COLLEGE OF GEOSCIENCES
TEXAS A&M UNIVERSITY

# BACHELOR OF SCIENCE IN ENVIRONMENTAL GEOSCIENCES
# CATALOG 135

**STUDENT:** _____ **HOME DEPARTMENT: Environmental Programs, College of Geosciences**

| COURSE | # | SEM | SUBJECT | HRS |
|---|---|---|---|---|

| CORE GEOSCIENCE COURSES | | | | |
|---|---|---|---|---|
| | | | Introductory Course A[1] | 4 |
| | | | Introductory Course B[1] | 4 |
| GEOS | 105 | | Intro Environmental Geosciences | 3 |
| GEOS | 405 (W) | | Environmental Geosciences | 3 |
| GEOS | 470 | | Data Analysis Methods in Geosciences | 3 |
| GEOG | 330 | | Resources and Environment | 3 |
| GEOL | 420 (W) | | Environmental Geology | 3 |
| | | | Seminar[2] | 1 |
| TOTAL HRS | | | | 24 |

| TECHNICAL ELECTIVES[3] | | | | |
|---|---|---|---|---|
| | | | | 3 |
| | | | | 3 |
| | | | | 3 |
| | | | | 3 |
| TOTAL HRS | | | | 12 |

| ENVIRONMENTAL POLICY ELECTIVES[4] | | | | |
|---|---|---|---|---|
| | | | | 3 |
| | | | | 3 |
| TOTAL HRS | | | | 6 |

| ENVIRONMENTAL THEME ELECTIVES[5] | | | | |
|---|---|---|---|---|
| | | | | 3 |
| | | | | 3 |
| | | | | 3 |
| | | | | 3 |
| | | | | 3 |
| | | | | 3 |
| TOTAL HRS | | | | 18 |

| COMMUNICATIONS[6] | | | | |
|---|---|---|---|---|
| ENGL | 104 | | Composition and Rhetoric | 3 |
| | | | | 3 |
| TOTAL | HRS | | | 6 |

| MATH AND SCIENCE | | | | |
|---|---|---|---|---|
| MATH | 151 | | Engineering Math I | 4 |
| MATH | 152 | | Engineering Math II | 4 |
| STAT | 303 | | Statistical Methods | 3 |
| BIOL | 111 | | Introductory Biology I | 4 |
| BIOL | 112 | | Introductory Biology II | 4 |
| CHEM | 101/111 | | Fundamentals in Chemistry I | 4 |
| CHEM | 102/112 | | Fundamentals in Chemistry II | 4 |
| PHYS | 201 | | College Physics | 4 |
| TOTAL HRS | | | | 31 |

| CITIZENSHIP | | | | |
|---|---|---|---|---|
| HIST[7] | | | | 3 |
| HIST[7] | | | | 3 |
| POLS | 206 | | American National Government | 3 |
| POLS | 207 | | State and Local Government | 3 |
| TOTAL HRS | | | | 12 |

| HUMANITIES[8] | | | | |
|---|---|---|---|---|
| | | | | 3 |
| TOTAL HRS | | | | 3 |

| VISUAL AND PERFORMING ARTS[9] | | | | |
|---|---|---|---|---|
| | | | | 3 |
| TOTAL HRS | | | | 3 |

| COURSE | # | SEM | SUBJECT | HRS |
|---|---|---|---|---|

| SOCIAL AND BEHAVIORAL SCIENCES | | | | |
|---|---|---|---|---|
| GEOG | 201 | | Intro to Human Geography | 3 |
| TOTAL HRS | | | | 3 |

| KINESIOLOGY | | | | |
|---|---|---|---|---|
| KINE | 198 | | Health and Fitness Activity | 1 |
| KINE | 199 S/U | | Required Physical Activity | 1 |
| TOTAL HRS | | | | 2 |

**TOTAL HOURS FOR DEGREE** **120**

**Other requirements to be satisfied** (see Core Curriculum and Degree Information sections of catalog 135)

**Residency requirement**
**36 hours** of 300- and/or 400-level course work successfully completed in residence at TAMU _____

**Foreign language requirement**
**Two units** of the same foreign language in high school *or* **one year** in college or demonstrate proficiency by examination _____

**International and cultural diversity requirement**
**6 hrs**., chosen from a list of approved courses, many of which also satisfy other core curriculum requirements _____

**Writing intensive (W) course requirement**
at least **two** courses in the College of Geosciences; must be 900 section _____

**NOTES**
**See website, Academic Advisor, or Faculty Mentor for questions or help selecting elective choices below.**

1. Choose one introductory College of Geosciences course in the first semester and an additional one in the second semester of the freshman year. Choose from ATMO 201 Atmospheric Science (3-0) and ATMO 202 Atmospheric Science Lab (0-2), GEOG 203 Planet Earth (3-2), GEOL 101 Principles of Geology (3-2), or OCNG 251 Oceanography (3-0) and OCNG 252 Oceanography Lab (0-2).
2. Freshmen entering the program take a First Year Seminar (UGST 181). The choice is not restricted. Students transferring into the program, or who have not taken UGST 181, are required to take GEOS 481 Geosciences Seminar in their junior or senior year.
3. Choose 12 hours of technical electives from Table 2, or courses offered in other colleges (see website for definition of a technical electives).
4. Choose 6 hours of environmental policy electives from AGEC 350; BESC 367; ECON 202, 203, 323, 435; GEOG 304, 306, 309, 401, 406, 430; GEOS 430; PHIL 314; POLS 347; RENR 420, 470; SOCI 328; URPN 301, 360, 371, 460.
5. Choose 18 hours of coursework from one of the following themes in Table 1: Climate Change, Coastal and Marine Environments, Human Impact on the Environment, Biosphere, and Water.
6. Other Communications elective to be selected from the University Core Curriculum.
7. 6 hours of US History. 3 of the 6 hours may be Texas History.
8. Humanities elective to be selected from the University Core Curriculum. It is recommended to take a course also on the International and Cultural Diversity list for this requirement.
9. Visual and Performing Arts elective to be selected from the University Core Curriculum. It is recommended to take a course also on the International and Cultural Diversity list for this requirement.

## Table 1. Environmental Themes

### Climate Change

CORE COURSES
GEOS 210 Climate Change
GEOS 410 Global Change *or* GEOS 444 The Science and Politics of Global Climate Change
PHYS 202 College Physics II

ELECTIVES
ATMO 324 Physical and Regional Climatology *or* GEOG 324 Global Climatic Regions
ATMO 363 Introduction to Atmospheric Chemistry and Air Pollution
ATMO 463 Air Pollution Meteorology
GEOG/GEOS 442 Past Climates
GEOL 305 Paleobiology
GEOL 306 Sedimentology and Stratigraphy
GEOL 307 Dinosaur World
GEOL 451 Intro to Geochemistry
GEOS 401 Polar Regions of the Earth: Science, Society and Discovery
GEOS 410 Global Change *or* GEOS 444 The Science and Politics of Global Climate Change
GEOS 411 Vegetation Response to Climate Change
*OCNG 401 Interdisciplinary Oceanography
OCNG 410 Introduction to Physical Oceanography
OCNG 440 Introduction to Chemical Oceanography

### Water

CORE COURSES
GEOG 434 Hydrology and Environment
GEOL 410 Hydrogeology

ELECTIVES
AGSM 335 Water and Soil Management
AGSM 337 Technology for Environmental and Natural Resource Engineering
ATMO 251 Weather Observation and Analysis
ATMO 324 Physical and Regional Climatology *or* GEOG324 Global Climatic Regions
ATMO 335 Atmospheric Thermodynamics
ATMO 352 Severe Weather and Mesoscale Forecasting
ATMO 443 Radar Meteorology
GEOG 331 Geomorphology
GEOG 360 Natural Hazards
GEOL 440 Engineering Geology
GEOL 451 Geochemistry
GEOS 401 Polar Regions of the Earth: Science, Society and Discovery
*OCNG 401 Interdisciplinary Oceanography
OCNG 440 Introduction to Chemical Oceanography
SCSC 455 Environmental Soil Science
SCSC 458 Watershed & Water Quality Management
WFSC 412 Aquatic Bioassesment

### Human Impact on the Environment

CORE COURSES
GEOS 430 Global Science and Policy Making
GEOG 430 Environmental Justice

ELECTIVES
ATMO 362 Environmental Atmospheric Science
ATMO 363 Introduction to Atmospheric Chemistry and Air Pollution
GEOG 309 Geography of Energy
GEOG 360 Natural Hazards
GEOG 401 Political Geography
GEOL 301 Mineral Resources
GEOL 410 Hydrogeology
GEOL 420 Environmental Geology
GEOL 440 Engineering Geology
GEOL 451 Intro to Geochemistry
GEOS 401 Polar Regions of the Earth: Science, Society and Discovery
GEOS 444 Science and Politics of Climate Change
URSC 461 Urban Issues
WFSC 420 Ecology and Society

### Coastal and Marine Environments

CORE COURSES
GEOG 370 Coastal Processes
400-level OCNG (not OCNG 401 if already taken OCNG 251)

ELECTIVES
GEOG 331 Geomorphology
GEOG 360 Natural Hazards
GEOL 306 Sedimentology and Stratigraphy
GEOL 440 Engineering Geology
GEOS 401 Polar Regions of the Earth: Science, Society and Discovery
GEOS 444 The Science and Politics of Global Climate Change
*OCNG 401 Interdisciplinary Oceanography
OCNG 410 Introduction to Physical Oceanography
OCNG 420 Introduction of Biological Oceanography
OCNG 430 Introduction to Geological Oceanography
OCNG 440 Introduction to Chemical Oceanography
WFSC 418 Ecology of the Coastal Zone
WFSC 425 Marine Fisheries
WFSC 428 Wetland Ecosystem Management

### Biosphere

CORE COURSES
GEOG 335, Pattern & Process in Biogeography
GEOL 305, Paleobiology
OCNG 420, Introduction to Biological Oceanography

ELECTIVES
GEOG/GEOS 442 Past Climates
GEOG 435, Plant Geography
GEOL 307, Dinosaur World
GEOS 411, Vegetation Response to Climate Change
*OCNG 401, Interdisciplinary Oceanography
BIOL 214, Genes, Ecology, and Evolution
BIOL 357/358, Ecology
GENE 302, Principles of Genetics
GENE 412, Population and Ecological Genetics
SCSC 301, Soil Science
SCSC 316/MEPS 316, Theory and Practice of Plant Physiology

## Table 2. Technical Electives

ATMO 321 Computer Applications in the Atmospheric Sciences
ATMO 441 Satellite Meteorology and Remote Sensing
ATMO 464 Lab Methods in Atmospheric Sciences
GEOG 312 Data Analysis Methods in Geography
GEOG 361 Remote Sensing in Geosciences
GEOG 380 Workshop in Environmental Studies
GEOG 390 Principles of Geographic Information Systems
GEOG 450 Field Geography
GEOG 462 Advanced GIS Analysis for Natural Resource Management
GEOG 467 Dynamic Modeling of Earth and Environmental Systems
GEOG 475 Advanced Topics in GIS
GEOG 476 GIS Practicum
GEOL 306 Sedimentology and Stratigraphy
GEOL 309 Intro Geologic Field Methods
GEOL 330 Geologic Field Trips
GEOL/GEOG 352 GPS in the Geosciences
GEOP 413 Near-Surface Geophysics
OCNG 451 Mathematical Modeling of Ocean Climate

***Cannot take OCNG 401 if you have already taken OCNG 251.**

**Always check for prerequisites! Please see the online catalog for prerequisites for all elective courses. We encourage you to take 484 Internship, 485 Directed Studies, or 491 Research credit. These can be applied as a policy, theme, or technical elective. See your academic advisor or faculty mentor for more details.**