

Bio 540, Conservation Ecology

Lecture: MW 9-9:50, LS 132
Lab/Discussion: W 12:30-3:10, LS 126

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PS 157A (in PS157)
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PS 157
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COURSE DESCRIPTION

The goal of this course is to give you a solid foundation of core concepts and principles of conservation ecology, emphasizing current topics/debates in this field. The course integrates readings from a current textbook (Groom et al. 2006) and primary literature to cover both the science and application of conservation ecology.

This course is designed for upper level undergraduates as well as first or second year graduate students. Students' grades will reflect their experience level. All course activities (lectures, discussions, short writing exercises, computer work) will require you to synthesize and integrate the concepts from lectures/readings and apply this information to novel settings/questions. Some students find this difficult, because their previous learning strategies of rote memorization do not work well. You must digest and understand course content, as well as think logically about how this information can inform conservation decisions and science when no easy solution exists or when information is incomplete.

COURSE FORMAT

Readings and discussions, punctuated by 3 exams, a SHORT review paper (1-2 pages) an oral presentation, some computer exercises and VERY SHORT writing assignments for labs/discussions (single paragraph).

MATERIALS

We will be relying on primary literature supplemented by a textbook. The Textbook is Principles of Conservation, 3rd edition. Groom et al. 2006
Primary literature readings are listed on course schedule and will be provided to all students on Blackboard.

COURSE OBJECTIVES

The goal of this course is to give you a solid foundation in the core concepts, principles and application of conservation ecology, emphasizing current topics and debates. We will not explicitly discuss the philosophical, ethical, or cultural aspects of conservation. However, these aspects are intrinsic components of conservation in practice and we will touch upon them during our discussions.

Specific course objectives are to:

- Understand the core concepts of conservation ecology covered in the lecture and labs/discussions
- Be able to synthesize and integrate concepts of conservation ecology

- Think critically about current research and understand how it relates to or redefines the science of conservation ecology
- Stimulate discussion and evaluation of conservation science
- Encourage students to engage in discussion and debate
- Learn how to review and synthesize primary literature using short writing assignments and oral presentations

CONTACTING ME

I encourage you to meet with me during office hours or by appointment.

When: There are two options: 1) Monday 11-12pm or 2) other times by appointment

Where: Physical Sciences (PS) 157A, inside my lab PS157.

How: If the lab door is closed, knock LOUDLY. Other students work in my lab, so if you stop by when I'm not there, please don't rely on them to pass verbal messages on to me. You can leave a note on my door or in my mailbox in the Biology office.

EXPECTATIONS

I expect all course participants (students and instructors) to be:

- Prompt
- Prepared
- Respectful (This includes having all communication devices off or silent)
- Engaged in discussions
- Honest

WHAT WILL HAPPEN IF THESE EXPECTATIONS ARE NOT MET?

Part of your grade will be based on your preparation and participation in class, so a failure to do either will be reflected in your grade. Disrespectful behavior will not be tolerated.

ACADEMIC DISHONESTY

Cheating has rarely been a problem in my classes, and warning you about the consequences may seem unnecessary. Nevertheless, to avoid any confusion, this is the course policy: If you are caught cheating in an exam or on an assignment, you will receive a zero on the exam or assignment. In addition, the event will be reported to campus judicial authorities and may lead additional actions from the University. For more information on the consequences of academic dishonesty, please see:

<http://www.sa.sdsu.edu/srr/judicial/CheatingDisruption.html>

Remember, your academic work must be your own words. If you need clarification on what constitutes plagiarism, cheating, and other inappropriate conduct, please see: <http://science.widener.edu/svb/essay/plagiar.html>

ASSIGNMENTS

To be prepared for lectures, you will need to have read and be ready to discuss/ask questions on assigned readings. All assigned readings are listed on the course schedule and will be available on Blackboard

Lab/discussion sections will include readings, student-led discussions, in-class writing, and computer exercises/activities. To be prepared for lab/discussions, you will need to have read and be ready to lead a discussion/discuss these papers, or write about assigned readings (short answer format). Again, all required reading are listed on the course schedule and will be available on Blackboard.

REVIEW PAPER ASSIGNMENT: CURRENT TOPICS IN CONSERVATION

We won't be doing any major writing assignments in the course. Instead, each person will be in charge of writing a SHORT review paper (1-2 pages) of a current

topic in conservation. Using a minimum of 5 and a maximum of 15 peer-reviewed literature sources (you can use 1 paper already on the syllabus), each person will present a concise summary and synthesis paper.

There are two goals of this writing assignment:

- 1) It will allow you to explore a current topic/debate in conservation in more depth than our lectures and discussion. I encourage you to pick a topic that is relevant to your research interests. You must choose a review topic by Sept 27th. If you are having trouble picking a topic, please schedule an appt. with me no later than Sept 20th.
- 2) The second goal of the assignment is to encapsulate how one writes a peer-reviewed paper, with an emphasis on flow and presentation of ideas.

ORAL PRESENTATION: CURRENT TOPICS IN CONSERVATION

Each person will also give a 15 minutes formal oral presentation of their review to the class during the last 2 lab sessions (we'll talk a lot more about the format of both the written review and oral presentation during class). I will evaluate the written portion, and oral presentations will be evaluated by the entire class.

GRADING

Although the general requirements are the same for both undergraduate and graduate students, expectations of graduate student performance will be higher. Thus, graduate students will have to demonstrate a more sophisticated comprehension of material. Their answers will need to be more comprehensive, and I will grade exams and other assignments accordingly.

You will be graded on:

Course requirements	Points	%
Midterm exam 1	80	18
Midterm exam 2	80	18
Lab assignments	80	18
Writing assignment	50	10
Oral presentation	30	7
Participation	30	7
Final exam	100	22
TOTAL	450	100

STUDENTS WITH DISABILITIES

Students who need accommodation of disabilities should contact me privately to discuss specific accommodations for which they have received authorization. If you have a disability, please contact Student Disability Services at 619 594 6473, Calpulli Center, Suite 3101 before making an appointment to discuss this with me.

EMERGENCIES

Emergencies, by definition, are unexpected. I cannot accommodate individual schedules, but for genuine emergencies I will work with you to ensure you can complete assignments, projects, tests etc... on time. However, I will only do so if you come talk to me immediately when such a situation arises.

If you have any questions about this material, I would be happy to talk with you about it (my contact information is listed on the first page). When you are clear on the information covered in this syllabus, please read, sign, and date the following statement and return it to me.

I have read the Bio 540 Course Syllabus. I understand and accept its contents. I also understand that work in this course must be my work and all required assignments, projects, and tests must be completed to receive a passing grade for this course.

Printed name

Signature

Date

COURSE SCHEDULE

Biol 540

R.Lewison

Fall 2007

The lecture and lab/discussion schedule is set, but flexible. I'll try to stick to the plan, but please be prepared for the possibility of changes due to quality and depth of our discussions on various topics, questions raised during lectures, and schedules of guest speakers. I will work hard to make sure to announce any changes as soon as possible regarding changes to reading assignments, due dates etc... All course announcements will be made via Blackboard.

READINGS

All the readings will either be in Groom et al. 2006 or supplemental readings on Blackboard.

On the schedule, I've indicated chapters from Groom et al. 2006 **in bold** (e.g. **Chap.1**).

Supplemental readings (outside of Groom et al. 2006) are listed on the schedule as 'Blackboard 9/18'. That means you should go to Blackboard, click on the Lecture or Lab readings folder, and look in the folder called 9/18 to find the readings for which you are responsible.

Lecture schedule and topics
MW 9:00-9:50, LS 134
24 Lectures, 3 reviews, 3 exams

Date	D	Topic	Reading assignment
8/27	M	Intro to Cons Ecology: The course and the topic	Chap 1: Start - pg <u>15</u> : Guiding Principles for Conservation Biology (bottom of right column) Stop - pg <u>25</u> . Essays are optional. This is not 10 pages of reading, probably about 5 max.
8/29	W	Biodiversity: trends, measuring, monitoring, threats	Chap 2: pp. <u>27-33</u> (essay 7.2 optional). Stop at "How many species..", <u>44-45</u> , <u>53-60</u>
9/3	NO CLASS		
9/5	W	Species concepts, genetics,	Chap 11
9/10	M	Genetics cont'd, species to populations,	Chap 12 pp. 419-431 + Blackboard 9/10
9/12	W	Population features: deterministic, stochastic, density-dependence, migration/movement, allee effects, metapopulations	Blackboard 9/12
9/17	M	Demographics: measuring population change and viability	Blackboard 9/17
9/19	W	Species interactions, invasive species	Chap 9
9/24	M	Habitat degradation & loss, fragmentation.	Chap 7 to pg. 240 (with details on how bad it really is on 173-182)
9/26	W	Review	
10/1	M	EXAM	
10/3	W	The importance of space and time: IBT, IDH	Blackboard 10/3
10/8	M	Landscape concepts for conservation	Chap 12 pp. 440-453
10/10	W	Reserve design	Chap 12
10/15	M	A marine perspective/current topics in marine cons	Blackboard 10/15
10/17	W	Current topics in marine cons. II	Blackboard 10/17
10/22	M	Disease ecology	Blackboard 10/22 Guest lecture: Dr. Tim Rodwell, UCSD
10/24	W	Integrating science into policy	Chap 17 Guest lecture: Dr. Jeff Seminoff, NMFS
10/29	M	Review	
10/31	W	EXAM	
11/5	M	Climate change: Links to conservation	Chap 10 Guest lecture: Dr. Walt Oechel, SDSU
11/7	W	Exploitation, Trophic cascades	Chap 8
11/12	M	NO CLASS	
11/14	W	Restoration ecology	Chap 15
		Economics/valuation of biodiversity	Chap 5
11/19	M	Multi-species approaches to conservation	Blackboard 11/19 Guest lecture: Dr. Matt Rahn, SDSU
11/21	W	Ecosystem Management	Chap 13
11/26	M	Conservation strategies & efficacy: Part 1	Blackboard 11/26
11/28	W	Conservation strategies & efficacy: Part 2	Blackboard 11/28
12/3	M	Looking back and looking forward	Blackboard 12/3
12/5	W	Review	
12/		FINAL EXAM	

Lab schedule and assignments
W 12:30-3:10pm, LS 126
15 labs

Date	D	Topic	Assignment
8/29	W	Quantifying biodiversity	In-class exercise
9/5	W	Evidence of genetics effects	Discussion Blackboard 9/5
9/12	W	PVA exercise	In-class exercise Blackboard 9/12
9/19	W	PVA review	Discussion Blackboard 9/19
9/26		Invasive species *Review topics due*	Discussion Blackboard 9/26
10/3	W	Fragmentation	Discussion Blackboard 10/3
10/10	W	Corridors & stepping stones	In-class exercise
10/17	W	Reserve design	In-class exercise Blackboard 10/17
10/24	W	Review Paper research	
10/31	W	The concept of sustainability: fisheries/resource use	Video + In-class exercise
11/7	W	Trophic cascades	Discussion Blackboard 11/7
11/14	W	The concept of sustainability: development & policy	Discussion Blackboard 11/14
11/21	W	Multi-species approaches to conservation	Discussion Blackboard 11/21
11/28	W	Presentations	
12/5	W	Presentations	