

ESM 270: Conservation Planning and Priority Setting

Course Syllabus, Spring 2017

Instructor: Professor Ashley Larsen (Larsen@bren.ucsb.edu)

Prof. Larsen's Office hours: Thursdays 12:30-1:30 @ GIS lab (and by appointment).

Teaching Assistant: Owen Liu (oliu@bren.ucsb.edu)

Office hours: Thursdays 12:30-1:30 @ GIS lab (and by appointment).

Lectures: **Tues 10:00-11:15 (1424), Thurs 10-11:15 (GIS lab)**

The objectives of this course are for you to:

1. Understand the principles and concepts underlying conservation planning
2. Understand how these principles are applied in real world settings
3. Gain exposure to and experience with a range of conservation planning tools

Course Structure: For most weeks, Tuesday will be a lecture on a key topic in conservation planning and Thursday will be a computer lab exercise using a planning tool designed to apply that topic.

Lectures: Lectures will explore different topics in conservation planning. Lectures will start with a student-led discussion of the readings (~10min), followed by a lecture on a topic illustrated with case studies. If time permits, lecture will conclude with a few minutes of peer-to-peer discussion of the main take-away points. You will get the most out of lecture by participating.

Readings: Required readings accompany each lecture to provide context, and should be read before class. You are expected to participate in discussion on the readings. All readings will be available on Gauchospace.

Lab: Lab sections are designed to explore commonly used tools in conservation planning. Lab sections will begin with a short introduction to the tool. Students will then use real data to address a short conservation problem. Analyses will often require additional time outside of class to complete. All analyses should be completed individually. Written assignments #2-9 will be completed in pairs, with the first author responsible for the rough and final drafts, and the second author responsible for detailed peer-review comments. Pairs will work together for two consecutive assignments such that each individual is a first and second author on one. A template for the written assignment is posted on Gauchospace.

Grading: Grading is based primarily on lab assignments and participation.

Lab Assignments: 12 points each (120 points total)

Attendance & participation: 3 points each class (60 points total)

Student-led discussion: 20 points

*****Assignments are due at the start of class on the day listed.**

Participation & other notes: Students are required to actively participate in the lectures and labs. Attendance is required. Please email the instructor **prior to class** (Larsen@bren.ucsb.edu) to request an excused absence in the case of illness or family emergency. In the case of a unique career opportunity (e.g. international conference, interview, etc), please email the instructor as early as possible in the quarter to arrange make-up work.

Week 1

Tuesday, April 4 (lecture)

Introduction to Conservation Planning

Thursday, April 6 (lecture/discussion)

Conservation elements and setting conservation objectives

Readings: Kareiva & Marvier 2012, Soule 2013

Assignment 1 due: What should conservation objectives be (*plus discussion/debate*). *This assignment should be completed solo.*

Week 2

Tuesday, April 11 (lecture)

Species-level conservation targets (viable populations)

Readings: Beissinger and Westphal 1998, Doak et al. 2015

Thursday, April 13 (lab)

Species range mapping

Week 3

Tuesday, April 18 (lecture)

Multi-species priorities and multi-criteria planning

Readings: Myers et al. 2000, Kareiva & Marvier 2007

Thursday, April 20 (lab)

Mapping hotspots

Assignment 2 due: Using Maxent to map species ranges

Week 4

Tuesday, April 25 (lecture)

Scaling up (conservation networks and portfolios)

Readings: Rodrigues & Gaston 2001, Sala et al. 2003, Williams et al. 2004

Thursday, April 27 (lab)

Marxan as a planning tool

Assignment 3 due: Using ArcGIS to map hotspots in the California Current

Week 5

Tuesday, May 2 (lecture)

Conservation in a dynamic world

Readings: Hannah et al. 2007, Pressey et al. 2007, Runge et al. 2014

Thursday, May 4 (lab)

Circuitscape

Assignment 4 due: Prioritizing conservation in Morro Bay

Week 6

Tuesday, May 9 (lecture)

Restoration, reintroductions and rewilding

Readings: Seddon et al. 2014, Sarrazin & Barbault 1996; Sudding et al. 2015

Thursday, May 11 (lab)

Hijacking tools for restoration planning

Assignment 5 due: Exploring connectivity between patches

Week 7

Tuesday, May 16 (lecture)

Ecosystem services

Readings: Egoh et al. 2007, Daily et al. 1997, Daily et al. 2009

Thursday, May 18 (lab)

InVEST

Assignment 6 due: Exploring how to make restoration more strategic

Week 8

Tuesday, May 23 (lecture)

Social science in conservation planning

Readings: Ostrom 2009, Ehrlich et al. 2012, Smith et al. 2003

Thursday, May 25 (lab)

AHP elicitation

Assignment 7 due: Mapping ecosystem services

Week 9

Tuesday May 30 (lecture)

EBM/Comprehensive Planning

Readings: Halpern & Agardy 2013

Thursday, June 1 (lab)

Cumulative Impact mapping through SeaSketch

Assignment 8 due: Eliciting and mapping preferences for conservation priorities

Week 10

Tuesday, June 6 (lecture)

Indicators in conservation

Readings: Halpern et al. 2012, Noss 1990

Thursday, June 8 (lab)

Google Earth Engine

Assignment 9 due: Rezoning to reduce cumulative impacts

Tuesday June 13

Assignment 10 due: Developing conservation indicators from satellite data. *This assignment should be completed solo.*