EARTH SCIENCES, BA

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Faculty

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The Earth Sciences provide insights into some of humanity's deepest questions. How was the planet Earth, our lifeboat in space, formed? What are the processes that have shaped the Earth - its surface and internal structure? How has life, of which humanity is a part, evolved? Why are there earthquakes, volcanoes, mountain chains, continents, and oceans? How has the surface of the Earth and its environments changed through time? On a practical level, the study of Earth Sciences provides a basis for understanding natural hazards, assessing Earth's climate variability and global change, predicting the migration of man-made pollutants, and exploring for the energy and mineral resources upon which society depends. The BA degree in Earth Science is recommended for those students who enjoy and are intellectually intrigued by the Earth Sciences but intend to pursue careers in broader fields such as law, business, journalism, resource management or teaching and educational outreach. Along with intellectual enrichment, the BA degree provides a rounded science foundation and critical thinking skills and is a good option to combine with other majors.

Student Learning Outcomes

1. Explain process-based linkages among tectonics, climate, and life as illustrated by the Earth system over time.
2. Understand the importance of Earth Science in society.
3. Effectively synthesize published literature related to geological sciences in a written report and/or a data product.
4. Develop written and verbal communication skills required to effectively convey science to a wide range of audiences.

Requirements for a B.A. Degree in Earth Sciences

The BA degree in Earth Sciences requires at least 35 credits of Earth and Environmental Science course work including auxiliary math and science coursework.

Code	Title	Credits
Introductory Earth Science Courses		
EAR 105 & EAR 104	Earth Science and Earth Sciences Laboratory	4
or EAR 203	Earth System Science	
Note: EAR 104 is the laboratory course for EAR 105 and must be taken concurrently.		
Sequence Earth Science Course		
EAR 210	History of Earth and Life	4
Ancillary Science and Mathematics Courses		
CHE 106	General Chemistry Lecture I	3
CHE 107	General Chemistry Laboratory I	1
A Math course that is greater than or equal to MAT 194		3
Introduction to Earth and Environmental Science Skills Set		
EAR 201	Introduction to Earth and Environmental Data Analysis	2
Divisions of Earth Science		
Choose 4 courses spanning at least two of the following blocks with appropriate prerequisites. Other courses may be substituted by petition.		12
Block 1: Fundamentals of Geology		
EAR 314	Mineralogy	
EAR 317	Sedimentary Processes and Systems	
EAR 333	Structural Geology	
EAR 417	Geochemistry	
Block 2: Solid Earth		
EAR 403	Geomorphology	
EAR 418	Petrology	
EAR 431	Plate Tectonics	
EAR 435	Geophysics	
Block 3: Water Science		
EAR 401	Hydrogeology	
EAR 413	Physical Hydrology	
EAR 419	Environmental Aqueous Geochemistry	
EAR 311	Environmental Geophysics	
Block 4: Ancient Climates and Ecosystems		
EAR 325	Introduction to Paleontology	
EAR 405	Global Change:Geologic Record	
EAR 415	Introduction to Climate Dynamics	
Department Electives		
At least 6-credits of any upper-division EAR or approved auxiliary science or math course(s)		6
Total Credits		**35**

Requirements For Distinction

GPA Within Department 3.6

Overall GPA, by end of senior year of 3.4

Other Criteria Required for the Degree with Distinction

Students must complete a research-based senior thesis in conjunction with a faculty supervisor. The thesis must constitute independent, hypothesis-driven research involving investigative tools and techniques in the Earth Sciences. Students must submit the written thesis to the department and give a public seminar reporting their results. Students should register for EAR 409 Senior Thesis in Earth Science in the semester in which they plan to submit the thesis. All else being satisfied, Distinction is conferred following a vote of approval from the Faculty of the Department of Earth and Environmental Sciences.

College of Arts and Sciences Requirements

For all Arts and Sciences|Maxwell students, successful completion of a bachelor's degree in this major requires a minimum of 120 credits, 96 of which must be Arts and Sciences|Maxwell credits, completion of the Liberal Arts Core (https://coursecatalog.syracuse.edu/undergraduate/arts-sciences/#text) requirements, and the requirements for this major (30 credits) that are listed above.

Dual Enrollments:
Students dually enrolled in **Newhouse*** and Arts and Sciences|Maxwell will complete a minimum of 122 credits, with at least 90 credits in Arts and Sciences|Maxwell coursework and an Arts and Sciences|Maxwell major.

*Students dually enrolled in the College of Arts and Sciences|Maxwell as first year students must complete the Liberal Arts Core (https://coursecatalog.syracuse.edu/undergraduate/arts-sciences/#text). Students who transfer to the dual program after their first year as singly enrolled students in the Newhouse School will satisfy general requirements for the dual degree program by completing the Newhouse Core Requirements.

Undergraduate University Requirements
The following requirements and experiences apply to all Syracuse University Undergraduate matriculated degree programs.

- IDEA Course Requirement (https://coursecatalog.syracuse.edu/undergraduate/idea-course-requirement/)
- First Year Seminar (https://coursecatalog.syracuse.edu/undergraduate/courses/fys/)