Biology, Ecology and Environmental Biology Emphasis, Comprehensive Major

University of Wisconsin-Eau Claire | 2016-2017 Catalog

BIOLOGY, ECOLOGY AND ENVIRONMENTAL BIOLOGY EMPHASIS, COMPREHENSIVE MAJOR

Liberal Arts (Code 080-001)

University Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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GRADUATION REQUIREMENTS FOR BACCALAUREATE DEGREE

Credit Requirements

- Minimum total for graduation: 120 credits
- Upper division credits (courses numbered 300 and higher): 39 credits
- Liberal Education Core: 36 credits

Grade Point Requirements

- Total: 2.00 average
- Resident: 2.00 average
- Major: 2.00 average
- Minor: 2.00 average
- Certificate: 2.00 average

University Residency Requirements

- Minimum total: 30 credits
- Senior year: 23 credits
- Major, Standard, upper division in residence: 12 credits
- Major, Comprehensive, upper division in residence: 21 credits
- Certificate: 25 percent of credits

Procedures Required for Graduation

- Obtain admission to the degree program and/or the College offering it.
- Apply for graduation on CampS.

1 Certain programs exceed this minimum.
2 See special requirements in each College.
3 See special requirements for the College of Education and Human Sciences.

Liberal Education Core

The University of Wisconsin-Eau Claire measures learning outcomes to ensure that its graduates have achieved a liberal education and prepared themselves to contribute to a complex society. Upon graduation, each undergraduate will have met the four learning goals of our liberal education core and the 11 learning outcomes they comprise.

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</table>

Knowledge Goal

- Knowledge Outcome 1 (K1): Natural Sciences: Two (2) learning experiences
- Knowledge Outcome 2 (K2): Social Sciences: Two (2) learning experiences
- Knowledge Outcome 3 (K3): Humanities: Two (2) learning experiences
- Knowledge Outcome 4 (K4): Fine Arts: One (1) learning experience

Skills Goal

- Skills Outcome 1 (S1): Written and Oral Communication: Two (2) learning experiences
- Skills Outcome 2 (S2): Mathematics: One (1) learning experience
- Skills Outcome 3 (S3): Creativity: One (1) learning experience

Responsibility Goal

- Responsibility Outcome 1 (R1): Equity, Diversity, and Inclusivity: Two (2) learning experiences
- Responsibility Outcome 2 (R2): Global Perspectives: One (1) learning experience
- Responsibility Outcome 3 (R3): Civic and Environmental Issues: One (1) learning experience

Integration Goal

- Integration Outcome 1 (I1): Integration: Two (2) learning experiences

Service-Learning Goal

- Service-Learning: 30 hours

College Degree Requirements

Bachelor of Arts or Bachelor of Science Degree (B.A./B.S.)

University Graduation Requirements. All candidates for degrees must fulfill the requirements for credits, curriculum, GPA, and University residency as specified in the section of this catalog titled University Graduation Requirements.

College Graduation Requirements: Grade Point Averages. All candidates for degrees in the College of Arts and Sciences must earn minimum resident and total GPAs of 2.00 in the major, the minor, and the certificate. The resident and total GPAs for the major are computed using all attempted credits applicable to the major including those offered by departments other than the major department. The resident and total GPAs for the minor and the certificate are computed similarly.

Major-Minor and Major-Certificate Requirements. A standard major (a minimum of 36 credits) must be supplemented by a minor (a minimum of 24 credits) or by a certificate (12 to 18 credits) to meet graduation requirements for completing a first and second degree program. No minor or certificate is required with a Comprehensive Major (60 or more credits) or with two majors of 36 or more credits each.
Certain degree programs which include Comprehensive Majors may require more than the minimum of 120 credits for graduation.

Acceptable academic program combinations are determined at the college level. A major and a minor or a major and certificate or two majors (if available) may not be elected in the same department or program, except in the approved combinations listed here.

**College Credits.** Earn at least 90 credits in courses offered by the College of Arts and Sciences.

**Bachelor of Arts Degree in the College of Arts and Sciences (B.A.)**

Fulfillment of all University Graduation Requirements (which includes the Liberal Education Core); all College-level degree requirements (major and minor/certificate emphases, GPAs, earning at least 90 credits in Arts and Sciences course work); foreign language competency at the 102 level. Foreign language competency may be met in one of two ways: (1) Achieve a score on the foreign language placement test that qualifies the student to enter the 201-level course in a foreign language. (2) Earn a grade of at least C (not C-) or a mark of S in a 102-level foreign language course (or AIS 112 or AIS 122 / LANG 122 or CSD 103).

**Bachelor of Science Degree in the College of Arts and Sciences (B.S.)**

Fulfillment of all University Graduation Requirements (which includes the Liberal Education Core); all College-level degree requirements (major and minor/certificate emphases, GPAs, earning at least 90 credits in Arts and Sciences course work); mathematics competency at the MATH 111, MATH 112 or MATH 113 level. Mathematics competency can be met in one of three ways: (1) Achieve a score on the mathematics placement test that qualifies the student to enter MATH 114. (2) Earn a grade of at least C (not C-) or a mark of S in MATH 111, MATH 112, or MATH 113. (3) Achieve a satisfactory score on the MATH 112 competency test. This test may be attempted no more than two times.

**Major Requirements**

This emphasis provides extensive exposure to topics in ecology, field biology, and biological conservation. It is intended for students who are interested in field research, environmental monitoring and management, or natural resource conservation, or who desire strong preparation for graduate programs in ecology, environmental biology, or related fields. Requires completion of the core, the required credits as listed below, and biology electives to total at least 60 credits.

**Core Requirements for All Biology Majors**

Ecology and Environmental Biology Emphasis (Code 080-001); Microbiology Emphasis (Code 080-002); Biology, Liberal Arts (Code 080-203); Biology, Teaching (Code 080-205).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 221</td>
<td>Foundations of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 222</td>
<td>Foundations of Biology II</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 223</td>
<td>Foundations of Biological Inquiry</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total Credits**: 9

**Core Requirements for Biology, Liberal Arts**

All students who pursue a Liberal Arts Comprehensive Major in Biology are also required to complete MATH 114, and CHEM 103 and CHEM 104, or CHEM 115, in addition to the 60 credits required for the major.

### Comprehensive Major: Biology, Ecology and Environmental Biology Emphasis

#### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL 321</td>
<td>Ecology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 323</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 383</td>
<td>Statistical Analysis of Biological Data</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Field Experience may include:

- BIOL 320 Studies in Tropical Environments
- BIOL 423 Collaborative Research in Biology
- BIOL 490 Biological Field Studies
- summer offerings at a biological field station
- or other approved experience

#### Categorical Courses

**Form and Function:**

At least one course from:

- BIOL 315 Reproductive Physiology
- BIOL 317 Animal Physiology
- BIOL 318 Plant Form and Function
- BIOL 319 Animal Form and Function
- BIOL 322 Plant Anatomy
- BIOL 333 Plant Physiology
- BIOL 350 Systems Neuroscience
- BIOL 380 Endocrinology

**Organismal Diversity:**

At least two courses from:

- BIOL 311 General Entomology
- BIOL 325 Plant Systematics
- BIOL 331 Trees and Shrubs
- BIOL 332 Field Botany
- BIOL 340 Ornithology
- BIOL 345 Invertebrate Zoology
- BIOL 356 Wisconsin Wildlife
- BIOL 361 Biology of Microorganisms
- BIOL 362 Field Zoology
- BIOL 379 Biology of Fishes

**Ecology, Evolution, and Behavior:**

At least two courses from:

- BIOL 306 Infectious Disease Ecology
- BIOL 308 Evolution
- BIOL 328 Conservation Biology
- BIOL 336 Terrestrial Ecology
- BIOL 339 Physiological Ecology
- BIOL 365 Animal Behavior
- BIOL 376 Aquatic Ecology
- BIOL 435 Advanced Ecology

#### Physical Sciences

Select from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>GEOG 270</td>
<td>Land Use Issues and Problems</td>
</tr>
<tr>
<td>GEOG 304</td>
<td>Introduction to Geomorphology</td>
</tr>
<tr>
<td>GEOG 335</td>
<td>Geographic Information Systems I</td>
</tr>
<tr>
<td>GEOG 336</td>
<td>Geospatial Field Methods</td>
</tr>
<tr>
<td>GEOG 337</td>
<td>Geographic Information Systems II</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>GEOG 338</td>
<td>Remote Sensing of the Environment</td>
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<td>GEOG 350</td>
<td>Soils and the Environment</td>
</tr>
<tr>
<td>GEOG 361</td>
<td>Environmental Hazards</td>
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<td>GEOG 363</td>
<td>Watershed Analysis</td>
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<tr>
<td>GEOG 435</td>
<td>Geographic Information Systems III</td>
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<tr>
<td>GEOG 438</td>
<td>Advanced Remote Sensing</td>
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<tr>
<td>GEOG 455</td>
<td>Web Geographic Information Systems</td>
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<tr>
<td>GEOL 115</td>
<td>Environmental Geology</td>
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<tr>
<td>GEOL 301</td>
<td>Earth Resources</td>
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<td>GEOL 304</td>
<td>Global Environmental Change</td>
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<td>GEOL 308</td>
<td>Water Resources</td>
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<tr>
<td>GEOL 315</td>
<td>Hydrogeology I</td>
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<tr>
<td>GEOL 336</td>
<td>Introduction to Geochemistry</td>
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<tr>
<td>PHYS 211</td>
<td>General Physics</td>
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<td>PHYS 231</td>
<td>University Physics I</td>
</tr>
<tr>
<td>CHEM 304</td>
<td>Environmental Chemistry</td>
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<tr>
<td>CHEM 325</td>
<td>Organic Chemistry I with Laboratory</td>
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</tbody>
</table>

1 only 12 credits maximum will be applied toward the major

Research or internship experience strongly recommended.