

Welcome to BIOL 370 / ES 320 – Fall 2015

Conservation Biology

Lectures: M and Th 2:30 – 3:50pm

Location: ELL 062

Computer Tutorials (CLE A015; only two per semester):

1) Th Oct 15th 9:30-11:30am or Fr Oct 16th 3:00-5:00pm

2) Th Oct 29th 9:30-11:30am or Fr Oct 30th 3:00-5:00pm

Pre-requisites: BIOL 186 or 190A; 215 & 230; STAT 255 or 260

Instructor: Dr. Julia K. Baum

Email: baum@uvic.ca

Office hours: M/Th 4:00 – 5:00pm,
in Petch 116 or by appointment

Teaching Assistant: Aaron Eger

James Robinson

Course Rationale and Overview

We now live on a human-dominated planet and face major global environmental challenges. Conservation Biology is a 'mission-oriented' science that focuses on how to protect, manage, and restore nature in the face of these challenges, while balancing the needs of people and nature. The issues conservation biology centers on – biodiversity loss and extinction, habitat degradation and loss, exploitation, invasive species, climate change – are big, complex, and challenging. They also are critically important for the future of humanity. Solving these real-world problems requires applying the principles and tools of ecology (including population biology, community ecology, and biogeography), population genetics, economics, political science and other natural and social sciences. Like medical science, conservation biology is a value-laden discipline directed by a particular worldview. It is, nonetheless, a science – and to be conducted and scrutinized with clear eyes and hard numbers.

Our course will focus on relating ecological theory to conservation problems, using case studies highlighting current conservation issues to ground this theory. The course is divided into three themes: 1) The Rationale and Foundations of Conservation Biology, 2) Science to Inform Conservation Strategy, and 3) Conservation Challenges and Solutions, in which we will integrate and apply the knowledge gained from the first two sections to real-world conservation problems.

Course Learning Outcomes

By the end of this course you should be able:

- To understand, analyze and communicate the historical context, scientific basis, and goals of conservation, as well as the fundamental ecological concepts and tools of conservation biology;
- To understand and communicate the diversity of perspectives on conservation issues, the trade-offs involved in conservation decisions, as well as your own philosophy and perspective on conservation issues;
- To understand, analyze and interpret ecological models, graphs, and scientific results pertaining to conservation biology;
- To critically evaluate the scientific and lay literature related to conservation biology, and to place individual studies within the broader context of the discipline;
- To demonstrate improvement in effective writing and analytical problem-solving skills.

Instructor Expectations & Student Responsibilities

This course will only fulfill the learning outcomes outlined above if you commit:

1. **To reading the assigned materials prior to class.** The assigned readings will provide us with the common ground for lectures and discussions. Therefore, you will have to have read, comprehended, and absorbed the assigned readings to really get the most out of this class. A general rule of thumb is to plan to spend at least 3-5 hours a week reading and reviewing lectures notes. All readings will be assigned and posted on CourseSpaces at least three days prior to the lecture in which they will be discussed.

2. **To attending class, and being prepared for and engaged in class.** Both you (the student) and I (the instructor) have a responsibility to come to class, to be on time, to be prepared to discuss the subject area, and to create a positive, constructive and respectful learning environment for others in the class. This includes turning cell phones off, not using electronic devices for activities unrelated to the class, and not leaving lecture early. This course will include lectures, as well as individual, pair, and small group activities, and discussions of assigned readings, all of which will be most successful if we all meet these responsibilities. You should also take notes throughout class, and later use the lecture overview slides to supplement your notes.
3. **To being an active participant in your learning.** Learning requires effort on both your and my parts. For you to succeed in this course, you must apply yourself to the best of your ability: think logically and critically, challenge yourself, and try to synthesize seemingly disparate concepts and facts. Finally, consult with me when additional help is required. I am here to facilitate your learning.

Course Materials & Communication

Required Text: Kareiva, P. & M. Marvier. 2015. **Conservation Science: Balancing the Needs of People and Nature.** Roberts and Company. Note: Copies of this textbook and the 2011 edition are on reserve at the library.

Required Readings: We also will read a variety of articles including ones from the primary and secondary literature, and the media.

Required Technology: We will use Top Hat, an interactive learning tool, in most classes. **You must 1) register for a TopHat account at <https://tophat.com>; and 2) bring one of the following devices to each class so that you can register your answers during class:** i) cell phone to text answers to 647-931-6504, ii) laptop to enter answers online at <https://app-ca.tophat.com/e/260371>, or iii) an iphone/ipad, Android phone/tablet with the TopHat app installed. Many of you will have used Top Hat in other courses; if you are unfamiliar with this technology, please read the instructions on the Top Hat website. See the Course Evaluation section for how and why we will use Top Hat.

BIOL370/ES 320 CourseSpaces Website: I will post all course announcements, readings, assignments, and the weekly lecture schedule on our course CourseSpaces website. I will also post lecture slides *after* lectures. Please be aware that these are overviews, not detailed notes, and are provided to help you organize and supplement your lecture notes. It is therefore **your responsibility to check our course website regularly for updates.** See: <http://elearning.uvic.ca> if you have questions about how to use Course Spaces.

Computer Tutorials: We will have two computer tutorial sessions during the semester to help you review and better understand the quantitative models covered in class. There are two different time slots available for each session: Session 1 (**Thursday Oct. 15th 9:30-11:30am or Friday Oct. 16th 3:00-5:00pm**) and Session 2 (**Thurs. Oct. 29th 9:30-11:30am or Fri. Oct. 30th 3:00-5:00pm**). These tutorials are not mandatory. You are, however, encouraged to attend to ensure you understand the material required to do the problem sets. You can secure a spot in a tutorial by signing up on our course website.

Email: If you have any questions or concerns with the course or your assignments, please feel free to meet me during office hours or by appointment, or contact me via email using your UVic email. Emails from other accounts (e.g. gmail) may be treated as spam and may not reach me. Please treat your email to me as a professional correspondence: use a formal salutation as well as correct grammar and spelling, include 'BIOL 370' or 'ES 320' and the nature of your query (e.g. Question re: Assignment 1) in the subject line, and your full name and student number within the body of the email. If arranging an appointment, please explain the reason for the appointment and list 3-4 times when you are available so that I can find a time that fits my schedule. I will do my best to respond to emails in a timely fashion, but please understand that delays may occur. Therefore, be prepared to wait up to 48 hours for a response during the week, and do not wait to email with queries about assignments at the last minute! Email will only be checked sporadically on weekends, and thus will not typically be answered until Monday.

Course Evaluation

Learning outcomes will be assessed based upon the following:

Assignments:

A1 – Short Essay: Media Critique	10%
A2 – Problem Set #1	10%
A3 – Problem Set #2	10%
A4 – Problem Set #3	10%
A5 – Essay: Conservation Biology Literature Critique	20%

Class Contributions

In-class participation via Top-Hat clicker	4%
Reading reflections	6%

Final Exam

30%

Overview of Evaluation Components

Assignments*

A1. Media Critique. Issues in conservation biology are frequently covered in the popular media. For this short essay (max. 750 words), you will select a scientific paper that has received media coverage recently, and then write an analysis of the degree to which a particular popular article presents an accurate and fair representation of the science. **This paper is due by 2:30pm on Monday 28th Sept., submitted both on our CourseSpaces course website and via a hard copy to me at the start of class.**

A2, A3, A4. Problem Sets. These assignments are designed to help test your understanding of the basic concepts, ecological theories and models covered in lectures and readings. The questions may involve interpretation of data or models, short-answer questions about key concepts, simple calculations or spreadsheet model results. These assignments will be due **to me by 2:30pm (i.e. at the start of class) on Mondays: October 19th, November 2nd and 16th**, respectively.

A5. Conservation Literature Critique. This essay will consist of a succinct (max. 3 pages) critical review of a recent peer-reviewed research article within the field of conservation biology. You will be given a choice of 4 papers and must sign up for one on CourseSpaces (maximum 25 students per paper, with availability on a first-come first-serve basis). **This essay is due by 2:30pm on Monday November 30th, submitted both on our CourseSpaces website and via a hard copy to me at the start of class.**

*Full details and instructions for each of the four assignments will be posted on CourseSpaces. Assignments that are handed in late will be penalized 15% per day.

Class Contributions

Participation via TopHat. Top Hat is an interactive learning tool, which you will use primarily to answer multiple choice questions presented in class. You must register for a Top Hat account in order to register your answers and receive your participation points. **We will use Top Hat in almost every lecture, so you must bring a device with you to each class.** The learning objectives in using Top Hat are to help you to evaluate how well you understand the concepts presented in lecture and assigned readings, to facilitate discussion and peer-instruction in class, to provide you with an opportunity to practice for the types of questions you may encounter on the exams, and to provide me with feedback on how well you understand the course material. These are not tests! Instead, you will be credited with one mark for each class you participate in, provided you submit an answer to each of the questions asked that class. At the end of the semester, the sum of your marks will be converted to a percentage of the total possible (4%). Your lowest two scores will be eliminated from the final tally, *i.e.*, you can miss two classes without being penalized. The first lecture in which we will use Top Hat will be **Thursday September 17th.**

Reading Reflections (RR). We will have three short writing exercises (worth 2% each) that will be assigned beforehand and submitted as a hard copy at the beginning of class. These exercises will typically involve you writing a concise reaction to the reading(s) assigned for that lecture, and are designed to ensure that you are keeping up with the reading and to stimulate discussion that day. The first two Reading Reflections are due **at the start of class on Mon. Sept. 14th and 21st.**

Final Exam

The final exam will consist of multiple-choice, short answer, and longer written questions, and will be based upon the full range of materials in this course, including lectures, assigned readings, class activities and discussions, and ideas shared by guest speakers. The aim is to ensure that you have met the course learning outcomes. You are required to write the Final Exam. The Final Exam will be held in the official examination period (final exams this term for the Faculty of Science extend from December 8th to 22nd); the exact date is still to be scheduled.

Grading Scale: Final grades will be assigned on the basis of the following UVic scale:

A+	90-100%	B+	77-79%	C+	65-69%
A	85-89%	B	73-76%	C	60-64%
A-	80-84%	B-	70-72%	D	50-59%

Failure (F) is a grade less than 50%. No supplemental exam will be given in this course. For more details see: <http://web.uvic.ca/calendar2014-09/FACS/UnIn/UARe/Grad.html>

UVic Policies and Procedures

Evaluation Policies: UVic accepts three types of excuses for missed exams or late assignments: illness, emotional trauma, UVic-sponsored sporting activities. Requests for academic concession must be accompanied by valid written documentation from a medical doctor, UVic Counseling services, or a member of the UVic coaching staff. If you must miss the Final Exam for one of these reasons, you must notify me as soon as possible with valid documentation. Note that the Final Exam cannot be written early under any circumstances. However, it can be deferred if you are excused for one of the above reasons. When you are able to do so, you must request a Deferred Final Exam at Records Services on a Request for Academic Concession form.

Academic Integrity: I expect that all work you produce for this course will be your own, and I have zero tolerance for plagiarism in any form. Any words or ideas that are not your own MUST be acknowledged. Plagiarism includes “recycling” work from other classes, and it includes copying from online sources. It is your responsibility to familiarize yourself with UVic’s Academic Integrity Policy: <http://web.uvic.ca/calendar2011/FACS/UnIn/UARe/PoAcI.html> and the library’s website on plagiarism: <http://library.uvic.ca/site/lib/instruction/cite/plagiarism.html> for the university policy on academic integrity and useful information on avoiding plagiarism. Any form of academic dishonesty will result in an automatic ‘F’ for that assignment or test and possibly the entire course for all individuals involved.

Course Registration: It is your responsibility to attend to ADD/DROP dates published in the Calendar and posted on the Undergraduate Records website. You must not assume you will be dropped automatically from a course simply because you do not attend class. It is your responsibility to check your records and registration status, and to read the appropriate section of the current UVic Academic Calendar regarding your rights and obligations.

Accessibility: Students with diverse learning styles and needs are welcome in this course. If you have a disability/health consideration that may require accommodation to ensure that you succeed in this course, please talk to me (or staff at the UVic Resource Centre for Students with a Disability) as soon as possible. The RCSD staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations <http://rcsd.uvic.ca/>. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Positivity and Safety: UVic is committed to promoting, providing and protecting a supportive and safe learning and working environment for all its members.

Course Schedule

Theme I. The Rationale and Foundations of Conservation Biology

Week 1

L1 Th Sept. 10 Course Overview and Why do we need Conservation Biology?

Week 2

L2 M Sept. 14 What is Conservation Biology? Roots, today, and the future

L3 Th Sept. 17 What are we trying to conserve? 1. Biodiversity

RR1 Due

Week 3

L4 M Sept. 21 What are we trying to conserve? 2. Biodiversity & ecosystem services

L5 Th Sept. 24 Setting conservation priorities

RR2 Due

Theme II. Science to Inform Conservation Strategy

L5 Th Sept. 24 (cont'd) Extinction

Week 4

L6 M Sept. 28 Extinction

L7 Th Oct. 1 Tracking Populations 1. Why model? Modeling extinction rates and population growth

A1 Due

Week 5

L8 M Oct. 5 Tracking Populations 2. Modeling population growth

L9 Th Oct. 8 Tracking Populations 3. Modeling population growth and Allee effects

Week 6

M Oct. 12 **Thanksgiving Holiday – No Class**

L10 Th Oct. 15 Tracking Populations 4. Estimating population size and trend

Fr Oct. 16

Computer Tutorial 1 - Session 1 (CLE A015)

Computer Tutorial 1 - Session 2 (CLE A015)

Week 7

L11 M Oct. 19 Tracking Populations 5. Population trends (unstructured, structured: matrix models) and PVA

L12 Th Oct. 22 Habitat fragmentation and metapopulations

A2 Due

Week 8

L13 M Oct. 26 Conservation in the real world: Assessing threats under uncertainty

Theme III. Conservation Challenges and Solutions

L14 Th Oct. 29 1. Adaptive Management; 2. Deforestation

Fr Oct 30

Computer Tutorial 2 - Session 1 (CLE A015)

Computer Tutorial 2 - Session 2 (CLE A015)

Week 9

L15 M Nov 2 Conservation inside & outside of protected areas

L16 Th Nov 5 *Guest Lecture: Dr. Tara Martin (<http://taramartin.org>) – Conservation Decision Making*

A3 Due

Week 10

M Nov. 9 **Reading Break – No Class**

L17 Th Nov. 12 *Guest Lecture: African Carnivore Conservation–Dr. Cole Burton (Alberta Biodiversity Monitoring Institute)*

Week 11

L18 M Nov. 16 Invasive Species

A4 Due

L19 Th Nov. 19 Marine fisheries

Week 12

L20 M Nov. 23 Shark conservation

RR3 Due (option 1)

L21 Th Nov. 26 Coral reef conservation

RR3 Due (option 2)

Week 13

L22 M Nov. 30 Ocean solutions or policy lecture

A5 Due

L23 Th Dec. 3 The future of conservation; Review for Final Exam

***Note:** This lecture schedule is subject to revision as we go along. **The finalized schedule and required readings for each lecture will be posted on our CourseSpaces website. You are responsible for checking it regularly.**