

EARTH AND SPACE SCIENCE (BS) / NATURAL SCIENCES (MS) - ENVIRONMENTAL SCIENCE TRACK (COMBINED OPTION)

Program Overview

Environmental Science has emerged as one of the fastest growing career fields and its importance becomes ever more apparent with the rapid environmental changes occurring world-wide in the twenty-first century. It is an interdisciplinary science that relies on knowledge and techniques synthesized from the disciplines of Geology, Biology, Engineering, Chemistry, and Physics. Environmental scientists seek to solve complex human caused environmental problems associated with air and water pollution, natural habitat loss and degradation, and global change and as such their research has the potential to influence the future sustainability of our planet. As these issues grow in importance, the demand for these inter-disciplinary scientists, trained to understand and solve complex environmental problems and their consequences, will only continue to grow. The Environmental Science program at Columbus State University is structured to train scientists to address the existing challenges and those yet realized in the future. Columbus State University's Environmental Sciences program is the only one in Georgia that offers this breadth of background. The program is designed to educate a new generation of interdisciplinary Environmental Scientists who will have the knowledge and experiences need to solve the increasingly complex and multi-faceted environmental issues.

Career Opportunities

Program of Study

Code	Title	Credit Hours
Core IMPACTS Area : Institutional Priorities ¹		4-5
Choose one of the following communication options		3
COMM 1110	Public Speaking	
Foreign Language Course Options		
AMSL, ARAB, CHIN, FREN, GERM, GREK, ITAL, JAPN, KREN, LATIN, PORT, SPAN - 1001, 1002, 2001, 2002; SWAH - 1001, 1002.		
Take one of the following courses		1-2
ITDS 1779	Scholarship Across the Disciplines	
LEAD 1705	Introduction to Servant Leadership	
PERS 1506	Perspectives 1-hour	
PERS 1507	Perspectives 2-hour	
Core IMPACTS Area : Mathematics & Quantitative Skills ¹		3-7
DATA 1501	Introduction to Data Science	3
MATH 1001	Quantitative Skills and Reasoning	3
MATH 1101	Introduction to Mathematical Modeling	3
MATH 1111	College Algebra	3
MATH 1113	Pre-Calculus	4
MATH 1125	Applied Calculus	3
MATH 1131	Calculus with Analytic Geometry I	4

MATH 1132	Calculus with Analytic Geometry II	4
MATH 1165	Computer-Assisted Problem Solving	3
MATH 1401	Introduction to Statistics	3
MATH 1501	Calculus I	4
MATH 2125	Introduction to Discrete Mathematics	3
STAT 1401	Elementary Statistics	3
Core IMPACTS Area : Political Science and U.S. History		6
HIST 2111	U. S. History to 1865	3
or HIST 2112	U. S. History since 1865	
POLS 1101	American Government	3
Core IMPACTS Area : Arts, Humanities, and Ethics		6
Select one Fine Arts course		3
ARTH 1100	Art Appreciation	
ARTH 2125	Introduction to the History of Art I– Prehistoric through Gothic	
ARTH 2126	Introduction to the History of Art II– Renaissance through Modern	
MUSC 1100	Music Appreciation	
THEA 1100	Theatre Appreciation	
ITDS 1145	Comparative Arts ²	
Select one Humanities course		3
ENGL 2111	World Literature I	
ENGL 2112	World Literature II	
ITDS 1155	The Western Intellectual Tradition	
ITDS 1774	Introduction to Digital Humanities	
PHIL 2010	Introduction to Philosophy	
ITDS 1145	Comparative Arts ²	
Core IMPACTS Area : Communicating in Writing		6
ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
Core IMPACTS Area : Technology, Mathematics, and Sciences ^{1,3}		7-11
ANTH 1145	Human Origins	3
ASTR 1105	Descriptive Astronomy: The Solar System	3
ASTR 1106	Descriptive Astronomy: Stars and Galaxies	3
ASTR 1305	Descriptive Astronomy Lab	1
ATSC 1112	Understanding the Weather	3
ATSC 1112L	Understanding the Weather Lab	1
BIOL 1125	Contemporary Issues in Biology Non-Lab	3
BIOL 1215K	Introductory Biology	4
BIOL 1225K	Contemporary Issues in Biology with Lab	4
CHEM 1151 & 1151L	Survey of Chemistry I and Survey of Chemistry I Lab	4
CHEM 1152 & 1152L	Survey of Chemistry II and Survey of Chemistry II Lab	4
CHEM 1211 & 1211L	Principles of Chemistry I and Principles of Chemistry I Lab	4
CHEM 1212 & 1212L	Principles of Chemistry II and Principles of Chemistry II Lab	4
CPSC 1105	Introduction to Computing Principles and Technology	3
CPSC 1301K	Computer Science I	4
ENVS 1105	Environmental Studies	3
ENVS 1105L	Environmental Studies Laboratory	1

ENVS 1205K	Sustainability and the Environment	4
GEOG 2215	Introduction to the Geographic Information Systems	3
GEOL 1110	Natural Disasters: Our Hazardous Environment	3
GEOL 1121	Introductory Geoscience I: Physical Geology	3
GEOL 1121L	Introductory Geoscience I: Physical Geology Lab	1
GEOL 1122	Introductory Geo-sciences II: Historical Geology	3
GEOL 1322	Introductory Geo-sciences II: Historical Geology Lab	1
GEOL 2225	The Fossil Record	4
PHYS 1111 & PHYS 1311	Introductory Physics I and Introductory Physics I Lab	4
PHYS 1112 & PHYS 1312	Introductory Physics II and Introductory Physics II Lab	4
PHYS 1125	Physics of Color and Sound	3
PHYS 1325	Physics of Color and Sound Lab	1
PHYS 2211 & PHYS 2311	Principles of Physics I and Principles of Physics I Lab	4
PHYS 2212 & PHYS 2312	Principles of Physics II and Principles of Physics II Lab	4
Core IMPACTS Area : Social Sciences		6
Select one Behavioral Science course		
ECON 2105	Principles of Macroeconomics	
ECON 2106	Principles of Microeconomics	
PHIL 2030	Moral Philosophy	
PSYC 1101	Introduction to General Psychology	
SOCI 1101	Introduction to Sociology	
Select one World Cultures course		
ANTH 1107	Discovering Archaeology	3
ANTH 1105	Cultural Anthropology	
ANTH 2105	Ancient World Civilizations	
ANTH 2136	Language and Culture	
ENGL 2136	Language and Culture	
GEOG 1101	World Regional Geography	
HIST 1111	World History to 1500	
HIST 1112	World History since 1500	
ITDS 1156	Understanding Non-Western Cultures	
Core IMPACTS Total Hours		42
Health and Wellness		3
KINS 1106	Lifetime Wellness	2
	or PHED 1205 Concepts of Fitness	
Select one of the following		
	Any PEDS course	1
MUSC 1206	Body Mapping (Music Majors Only)	

¹ The hours applied in the Institutional Priorities; Mathematics & Quantitative Skills; and Technology, Mathematics, and Sciences areas must add to 18 credit hours.

² ITDS 1145 Comparative Arts, though listed under both Fine Arts and Humanities, may be taken only once.

³ At least 4 of the credit hours in this area must be in a lab science course.

¹ Up to 3 can be added from Areas A, B and/or D with advisor approval.

² Courses taken for undergraduate credit may not be taken for graduate credit.

BS and MS Requirements Major Requirements

Code	Title	Credit Hours
Core Requirements		
Complete the core requirements for this program		45
Core Total		45
Field of Study Requirements		
Minimum grade of C is required		
GEOL 1121	Introductory Geoscience I: Physical Geology	3
GEOL 1121L	Introductory Geoscience I: Physical Geology Lab	1
Select one of the following sequences:		8
Sequence 1:		
PHYS 1111	Introductory Physics I	
PHYS 1112	Introductory Physics II	
PHYS 1311	Introductory Physics I Lab	
PHYS 1312	Introductory Physics II Lab	
Sequence 2:		
PHYS 2211	Principles of Physics I	
PHYS 2212	Principles of Physics II	
PHYS 2311	Principles of Physics I Lab	
PHYS 2312	Principles of Physics II Lab	
Select 3 or more credits from the following:		3
ASTR 1105	Descriptive Astronomy: The Solar System	
ASTR 1305	Descriptive Astronomy Lab	
ASTR 1106	Descriptive Astronomy: Stars and Galaxies	
BIOL 1215K	Introductory Biology	
ENVS 1105	Environmental Studies	
ENVS 1205K	Sustainability and the Environment	
GEOL 1110	Natural Disasters: Our Hazardous Environment	
Field of Study Requirements Total		15
Take 3 hours of department-approved electives		3
Required for the Major		
Minimum grade of C is required		
BIOL 3217K	Ecology	4
CHEM 2115	Quantitative Chemical Analysis	3
CHEM 2315	Quantitative Chemical Analysis Lab	1
ENVS 3105	Foundations of Environmental Science	4
ENVS 5405U	Topics in Conservation (credits above 3 will count in Major Electives)	3-5
ENVS 5206U	Water Resources Management	4
GEOG 2215	Introduction to the Geographic Information Systems	3
ATSC 5117U	Global and Climate Change	3
GEOL 5255U	Environmental Geology	4
STAT 1401	Elementary Statistics	3
Take one of the following:		
ENVS 5125U	Human Ecology	3
	or ENVS 5226U Culture and Environment	

Required for the Major Total 38

Major Electives

Major Electives Undergraduate Required Hours 15

Any 3000+ BIOL, CHEM, ENVS, or GEOL course.

With advisor approval, any 3000+ ANTH or GEOG course

Combined Requirements: 9

Any Group B course from Area 2 of the graduate program, or with advisor approval, any 5000G+ ANTH, BIOL, CHEM, ENVS, GEOG, or GEOL course.

Master's Degree Coursework: 36 hours

Area 1 Graduate Program Core Required Hours 3

ENGL 5149G Grant Writing

Area 2 Program Electives Required Hours: 21-22

Group A: Take the following course

ENVS 5207G Experimental Design and Statistical Analysis

ENVS 5715G Earth and Space Sciences Seminar

ENVS 5235G Geographic Information and Global Positioning Systems

Group B: Take one of the following. Courses taken for undergraduate credit may not be taken for graduate credit

ANTH 5125G Human Ecology

ENVS 5165G Hydrology

ENVS 5226G Culture and Environment

ENVS 5315G Stream Ecology

ENVS 5405G Topics in Conservation

ENVS 5235G Geographic Information and Global Positioning Systems

GEOL 5135G Oceanography

GEOL 5215G Geomorphology

*Add 9 hours from Major Electives Area 2

Area 3: Program Requirements: 11-12

Thesis Required Hours:

ENVS 7000 Thesis Defense

ENVS 7999 Research in Environmental Science

Total Hours Required: 159

Program Map

Course	Title	Credit Hours
First Year		
Fall		
MATH 1113	Pre-Calculus (minimum grade of C) ¹	4
ENGL 1101	English Composition I (minimum grade of C)	3
CHEM 1211	Principles of Chemistry I (minimum grade of C)	3
CHEM 1211L	Principles of Chemistry I Lab (minimum grade of C)	1
Institutional Priorities	ITDS 1779 (2), LEAD 1705 (2), PERS 1506 (1; may be repeated with different topic), PERS 1507 (2)	1
ENVS 1205K	Sustainability and the Environment (minimum grade of C)	4
Credit Hours		16

Spring

Program Electives	BIOL 1215K Principles of Biology (minimum grade of C) ²	4
CHEM 1212	Principles of Chemistry II (minimum grade of C)	3
CHEM 1212L	Principles of Chemistry II Lab (minimum grade of C)	1
ENGL 1102	English Composition II (minimum grade of C)	3
MATH 1131	Calculus with Analytic Geometry I	4

Credit Hours 15

Second Year

Fall

STAT 1401	Elementary Statistics (minimum grade of C)	3
ENVS 3105	Foundations of Environmental Science (minimum grade of C) ³	4
Social Sciences	World Cultures (ANTH 1105 is recommended) ⁴	3
PHYS 1111	Introductory Physics I (minimum grade of C)	3
PHYS 1311	Introductory Physics I Lab (minimum grade of C)	1
KINS 1106 or PHED 1205	Lifetime Wellness or Concepts of Fitness	2

Credit Hours 16

Spring

PHYS 1112	Introductory Physics II (minimum grade of C)	3
PHYS 1312	Introductory Physics II Lab (minimum grade of C)	1
GEOL 1121	Introductory Geoscience I: Physical Geology (minimum grade of C)	3
GEOL 1121L	Introductory Geoscience I: Physical Geology Lab (minimum grade of C)	1
BIOL 3217K	Ecology (minimum grade of C) ⁵	4
Institutional Priorities	COMM 1110 Public Speaking or foreign language 1001, 1002, 2001, 2002	3

Credit Hours 15

Third Year

Fall

CHEM 2115	Quantitative Chemical Analysis (minimum grade of C)	3
CHEM 2315	Quantitative Chemical Analysis Lab (minimum grade of C)	1
Arts, Humanities, and Ethics	Humanities	3
GEOL 5255U	Environmental Geology (minimum grade of C)	4
ENVS 5206U	Water Resources Management (minimum grade of C)	4

Credit Hours 15

Spring

GEOG 2215	Introduction to the Geographic Information Systems (minimum grade of C)	3
-----------	---	---

ATSC 5117U	Global and Climate Change (minimum grade of C)	3
Program Electives, Group 1	Elective	3-4
Arts, Humanities, and Ethics	Fine Arts	3
HIST 2111 or HIST 2112	U. S. History to 1865 or U. S. History since 1865	3
Credit Hours		15-16

Fourth Year**Fall**

ENVS 5405U	Topics in Conservation (minimum grade of C)	3-4
POLS 1101	American Government	3
Program Electives, Group 2	5000+G Elective: Environmental Science Seminar suggested	1
Program Electives, Group 2	5000+G Elective: Any course from Area 2 of the graduate program	4
Program Electives	Elective	3-4
Credit Hours		14-16

Spring

Program Electives, Group 1	Electives	3-4
Program Electives, Group 2	5000+G Elective: Any course from Area 2 of the graduate program	4
Social Sciences	Behavioral Science	3
Select one of the following:		3
ENVS 5125U	Human Ecology (minimum grade of C)	
ENVS 5226U	Culture and Environment (minimum grade of C)	
Health and Wellness	PEDS Activity	1
Credit Hours		14-15

Summer

ENVS 7999	Research in Environmental Science	5
Area 2B	Elective (Grad)	3
Credit Hours		8

Fifth Year**Fall**

ENGL 5149G	Grant Writing	3
ENVS 5207G	Experimental Design and Statistical Analysis	4
ENVS 7999	Research in Environmental Science	3
Credit Hours		10

Spring

ENVS 7000	Thesis Defense	0
ENVS 7001	Certification Exam	0
ENVS 7999	Research in Environmental Science	4
ENVS 5715G	Earth and Space Sciences Seminar (Grad)	1

ENVS 5235G	Geographic Information and Global Positioning Systems	4
Credit Hours		9
Total Credit Hours		147-151

¹ Substitute MATH 1131 Calculus with Analytic Geometry I for MATH 1113 Pre-Calculus if math placement allows.

² BIOL 1215K Introductory Biology is a prerequisite for BIOL 3217K Ecology.

³ STAT 1401 Elementary Statistics is a coreq for ENVS 3105 Foundations of Environmental Science (Area G).

⁴ ANTH 1105 Cultural Anthropology is a prereq for Culture and the Environment (Area G).

⁵ BIOL 3217K Ecology prereq ESS: BIOL 1215K Introductory Biology, CHEM 1211 Principles of Chemistry I, CHEM 1211L Principles of Chemistry I Lab, CHEM 1212 Principles of Chemistry II, CHEM 1212L Principles of Chemistry II Lab, and ENVS 3105 Foundations of Environmental Science.

Additional Notes

All graduate level courses must be B or better ($\geq B$) to count toward the graduate portion of the degree.

Application Requires:

1. Complete application for admission into this joint BS+MS program.
2. Attain junior standing (62+ credits).
3. Complete both:
 - a. All courses in Area F, and
 - b. At least 15 credits of Area G courses.
4. Achieve minimum institutional GPA of 3.0 overall and 3.5 calculated on all Area G
5. Submit research proposal
6. Submit a proposed plan of study (by semester)
7. Submit a recommendation letter from a prospective graduate thesis advisor
8. Score 1000+ on the GRE (New GRE combined 290)
9. Apply for MS NS Environmental Science Track

This program map illustrates appropriate coursework for completing a degree within five years, provided that course grades allow for earned credit. Since not all courses are taught every semester, please consult with your advisor to determine when courses can be taken in a different semester or sequence than illustrated. This map is for illustrative purposes only and does not constitute a legal contract on the part of CSU since degree requirements or course offerings could change.

Admission Requirements Additional Program Requirements