

Conservation Biology
University of Pittsburgh BioSc1610
Pymatuning Laboratory of Ecology
Summer 2008

Dr. Steven Latta

Department of Conservation and Field Research, National Aviary, Pittsburgh, PA
steven.latta@aviary.org

Course overview: This course is offered at the Pymatuning Laboratory of Ecology Field Station. This field course will focus primarily on the applied aspects of conservation biology by examining the degradation and loss of species, populations, and ecosystems due to human activities, and by considering alternatives for avoiding and/or mitigating these impacts. Topics range from local to global in scale, and connections between different scales are emphasized. The perspectives of science, management, and policy will be elucidated in the context of historical, current, and future strategies designed to conserve the diversity of life.

Course objectives include:

- Understand how human population growth and resource consumption drive environmental problems;
- Identify major environmental threats facing species, communities, and ecosystems;
- Clearly define terms and principles relevant to conservation biology;
- Learn basic tools for assessing and addressing environmental health and degradation, with an emphasis placed on field exercises;
- Understand the complexity of many conservation issues, and how conservation biology operates in a multidisciplinary manner; recognize the importance of economics, sociology, politics, and biology and their interactions in both causing and resolving environmental problems.

Class format: The class meets Monday through Friday, 9:00 – 4:00. We will begin most days with a short lecture with presentations on topics relevant to the day's field exercise, but the majority of our time will be spent in the field. Some trips will be off site and most trips will last all day. For many exercises we will work in small groups, and the group will work cooperatively to design and implement the study. Each student though will be responsible for recording data and their own field worksheets or reports. Because

successful science is often a collaborative process that depends on open communication and participation, your active involvement in all phases of each exercise is needed.

You should also realize that there will be a fair amount of reading associated with this class. You should anticipate that you will need to spend time reading each day in order to keep up. I am assuming that students at Pymatuning want to spend most of their time in the field, so lectures are kept to a minimum, and readings will be relied on to convey key points, theory, and background for the principles of conservation biology that will be demonstrated in field exercises.

Required books: Primack, R. B. 2006. *Essentials of Conservation Biology*, fourth edition. Sinauer Assoc., Sunderland, MA. There is no field exercise manual for this course at Pymatuning. Instead, we will provide you with the necessary written materials. You may, however, want to bring a 1", 3-ring binder in which to keep the distributed materials.

Other readings: To be determined.

Problem sets, Projects, Presentations, and Examinations:

Problem sets: Throughout the session a variety of worksheets, problem sets, short reports, or opinion pieces will be assigned to accompany daily field or classroom exercises. Some of these will involve data gathering in the field. In most cases you will be welcomed, or even encouraged, to work in small groups on these problem sets.

Projects and Presentations: Each student will be expected to complete a project that focuses on defining approaches to address some issue relevant to conservation biology. Work will be done in small groups to research the issue and present the issue to classmates. Some possible issues include the future of the Endangered Species Act, salvage logging, the role of indigenous people within protected areas, or limits to human populations. Presentations may be made in a debate format, through role-playing, as a formal scientific presentation, or other imaginative format, with each student perhaps presenting only one perspective on the issue. Each student though will also present their own written report characterizing the issue more broadly. Some time will be made available for students to work on projects throughout the session, but you will also be expected to use your weekends wisely.

Examinations: There will be one final exam in the course which will be given on August 1. The exam will be worth 25% of your final grade and will consist of definitions, short answers, and essays. Material presented in lectures, derived from field exercises, appearing in problem sets or worksheets, or presented in assigned readings may be on the exam.

Grading: Your letter grade will be based on the points earned during the course.

Participation: 10%

Field trip reports, worksheets, exercises: 40%

Class project (written): 15%

Class project presentation: 10%

Final exam: 25%

The following scale will be used to convert your percentage into a letter grade:

$\geq 97\%$ A+	73-76 C
93-96 A	70-72 C-
90-92 A-	67-69 D+
87-89 B+	63-66 D
83-86 B	60-62 D-
80-82 B-	$\leq 59\%$ F
77-79 C+	

Please feel free to contact me to discuss any aspect of the class. I will be available during daily breaks, after class, or by appointment.

The less pleasant necessities: Attendance at all class sessions, while not required, is expected, and unexcused absences will affect the points you receive for class participation and problem sets. Due to the nature of the experiences, field exercises can not be made-up. If there is an unavoidable excused absence, a written report based on the primary literature will be assigned as make-up. Late assignments will lose one letter grade per day.

Academic honesty is taken very seriously. Misrepresenting anyone else's work or ideas as your own can result in a failing grade for that assignment or for the course.

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Proposed Syllabus

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Date	Topic
14 July	Introductions: Meetings and discussions to identify independent projects.
15 July	Patterns of Biodiversity
16 July	Island biogeography
17 July	Threats I: Habitat degradation and loss
18 July	Threats II: Habitat fragmentation
19 July	<i>Saturday, no class.</i>
20 July	<i>Sunday, no class.</i>
21 July	Threats III: Invasive species
22 July	Threats IV: Climate change
23 July	Threats V: Human populations and resource consumption
24 July	Addressing conservation threats I: Single species conservation
25 July	Addressing conservation threats II: Protected area design
26 July	<i>Saturday, no class.</i>
27 July	<i>Sunday, no class.</i>
28 July	Addressing conservation threats III: Ecosystem management
29 July	Addressing conservation threats IV: Sustainable development
30 July	Addressing conservation threats V: <i>Ex situ</i> conservation
31 July	Addressing conservation threats VI: The human element
1 August	Presentations and Exam