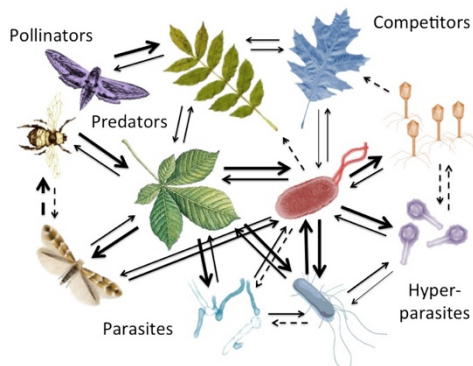


# BI 370 General Ecology

CRN: 11017

Fall 2019



## Lecturer

Tobias Policha [tpolicha@uoregon.edu](mailto:tpolicha@uoregon.edu); Office hour: Wednesday 10:00 - 11:00, 32 Klamath.

## Graduate Employees

Felipe Campos Cerda [fcamposc@uoregon.edu](mailto:fcamposc@uoregon.edu); Office hour: Monday 15:00 - 16:00, 32 Klamath.

Aidan Short [ashort2@uoregon.edu](mailto:ashort2@uoregon.edu); Office hour: Friday 8:00 – 9:00, 32 Klamath.

## COURSE OVERVIEW

This is an introductory course focusing on the scientific study of organisms' interactions with abiotic and biotic components of the environment. This course will include general principles of ecology and contemporary applications, as well as methods used in studying ecological interactions. A basic working knowledge of biology and chemistry will be assumed. The prerequisite for this course is Biology 213/283H or the equivalent.

## COURSE GOALS

- Appreciate the broad biological significance of ecological theory.
- Understand the questions that ecologists ask and the methods they use to study them.
- Develop your ability to apply quantitative skills to analyze and interpret ecological data.

## COURSE OUTCOMES

### Students should be able to:

1. Survey key principles of organisms' interactions with abiotic and biotic components of ecosystems.
2. Understand techniques used in studying plant and animal species, communities, and ecological interactions.
3. Apply quantitative reasoning and analysis to biological science problems.
4. Read and critically evaluate primary literature in the field of ecology.
5. Ask questions, test hypotheses, and write reports in the format of a scientific journal.

As part of the **Science Literacy Program** we will pay special attention to uncovering ways science is connected to larger societal issues and big ideas across and within the discipline. SLP courses include General Education courses for non-science majors and courses for science majors taught by teams who will include opportunities during class time for you to engage with the class topics through a variety of activities. For more information about the program visit <http://scilit.uoregon.edu>.

## COURSE FORMAT

### **Lectures (Monday, Wednesday and Friday 9:00-9:50 in 116 Esslinger)**

You should do the assigned readings before coming to the lectures. During some of the lectures there will be activities that will help you to learn difficult concepts; these will often be done collaboratively with two or three students discussing the problem together for a few minutes before discussing the problem as a whole class. Your active participation in lecture will help you to better understand the material and prepare you for exams.

### **Lab [Thursday 9:00 - 11:50 (CRN 11018) or 12:00 - 14:50 (CRN 11019) in 5 Klamath]**

We consider the labs to be an integral part of the course. We have tried to design active learning experiences that will broaden your understanding of what the science of ecology is all about. Lab handouts will be available on Canvas and should be read before coming to lab. Lab handouts will usually be turned in at the end of each lab or at the beginning of class the following day (we will announce this during each lab). Labs cannot be made up because several involve special material or equipment. You must attend the lab section that you are registered for. Each lab is worth three and a half percent of your final grade.

### **Field Trips (*Arrive early for a prompt departure*)**

Will be a combination of natural history and data collection. Each trip is worth four percent of your final grade. Please dress appropriately for field trips as we might get cold, wet, and muddy and may encounter difficult terrain. While in the field, you will need:

- Closed-toed shoes (e.g., hiking boots, rubber boots, sneakers)
- Long pants and warm clothing (we will be walking through brush that can scratch arms and legs). Layers are recommended.
- Rain gear is **highly recommended** (including rain pants!), even if it is not supposed to rain.
- Drinking water and meals/snacks.
- A field notebook (Rite in the Rain® recommended) is encouraged as you will be tested on some of the species and concepts we encounter in the field.

**1) Cascade Mountains: Sunday October 6th; Depart 8:00** from Mill Race Parking Lot;  
**return no later than 19:00.**

**2) Oregon Coast: Saturday, November 9th. Depart 8:00** from Mill Race Parking Lot;  
**return no later than 20:00.**

## COURSE MATERIALS

### **Textbook**

*Bowman, W., S. Hacker, M. Cain. 2017. Ecology 4th Edition. Sinauer Associates, Sunderland, MA.* The readings include background material useful for preparing for lecture and for studying for quizzes. A good strategy would be to skim over the entire chapter first, concentrating on the major concepts, then to re-read more carefully for details. The older (and cheaper!) 3<sup>rd</sup> edition of this text does not appear to be substantively different, and may be used for this class. Some content may vary.

### **i-clickers (Personal Response Systems)**

i-clickers will be used in class to encourage participation and to provide valuable feedback to instructors and students. **You will need to register your clicker on the course Canvas site.** Points will be earned two different ways: (1) attendance and participation alone, not on whether the question is answered

correctly; (2) correctly answering the questions. Your iClicker responses will add up to four percent of your final grade. Your grade will be based on dropping the lowest 10%.

### Canvas

Course documents will be posted on the Canvas course website. These include lecture notes, assignments, required readings, information on the research paper, announcements, and supplemental material. *I recommend checking Canvas frequently.*

### Primary Literature

Several articles from scientific journals will be assigned throughout the session. The articles will be available through Canvas under the 'READINGS' Module.

## COURSE ASSESSMENTS

Assessment	Each	Number	Total
Labs	3.5%	9	31.5%
Midterm Exams	11%	1	11%
Papers	10%	2	20%
Final	17%	1	17%
Quizzes	0.25%	34/36	8.5%
Field Trips	4%	2	8%
iClickers	tbd	tbd	4%
<b>TOTAL</b>			<b>100%</b>

### Labs & Field Trips

Each lab will be worth 3.5% of your final grade, field trips will be worth 4% each. See above (COURSE FORMAT) for details.

### Exams

There will be a midterm and a final in this course. The exams will cover material from lecture, lab, field trips and the readings. They will be a mix of short answer and other types of questions. The final will be cumulative and is scheduled for 10:15 Wednesday December 11<sup>th</sup>.

### Research Papers

You will develop a hypothesis, collect data and write two original research papers this term. We will collect data as a class during the field trips and work on the initial analysis together in Lab. You will be responsible for writing up your methods and results as well as an introduction and discussion based on your review of the relevant literature. This project will be introduced in class and more details including a rubric will be posted to Canvas. Each one will be worth 10% of your final grade.

### Daily Reading Quizzes

Reading quizzes will be administered on Canvas prior to all class sessions to assure that the readings are done in a timely manner. Questions may reflect readings from the text book, assigned articles or pre-lab materials. Each quiz will be worth 0.25% of your final grade. Your 2 lowest quiz scores will be dropped.

### Out of Class Opportunities ("OCO"s)

You may attend a local event highlighting some aspect of ecology during the course of the term. To get credit for your OCO you must submit a written report within one week of the event. Please include the

title and date of the event, a short synopsis, and a brief discussion of how the content relates to something that we have done in class, provide one citation to the relevant scientific literature that supports this relationship. These reflections should be 300-500 words long and will be submitted through Canvas. **You may receive up to one percent of extra credit for your report.**

## ON-CAMPUS RESOURCES

### **Tutoring and Learning Center (TLC)**

Drop-in math and writing support in addition to tutoring and study skills support. Located in the 4<sup>th</sup> Floor Knight Library (541) 346-3226, [tlc@uoregon.edu](mailto:tlc@uoregon.edu)

### **Accessible Education Center (AEC)**

The University of Oregon is working to create inclusive learning environments. If there are aspects of the instruction or design of this course that result in barriers to your participation, please notify us as soon as possible. You are also encouraged to contact the Accessible Education Center. If you are not a student with a documented disability, but you would like for us to know about class issues that will impact your ability to learn, come visit during office hours so that we can strategize how you can get the most out of this course. Oregon Hall, Suite 360. (541) 346-1155, [uoaec@uoregon.edu](mailto:uoaec@uoregon.edu), <https://aec.uoregon.edu>.

### **Center for Multicultural Academic Excellence (CMAE)**

Promoting student retention and persistence for historically underrepresented and underserved populations. Programs and services that support retention, academic excellence, and success at the UO and beyond. Committed to all students, including undocumented and tuition equity students. Located on the 1<sup>st</sup> Floor of Oregon Hall (541) 346-3479, [cmae@uoregon.edu](mailto:cmae@uoregon.edu).

### **Counseling Center**

The Counseling Center provides students with confidential consultation 24 hours a day, 7 days a week. Their number is 346-3227. Students often believe that their issues are not “severe” enough for them to call, but at the Counseling Center, no problem is too small. <https://counseling.uoregon.edu/>

## COURSE POLICIES

### **Academic Integrity**

All students are expected to complete assignments in a manner consistent with academic integrity. Students can find more complete information about the University of Oregon’s Policy on Academic Dishonesty in the [student conduct code](#) (located at [dos.uoregon.edu/conduct](http://dos.uoregon.edu/conduct)).

### **Inclusiveness**

Open inquiry, freedom of expression, and respect for difference are fundamental to a comprehensive and dynamic education. We are committed to upholding these ideals by encouraging the exploration, engagement, and expression of divergent perspectives and diverse identities.

### **Electronic Devices**

Please put away and **do not use** your own computers, cell phones, or other electronic devices during lecture or lab. [Evidence](https://www.nytimes.com/2017/11/22/business/laptops-not-during-lecture-or-meeting.html?_r=3) (ie [https://www.nytimes.com/2017/11/22/business/laptops-not-during-lecture-or-meeting.html?\\_r=3](https://www.nytimes.com/2017/11/22/business/laptops-not-during-lecture-or-meeting.html?_r=3)) suggests that computers are not a good way for taking notes in biology courses and they are distracting to other students. Please be prepared to write and draw by hand in this class.

## Communication

We will to make ourselves as available as possible for questions related to course material. However, we ask that you pose questions to fellow students first. If it pertains to course administration, **double-check the syllabus and Canvas.** If you email after regular business hours you may not hear back from us until the next day. **Please include "Bi 370" in the subject line of all emails.**

## Prohibited Discrimination and Harassment

UO is committed to providing an environment free of all forms of prohibited discrimination and harassment, including sex or gender based violence. As an instructor, one of my responsibilities is to help create a safe learning environment for my students and for the campus as a whole. Students experiencing any form of prohibited discrimination or harassment may seek further information on [safe.uoregon.edu](http://safe.uoregon.edu), [respect.uoregon.edu](http://respect.uoregon.edu), [titleix.uoregon.edu](http://titleix.uoregon.edu), or [aaeo.uoregon.edu](http://aaeo.uoregon.edu) or contact the Title IX office (541-346-8136), Office of Civil Rights Compliance office (541-346-3123), or Dean of Students offices (541-346-3216), or call the 24-7 hotline 541-346-SAFE for help.

## COURSE SCHEDULE

(subject to revision)

WEEK	DATE	LECTURE	TOPIC	READING	QUIZZES (DUE AT 8:59AM)
1	10/2	1	The Web of Life	Ch. 1	
<b>1</b>	<b>10/3</b>		<b>LAB 1: Variation in Nature</b>	Lab Handout	1
1	10/4	2	The Physical Environment	Ch. 2	2
<b>1</b>	<b>10/6</b>		<b>FIELD TRIP: CASCADES (OUTSIDE)</b>	Handout	3
2	10/7	3	The Biosphere	Ch. 3	4
2	10/9	4	Coping with Variation: Temp. and Water	Ch. 4	5
<b>2</b>	<b>10/10</b>		<b>LAB 2: Stomatal Density: Data Collection</b>	Lab Handout	6
2	10/11	5	Coping with Variation: Energy	Ch. 5	7
3	10/14	6	Evolution	Ch. 6	8
3	10/16	7	Life History	Ch. 7	9
<b>3</b>	<b>10/17</b>		<b>LAB 3: Cascades Fieldtrip: Analysis &amp; Writing</b>	Lab Handout	10
3	10/18	8	Behavioral Ecology	Ch. 8	11
4	10/21	9	Population Distribution and Abundance	Ch. 9	12
4	10/23	10	Population Growth and Regulation	Ch. 10	13
<b>4</b>	<b>10/24</b>		<b>LAB 4: Demography: Data Collection (OUTSIDE)</b>	Lab Handout	14
4	10/25	11	Population Dynamics	Ch. 11	15
5	10/28	12	Predation	Ch. 12	16



5	10/30	13	Parasitism	Ch. 13	17
<b>5</b>	<b>10/31</b>		<b>LAB 5: Demography: Data Analysis</b>	Lab Handout	18
5	11/1		<b>MIDTERM EXAM</b>		
6	11/4	14	Competition	Ch. 14	19
6	11/6	15	Mutualism	Ch. 15	20
<b>6</b>	<b>11/7</b>		<b>LAB 6: Fieldtrip to Delta Ponds (OUTSIDE)</b>	Lab Handout	21
6	11/8	16	Nature of Communities	Ch. 16	22
<b>6</b>	<b>11/9</b>		<b>FIELD TRIP: COAST (OUTSIDE)</b>		<b>23</b>
7	11/11	17	Change in Communities	Ch. 17	24
7	11/13	18	Biogeography	Ch. 18	25
<b>7</b>	<b>11/14</b>		<b>LAB 7: Coast Trip Data Analysis</b>	Lab Handout	26
7	11/15		<b>Day of recovery from Coast Trip</b>	<b>No Lecture</b>	
8	11/18	19	Species Diversity	Ch. 19	27
8	11/20	20	Energy Flow and Capture	Ch. 20 & 21	28
<b>8</b>	<b>11/21</b>		<b>LAB 8: Parasitoids: Data collection and Analysis</b>	Lab Handout	29
8	11/22	21	Nutrient Cycles	Ch. 22	30
9	11/25	22	Global Ecology	Ch. 25	31
9	11/27	23	Conservation Biology	Ch. 23	32
<b>9</b>	<b>11/28</b>		<b>NO LAB (Thanksgiving)</b>		
<b>9</b>	<b>11/29</b>		<b>NO CLASS (Thanksgiving)</b>		
10	12/2	24	Ecosystem Management	Ch. 24	33
10	12/4	25	Citizen Science	TBA	34
<b>10</b>	<b>12/5</b>		<b>LAB 9: Open data and Ecoinformatics</b>	Lab Handout	35
10	12/6	26	Review		
<b>Finals Week</b>	<b>12/11</b>	<b>FINAL EXAM</b>	<b>December 11, 10:15 AM</b>	<b>Enjoy the break!</b>	

*“When we try to pick out anything by itself,  
we find it hitched to everything else in the universe.”*

— John Muir, My First Summer in the Sierra

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