

MILLERSVILLE UNIVERSITY

Student Name: _____ Student I.D.# _____

DEGREE: BS
MAJOR: ESS
OPTION:

MAJOR REQUIREMENTS FOR A BS DEGREE IN ENVIRONMENTAL AND SPATIAL SCIENCES

Total credit hours required: 120.0 minimum

REQUIREMENTS AND POLICIES FOR THE BS ENVIRONMENTAL AND SPATIAL SCIENCES MAJOR

A. Policies for Admission to the Major

1. New students (freshmen and transfers) must be admitted to the Geography major by the Office of Admissions upon admission to the University.
2. Admission into the Geography major from other departments is upon approval of the chairperson of the Geography Department.
3. Non-degree and continuing education students must be admitted to the Geography major by the Office of Admissions.

B. Policies for Retention in the Major

1. University requirements for retention.

C. Policies for Completion of the Major

1. Completion of all University curricular requirements.

Note to the student: *This form is provided as a guide. It is your responsibility to consult regularly with your advisor to be aware of changes and curriculum details which are not incorporated on this form.*

FALL 2020

MAJOR SEQUENCE AND DEGREE REQUIREMENTS

Major: **BS Environmental and Spatial Sciences**

Option:

Major Field Requirements: **45.0 credits**

Other Requirements: **29.0 - 33.0 credits**

When applicable, up to six of the **REQUIRED RELATED** courses may be credited toward the Liberal Arts Core subject to normal distribution rules.

Course No.	Short Title	C.H.	Grade
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REQUIRED CORE GEOGRAPHY (15.0 credits)

GEOG 130	Intro to Environmental Science	3.0	_____
GEOG 120	Human Geography	3.0	_____
GEOG 230	Physical Geography	3.0	_____
---or---			
ESCI 225	Geomorphology	3.0	_____
GEOG 289	Field & Research Methods	3.0	_____
GEOG 408	Sustainable Development	3.0	_____

REQUIRED CORE GEOGRAPHY (12.0 credits)

GEOG 281	Map Interp. & Analysis	3.0	_____
GEOG 292	Quantitative & Spatial Analysis	3.0	_____
GEOG 295	GIS I: Vector Data Analysis	3.0	_____
GEOG 296	GIS II: Raster Data Analysis	3.0	_____

SPATIAL SCIENCE ELECTIVES (6.0 credits)

Choose TWO from:

GEOG 395	GIS for the Web	3.0	_____
GEOG 384	Cartography	3.0	_____
GEOG 396	GIS Modeling	3.0	_____
GEOG 397	GIS Data Management	3.0	_____

ENVIRONMENTAL STUDIES ELECTIVES (9.0 credits)

Choose THREE from:

GEOG 304	Water Resources Management	3.0	_____
GEOG 305	Energy Sustainability	3.0	_____
GEOG 306	Environmental Impact Assess.	3.0	_____
GEOG 307	US Environmental Policy	3.0	_____
GEOG 333	Biogeography	3.0	_____
GEOG 336	Climate and Society	3.0	_____
GEOG 407	Glo.Env. Policy & Negotiation	3.0	_____

REQUIRED CAPSTONE (3.0 credits)

Choose ONE from:

GEOG 300	Cooperative Ed. in Geography	3.0	_____
GEOG 488	Senior Thesis	3.0	_____
GEOG 489	Honors Thesis	3.0	_____
ENVI 495	Environmental Clinic	3.0	_____

A Minor Program of Study is Highly Recommended:

Biology, Chemistry, Computer Science, Data Science, Earth Sciences, Environmental Chemistry, Environmental Hazards & Emergency Management, Environmental Policy & Regulation, General Economics, Geology, Global Geography, Government and Political Affairs, Hydrology, Industrial and Environmental Health, Land Use, Mathematics, Meteorology, Occupational Safety & Environmental Health, Oceanography, Physics, Quantitative Methods in Environmental Science, Science Writing, Social Justice, Sustainability Studies, Water Resources

Course No.	Short Title	C.H.	Grade
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REQUIRED RELATED (29.0-33.0 credits)

Note: 15-17 credits fulfill general education (G2) and Math Foundations for Lifelong Learning; and therefore, they are not included in the 60 credit limit.

The remaining 14-16 credits required related, in addition to the 45 credits in the core program, should be counted toward the 60 credit limit of the B.S. degrees.

REQUIRED CORE ENVIRON. SCIENCE (23.0 - 24.0 credits)

BIOL 100	General Biology*	3.0	_____
CHEM 111	Introductory Chemistry I	4.0	_____
CHEM 112	Introductory Chemistry II	4.0	_____
ESCI 221	Physical Geology	4.0	_____
MATH 161	Calculus I	4.0	_____
PHYS 131	Physics I with Algebra	4.0	_____
---or---			
PHYS 231	Physics I with Calculus	4.0	_____

ENVIRONMENTAL STUDIES ELECTIVES (6.0-9.0 credits)

Choose TWO from:

BIOL 211	Concepts of Zoology*	4.0	_____
BIOL 221	Concepts of Botany*	4.0	_____
BIOL 340	Perspectives in Env. Awareness	3.0	_____
BIOL 343	Principles of Ecology & Evolution	4.0	_____
CHEM 235	Short Course Organic Chemistry	4.0	_____
CHEM 265	Quantitative Analysis	4.0	_____
CHEM 375	Environmental Chemistry	4.0	_____
CHEM 476	Environmental Chemistry II	4.0	_____
ESCI 226	Geology of Earth Resources	3.0	_____
ESCI 241	Meteorology	4.0	_____
ESCI 245	Environmental Meteorology	3.0	_____
ESCI 322	Environmental Hydrology	3.0	_____
ESCI 326	Sedimentation & Stratigraphy	4.0	_____
ESCI 329	Aqueous Geochemistry	3.0	_____
ESCI 366	Ocean Resources	3.0	_____
ESCI 385	Glo. Climate Change: Sc. & Pol.	3.0	_____
ESCI 422	Geological Field Mapping	3.0	_____
ESCI 426	Groundwater Geology	3.0	_____
ESCI 466	Coastal Environmental Health	3.0	_____
OSEH 435	Environmental Health	3.0	_____
PHYS 132	Physics II with Algebra	4.0	_____
---or---			
PHYS 232	Physics II with Calculus	4.0	_____

* A B- or higher in BIOL 100 to take BIOL 211 & BIOL 221