

PRINCIPLES OF CONSERVATION BIOLOGY

FW455: SPRING 2020

Monday & Wednesday -- 12:30-1:45pm -- NR243

Instructor: Dr. Liba Pejchar (pronouns: she, her, hers)

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Course Description:

This course focuses on the scientific foundations of conservation. We will address major threats to biodiversity and discuss approaches for overcoming these threats in ways that balance the needs of people and nature. Students will gain a greater understanding of the major principles and contemporary issues in Conservation Biology, while practicing techniques for communicating conservation science to diverse audiences. This interactive class emphasizes student involvement and participation. Although there will be lectures by the instructor and guest speakers, the focus of the course will be on student-led discussions, writing assignments, debates and presentations.

Assigned Readings:

Course materials include articles from the primary literature and occasionally from other media sources. All course materials will be posted on the class canvas page.

Discussions:

During many class periods we will have student-led discussions focused on papers from the scientific literature. Typically, a team of 2-3 students will be assigned to lead each discussion. These students will submit 3-5 discussion questions on the reading for posting on canvas no later than the class period before the discussion. Students not leading discussion must come to class with brief, typed answers to these questions and be prepared to discuss and critique the paper. At the start of the discussion, the lead students will provide a thorough yet concise (no more than 5 minutes and 5 slides!) overview of the paper. In the summary, you should: 1) review the major points of the paper, 2) highlight novel results and conclusions, 3) relate the paper to other readings or discussions in class or your own knowledge, and 4) raise questions or objections you have with the methods, results, and/or conclusions. Following the summary, the lead students should then be prepared to actively generate and facilitate discussion for the rest of the allocated time. You will be assigned a grade for leading the discussion. A grading rubric will be posted on Canvas and reviewed in class at the beginning of the semester.

Debates:

There will be two debates during the semester that focus on important emerging issues in conservation biology. Details on the topic and structure of the debates will be provided in class.

Op-Ed Article and Elevator talk:

Each student will be required to write a brief (300-500 word) "Op-ed" on a current conservation biology topic or issue of their choice. The article should be written for an appropriate newspaper (may be local, regional, national or international, depending on the scope of your issue). We will workshop the articles

in class and your classmates will provide suggestions for improvement before submission to the instructor and (optional) submission to the newspaper. You will also give a 60-90 second “elevator talk” on your topic in class towards the end of the semester. More details on this assignment will follow.

Term Paper & Oral Presentation:

Each student will use the primary literature to research and prepare a literature review on a conservation biology topic. Your paper should consolidate what is known about your topic, highlight information gaps, and set priorities for future research and practice. More detailed information on this assignment will be provided early in the semester, including examples of review papers. The paper will be submitted mid-semester, at which point it will be graded and receive a formal peer review by one other student and the instructor. Students will then be expected to revise the paper according to feedback from the peer review and instructor, and submit a revised paper along with a letter with explaining how comments were addressed. Each student will also formally present their paper topic in the style of a speed talk at a scientific conference (5 minute powerpoint talk, 2-3 minutes of questions).

Final:

The final exam will be a take-home exam consisting of short answer and essay questions and will be designed to encourage students to review and synthesize course material. Exam questions will be taken from lectures, discussions, debates, presentations, and assigned readings. An alternative exam date will only be approved if you speak with me at least several weeks in advance with a valid reason.

Grading:

Point allocation for evaluation of students (*all late assignments will incur a 10% drop in grade per day*):

	TOTAL POINTS
Term Paper	
First Draft	100 points
Revision	50 points
Term Paper Peer Review	25 points
Oral Presentation (speed talk)	50 points
Discussion Lead	25 points
Debate	50 points
Discussion/Debate Questions	25 points
Op-ed	50 points
Elevator talk	25 points
Participation/Attendance	25 points
Final	75 points
TOTAL	500 points

Grades will be based on the following percentages: 94-100 = A; 90-93 = A-; 88-89 = B+; 84-87 = B; 80-83 = B-; 78-79 = C+; 70-77 = C; 60-69 = D; ≤ 59 = F.

Academic Integrity:

This course will adhere to the Academic Integrity Policy of the Colorado State University General Catalog and the Student Conduct Code. Plagiarism and all other forms of academic misconduct will not be tolerated.

Special Needs:

If you have special needs for lectures, assignments or tests, please contact me as soon as possible after the first day of class to explain these needs. Please also speak with me anytime if something should develop later in the semester.

Respect for Diversity:

It is my intent that students from all backgrounds and perspectives be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

Date	Topic	Required Reading	Assignments
	Biodiversity and Extinction		
W Jan 22	Introduction to Conservation Science	Soule 1985; Kareiva & Marvier 2012	
M Jan 27	Biodiversity and Extinction	Ceballos et al. 2017	
W Jan 29	Assigning Value to Nature (discussion)	Wallach et al. 2018 & replies	
M Feb 3	Ecosystem Services (discussion)	McCauley 2006 & replies; Boyles et al. 2011 & replies	Op-ed topics due
W Feb 5	Hawaii Case Study	Pejchar et al. 2020	
	Causes and Consequences		
M Feb 10	Habitat Loss and Fragmentation	Foley et al. 2007	Paper topics due
W Feb 12	Invasive Species (discussion)	Davis et al. 2011 & replies	
M Feb 17	Climate Change (discussion)	Wynes and Nicholas 2017	
W Feb 19	Pollution and Overexploitation (discussion)	Brashares et al. 2004	Paper outlines due
M Feb 24	Assisted Colonization (debate)	McClachlan et al. 2007; Ricciardi & Simberloff 2009	
W Feb 26	Workshop Op-eds	None	Op-eds due
	Case Studies		
M Mar 2	Wildlife corridors and connectivity (guest lecture: J. Berger)	TBD	
W Mar 4	Case study: New Zealand birds (guest lecture: S. Bombaci)	TBD	
M Mar 9	Aeroecology and light pollution (guest lecture: K. Horton)	TBD	
W Mar 11	Case study: orphaned elephants (guest lecture: J. Parker)	TBD	
	The Toolbox: Genes, Species & Populations		
M Mar 23	Population Viability Analysis (discussion)	Bakker & Doak 2009	Revised Op-eds due
W Mar 25	Metapopulations: Outdoor Lab	None	
M Mar 30	The Problem of Small Populations	None	
W Apr 1	Captive Breeding and Reintroduction	NYT magazine: The Mammoth Cometh	Papers due
	The Toolbox: Communities & Ecosystems		
M Apr 6	Island Biogeography and Protected Areas	Packer et al. 2013 & replies	
W Apr 8	Conservation on Private Lands (discussion)	Maestas et al 2003	
M Apr 13	Conservation and Urbanization (discussion)	Sushinsky et al. 2013	Peer Reviews due
W Apr 15	Restoration Ecology (discussion)	Donlan et al. 2006; Griffiths et al. 2010	
M Apr 20	Land sparing/sharing (debate)	Green et al. 2005; Fischer et al. 2008; Kremen 2015	Submit Op-ed (optional)
	Conservation and Communication		
W Apr 22	Elevator Talks	None	Elevator Talks
M Apr 27	Movie: TBD	None	
W Apr 29	Oral Presentations	None	
M May 4	Oral Presentations	None	
W May 6	Review and Synthesis	Arlettaz et al. 2010	Revised Papers due
May 8-12	FINAL EXAM (take-home)	START May 8 @ 5 PM – END May 12 @ 5 PM	Final Exam