

BIOE 107 Syllabus
Ecology Online - Summer Session I (2018)
University of California Santa Cruz

Instructor	Email	Office	Office Hours
Sarah McKay Strobel	sastrobe@ucsc.edu	Virtual on Canvas	TBD

Tentative course schedule (all dates and assignments are subject to change)

Week	Date	Topics	Assigned Reading	Assignments Due
1	June 25	Introduction		
	June 25	The Physical Environment The Biosphere	<i>Cain chs. 2-3</i> <i>Paper 1</i>	
	June 26	Physiological Ecology	<i>Cain chs. 4-5</i>	Virtual field trip 1
	June 27	Behavioral Ecology	<i>Cain ch. 8</i> <i>Paper 2</i>	
	June 28	Population Ecology I: Exponential Growth	<i>Cain chs. 9, 10.1, 10.3</i> <i>Gotelli pp. 1-12</i> <i>Paper 3</i>	
2	July 2	Population Ecology II: Age structured growth	<i>Cain chs. 10.2</i> <i>Gotelli pp. 49-80</i>	Virtual field trip 2
	July 3	Population Ecology III: Density dependent growth	<i>Cain chs. 10.5, 11.2-11.4</i> <i>Gotelli pp. 25-48</i>	Report
	July 5	Population Ecology IV: Competition	<i>Cain ch. 12</i> <i>Gotelli pp. 99-124</i>	
	July 6	Population Ecology V: Consumer/prey interactions	<i>Cain ch. 13</i> <i>Gotelli pp. 125-152</i>	
3	July 9	MIDTERM EXAM		
	July 10	Life History	<i>Cain ch. 7</i>	
	July 11	Food Webs: Indirect Effects and Trophic Cascades	<i>Cain chs. 14 & 21</i> <i>Paper 4</i>	Report Revision
4	July 16	Mutualism & Coevolution	<i>Cain ch. 15</i>	Proposal
	July 17	Communities	<i>Cain chs. 16-17</i>	
	July 18	Ecosystems	<i>Cain chs. 20 & 22</i>	Field notebook
	July 19	Diversity	<i>Cain chs. 18 & 19</i> <i>Gotelli chs. 7 & 9</i>	Peer review

5	July 23	Resilience & Stability	<i>Cain ch. 17 Paper 5</i>	
	July 24	Evolutionary Ecology	<i>Cain ch. 6 Paper 6</i>	
	July 25	Paleoecology	<i>Papers 7 & 8</i>	
	July 26	Management and Conservation	<i>Cain chs. 23 & 24</i>	Proposal revision
	July 27	FINAL EXAM		

COURSE DESCRIPTION:

Ecology is the study of the distribution and abundance of species. This course focuses on physiology, evolution, and behavior and applies these mechanisms to an understanding of population ecology. We will analyze concepts that span different levels of biological organization—from individuals and populations to communities and ecosystems—through a collection of case studies, experimental approaches, mathematical models, and conservation management. Throughout the course, we will gain an appreciation for the vast diversity and complexity existing in natural ecosystems from various biogeographic regions across the globe.

In addition to covering the content described above, this course will help you to develop as a scientist. Goals for science practices include keeping a notebook, observing patterns, developing testable hypotheses, designing experiments to test hypotheses, using mathematical models to answer questions in population ecology, using figures to convey an idea, and reviewing and critiquing peer work.

CLASS FORMAT AND PARTICIPATION:

This class is delivered in an online format. Lectures, papers, and assignments are available on the course website. Lectures for each topic generally include 25–45 minutes of viewing time (but allow extra time to pause and take notes and rewatch videos). Students will “attend” field trips by viewing pre-recorded trips and make field observations independently (~4 hr total). Regular quizzes will be administered following assigned readings (~3 hr per week) and/or lecture viewings. These activities are enhanced by virtual group work (~2 hr per week), discussion forums (~1 hr per week), and virtual office hours with instructors (~1 hr per week). Participation points are dependent on your timely participation in video lectures, discussion forums, and assigned group work. Assignments and lecture viewing are due by 8pm PST on the date listed, although you are welcome to work ahead to best fit your schedule.

OFFICE HOURS:

Students are **enthusiastically** encouraged to attend the virtual office hours. You are welcome to attend with specific questions or to just “talk ecology.” Office hours at other times are available by appointment. Please refer to the Canvas site for all class instructions and assignments.

REQUIRED TEXTBOOKS AND READING MATERIAL:

Ecology (2014), 3rd Edition, by M.L. Cain, W.D. Bowman, and S.D. Hacker. Sinauer Press.

A Primer of Ecology (2008), 4th Edition, by N.J. Gotelli. Sinauer Press.

Paper assignments (8) can be found on the course website.

The course website is available via Canvas under BIOE 107 Ecology

Login via <https://canvas.ucsc.edu/>

GRADING RUBRIC:

Final	30%
Midterm	20%
Quizzes	10%
Participation	10%
Report	10%
Proposal	15%
Field notebook	5%

EXAMS:

The midterm and final exams will be completed using the proctoring service ProctorU. Details on how to schedule your exam are on the course website. Exams are “closed book” and the use of materials, including texts and notes, are not permitted during the exam.

QUIZZES:

The quizzes are study aids. They are intended to help keep you from falling behind in the material and to help you see where you need to study more. The quizzes will focus primarily on the reading and lecture material covered in the most recent topic, but any material that has been covered up to that point is fair game. Quizzes should take less than 5 minutes to complete. The lowest score will NOT be dropped.

REPORT:

As part of the DC requirement for this course, you will write a four-page report about the virtual field trip to Younger Lagoon with Beth Howard (video available in topic 2 of the course). The goal of the report is to practice written communication by reporting on relevant ecological concepts, information about the site, the field methods used on the field trip, and ongoing research at Younger Lagoon. Specific prompts for this assignment are available on the class website. The report is due July 3rd and a significant 4-page revision is due July 12th. Assignments should be uploaded as a Microsoft Word document to the course website. They will be reviewed and comments will be uploaded as track changes to your dropbox. *Late assignments will have 10% of the total points deducted per day (including weekends).*

PROPOSAL:

As part of the DC requirement for this course, you will identify an ecological pattern based on personal observations around any nearby outdoor areas during your own time and come up with (i) an ecological hypothesis that could explain the pattern and (ii) a proposed experiment to test the idea. The write up will be a four-page research proposal. The proposal is due July 16th. Proposals will be peer reviewed by two student reviewers. You will be assigned two papers to review and part of your grade is the quality of your peer reviews. Peer review guidelines are available on the course website. Peer reviews are due July 19th. After you receive your peer reviews, you will submit a significant 4-page revision by July 26th. The revision will be evaluated on improvement and the extent to which you respond to the feedback in your peer reviews. Assignments should be uploaded as a Microsoft Word document to the course website. Additional instructions are provided on the class website. *Late assignments will have 10% of the total points deducted per day (including weekends).*

FIELD NOTEBOOK:

As part of the DC requirement for this course, you will keep a descriptive field notebook to communicate your observations during the virtual field trips and in the field. You will begin your field notebook during the first virtual field trip (~1-2 pages). This initial entry will be typed and posted in an online discussion forum for a virtual activity with your classmates (described in the intro to week 2 video). You are then expected to go into the field (local areas where you can observe ecology—urban settings are fine) at least three times during the summer session to make additional observations (~2 pages each). This is an independent assignment, although you are welcome to meet up with classmates to go into the field. The content of these entries will be discussed in the introduction video to week 2. Additional information is provided in a handout available on the course website (available after the initial fieldtrip). Following observations in the field, the field notebook should be typed (drawings should be photographed or scanned and included) and submitted as a single Microsoft Word or pdf document online by July 18th. Your notebook will be assessed on the extent to which you have addressed the prompts in the field notebook guidelines handout (pages 1 and 2). This activity is intended to help you develop the essential skill of keeping a detailed field notebook and to provide you with sufficient background for the hypothesis testing proposal.