

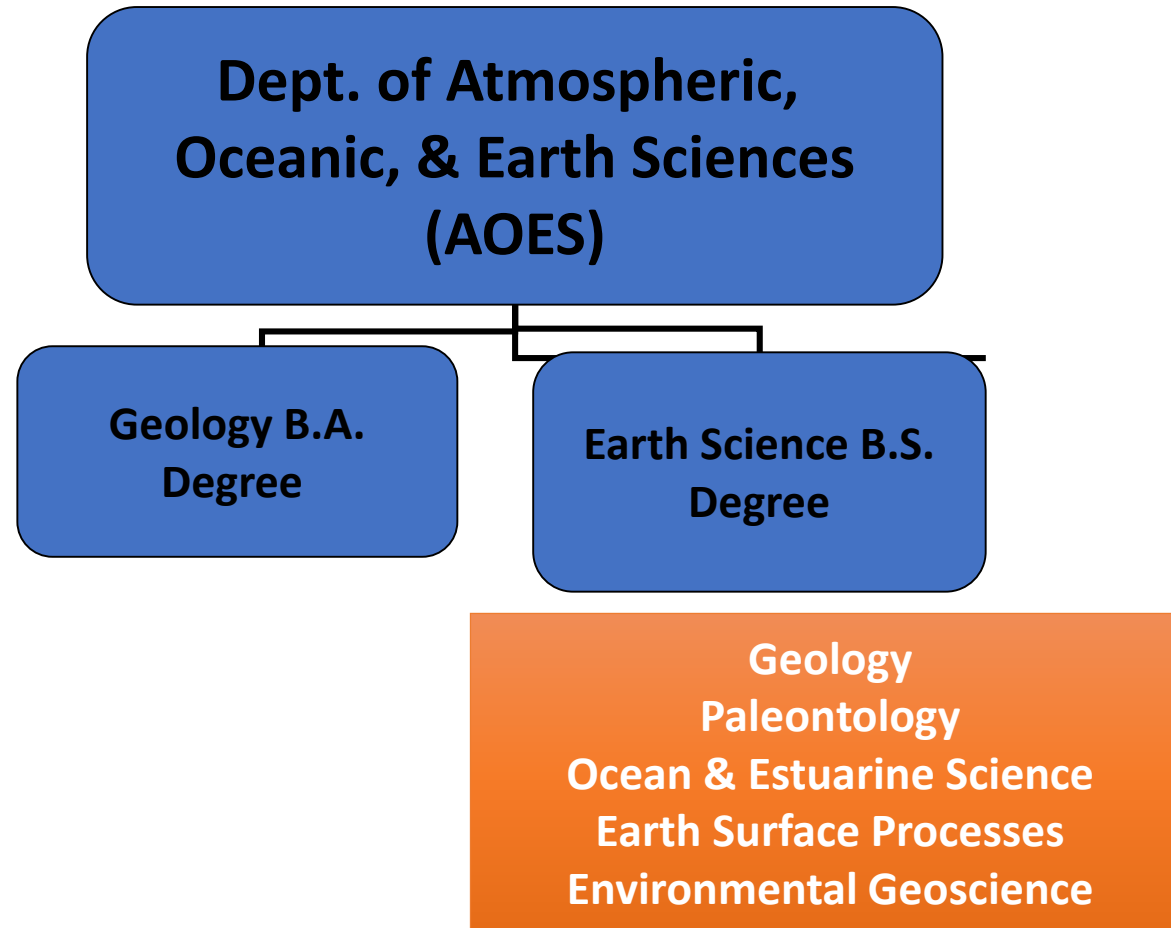
Geology & Earth Science Program at George Mason

Department of
Atmospheric, Oceanic, & Earth Sciences (AOES)
3400 Exploratory Hall (office)

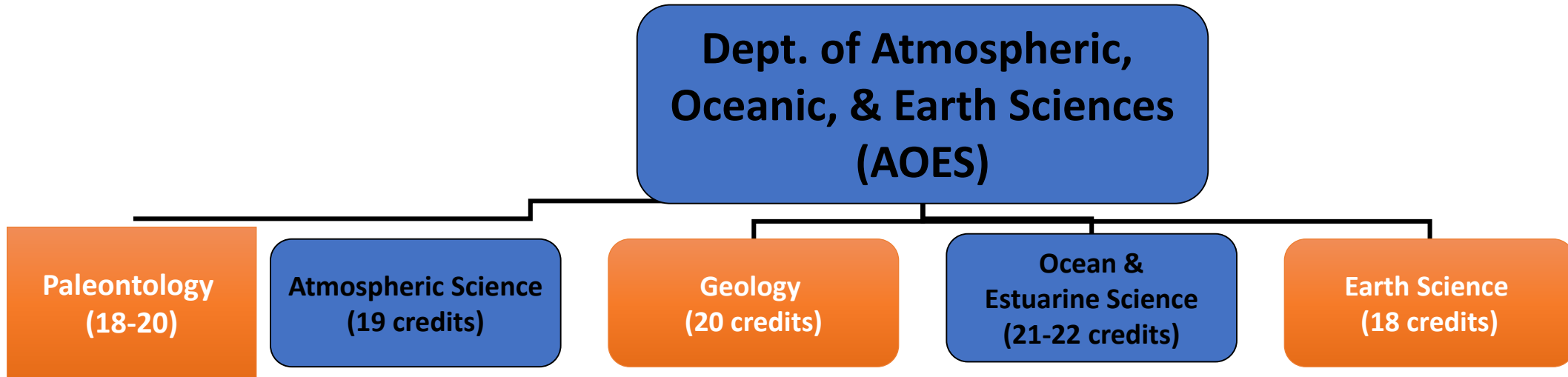
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Undergraduate Degrees in Geology and Earth Science



Undergraduate Minors in Geology and Earth Science





BA Geology and BS in Earth Science –concentration in geology

- University requirements
- College requirements
- Science & math requirements
- Major requirements (38):
 - GEOL 101, 102 (4,4) **Physical & Historical Geology**
 - GEOL 302 (4) **Mineralogy**
 - GEOL 304 (4) **Sedimentary Geology**
 - GEOL 308 (4) **Igneous & Metamorphic Petrology**
 - GEOL 312 (4) **Paleontology**
 - GEOL 317 (4) **Geomorphology**
 - GEOL 401 (4) **Structural Geology**
 - Geology field camp (6)

Sample Plan of Study Geology BA

Freshman Year (31CR)

Sophomore Year (35CR)

Junior Year (31CR)

Senior Year (30CR)

Fall Semester		Spring Semester	
GEO 101 Physical Geology	4	GEO 102 Historical Geology	4
MATH 113 Analytic Geometry	4	CHEM 211 General Chemistry	3
COMM 101 Interpersonal & Group Interact.	3	CHEM213 Chemistry Lab	1
SOCI 101 Introductory Sociology	3	GGG 311 Intro to GIS	4
UNIV 100 Introduction to Mason	1	HIST 100 Western Civ	3
	15		15

Fall Semester		Spring Semester	
GEO 302 Mineralogy	4	GEO 308 Petrology	4
CHEM 212 General Chemistry	4	Non-Western Culture	3
STAT 250 Intro Statistics	3	GEO 309 Oceanography	4
Arts requirement	3	Foreign Language 200 level	3
GEO 303 Field Mapping	3	Literature requirement	3
	18		17

Sample Plan of Study Geology BA (continued)

Freshman Year (31CR)

Sophomore Year (35CR)

Junior Year (31CR)

Senior Year (30CR)

Fall Semester		Spring Semester	
GEO 420 Earth Science and Policy	3	GEO 401 Structure	4
ENGH 302 Advanced Composition	3	ENGH 101 Composition	4
GEO 312 Invertebrate Paleontology	4	GEO 404 Field Techniques	6
GEO elective	3		
GEO 303 Field Mapping	3		
	16		14

Fall Semester		Spring Semester	
GEO 317 Geomorphology	4	GEO 363 Coastal Morphology	4
GEO 304 Sedimentary Geology	4	HIST requirement	3
GEO 313 Hydrogeology	3	Philosophy requirement	3
PHYS 243 College Physics 1	3	Information Technology Requirement	3
PHYS 244 College Physics LAB	1	Global Understanding	3
	15		16

**Sample Plan of Study
Geology BS
Geology concentration
Freshman Year (31CR)
Sophomore Year (32CR)
Junior Year (31CR)
Senior Year (32CR)**

Fall Semester		Spring Semester	
GEO 101 Physical Geology	4	GEO 102 Historical Geology	4
MATH 113 Analytic Geometry	4	CHEM 211 General Chemistry	3
COMM 101 Interpersonal & Group Interact.	3	CHEM213 Chemistry Lab	1
SOCI 101 Introductory Sociology	3	MATH 114 Analytic Geometry	4
UNIV 100 Introduction to Mason	1	HIST 100 Western Civ	3
	15		15

Fall Semester		Spring Semester	
GEO 302 Mineralogy	4	Arts requirement	3
CHEM 212 General Chemistry	4	GEO 308 Ig/Met Petrology	4
STAT 250 Intro Statistics	4	GEO 312 Invertebrate Paleontology	4
GEO 304 Sedimentary Geology	3	Foreign Language 200 level	3
		Literature requirement	3
	15		17

Sample Plan of Study Geology BS

Geology concentration (continued)

Freshman Year (31CR)

Sophomore Year (32CR)

Junior Year (31CR)

Senior Year (32CR)

Fall Semester		Spring Semester	
GEO 317 Geomorphology	4	GEO elective	3
GEO elective	3	HIST requirement	3
CLIM 111 Intro Atmos Science	3	Philosophy requirement	3
CLIM 112 Intro Atmos Science LAB	1	Information Technology Requirement	3
Global Understanding	3	ENGH 302 Advanced Composition	3
ENGH 101 Composition	3		
	16		15

Fall Semester		Spring Semester	
GEO 420 Earth Science and Policy	3	GEO 401 Structural Geology	4
GEO 304 Sedimentary Geology	4	GEO 404 Field Techniques	6
GEO elective	3	GEO elective	4
PHYS 243 College Physics	3	GEO elective	1
PHYS 244 College Physics LAB	1		
GEO elective	3		
	17		15

Sample Plan of Study
Geology BS
Environmental Geoscience
concentration
Freshman Year (31CR)
Sophomore Year (32CR)
Junior Year (31CR)
Senior Year (31CR)

Fall Semester		Spring Semester	
GEO 101 Physical Geology	4	GEO 102 Historical Geology	4
MATH 113 Analytic Geometry	4	CHEM 211 General Chemistry	3
COMM 101 Interpersonal & Group Interact.	3	CHEM213 Chemistry Lab	1
SOCI 101 Introductory Sociology	3	MATH 114 Analytic Geometry	4
UNIV 100 Introduction to Mason	1	HIST 100 Western Civ	3
	15		15

Fall Semester		Spring Semester	
GEO 302 Mineralogy	4	Arts requirement	3
CHEM 212 General Chemistry	4	GEO 305 Environmental Geology	3
STAT 250 Intro Statistics	3	GEO 306 Soil Science	3
ENGH 101 Composition	3	Foreign Language 200 level	3
GEO elective	3	Literature requirement	3
	17		15

**Sample Plan of Study
Geology BS
Environmental Geoscience
concentration
(continued)
Freshman Year (31CR)
Sophomore Year (32CR)
Junior Year (31CR)
Senior Year (31CR)**

Fall Semester		Spring Semester	
GEO 313 Hydrogeology	3	GEO 321 Geo of Energy Resources	3
GEO 320 Geo of Earth Resources	3	GEO 313 Hydrogeology	3
CLIM 111 Intro A tmos Science	3	Philosophy requirement	3
CLIM 112 Intro Atmos Science LAB	1	Information Technology Requirement	3
Global Understanding	3	ENGH 302 Advanced Composition	3
GEO 403 Geochemistry	3		
	16		15

Fall Semester		Spring Semester	
GEOL 420 Earth Science and Policy	3	CLIM 412 Physical Oceanography	3
GEO 304 Sedimentary Geology	4	EVPP 336 Human Dimensions	3
GGS 311 Intro to GIS	3	EVGS elective	4
PHYS 243 College Physics	3	EVGS elective	4
PHYS 244 College Physics LAB	1		
GEO elective	3		
	17		14

**Sample Plan of Study
Geology BS
Paleontology
concentration
Freshman Year (31CR)
Sophomore Year (33CR)
Junior Year (32CR)
Senior Year (30CR)**

Fall Semester		Spring Semester	
GEO 101 Physical Geology	4	GEO 102 Historical Geology	4
MATH 113 Analytic Geometry	4	CHEM 211 General Chemistry	3
COMM 101 Interpersonal & Group Interact.	3	CHEM213 Chemistry Lab	1
SOCI 101 Introductory Sociology	3	MATH 114 Analytic Geometry	4
UNIV 100 Introduction to Mason	1	HIST 100 Western Civ	3
	15		15

Fall Semester		Spring Semester	
GEO 302 Mineralogy	4	Arts requirement	3
CHEM 212 General Chemistry	4	GEO 308 Ig/Met Petrology	4
STAT 250 Intro Statistics	4	GEO 312 Invertebrate Paleontology	4
GEO 304 Sedimentary Geology	3	Foreign Language 200 level	3
		BIO 103 Intro Biology	4
	15		18

**Sample Plan of Study
Geology BS
Paleontology concentration
(continued)
Freshman Year (31CR)
Sophomore Year (33CR)
Junior Year (32CR)
Senior Year (30CR)**

Fall Semester		Spring Semester	
GEO 317 Geomorphology	4	GEO 303 Soil Science	3
GEO 334 Vertebrate Paleontology	4	HIST requirement	3
GEO 332 Paleoclimatology	3	Philosophy requirement	3
ENGH 101 Composition	3	Information Technology Requirement	3
Global Understanding	3	ENGH 302 Advanced Composition	3
	17		15

Fall Semester		Spring Semester	
GEO 317 Geomorphology	4	GEO 303 Soil Science	3
GEO 334 Vertebrate Paleontology	4	HIST requirement	3
GEO 332 Paleoclimatology	3	Philosophy requirement	3
ENGH 101 Composition	3	Information Technology Requirement	3
Global Understanding	3	ENGH 302 Advanced Composition	3
	17		15

Sample Plan of Study

Geology BS

Earth Surface Processes concentration

(continued)

Freshman Year (31CR)

Sophomore Year (33CR)

Junior Year (31CR)

Senior Year (31CR)

Fall Semester		Spring Semester	
GEO 101 Physical Geology	4	GEO 102 Historical Geology	4
MATH 113 Analytic Geometry	4	CHEM 211 General Chemistry	3
COMM 101 Interpersonal & Group Interact.	3	CHEM213 Chemistry Lab	1
SOCI 101 Introductory Sociology	3	MATH 114 Analytic Geometry	4
UNIV 100 Introduction to Mason	1	HIST 100 Western Civ	3
	15		15

Fall Semester		Spring Semester	
CLIM 111/112 Intro to Atmos Sci	4	Arts requirement	3
CHEM 212 General Chemistry	4	GGG 311 Intro to GIS	3
STAT 250 Intro Statistics	3	GEO 309 Oceanography	4
GEO 302 Mineralogy	4	Foreign Language 200 level	3
GEO 303 Field Mapping	3	Literature requirement	3
	18		16

Sample Plan of Study

Geology BS

Earth Surface Processes concentration

(continued)

Freshman Year (31CR)

Sophomore Year (33CR)

Junior Year (31CR)

Senior Year (31CR)

Fall Semester		Spring Semester	
GEO 317 Geomorphology	4	GEO 363 Coastal Morphology	4
GEO 304 Sedimentary Geology	4	HIST requirement	3
GEO 313 Hydrogeology	3	Philosophy requirement	3
PHYS 243 College Physics 1	3	Information Technology Requirement	3
PHYS 244 College Physics LAB	1	Global Understanding	3
	15		16

Fall Semester		Spring Semester	
GEOL 420 Earth Science and Policy	3	GEO 306 Soil Science	3
ENGH 302 Advanced Composition	3	ENGH 101 Composition	4
CLIM 111 Intro Atmos Science	3	GEO elective	4
CLIM 112 Intro Atmos Science LAB	1	GEO elective	3
GEO 303 Field Mapping	3		
GEO elective	3		
	16		15

Sample Plan of Study
Geology BS
Oceanography & Estuarine Science
Concentration Freshman Year (31CR)
Sophomore Year (35CR)
Junior Year (33CR)
Senior Year (28CR)

Fall Semester		Spring Semester	
GEO 101 Physical Geology	4	GEO 102 Historical Geology	4
MATH 113 Analytic Geometry	4	CHEM 211 General Chemistry	3
COMM 101 Interpersonal & Group Interact.	3	CHEM213 Chemistry Lab	1
SOCI 101 Introductory Sociology	3	MATH 114 Analytic Geometry	4
UNIV 100 Introduction to Mason	1	HIST 100 Western Civ	3
	15		15

Fall Semester		Spring Semester	
GEO 302 Mineralogy	4	Arts requirement	3
CHEM 212 General Chemistry	4	BIO 104 Intro Biology	4
STAT 250 Intro Statistics	4	GEO 312 Invertebrate Paleontology	4
BIO 103 Intro Biology	4	Foreign Language 200 level	3
PHED Basic Scuba	2	Literature requirement	3
	18		17


Sample Plan of Study
Geology BS
Oceanography & Estuarine Science
concentration (continued)
Freshman Year (31CR)
Sophomore Year (35CR)
Junior Year (33CR)
Senior Year (28CR)

Fall Semester		Spring Semester	
GEO 317 Geomorphology	4	BIO 449 Marine Ecology	3
GEO 304 Sedimentary Geology	4	HIST requirement	3
CLIM 111 Intro Atmos Science	3	GEO 308 Ig/Met Petrology	4
CLIM 112 Intro Atmos Science LAB	1	Information Technology Requirement	3
GEO 364 Marine Geology	3	ENGH 302 Advanced Composition	3
ENGH 101 Composition	3		
	18		16

Fall Semester		Spring Semester	
GEOL 420 Earth Science and Policy	3	GEO elective	4
GEO 304 Sedimentary Geology	4	GEO 458 Chemical Oceanography	3
GEO 412 Physical Oceanography	3	elective	3
PHYS 243 College Physics	3	elective	1
PHYS 244 College Physics LAB	1	Philosophy requirement	3
	14		14

Earth Science Minor (18 credits or 5 courses)

- Geol 101 **Physical Geology**
- Geol 309 / BIOL 309 **Oceanography**
- GGS 309 **Meteorology & Climate**
 - Or CLIM 111 & 112 (4) **Introduction to the Fundamentals of Atmospheric Science**
- Plus 8 credits of Geology electives:
 - Geol 102 **Historical Geology**
 - Geol XXX (e.g., Geol 305, 306, 315, 317, 363, etc.)



Geology Minor (20 credits [5 courses])

- Geol 101 **Physical Geology**
- Geol 102 **Historical Geology**
- Geol 302 **Mineralogy**

- Plus two of the following:
 - Geol 304 **Sedimentary Geology**
 - Geol 308 **Igneous & Metamorphic Petrology**
 - Geol 312 **Invertebrate Paleontology**
 - Geol 317 **Geomorphology**
 - Geol 401 **Structural Geology**

Job Opportunities

- Federal agencies
 - US Geological Survey
 - NASA
 - National Park Service, EPA, MMS
- State agencies
 - Geological surveys, environmental agencies
- Private sector
 - Environmental & engineering consulting companies
 - Energy & natural resource industries
 - Oil & gas, coal, nuclear, sand & gravel, precious metals
 - Non-profit organizations