

EARTH SCIENCE

Earth Science

The **Earth Science major** is a program leading to the bachelor of arts or bachelor of science.

The bachelor of arts emphasizes an interdisciplinary field and prepares the student primarily for a career in secondary education. Apart from the required and supporting coursework listed below, the B.A. program must satisfy the requirements of the Teacher Education Program (<http://catalog.iastate.edu/previouscatalogs/2020-2021/collegeofhumansciences/schoolofeducation/#teachereducationtext>). The B.S. program provides a broad overview of geology and supporting sciences. This degree pathway is also suitable for students who may want to pursue a career in secondary education or continue on to graduate school. If a student chooses this option and is interested in secondary education, they should contact Dr. Cinzia Cervato for additional guidance.

Required courses for the B.A. include:

GEOL 100	How the Earth Works	3
or GEOL 101	Environmental Geology: Earth in Crisis	
GEOL 100L	How the Earth Works: Laboratory	1
GEOL 102	History of the Earth	3
GEOL 102L	History of the Earth: Laboratory	1
GEOL 302	Summer Field Studies	6
GEOL 315	Mineralogy and Earth Materials	3
GEOL 315L	Laboratory in Mineralogy and Earth Materials	1
GEOL 316	Optical Mineralogy	1
GEOL 356	Structural Geology and Tectonics	4
GEOL 357	Geological Mapping and Field Methods	1
GEOL 365	Igneous and Metamorphic Petrology	3
GEOL 368	Sedimentary Geology	4
MTEOR 206	Introduction to Weather and Climate	3
ASTRO 120	The Sky and the Solar System	3
ASTRO 150	Stars, Galaxies, and Cosmology	3
And 3 credits of geology electives		3
Total Credits		43

Required supporting courses include:

CHEM 177	General Chemistry I	4
CHEM 177L	Laboratory in General Chemistry I	1
CHEM 178	General Chemistry II	3
CHEM 178L	Laboratory in College Chemistry II	1

PHYS 111	General Physics	5
PHYS 112	General Physics	5

One of the following

MATH 151	Calculus for Business and Social Sciences	3
or MATH 160	Survey of Calculus	
or MATH 165	Calculus I	

One of the following

COM S 107	Windows Application Programming	3
or STAT 101	Principles of Statistics	
or STAT 104	Introduction to Statistics	

And one course in Biology, Botany, or Zoology 3

Total Credits 28

Communication Proficiency requirement: According to the university-wide Communication Proficiency Grade Requirement, students must demonstrate their communication proficiency by earning a grade of C or better in ENGL 250. The department requires a grade of C or better in ENGL 309 or ENGL 314.

ENGL 150	Critical Thinking and Communication	3
ENGL 250	Written, Oral, Visual, and Electronic Composition	3
or ENGL 250H	Written, Oral, Visual, and Electronic Composition: Honors	

One of the following:

ENGL 309	Proposal and Report Writing	3
or ENGL 314	Technical Communication	

Total Credits 9

Required courses for the B.S. include:

GEOL 100	How the Earth Works	3
or GEOL 101	Environmental Geology: Earth in Crisis	
GEOL 100L	How the Earth Works: Laboratory	1
GEOL 102	History of the Earth	3
GEOL 102L	History of the Earth: Laboratory	1
GEOL 302	Summer Field Studies	6
GEOL 315	Mineralogy and Earth Materials	3
GEOL 315L	Laboratory in Mineralogy and Earth Materials	1
GEOL 316	Optical Mineralogy	1
GEOL 356	Structural Geology and Tectonics	4
GEOL 357	Geological Mapping and Field Methods	1
GEOL 365	Igneous and Metamorphic Petrology	3
GEOL 368	Sedimentary Geology	4
GEOL 479	Surficial Processes	3

MTEOR 206	Introduction to Weather and Climate	3
And 8 credits of electives in agronomy, astronomy, environmental science, or other approved areas.		8

Total Credits **45**

Required supporting courses include:

CHEM 177	General Chemistry I	4
CHEM 177L	Laboratory in General Chemistry I	1
CHEM 178	General Chemistry II	3
CHEM 178L	Laboratory in College Chemistry II	1
MATH 165	Calculus I	4
MATH 166	Calculus II	4
PHYS 111	General Physics	5
PHYS 112	General Physics	5
COM S 107	Windows Application Programming	3
or STAT 101	Principles of Statistics	
or STAT 104	Introduction to Statistics	

Total Credits **30**

Communication Proficiency requirement: According to the university-wide Communication Proficiency Grade Requirement, students must demonstrate their communication proficiency by earning a grade of C or better in ENGL 250. The department requires a grade of C or better in the below communication courses.

ENGL 150	Critical Thinking and Communication	3
ENGL 309	Proposal and Report Writing	3
or ENGL 314	Technical Communication	
or ENGL 302	Business Communication	
or JL MC 347	Science Communication	

Total Credits **6**

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NOTE: Course plan, sequence and credit amounts will vary depending upon which endorsement area(s) a student chooses to pursue. In addition, this plan is solely an example of one possible academic layout. This plan can and likely will be modified based on transfer credit, advanced placement (AP) credit, dual enrollment credit, "test out" credit, course offerings, schedule conflicts and entry term. *It is our expectation that students know the requirements of their academic program and develop and follow an academic plan based on their academic catalog and degree audit using their individual academic adviser as a resource in this process.*

Potential pathway for the B.A. in Earth Science degree:

Freshman

Fall	Credits	Spring	Credits	Summer	Credits
ENGL 150		3 EDUC 204		3 PSYCH 230 (social science)	3
LIB 160		1 GEOL 102		3 Social Science Option ¹	3
GEOL 100		3 GEOL 102L		1	
GEOL 100L		1 GEOL 113		1	
CHEM 177		4 CHEM 178		3	
CHEM 177L		1 CHEM 178L		1	
MATH 151, 160, or 165		3-4 ASTRO 120		3	
GEOL 112		1 MTEOR 206		3	
		Praxis Core			
17-18		18		6	

Sophomore

Fall	Credits	Spring	Credits	Summer	Credits
ENGL 250		3 GEOL 365		3 Humanities Option ¹	3
EDUC 203X		1 PHYS 112		5	
PHYS 111		5 EDUC 333 (social science)		3	
GEOL 315		3 Humanities Option ¹		3	
GEOL 315L		1 ASTRO 150		3	
GEOL 316		1			
EDUC 280L		0.5			
EDUC 219		1			
Apply/ Accepted to Educator Preparation Program					
15.5		17		3	

Junior

Fall	Credits	Spring	Credits	Summer	Credits
EDUC 303X		1 ENGL 302, 309, 314, or JL MC 347		3 GEOL 302	6
EDUC 347		3 EDUC 419		3	
EDUC 418		3 EDUC 480J		2	

EDUC 280A	1-2 COMST 211, SP CM 212, or THTRE 358	3
GEOL 357	1 COM S 107, STAT 101, or STAT 104	3-4
GEOL 368	4 GEOL 356	4
HIST 280 or 281 (humanities)	3	

16-17		18-19	6
Senior			
Fall	Credits	Spring	Credits
Geology Option ¹	3	EDUC 417J	16
Humanities Option ¹	3	PPAT	
SP ED 401	3		
EDUC 403X	1		
EDUC 406	3		
Social Science Option ¹	3		
Biology Option ¹	3		
Apply to student teach			
Praxis Subject Assessment			
Apply for graduation			
19		16	

Students in all ISU majors must complete a three-credit course in U.S. diversity and a three-credit course in international perspectives. Check (<http://www.registrar.iastate.edu/courses/div-ip-guide.html>) for a list of approved courses.

LAS majors require a minimum of 120 credits, including a minimum of 45 credits at the 300/400 level in addition to the LAS world language and cultures requirement. At least 8 credits in the major from 300+ courses must earn grade C or better. The average grade of all courses in the major must be 2.0 or higher.

Students must take an American History (counts as humanities) or American Government (counts as social science).

¹ Choose from list of approved courses available from an adviser.

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Potential pathway for the B.S. in Earth Science degree:

Freshman

Fall	Credits	Spring	Credits
ENGL 150	3	GEOL 102	3
GEOL 100 or 101	3	GEOL 102L	1
GEOL 100L	1	CHEM 178	3
CHEM 177	4	CHEM 178L	1
CHEM 177L	1	MATH 166	4
MATH 165	4	Arts-and- Humanities Choice	3
LIB 160	1		
17		15	

Sophomore

Fall	Credits	Spring	Credits
ENGL 250	3	GEOL 365	3
GEOL 315	3	Arts-and- Humanities Choice	3
GEOL 315L	1	PHYS 112	5
GEOL 316	1	STAT 101 or 104	3-4
PHYS 111	5	MTEOR 206	3
COM S 107	3		
16		17-18	

Junior

Fall	Credits	Spring	Credits	Summer	Credits
GEOL 479	3	GEOL 356		4 GEOL 302	6
GEOL 368	4	Foreign Language	3-4		
Agron/ Astronomy/ EnSci Choice ¹	3	Agron/ Astronomy/ EnSci Choice ¹	3		
Foreign Language	3-4	Social- Science Choice	3		

GEOL 357	1			
	14-15		13-14	6
Senior				
Fall	Credits	Spring	Credits	
Agron/ Astronomy/ EnSci Choice ¹		2 Electives	9	
Arts-and- Humanities Choice		3 Arts-and- Humanities Choice	3	
Social Science Choice		3 Social- Science Choice	3	
ENGL 309 or 302 or 314 or JL MC 347		3		
Elective	3-4			
	14-15		15	

Students in all ISU majors must complete a three-credit course in U.S. diversity and a three-credit course in international perspectives. Check (<http://www.registrar.iastate.edu/courses/div-ip-guide.html>) for a list of approved courses.

LAS majors require a minimum of 120 credits, including a minimum of 45 credits at the 300/400 level. At least 8 credits in the major from 300+ courses must earn grade C or better. The average grade of all courses in the major must be 2.0 or higher. You must also complete the LAS foreign language requirement.

¹ Choose from list of approved courses available from an adviser or departmental office.