

# ENVIRONMENTAL GEOSCIENCE - BS

## Program Requirements

### First Year

		Semester Credit Hours
Fall		
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
GEOS 105	Introduction to Environmental Geoscience	3
MATH 151	Engineering Mathematics I	4
<b>Semester Credit Hours</b>		<b>14</b>

### Spring

CHEM 120	Fundamentals of Chemistry II	4
GEOS 205	Environmental Geosciences Cornerstone	1
MATH 152	Engineering Mathematics II	4
POLS 206	American National Government	3
Creative arts ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts</a> ) <sup>1</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>

### Second Year

		Semester Credit Hours
Fall		
BIOL 111	Introductory Biology I	4
GEOG 201	Introduction to Human Geography	3
Select one of the following: <sup>2</sup>		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	
GEOG 203 & GEOG 213	Planet Earth and Planet Earth Lab	
GEOL 101 & GEOL 102 or GEOL 150	Principles of Geology or Introduction to the Solid Earth	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
Language, philosophy and culture ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture</a> ) <sup>1</sup>		3
<b>Semester Credit Hours</b>		<b>14</b>

### Spring

BIOL 112	Introductory Biology II	4
POLS 207	State and Local Government	3
Select one of the following: <sup>2</sup>		4
ATMO 201 & ATMO 202	Weather and Climate and Weather and Climate Laboratory	
GEOG 203 & GEOG 213	Planet Earth and Planet Earth Lab	

GEOL 101 & GEOL 102 or GEOL 150	Principles of Geology or Introduction to the Solid Earth	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
Communication ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication</a> )		3
<b>Semester Credit Hours</b>		<b>14</b>

### Third Year

		Semester Credit Hours
Fall		
GEOG 330	Resources and the Environment	3
STAT 303 or STAT 211	Statistical Methods <sup>3</sup> or Principles of Statistics I	3
Select one of the following:		4
PHYS 201	College Physics <sup>4</sup>	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
Environmental theme elective <sup>5</sup>		3
Technical elective <sup>6</sup>		3
<b>Semester Credit Hours</b>		<b>16</b>

### Spring

GEOG 390	Principles of Geographic Information Systems <sup>7</sup>	4
GEOL 420	Environmental Geology	3
American history ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a> )		3
Environmental theme elective <sup>5</sup>		3
Environmental policy elective <sup>8</sup>		3
<b>Semester Credit Hours</b>		<b>16</b>

### Fourth Year

		Semester Credit Hours
Fall		
OCNG 470	Data Analysis Methods in Geosciences	4
American history ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a> )		3
Environmental theme elective <sup>5</sup>		6
Technical elective <sup>6</sup>		3
<b>Semester Credit Hours</b>		<b>16</b>
Spring		
GEOS 405	Environmental Geosciences	3
Environmental theme elective <sup>5</sup>		6
Environmental policy elective <sup>8</sup>		3
Technical elective <sup>6</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>
<b>Total Semester Credit Hours</b>		<b>120</b>

<sup>1</sup> The graduation requirements include three hours of international and cultural diversity courses and three hours of cultural discourse courses. A course satisfying a Core category, a college/department

requirement, or a free elective can be used to satisfy this requirement. See academic advisor.

<sup>2</sup> Select one introductory course in the first semester and an additional one in the second semester of the sophomore year. Seek guidance from the academic advisor for Environmental Programs in Geosciences (ENVP) or your faculty mentor.

<sup>3</sup> STAT 211 is recommended for the Coastal and Marine Environment Theme.

<sup>4</sup> PHYS 206 and PHYS 226 is recommended for the Coastal and Marine Environment Theme.

<sup>5</sup> Select 18 hours of theme courses in your junior and senior years in consultation with your academic advisor or faculty mentor from the list below.

Internship courses can be taken for up to 6 credits and will normally be used as an adjustment to theme electives, but depending on the content of the internship credit, it can be applied as an adjustment to your technical electives or policy electives. Seek guidance from the ENVP academic advisor.

<sup>6</sup> Other courses which match the Environmental Programs' technical electives definition will be allowed by adjustment. Guidance about technical electives (including the definition used by the Environmental Programs in Geosciences) can be found on the programs' website. Seek guidance about choices from the ENVP academic advisor or faculty mentor.

<sup>7</sup> GEOG 390 is a required technical elective.

<sup>8</sup> Seek guidance about choices from the ENVP academic advisor or faculty mentor.

Two courses in the degree plan must be writing intensive courses designated by the Environmental Programs in the schedule of classes. Also, international and cultural diversity electives (3 hours) and cultural discourse electives (3 hours) must be incorporated into the degree.

Code	Title	Semester Credit Hours
<b>Environmental Theme Electives</b>		
<b>Climate Change</b>		
ATMO 210	Climate Change	3
ATMO 444	The Science and Politics of Global Climate Change	3
PHYS 202	College Physics	4
Select the remaining courses from the following:		
AGSM 477	Air Pollution Control and Regulatory Compliance	3
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	3
ATMO 463	Air Quality	3
GEOG 324	Global Climatic Regions	3
GEOG 360	Natural Hazards	3
GEOG 442/ GEOS 442	Past Climates	3
GEOG 410/ OCNG 412	Global Change	3
GEOL 306	Sedimentology and Stratigraphy	4
GEOL 442/ GEOG 442	Past Climates	3
GEOL 443/ GEOG 443	Global Biogeochemical Cycles	3

GEOL 451	Introduction to Geochemistry	3
OCNG 310	Physical Oceanography	3
OCNG 340	Chemical Oceanography	3
OCNG 413	Polar Regions of the Earth: Science, Society and Discovery	3

**Coastal and Marine Environments**

GEOG 370/ GEOS 370	Coastal Processes	3
	or OCNG 41 or Global Oceanography	

Select the remaining courses from the following:

BIOL 440	Marine Biology	4
GEOG 331	Geomorphology	3
GEOG 360	Natural Hazards	3
GEOL 306	Sedimentology and Stratigraphy	4
GEOL 440	Engineering Geology	3
OCNG 310	Physical Oceanography	3
OCNG 320	Biological Oceanography	3
OCNG 330	Geological Oceanography	3
OCNG 340	Chemical Oceanography	3
OCNG 350	Marine Pollution	3
OCNG 404	Ocean Observing Systems	3
OCNG 413	Polar Regions of the Earth: Science, Society and Discovery	3
OCNG 425	Microbial Oceanography	3
OCNG 443	Oceanographic Field and Laboratory Methods	3
OCNG 453	Hydrothermal Vents and Mid-Ocean Ridges	3
RWFM 404	Aquatic Ecosystems	3
WFSC 425	Marine Fisheries	3

**Human Impact on the Environment**

GEOG 410/ OCNG 412	Global Change	3
GEOG 430	Environmental Justice	3

Select the remaining courses from the following:

AGSM 477	Air Pollution Control and Regulatory Compliance	3
ARCH 421	Energy and Sustainable Architecture	3
ATMO 326	Environmental Atmospheric Science	3
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	3
ATMO 444	The Science and Politics of Global Climate Change	3
BESC 367	U.S. Environmental Regulations	3
ECCB 318	Coupled Social and Ecological Systems	3
ECCB 320	Ecosystem Restoration and Management	3
GEOG 309	Geography of Energy	3
GEOG 360	Natural Hazards	3
GEOG 401	Political Geography	3
GEOL 301	Mineral Resources	3
GEOL 404	Geology of Petroleum	3

GEOL 410	Hydrogeology	3
GEOL 440	Engineering Geology	3
GEOL 451	Introduction to Geochemistry	3
GEOS 430	Global Science and Policy Making	3
GEOS 431	Environmental Regulatory Compliance in Geoscience	3
OCNG 350	Marine Pollution	3
OCNG 413	Polar Regions of the Earth: Science, Society and Discovery	3
RWFM 420	Ecology and Society	3
SENG 321	Safety Management Systems	3
URPN 361	Urban Issues	3
<b>Water</b>		
GEOG 434	Hydrology and Environment	4
GEOL 410	Hydrogeology	3
Select the remaining courses from the following:		
AGSM 335	Water and Soil Management	3
AGSM 337	Technology for Environmental and Natural Resource Engineering	3
ATMO 251	Weather Observation and Analysis	3
ATMO 335	Atmospheric Thermodynamics	3
ATMO 352	Severe Weather and Mesoscale Forecasting	3
ATMO 443	Radar Meteorology	3
BESC 320	Water and the Bioenvironmental Sciences	3
ECCB 301	Diversity and Evolution of Plants	3
ECCB 420	Ecological Restoration of Wetland and Riparian Systems	3
GEOG 324	Global Climatic Regions	3
GEOG 331	Geomorphology	3
GEOG 360	Natural Hazards	3
GEOG 400	Arid Lands Geomorphology	3
GEOL 412	Environmental Hydrogeology	3
GEOL 440	Engineering Geology	3
GEOL 443/ GEOG 443	Global Biogeochemical Cycles	3
GEOL 451	Introduction to Geochemistry	3
OCNG 340	Chemical Oceanography	3
OCNG 350	Marine Pollution	3
OCNG 413	Polar Regions of the Earth: Science, Society and Discovery	3
OCNG 425	Microbial Oceanography	3
RWFM 404	Aquatic Ecosystems	3
RWFM 325	Watershed Analysis and Planning	3
RWFM 440	Wetland Delineation	3
SCSC 301	Soil Science	4
SCSC 309	Water in Soils and Plants	3
SCSC 310	Soil Morphology and Interpretations	3
SCSC 405	Soil and Water Microbiology	3
SCSC 455	Environmental Soil and Water Science	3
SCSC 458	Watershed, Water and Soil Quality Management	3

<b>Biosphere</b>		
GEOG 335	Pattern and Process in Biogeography	3
OCNG 320	Biological Oceanography	3
Select the remaining courses from the following:		
BIOL 214	Genes, Ecology and Evolution	3
BIOL 357	Ecology	3
BESC 401	Bioenvironmental Microbiology	3
BESC 402	Microbial Processes in Bioremediation	3
ECCB 307	Forest Protection	3
ECCB 309	Forest Ecology	3
ECCB 320	Ecosystem Restoration and Management	3
ECCB 403	Population and Community Ecology	3
ECCB 416	Fire Ecology and Natural Resource Management	3
ECCB 420	Ecological Restoration of Wetland and Riparian Systems	3
ECCB 430	Advanced Restoration Ecology	3
GENE 302 & GENE 312	Principles of Genetics and Comprehensive Genetics Laboratory	4
GENE 412	Population, Quantitative and Ecological Genetics	3
GEOG 435	Principles of Plant Geography	3
GEOG 442/ GEOS 442	Past Climates	3
GEOL 314	Paleontology and Geobiology	4
GEOL 442/ GEOG 442	Past Climates	3
GEOL 443/ GEOG 443	Global Biogeochemical Cycles	3
OCNG 425	Microbial Oceanography	3
OCNG 453	Hydrothermal Vents and Mid-Ocean Ridges	3
RWFM 306	Wildlife and the Changing Environment	3
RWFM 404	Aquatic Ecosystems	3
RWFM 419	Wildlife Restoration	3
SCSC 301	Soil Science	4
SCSC 405	Soil and Water Microbiology	3

Code	Title	Semester Credit Hours
<b>Technical Electives</b>		
AGSM 337	Technology for Environmental and Natural Resource Engineering	3
AGSM 360	Occupational Safety Management	3
ATMO 321	Computer Applications in the Atmospheric Sciences	3
ATMO 464	Laboratory Methods in Atmospheric Sciences	3
BESC 403	Sampling and Environmental Monitoring	3

