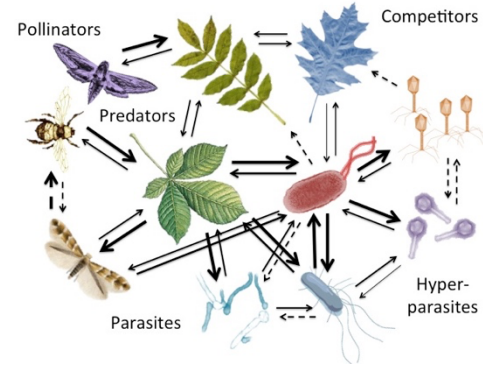


# BI 370 GENERAL ECOLOGY

CRN: 21756

Winter 2022



## Instructor

**Dr. Tobias Policha.** tpolicha@uoregon.edu; Office hour: Monday (14:00)15:00 – 16:00 in 112 Huestis or by appointment (in-person or over Zoom).

## Graduate Employees

**Carolyn Delevich.** cdelevic@uoregon.edu; Office hour: Wednesday 9:00 – 10:00 on Zoom.

**Nicole Martinez-Llaurador.** nmarti12@uoregon.edu; Office hour: Tuesday 10:00 location TBD

**Overview -> Goals -> Format -> Materials -> Assessments -> Resources -> Policies -> COVID -> Schedule**

## 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.

## COURSE FORMAT

### **LECTURES (Monday & Wednesday 12:00-13:20 in 101 Living-Learning Center South)**

You should do the assigned readings before coming to the lectures. During 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. ***Lectures will be live-streamed (and recorded) over Zoom. If you are sick, please DO NOT come to the in-person lecture sessions. You may drop four Lecture Activities without penalty.***

### **LAB [Thursday 9:00 - 11:50 (CRN 21757) or 12:00 - 14:50 (CRN 21758) in 129 Huestis]**

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. There will be a pre-lab quiz on Canvas that will be due before each lab session. 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). You must attend the lab section that you are registered for. Each lab (including the pre-lab) is worth three percent of your final grade. ***If you are sick, please DO NOT come to the in-person lab sessions. You may drop one Lab Report without penalty. We may be able to work with you to make up additional lab assignments if it is a matter of public health.***

### **ALL DAY FIELD TRIP (Please arrive early for a prompt departure)**

Our field trip this term will be on **Saturday February 26<sup>th</sup>**. We will go to the coast, and spend time in both the dune and rocky intertidal habitats focusing on a combination of natural history and data collection. Please dress appropriately for the field trip 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 (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.

***If you are sick, please DO NOT come on the field trip  
(we will work with you on an alternative assignment)***

## 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. Currently, the course is set up to follow the 4th edition. There is a new 5th edition that you are welcome to use as well. However, **if you would like to save some money, students have been successful in the past using the 3rd or even the 2nd editions.** I will not typically ask you to recall specific details from the text, but we will use it as a general reference throughout the course. I will assign the chapters as they appear in the 4th edition but will also give guidance as to the topics in the 3rd and 5th editions.

We will be reading other things this term as well, scientific papers, book chapters, and news articles. These additional materials will be available on Canvas under the Module for the week that they are assigned.

You are encouraged to get your own copy of the UO Common Reading text for this year: **'Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants'** by **Robin Wall Kimmerer**. We will read a couple of chapters from this book for class (pdfs will be posted to Canvas). We will also attend her public talk as a class on Monday, January 24<sup>th</sup> [either in person or via live-stream (tickets for the in person event are available here: (<https://ticket.uoregon.edu/uo/rwk-live>))].

### **CALCULATOR**

You will need a scientific calculator capable of doing natural logarithms and square roots for use on lecture activities, in lab, and on exams. Calculators that have the ability to store text will not be allowed. *Cell phone calculator-apps cannot be used during exams.*

### **ACCESS TO CANVAS**

We will be using Canvas daily for content delivery, communication, and assessment. If you have questions or concerns about accessing and using Canvas, visit the Canvas support page. Canvas and Technology Support also is available by phone or live chat: 6 a.m.–12 a.m. 541-346-4357 [livehelp.uoregon.edu](http://livehelp.uoregon.edu)

### **AN INATURALIST ACCOUNT AND A CAMERA (phones ok)**

As a way to get you out and observing nature on your own, you will be responsible for making and posting twenty observations to the iNaturalist citizen science platform. You will need to make an (free) account at <https://www.inaturalist.org/>, and you will need access to a digital camera (phones ok). Further details will be available in the Assignments section of Canvas.

### **COURSE ASSESSMENTS**

<b>ASSESSMENT</b>	<b>EACH</b>	<b>NUMBER</b>	<b>TOTAL</b>
Labs	25	9/10	225
Research Papers	100	2	200
Final Exam	150	1	150
Midterm Exam	100	1	100
DRQ's	5	17/18	85
Lecture Activities	5	14/18	70
Pre-Lab Quizzes	5	10	50
Field Trip	50	1	50
iNaturalist	2	20	40
Discussion Posts	5	5	25
Syllabus Quiz	5	1	5
<b>TOTAL</b>			<b>1000</b>

### **RESEARCH PAPERS**

You will develop hypotheses, collect data, and write two original research papers this term. We will collect data as a class during labs (weeks 2, 5 & 6) and work on the initial analysis together in subsequent labs. 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 paper will be worth 10% of your final grade.

## EXAMS

There will be one midterm and a final exam in this course. The exams will cover material from lecture, lab, the field trip, and the readings. They will be a mix of short answer and other types of questions. Exams will be designed to probe a deep understanding of the concepts and principles discussed, and an ability to apply the concepts to novel situations rather than a memorization of detail. The final will be cumulative and is scheduled for 10:15 on Friday March 18<sup>th</sup>.

## DAILY READING QUIZZES (DRQs)

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 or other assigned materials. Each quiz will be worth 0.5% of your final grade. Your lowest quiz score will be dropped.

## PRE-LAB QUIZZES

Pre-lab quizzes will be administered on Canvas **prior** to lab sessions to assure that everyone is well prepared for our activities. They will be based on your close reading of the lab handouts posted to Canvas or other relevant materials. Each quiz will be worth 0.5% of your final grade.

## DISCUSSION POSTS

As a way to encourage interaction outside the classroom you will be required to post to Discussion Forums at a few points during the term. Sometimes this will be relatively personal, like introductions, mid-term feedback on the course, or a final reflection. Other weeks it will be more aligned with various assignments. *You will be required to respond to someone else's post for all Discussions.*

## POSTING OF GRADES

Scores for assignments and exams will be posted on Canvas. Check your scores every time we post them, as you will have only one week after the posting to notify us about mistakes or omissions. Final grades will follow typical >90%=A, >80%=B, >70%=C, >60%=D cutoffs with '+/-'s assigned within ~2% of each cutoff.

## COURSE POLICIES

### COURSE CONTEXT (COVID-19 + everything else!)

In ecology, one of the things that you will come to appreciate is that context matters. For example, plants will respond differently to herbivory when they are drought-stressed, or elk will change their browsing habits in the presence of predators. I want to acknowledge that we are all experiencing things outside the bounds of normalcy right now and that each of us are being stressed in ways that we have not entirely anticipated nor fully appreciate. This impacts our learning communities as much as any other aspect of our lives.

I urge us all to remember that we did not sign up for this. Not for the pandemic, not for the climate chaos, not for the systemic injustice, not for the unpredictability. We will get through this by prioritizing each other as human beings, by prioritizing simple solutions that work for the most people, and by sharing resources, and communicating clearly. We must remain flexible and adjust to the situation as needed. Everyone needs support and understanding in this **crazy world**.

I want you to know that I stand in firm solidarity with those that are demanding social justice. I realize that the events of the last **two** years are impacting each of you in unique ways, some of which may be difficult for others to understand. I am doing my best to understand the unique issues faced by our black students and other students of color, and I encourage all of us to extend an extra measure of kindness and care to each other as we collectively seek a more unified community.

In light of everything, I want you to know that I am open to working with you on a range of accommodations to help you feel successful in our class. Please contact me early with any anticipated issues, it will be easier for me to help you if it does not become a last-minute emergency.

I intend to facilitate a learning experience that will be of value to you in a post-pandemic world. I truly believe that the awareness and the skills that we will develop together this term will go a long way toward promoting a more sustainable and resilient world, whatever the future holds.

*"If there's any good to come of it, I'm trying to think of it as a reminder that despite our illusions of human exceptionalism, natural processes are still in charge, and (of) the importance of our collective responsibilities toward one another."* - Robin Kimmerer (on the COVID-19 pandemic)

### **PROFESSIONAL CONDUCT**

We will work hard to make this course valuable to your learning. We welcome suggestions from you at any time about things you think could be done to improve the course. In return, we ask that you arrive to lab and lecture on time and stay until class is over without making unnecessary noise that could distract your classmates. Please put away and do not use your own computers, cell phones, or other electronic devices during lecture or lab **unless specifically related to a class activity**. We promise to respect you as students and as individuals, and ask that you return that respect to us and to your fellow classmates. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the quarter (or before) so that I may address you properly.

### **ACADEMIC INTEGRITY**

All students are expected to complete assignments in a manner consistent with academic integrity. Students must produce their own work and properly acknowledge and document all sources. Students can find more complete information about the University of Oregon's Policy on Academic Dishonesty in the [student conduct code](https://dos.uoregon.edu/conduct) (located at [dos.uoregon.edu/conduct](https://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. Our classroom is a learning environment, and as such should be a safe, inclusive and respectful place. Being respectful includes using preferred pronouns for your classmates. Disrespecting fellow students as well as combative approaches, tones and/or actions are not acceptable. Please make me aware if there are classroom dynamics that impede your (or someone else's) full engagement.

### **COMMUNICATION**

In general, our class will communicate through our Canvas site. Announcements and emails are archived there and automatically forwarded to your UO email, and can even reach you by text. Check and adjust your settings under Account > Notifications.

I will have a running Discussion forum on our Canvas site called "Question Board" for the entire group to ask and answer questions. I will make myself as available as possible for questions related to course material, outside of class time or office hours. However, I ask that you make an honest effort to find the answers yourself, including posing questions to fellow students first (you can do this through Canvas). 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 me 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](https://safe.uoregon.edu), [respect.uoregon.edu](https://respect.uoregon.edu), [titleix.uoregon.edu](https://titleix.uoregon.edu), or [aaeo.uoregon.edu](https://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.

**CRISES HAPPEN**

If you are having difficulties that are interfering with your ability to do well in the class, please tell an instructor as soon as possible. We may be able to refer you to someone for help or to make special arrangements if the need is real and you have done your best to deal with the situation in a timely manner. There is a Crisis Center on campus that you should not hesitate to call if you, or a friend, are in need of assistance. Their phone number is 346-4488.

**REPORTING**

The instructor of this class is a *'Student-Directed Employee.'* As such, if you disclose to me, I will respond to you with respect and kindness. I will listen to you, and will be sensitive to your needs and desires. I will not judge you. I will support you. As part of that support, I will direct students who disclose sexual harassment or sexual violence to resources that can help. I will only report the information shared to the university administration when you as the student requests that the information be reported (unless someone is in imminent risk of serious harm or is a minor). Please note the difference between 'privacy' and 'confidentiality.' As a Student-Directed Employee I can offer privacy because I am not required to report certain information to the university. However, I cannot be bound by confidentiality in the same way that a counselor or attorney is. Confidential resources such as these means that information shared is protected by federal and state laws. Any information that I as a student-directed employee receive may still be accessed by university or court proceedings. This means, for example, that I could still be called as a witness or required to turn over any related documents or notes that I keep. Please note also that I am required to report all other forms of prohibited discrimination or harassment to the university administration. Specific details about confidentiality of information and reporting obligations of employees can be found at <https://investigations.uoregon.edu/>

**MANDATORY REPORTING OF CHILD ABUSE**

UO employees, including faculty, staff, and GEs, are mandatory reporters of child abuse. Child abuse pertains to individuals who are under the age of 18. This statement is to advise you that your disclosure of information about child abuse to the instructor may trigger my duty to report that information to the designated authorities. Please refer to the following link for detailed information about mandatory reporting: <https://hr.uoregon.edu/policies-leaves/general-information/mandatory-reporting-child-abuse-and-neglect>

**CAMPUS RESOURCES****TUTORING AND ACADEMIC ENGAGEMENT CENTER**

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, [engage@uoregon.edu](mailto:engage@uoregon.edu). <https://engage.uoregon.edu/services/>

**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, contact us so that we can strategize how you can get the most out of this course. They are available Monday-Friday 8am-5pm by calling (541) 346-1155 or emailing [uoaec@uoregon.edu](mailto:uoaec@uoregon.edu). <https://aec.uoregon.edu/>

**UO ACCESS SHUTTLE**

The UO Access Shuttle is an on-campus ride service provided at no cost to students with conditions that limit mobility. More information and a sign-up form can be found on the parking & transportation department website: <https://parking.uoregon.edu/content/access-shuttle>.

**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. Email [cmae@uoregon.edu](mailto:cmae@uoregon.edu). or call the front desk at 541-346-3479.

**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/>. If you’re unable or don’t wish to come to the Counseling Center in person, help is still available. Our after-hours support/crisis line is open to all students, wherever you are located. Call 541-346-3227 when the Counseling Center is closed to speak to a therapist. Counseling Center staff can help you figure out how to find mental health services in your area. Call 541-346-3227 during business hours to schedule a consultation with a case manager.

**DEAN OF STUDENTS**

The Dean of Students website has additional resources targeted to specific communities on campus. Check out <https://dos.uoregon.edu/community> for information on the Black Cultural Center, LGBT+ Support Services, the Women’s Center, as well as resources for Nontraditional students and Veterans.

**DUCK RIDES (FORMERLY ‘SAFE RIDES’)**

Duck Rides is a student-led organization dedicated to providing free and accessible transportation to all university students, staff and faculty. The goal is to provide safe transportation that is an alternative to walking home alone at night, and to prevent sexual assault and driving under the influence. Hours of Operation: 6:00 pm – 12:00 am. 7-days-a-week. 541-346-7433. [duckrides@uoregon.edu](mailto:duckrides@uoregon.edu). <https://duckrides.uoregon.edu/>

**COVID PROTOCOLS****ACADEMIC DISRUPTION**

In the event of a campus emergency that disrupts academic activities, course requirements, deadlines, and grading percentages are subject to change. Information about changes in this course will be communicated as soon as possible by email, and on Canvas. If we are not able to meet face-to-face,

students should immediately log onto Canvas and read any announcements and/or access alternative assignments. Students are also expected to continue coursework as outlined in this syllabus or other instructions on Canvas. In the event that the instructor of this course has to quarantine, this course may be taught online during that time.

### COVID CONTAINMENT PLAN FOR CLASSES

As the University of Oregon returns to in-person instruction, the key to keeping our community healthy and safe involves prevention, containment, and support. Here is information critical to how the UO is responding to COVID-19.

- **Prevention:** To prevent or reduce the spread of COVID-19 in classrooms and on campus, all students and employees must:
  - o Comply with vaccination policy
  - o Wear face coverings in all indoor spaces on UO campus
  - o Complete weekly testing if not fully vaccinated or exempted
  - o Wash hands frequently and practice social distancing when possible
  - o Complete daily self-checks
  - o Stay home/do not come to campus if feeling symptomatic
  - o Complete the UO COVID-19 case and contact reporting form if you test positive or have been in close contact with a confirmed or presumptive case.
- **Containment:** If a student in class tests positive for COVID-19, all relevant classes will be notified via an email by the Corona Corps Care Team with instructions for students and staff based on their vaccination status. Specifically:
  - o Vaccinated and Asymptomatic students: Quarantine not required, but daily self-monitoring before coming on campus is advised; sign up for testing through MAP 3-5 days after exposure if advised you are a contact.”
  - o Unvaccinated or partially vaccinated students: 14-day quarantine advised – do not come to class – and sign up for testing 3-5 days after notification through MAP, if asymptomatic, or through University Health Services (541-346-2770) or your primary care provider, if symptomatic.
  - o Symptomatic students: stay home (DO NOT come to class/campus), complete the online case and contact form, and contact University Health Services (541-346-2770) or your primary care provide to arrange for immediate COVID-19 testing.

Students identified as a close contacts of a positive case will be contacted by the Corona Corps Care Team (541-346-2292).

- **Support:** The following resources are available to you as a student.
  - o University Health Services or call (541) 346-2770
  - o University Counseling Center or call (541) 346-3277 or (541) 346-3227 (after hrs.)
  - o MAP Covid-19 Testing
  - o Corona Corps or call (541) 346-2292
  - o Academic Advising or call (541) 346-3211
  - o Dean of Students or call (541)-346-3216

### Good Classroom Citizenship

- Wear your mask and make sure it fits you well
- Stay home if you're sick (we will work with you to make sure that you are not penalized!)
- Get to know your neighbors in class, and let them know if you test positive



- Get tested regularly
- Watch for signs and symptoms with the daily symptom self-check
- Wash your hands frequently or use hand sanitizer

Complete the UO COVID-19 case and contact reporting form if you test positive or are a close contact of someone who tests positive.

### COURSE SCHEDULE

WEEK	DATE	TOPIC	READINGS	ASSESSMENT
1	1/3	The Web of Life	Ch. 1; 'What is Ecology?'; Kimmerer 2013 pp.3-10	DRQ1
1	1/5	Organisms and their Environment	Ch. 2-3	DRQ2
<b>1</b>	<b>1/6</b>	<b>LAB: Variation in Nature</b>	Kimmerer 2013 pp.156-166; Cox 2001; MacDonald 2014 pp. 102-121 + 127-131	Pre-lab Quiz 1; Discussion 1
2	1/10	Coping with Environmental Variation	Ch. 4 – 5; Kimmerer 2003 pp. 35-43.	DRQ3
2	1/12	Mutualism	Ch. 15	DRQ4
<b>2</b>	<b>1/13</b>	<b>LAB: Moss/Lichen Data Collection</b>	USGS FS-154-02; Smullen 2016; Kimmerer 2003 pp. 44-61.	Pre-lab Quiz 2
<b>3</b>	<b>1/17</b>	<b>MLK DAY: NO SCHOOL</b>		
3	1/19	Population Distribution and Abundance	Ch. 9	DRQ5
<b>3</b>	<b>1/20</b>	<b>LAB: Moss/Lichen Data Analysis</b>	Turbek etal 2016	Pre-lab Quiz 3; Discussion 2
4	1/24	Robin Wall Kimmerer: Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants	Kimmerer 2013 pp. 156-166. ( <a href="https://ticket.uoregon.edu/uo/rwk-live">https://ticket.uoregon.edu/uo/rwk-live</a> )	DRQ6
4	1/26	Behavior	Ch. 8	DRQ7
<b>4</b>	<b>1/27</b>	<b>LAB: Delta Ponds Field Trip</b>		Pre-lab Quiz 4; Paper 1 Draft
<b>5</b>	<b>1/31</b>	<b>MIDTERM EXAM</b>		
5	2/2	Consumption	Ch. 12	DRQ8
<b>5</b>	<b>2/3</b>	<b>LAB: Squirrel Behavior</b>		Pre-lab Quiz 5; Paper 1 Peer Review; Discussion 3
6	2/7	Competition	Ch. 14	DRQ9
6	2/9	Population Growth, Regulation, and Dynamics	Ch. 10-11	DRQ10
<b>6</b>	<b>2/10</b>	<b>LAB: Squirrel GUD Data Collection</b>		Pre-lab Quiz 6; Paper 1 Due

7	2/14	Communities: Structure and Dynamics	Ch.16-17	DRQ11
7	2/16	Evolutionary Ecology	Ch. 6; Raguso 2020	DRQ12
<b>7</b>	<b>2/17</b>	<b>LAB: Squirrel GUD Data Analysis</b>		Pre-lab Quiz 7; Discussion 4
8	2/21	Biodiversity	Ch. 19	DRQ13
8	2/23	Conservation Biology	Ch. 23-24	DRQ14
<b>8</b>	<b>2/24</b>	<b>LAB: Field Trip Prep</b>	Schultz 2011 Ch. 1,3,&5	Pre-lab Quiz 8; Paper 2 Draft
<b>8</b>	<b>2/26</b>	<b>COAST FIELD TRIP</b>		
9	2/28	Energy Flow and Capture	Ch. 20-21	DRQ15
9	3/2	Nutrients	Ch. 22 & 25	DRQ16
<b>9</b>	<b>3/2</b>	<b>LAB: Field Trip Data Analysis</b>		Pre-lab Quiz 9; Paper 2 Peer Review
10	3/7	Ecosystem Management	tbd	DRQ17
10	3/9	Citizen Science	tbd	DRQ18
<b>10</b>	<b>3/10</b>	<b>LAB: Open Data and Ecoinformatics</b>		Pre-lab Quiz 10; Paper 2 Due; Discussion 5
<b>Finals</b>	<b>3/18</b>	<b>FINAL EXAM 10:15</b>		

*“Even if a career in research is not part of your long-term goals, it is still worth throwing yourself into the world of research while you work on your degree. The process of doing research will give you insights into ecology that are extremely difficult to get anywhere else.*

*✦ Doing experiments yourself helps you understand how individual biases, preconceptions, and points of view shape the ecological information that appears in textbooks.*

*✦ Over time, working on independent research helps you to incorporate the scientific method into your own thinking, which allows you to analyze reports and articles critically and to teach the information to others more effectively.*

*✦ Writing a thesis teaches even strong writers how to write more concisely, and clearly.*

*These and other insights and skills are virtually impossible to gain solely through reading; instead you are more likely to learn these things by truly immersing yourself in your research. And besides, it’s fun.”*

**- Karban & Huntzinger. 2006. How to Do Ecology: A Concise Handbook.**  
Princeton University Press, Princeton NJ. (p. 2)

*“Any good poet, in our age at least, must begin with the scientific view of the world; and any scientist worth listening to must be something of a poet, must possess the ability to communicate to the rest of us his (sic.) sense of love and wonder at what his work discovers.”*

**Abbey, E. 1991. The Journey Home: Some Words in Defense of the American West.**  
Plume. New York, NY. (p. 87)