GENERAL ECOLOGY
BIOL 2040

Lecture Hours: 3.0          Credit Hours: 4.0
Lab/Field Hours: 2.0        Date Revised: Fall 06

Catalog Course Description:

Relationships between organisms and their environment, including human environmental problems. Four hours of lecture and lab/field work with announced field trips.

Entry Level Standards:

One year of high school biology or natural science is preferred.

Prerequisites:

None

Textbook(s) and Other Course Materials:


I. Week/Unit/Topic Basis:

<table>
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<tr>
<th>Week</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to Ecology and Evolution; Life on Land: Terrestrial Conditions and Terrestrial Biomes</td>
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<tr>
<td>2</td>
<td>Life in Water: Aquatic Conditions and Aquatic Biomes</td>
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<tr>
<td>3</td>
<td>Temperature Relations: Conditions and Adaptations; Water Relations: Conditions and Adaptations</td>
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<tr>
<td>4</td>
<td>Energy/Nutrient Relationships: Trophic Levels and Responses to Resource Variability; Social Relationships: Animal Behavior</td>
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<td>5</td>
<td>Exam 1 (Life and Its Environments: Chapters 1-7); Population Genetics and Natural Selection; Population Dynamics: Distributions and Abundance</td>
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<td>6</td>
<td>Population Dynamics: Survivorship Curves, Age Distributions, Rates of Growth, Dispersal</td>
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<td>7</td>
<td>Life History Patterns: Numbers of Offspring, Parental Care, and Environmental Conditions Exam 2 (Population Ecology: Chapters 8-12)</td>
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<td>8</td>
<td>Competition: Niche and Resource Partitioning Exploitation: Predator-Prey Relationships, Host-Parasite Relationships</td>
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II. Course Objectives*:

A. Understand the connection between the theory of evolution and the study of ecology. V3, V4, V5

B. Recognize terrestrial and aquatic biome differences and the resulting plant and animal communities. V3, V4

C. Identify properties of populations, communities and ecosystems. V3, V4, V5

D. Conduct tests to evaluate local natural populations and their relationships with local environmental conditions. V1, V2, V5, VI 4, VI 6, I 5

E. Evaluate the impact of human actions on natural and human populations. V5, III 1, III 2, III 3

*Roman numerals after course objectives reference goals of the university parallel program.

III. Instructional Processes*:

Students will:

1. Locate and evaluate ecological habitats and issues in the ERC and on the World Wide Web.,
   *Technological Literacy Outcome*

2. Collect data, make comparisons and draw conclusions about environmental issues.
   *Technology Literacy Outcome, Mathematics Outcome*

3. Read and critique trade publications, maps, and environmental data.
   *Communication Outcome*

4. Develop a vocabulary that allows them to communicate about science more effectively
   with peers and the public.
   *Communication Outcome*

5. Participate in lecture and field activities which develop teamwork, problem solving, and information analysis.
   *Natural Science Outcome*
6. Participate in two off-site learning experiences that promote independent thinking and sustained effort and time such as an independent site investigation and development of community recycling promotion.

*Natural Science Outcome*

7. Examine etiquette issues related to human habitation, such as the location of homes and industries, appropriateness of developments and use of the biosphere without degradation of natural resources.

*Natural Science Outcome, Social/Behavioral Sciences Outcome*

*Strategies and outcomes listed after instructional processes reference TBR’s goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.*

**IV. Expectations for Student Performance***:

Upon successful completion of this course, the student should be able to:

1. Describe populations and forms of species interactions.  
   - C
2. Identify plant and animal communities and the impact humans have on them.  
   - B, C, E
3. Identify plant and animal cycles and the impact humans have on them.  
   - B, C, D, E
4. Identify the major terrestrial and aquatic biomes and their inhabitants.  
   - B
5. Understand the connections among population genetics, evolution, and ecology.  
   - A
6. Use the scientific method and critical thinking skills to evaluate the relationships between organisms and their environment.  
   - A, D, E
7. Interact with professional environmental scientist and peers to take active roles in environmental protection.  
   - C, D, E
8. Understand human roles as top-level consumers and stewards of the biosphere.  
   - A, B, C, D, E

*Letters after performance expectations reference the course objectives listed above.*

**V. Evaluation**:

A. **Testing Procedures: 50% of grade**

   Each unit will be evaluated with a 100-pt multiple choice and short answer exam. There is a 100-pt multiple choice comprehensive exam. There are no make-up exams.

B. **Laboratory and Field Work Expectations: 50% of grade**

   Labs will involve weekly lab and field experiments, data analysis, and write-ups. (170 pts.) There will be 2 announced field trips and one field application experience (330 pts.)

C. **Other Evaluation Methods:**

   N/A

D. **Grading Scale:**

   
<table>
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<tr>
<th>Points Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>900 - 1000</td>
<td>90 – 100 % A</td>
</tr>
<tr>
<td>800 - 899</td>
<td>80 - 89% B</td>
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</table>
VI. Policies:

A. Attendance Policy:

Institutional policy mandates that a student be present for at least 75% of their scheduled class and laboratory meetings in order to receive credit for the course. Students must:
1. come to class.
2. be on time.
3. come focused on learning.
4. come prepared to participate in the learning process.
5. bring materials to gather information.
6. turn in assignments on time.
7. complete trips on the days selected.
8. understand that there are no make-up tests.
9. understand that success will only come from hard work.

B. Academic Dishonesty:

Any form of test or individual assignment collaboration with another individual will result in an “F” in the course.

C. Accommodations for disabilities:

If you need accommodations because of a disability, if you have emergency medical information to share, or if you need special arrangements in case the building must be evacuated, please inform the instructor immediately. Please see the instructor privately after class or in his/her office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127 or 131 or by phone: 694-6751 (Voice/TTY) or 539-7153

D. Other Policies

As a condition of course enrollment, every participant must sign and abide by the institutional Hold Harmless Agreement and Release of Liability documents. Additionally, only those enrolled in the course may participate in the activities. Students are expected to dress in an appropriate, socially acceptable manner and respect their peers and instructor. During fieldtrips, wearing a seat belt in the college vehicle is required. No tobacco products are allowed from start to finish of any group field experience. Additionally, individuals with special medical considerations or on prescription medications must advise their instructor prior to participation and carry with them appropriate dosages of medications for the duration of the exercise. The instructor reserves the right to refuse to allow any student to participate in a field exercise where there is a perceived risk to that individual or the group due, among other considerations, their individual state of health and fitness and preparedness for the venture.

Posted: December 15, 2006