

Conservation Biology

Biology 322
Union College

Syllabus Fall 2005

Tu-Th 10:50-12:30 Bailey 201; Lab M 1:45-4:35 SWSE 301

Office Hours: M 10:30-11:30; Th 4-5

Instructor: Dr. Steven Rice

S 315 Science and Engineering

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Synopsis: Natural ecosystems have suffered from declining biodiversity and encroaching human development. In this course, you will examine how these alterations impact populations and ecosystems and will evaluate management strategies designed to facilitate long-term sustainability. Topics include genetics and population biology of rare species, threats to biodiversity and ecosystems management.

Objectives: 1. Develop proficiency with the scientific field of ecology to the degree that allows students to understand and evaluate management initiatives and policies within local, national, and international arenas. 2. Appreciate the dynamic nature of science as it relates to the development and application of scientific knowledge. 3. Understand science as a process influenced by cultural agendas. 4. Assess the uses and limitations of modeling to develop and explore scientific hypotheses. 5. Improve analytical writing ability.

Structure: Each week we will meet for two lectures and a lab. Prior to the week, you will be given a handout that includes the lab and specific assignments. In general, the first lecture will review and expand upon the material in the reading. It is essential that you do the required reading-**you are responsible for learning from the text and other readings, even if the material is not reviewed in class.** The second lecture session will be devoted to discussions and other exercises where models, experiments, and management strategies are critically evaluated. In addition to reinforcing the lecture content, the laboratories will provide experience with conservation biology in practice. These are designed to last three hours, plan on it.

Course Requirements: All work must be completed and handed in to receive a grade for the course. You may make up a test only in the case of a documented emergency. Note that the final exam will be given only on the scheduled date. Make your holiday plans accordingly. Attendance in class and lab is expected. Missing more than two lectures may affect your grade. Labs are not to be missed and will be made up with an acceptable, documented excuse brought to my attention in a timely manner.

Evaluation: Grades will be assigned on a straight scale (≥ 93 A, ≥ 90 A-, ≥ 87 B+, etc) and will be derived from the following:

Tests (mid-term 15%; final 20%)	35%
Final Project (10-12 page paper w/poster)	20%
Analytical Paper (5-7 pages)	15%
Class Participation and other Assignments	20%
Paper Presentation	10%

Reading: The course requires Primack, R.B. 2002. Essentials of Conservation Biology, 3rd edition. Additional primary and secondary source readings are shown in the "Topic Outline" and "References" sections. These will be available on reserve in the library or through its electronic resources.

Plagiarism: Students are responsible for knowing school policies and acting honestly (see statement in student handbook). In brief, you are encouraged to work together and discuss course content, but you need to write all assignments on your own. If you reference or rephrase the work of others, it needs to be properly cited. Failure to do this is plagiarism!

Topic Outline:
Conservation Biology (BIO 322)
Fall 2005

Week	Unit	Topic	Lab, Monday in S301
1	Domain of Conservation Biology	Biodiversity and Its Values	<i>No Lab</i>
2	Conservation of Genetic Diversity	Species, ESUs and the Units of Biodiversity	Genetic Diversity in Purple Loosestrife*
3		Genetics of Rarity	Species Diversity of Soil Invertebrates *
4	Conservation of Populations	Population Biology	Matrix Modeling of Populations
5		Managing Natural Populations	Population Viability Analysis: Predicting Survival of Grizzly Bear Populations
6	Threats to Biodiversity	Extinction	Nitrogen Transport into a Vernal Pond I.*
7		Change in Habitat Structure and Function	Nitrogen Transport into a Vernal Pond II/Project Appointments
8		Global Change	Conservation Planning: Woodlawn Preserve Visit*
9	Conservation Planning and Restoration	Establishing Protected Areas	<i>Make-up Lecture</i>
10		Conservation Plans	Poster Projects
11			Conservation Planning: Woodlawn Preserve Plan

***Denotes a field trip.** On field trips, you must wear long pants, closed-toe shoes, long socks and a shirt that can tuck into your pants. Also, dress appropriately for the weather and bring a drink and a snack.