS.

3 PH 323 Environmental Ethics is strongly recommended.

## Minor

### Geology Minor 2021-2022 Catalog

An Environmental Science major is ineligible to declare the minor.

GL Elective	3-4
GL Elective	3-4
GL Elective (200 level or higher)	3-4
GL Elective (200 level or higher)	3-4
GL Elective (200 level or higher)	3-4
GL Elective (200 level or higher)	3-4
<b>Total Cr.</b>	<b>18-24</b>