ENVIRONMENTAL RESOURCE MANAGEMENT, B.S.

Begin Campus: Any Penn State Campus
End Campus: University Park

Degree Requirements
For the Bachelor of Science degree in Environmental Resource Management, a minimum of 121 credits is required:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>45</td>
</tr>
<tr>
<td>Electives</td>
<td>0-8</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>95-108</td>
</tr>
</tbody>
</table>

27-30 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GN courses; 6 credits of GQ courses; 3-6 credits of GS courses; 9 credits of GWS courses.

General Education
Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required.)
- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Knowledge Domains
- Arts (GA): 6 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 6 credits
- Social and Behavioral Sciences (GS): 6 credits
- Natural Sciences (GN): 9 credits

Integrative Studies (may also complete a Knowledge Domain requirement)
- Inter-Domain or Approved Linked Courses: 6 credits

University Degree Requirements
First Year Engagement
All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement
6 credits are required and may satisfy other requirements
- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum
3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits
A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work
Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition
The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major
To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Common Requirements for the Major (All Options)

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 112</td>
<td>Chemical Principles II</td>
<td>3</td>
</tr>
<tr>
<td>ERM 411</td>
<td>Legal Aspects of Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>SOILS 102</td>
<td>Introductory Soil Science Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>Prescribed Courses: Require a grade of C or better</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASM 327</td>
<td>Soil and Water Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>Chemical Principles I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Experimental Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 202C</td>
<td>Effective Writing: Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ERM 151</td>
<td>Careers and Issues in Environmental Resource Management</td>
<td>1</td>
</tr>
<tr>
<td>ERM 300</td>
<td>Basic Principles and Calculations in Environmental Analysis</td>
<td>3</td>
</tr>
<tr>
<td>SOILS 101</td>
<td>Introductory Soil Science</td>
<td>3</td>
</tr>
</tbody>
</table>
Environmental Resource Management, B.S.

### Additional Courses

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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>AGBM 101</td>
<td>Economic Principles of Agribusiness Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 102</td>
<td>Introductory Microeconomic Analysis and Policy</td>
<td></td>
</tr>
<tr>
<td>CHEM 202</td>
<td>Fundamentals of Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>or CHEM 210</td>
<td>Organic Chemistry I</td>
<td></td>
</tr>
<tr>
<td>PHYS 211</td>
<td>General Physics: Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>or PHYS 250</td>
<td>Introductory Physics I</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Courses: Require a grade of C or better**

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<tr>
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</thead>
<tbody>
<tr>
<td>CAS 100A</td>
<td>Effective Speech</td>
<td>3</td>
</tr>
<tr>
<td>or CAS/ENGL 138T</td>
<td>Rhetoric and Civic Life II</td>
<td></td>
</tr>
<tr>
<td>MATH 110</td>
<td>Techniques of Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td></td>
</tr>
</tbody>
</table>

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 15</td>
<td>Rhetoric and Composition</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 30H</td>
<td>Honors Rhetoric and Composition</td>
<td></td>
</tr>
<tr>
<td>CAS/ENGL 137H</td>
<td>Rhetoric and Civic Life I</td>
<td></td>
</tr>
</tbody>
</table>

Select 3-4 credits from the following:

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<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>STAT 200</td>
<td>Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 240</td>
<td>Introduction to Biometry</td>
<td></td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introduction to Biostatistics</td>
<td></td>
</tr>
</tbody>
</table>

### Requirements for the Option

Select an option

48-60

### Requirements for the Option

### Environmental Science Option (58-60 credits)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 220W</td>
<td>Biology: Populations and Communities</td>
<td>4</td>
</tr>
<tr>
<td>CED 201</td>
<td>Introductory Environmental and Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>SOILS 450</td>
<td>Environmental Geographic Information Systems</td>
<td>3</td>
</tr>
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</table>

**Prescribed Courses: Require a grade of C or better**

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<tbody>
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<td>BIOL 110</td>
<td>Biology: Basic Concepts and Biodiversity</td>
<td>4</td>
</tr>
<tr>
<td>ERM 412</td>
<td>Resource Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ERM 413W</td>
<td>Case Studies in Ecosystem Management</td>
<td>3</td>
</tr>
</tbody>
</table>

### Additional Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOG 160</td>
<td>Mapping Our Changing World</td>
<td>3</td>
</tr>
<tr>
<td>or GEOG 260</td>
<td>Geographic Information in a Changing World: Introduction to GIScience</td>
<td></td>
</tr>
<tr>
<td>GEOSC 1</td>
<td>Physical Geology</td>
<td>3</td>
</tr>
<tr>
<td>or GEOSC 303</td>
<td>Introduction to Environmental Geology</td>
<td></td>
</tr>
</tbody>
</table>

Select 6 credits from any 400-level ERM courses

6

**Additional Courses: Require a grade of C or better**

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<th>Title</th>
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<tbody>
<tr>
<td>MATH 111</td>
<td>Techniques of Calculus II</td>
<td>2-4</td>
</tr>
<tr>
<td>or MATH 141</td>
<td>Calculus with Analytic Geometry II</td>
<td></td>
</tr>
</tbody>
</table>

### Supporting Courses and Related Areas

Select 3 credits in ecology

Select 18 credits of specialization/minor courses in consultation with adviser

18

Select 3 credits in communications/sustainability/leadership

3

### Soil Science Option (48-50 credits)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOILS 403</td>
<td>Soil Morphology Practicum</td>
<td>2</td>
</tr>
<tr>
<td>SOILS 412W</td>
<td>Soil Ecology</td>
<td>3</td>
</tr>
<tr>
<td>SOILS 450</td>
<td>Environmental Geographic Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

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<tbody>
<tr>
<td>BIOL 110</td>
<td>Biology: Basic Concepts and Biodiversity</td>
<td>3-4</td>
</tr>
<tr>
<td>FOR 475</td>
<td>Principles of Forest Soils Management</td>
<td>3</td>
</tr>
<tr>
<td>or SOILS 404</td>
<td>Urban Soils</td>
<td></td>
</tr>
<tr>
<td>GEOSC 1</td>
<td>Physical Geology</td>
<td>3</td>
</tr>
<tr>
<td>or GEOSC 20</td>
<td>Planet Earth</td>
<td></td>
</tr>
</tbody>
</table>

Select 3-4 credits from the following:

3-4

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<thead>
<tr>
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<tbody>
<tr>
<td>AGRO 28</td>
<td>Principles of Crop Management</td>
<td></td>
</tr>
<tr>
<td>BIOL 220W</td>
<td>Biology: Populations and Communities</td>
<td>4</td>
</tr>
<tr>
<td>FOR 203</td>
<td>Field Dendrology</td>
<td></td>
</tr>
<tr>
<td>HORT 101</td>
<td>Horticultural Science</td>
<td></td>
</tr>
<tr>
<td>TURF 235</td>
<td>The Turfgrass</td>
<td></td>
</tr>
</tbody>
</table>

Select 3 credits from the following:

3

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<tbody>
<tr>
<td>ERM 440</td>
<td>Chemistry of the Environment: Air, Water, and Soil</td>
<td></td>
</tr>
<tr>
<td>SOILS 402</td>
<td>Soil Nutrient Behavior and Management</td>
<td></td>
</tr>
<tr>
<td>SOILS 420</td>
<td>Remediation of Contaminated Soils</td>
<td></td>
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</tbody>
</table>

Select 3 credits from the following:

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<tr>
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<tr>
<td>GEOSC 452</td>
<td>Hydrogeology</td>
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</tr>
<tr>
<td>SOILS 401</td>
<td>Soil Composition and Physical Properties</td>
<td></td>
</tr>
<tr>
<td>SOILS 405</td>
<td>Hydropedology</td>
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### Supporting Courses and Related Areas

Select 18 credits of specialization/minor courses in consultation with adviser

18

### Water Science Option (58-60 credits)

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<tr>
<td>ERM/ASM 309</td>
<td>Measurement &amp; Monitoring of Hydrologic Systems</td>
<td>3</td>
</tr>
<tr>
<td>ERM/WFS 435</td>
<td>Limnology</td>
<td>3</td>
</tr>
<tr>
<td>ERM 447</td>
<td>Stream Restoration</td>
<td>3</td>
</tr>
<tr>
<td>ERM 450</td>
<td>Wetland Conservation</td>
<td>3</td>
</tr>
<tr>
<td>FOR 470</td>
<td>Watershed Management</td>
<td>3</td>
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<tr>
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<td>Soil Composition and Physical Properties</td>
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<td>SOILS 405</td>
<td>Hydropedology</td>
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Select 3 credits from the following: 3

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>CE 370</td>
<td>Introduction to Environmental Engineering</td>
</tr>
<tr>
<td>ERM 448</td>
<td>Rural Road Ecology and Maintenance</td>
</tr>
<tr>
<td>ERM 449</td>
<td>Sustainable Water Management: Economics and Policy</td>
</tr>
<tr>
<td>FOR 303</td>
<td>Herbaceous Forest Plant Identification and Ecology</td>
</tr>
<tr>
<td>FOR 403</td>
<td>Invasive Forest Plants: Identification, Ecology, and Management</td>
</tr>
<tr>
<td>SOILS 450</td>
<td>Environmental Geographic Information Systems</td>
</tr>
<tr>
<td>WFS 410</td>
<td>General Fishery Science</td>
</tr>
<tr>
<td>WFS 422</td>
<td>Ecology of Fishes</td>
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Supporting Courses and Related Areas

Select 12 credits of specialization/minor courses in consultation with adviser 12

Select 3 credits in communications/sustainability/leadership 3