Department of Biological Sciences
Bachelor of Science
Major in Biology – Ecology and Biodiversity Concentration

I. General Information
   A. A minimum of 52 hours of biological sciences is required. You must satisfy all biology core and concentration requirements plus 18 hours of physical sciences and statistics.

   B. General Education requirements must be fulfilled as outlined in the ESU undergraduate catalog.

   C. At least 45 hours of college credit must be earned in courses numbered 300 or above and you must have a cumulative GPA of 2.0 to meet university graduation requirements.

   D. You must have minimum GPA of 2.2 for all biology courses for which you have earned a grade to graduate as a biology major.

   E. A basic understanding of mathematics, physical sciences, and evolution is essential to all biologists. It is strongly recommended that courses in these areas, including GB 725 (Evolution), be elected in addition to those required.

   F. You are expected to confer with your academic advisor each term to review progress towards graduation and to discuss the biology courses you should take the next term. In consultation with your advisor, you must prepare and submit an undergraduate application for degree during the junior year. This contract must be signed by the student, advisor, and department chair.

   G. Note that Chemistry I is a prerequisite for MC 316-317, and MA 110 or equivalent (with a C or better) is a prerequisite for GB 425. Note also that PY 520 and GB 750 do not meet the General Education requirement for math. Some required courses are taught either during alternate terms or years, so you should plan ahead to avoid delaying graduation.

   H. Persons seeking certification as Associate Fisheries Professionals by the American Fisheries Society must complete a minimum of 4 courses in aquatic and fisheries science, 2 courses in calculus/statistics, and 6 hours of human dimensions. See details at www.fisheries.org and consult with your advisor.

   I. Persons seeking certification as Associate Wildlife Biologists by The Wildlife Society may do so by supplementing the required coursework in the Ecology and Biodiversity concentration with necessary electives. For details, consult with your advisor and see www.wildlife.org/professional/index.cfm

   J. It is recommended that you enroll in EB 409 B – Ecology and Biodiversity Project during the junior year and no later than the first semester of the senior year. To enroll in EB 409 B, you must have written approval of the faculty member who will supervise your research.

   (OVER)
II. Requirements (Effective Fall 2009)

A. Biology core requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB 140-141</td>
<td>Principles of Biology and Lab</td>
<td>4</td>
</tr>
<tr>
<td>BO 212-213</td>
<td>Biology of Plants and Lab</td>
<td>4</td>
</tr>
<tr>
<td>ZO 214-215</td>
<td>Biology of Animals and Lab</td>
<td>4</td>
</tr>
<tr>
<td>MC 316-317</td>
<td>Microbiology and Lab</td>
<td>4</td>
</tr>
<tr>
<td>GB 425</td>
<td>General Genetics</td>
<td>3</td>
</tr>
<tr>
<td>EB 480</td>
<td>Principles of Ecology</td>
<td>3</td>
</tr>
<tr>
<td>GB 480</td>
<td>Senior Experience in Biology</td>
<td>1</td>
</tr>
</tbody>
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B. Concentration course requirements

- EB 481 Field Ecology .................................................. 2
- EB 409BX Ecology and Biodiversity Project .......................... 2
- BO 542-543 Plant Taxonomy and Lab .................................. 4
- One upper division animal survey course ................................ 4
- ZO 556-557 Natural History of Vertebrates and Lab OR ZO 546-547 Invertebrate Zoology and Lab

Upper Division Electives in Biology
(Must cover each of the three sub-areas, D, E, and F) ...................... 17

C. Physical sciences and statistics requirements

Two chemistry lab courses ................................................................ 10
- CH 123-124 Chemistry I and Lab AND CH 126-127 Chemistry II and Lab OR CH 370-371 General Organic Chemistry and Lab

One course in statistics ................................................................... 3
- PY 520 Statistics I OR
- GB 750 Research Design and Analysis
- PH 140-141 College Physics I and Lab ........................................ 5

D. Aquatic ecology electives

- GB 510-511 Aquatic Biology and Lab ........................................ 4
- EB 496 Stream Ecology and Lab ............................................... 4
- ZO 472-473 Ichthyology and Lab .............................................. 4

E. Terrestrial ecology electives

- BO 338-339 Trees and Shrubs and Lab ....................................... 3
- GB 539 Soil Science and Lab ................................................... 4
- ZO 440-441 Entomology and Lab ............................................... 4
- ZO 459 Herpetology and Lab .................................................... 4
- ZO 480-491 Ornithology and Lab .............................................. 4
- ZO 490-491 Mammalogy and Lab .............................................. 4

F. Applied ecology electives

- BO 750-751 Plant Anatomy and Physiology and Lab ..................... 4
- EB 351 Introduction to Geospatial Analysis ................................ 3
- EB 474-475 Fisheries Management and Lab ................................ 4
- EB 536-537 Wildlife Management and Lab ................................ 4
- EB 538 Natural Resource Policies .......................................... 2
- EB 710 Conservation Biology .................................................. 3
- ZO 530-531 Animal Behavior and Lab ....................................... 4
- ZO 762 Environmental Physiology .......................................... 3

G. Other approved electives

- ZO 556-557 Natural History of Vertebrates and Lab .................... 4
- ZO 546-547 Invertebrate Zoology and Lab ................................ 4
- BO 552-553 Plant Kingdom and Lab ......................................... 4
- GB 752 Evolution .................................................................... 3
- XX xxx Other upper division courses approved by the advisor ............ X

* Should enroll in junior year and not later than beginning of senior year. Supervisor approval required.

H EB 480 (Ecology) required as a co-requisite or prerequisite.
I EB 480 (Ecology) required as a prerequisite.
HH EB 480 (Ecology) required as a co-requisite or prerequisite, or permission of instructor.
II EB 481 (Field Ecology) required as a prerequisite.
# CH 126/127 (Chemistry II and Lab) required as a prerequisite.
+ CH 370-371 (General Organic Chemistry and Lab) required as a prerequisite.

For more information, see the ESU Undergraduate Catalog, and the Department of Biological Sciences website, [http://biology.emporia.edu](http://biology.emporia.edu).

(Updated August 2010)