

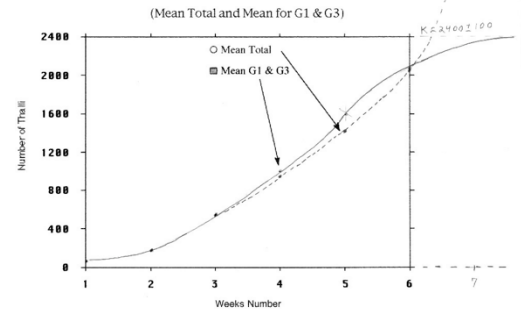
# BI 130 Introduction to Ecology

## ONLINE Summer 2022

### CRN: 41066



Fig. 4: Lemna Population Growth Experiment



#### Instructor

**Dr. Tobias Policha** [tpolicha@uoregon.edu](mailto:tpolicha@uoregon.edu); Virtual office hours by appointment (let me know when you need help!).

**Virtual Office Hours at:** <https://uoregon.zoom.us/j/6997707752>

**Overview -> Goals & Outcomes -> Format & Materials -> Assessments -> Policies ->Resources -> Schedule**

### COURSE OVERVIEW

This course is designed for non-majors with an interest in understanding the fundamentals of ecology. It is an introductory course, designed for freshmen and sophomores, and satisfies University general education breadth requirements for natural sciences. Ecology can be defined as the study of the distribution and abundance of organisms. It looks at anything that influences where and when species are present and how organisms interact with their environment: an environment which includes both physical characteristics and other organisms. By the end of the term, we expect that you will not only understand the significance of several fundamental concepts of ecology, but you will also appreciate how some aspects of these concepts relate directly to events in your own life. In particular, we hope that you will have gained skills and confidence that will enable you to analyze, criticize, and utilize biological information that you encounter in the media when it comes time for you to make personal decisions such as how many children you want to have, what kinds of foods you want to eat, how you decide to get yourself to school or work, how you will make decisions about how you vote on a wide range of environmental issues, or which groups you will choose to join or give money to.

As part of the University of Oregon's Online Course Initiative this course has been designed to be completely asynchronous. **All content will be accessed at your own pace on your own schedule.** We will still interact via Discussion Forums and Canvas Announcements. As a way to build virtual community I will also assign you to small "Study Groups", so that you have a peer group to lean on for support.

This course is designed specifically as an intensive four-week online summer session course. A very large amount of material will be covered and **students should be prepared to spend a substantial amount of time on the class assignments during the four-week term.**

## COURSE GOALS

- Appreciate the interconnections between our lives and the other organisms on the planet.
- Understand how knowledge about the natural world is generated.
- Become discerning consumers of scientific information.

## COURSE OUTCOMES

### Students should be able to:

- Apply the scientific method when solving complex problems.
- Identify important ecological processes taking place in the world around them.
- Describe the biology behind the ways that organisms interact with their environment.
- Articulate the causes and consequences of population growth.
- Explain the mechanisms and patterns of evolutionary change.
- Expound on the importance of biodiversity conservation to continuing ecosystem services.
- Apply knowledge of the ways energy and matter move through systems and to evaluate how these can be disrupted by human activities.

### **Note on the Context of this Course (COVID-19 and 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 all of 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 these times.

I want you to know that we stand in firm solidarity with those that are continuing to demand social justice and an end to war. 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 want to encourage inclusivity and understanding around the unique issues faced by our black students and other students of color.

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 this class. Please contact me early with any anticipated issues, it will be easier 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 Wall Kimmerer on the COVID-19 pandemic**

## COURSE FORMAT & MATERIALS

### SELF-DIRECTED LEARNING

As an online course, you will be responsible for **staying motivated and keeping on schedule** with all of your work. In addition to the Lectures and Labs, you will have a variety of opportunities for exploring the field of ecology. There will be regular reading quizzes to help focus your readings from the textbook and other articles. You will keep a 'Nature Journal' throughout the term, you will create an iNaturalist account and participate in an online community of naturalists, and you will interact with your peers via regular Discussion Board posts. You are encouraged to get to know some of your classmates and find ways to work together on understanding the material (obviously you still will complete your own assignments!).

### ACCESS TO CANVAS <https://canvas.uoregon.edu/>.

We will be using Canvas constantly, 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](https://livehelp.uoregon.edu). Canvas will be organized into weekly modules.

### FREE TEXTBOOK

OpenStax, 2017. Concepts of Biology. <https://openstax.org/details/books/concepts-biology>  
The readings include background material useful for preparing for lectures and for studying for quizzes and exams. 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. This book is available as a free PDF or as a low-cost e-book. If you would prefer to have a hard copy, they are available directly from OpenStax for \$29.

### LABS (SimBio® SimUText simulation exercises)

Six SimBio® lab SimUText simulation exercises (~1.5 per week) will be used as a major learning resource for this class to supplement the readings and lectures. The simulations will cover quantitative aspects of ecosystem ecology, population growth, species interactions, climate change and more! **The simulations must be purchased separately from SimBio®.** Instructions for downloading and installing the modules are provided on Canvas. Please complete the simulations and submit answers to all questions (both 'graded' and 'ungraded' questions) for each simulation set. ALL questions for each simulation will be graded. Question sets for each simulation will collectively count as 30% of the final grade (5% each). ***The fee for these modules is \$46.00.***

### LECTURES (on Canvas)

To increase your understanding, you should try to do the assigned readings and take the 'Daily Reading Quizzes' (DRQs) before engaging with the lecture materials. In order to promote your active engagement with the material, the lectures themselves will be accessed through a 'Quiz' on Canvas and will include ***a series of short videos that are broken up by quiz questions or discussion posts.*** The questions associated with the lectures will be worth 12% of your final grade (1% per lecture) Lectures will be captured in Panopto™ and will include videos of me speaking, my presentation slides and videos, and the option to include closed-captioning. I will also post PDFs of the lecture slides and links to other videos and resources will be included as appropriate.

### NATURE JOURNALS

Each week you will be required to spend at least one hour outside making observations of ecology. You will make notes and sketches, ask questions and develop hypotheses. You will submit electronic copies

(scans or photos) of your work via Submission Portals on Canvas (25 points each). Further details will be available in the Assignments section of Canvas.

### **DRQs**

**Daily Reading Quizzes** (1% each) are intended to keep you up-to-date and on track with the course materials. There will be one for each lecture topic (12 over the term) All readings are included on the Course Schedule. These quizzes will be untimed. You are welcome to discuss your ideas with other students, but you should do your own work and not simply get answers from other students.

### **EXAMS**

Both the midterm (end of week 2) and the final exam will be standard written exams, with a range of multiple choice, matching, true/false, fill-in-the-blank, and short answer questions. They will cover subjects and vocabulary presented in lecture or lab, whether that material is in the textbook or not. Furthermore, you are expected to know what is in the assigned reading, even if we don't cover that material in lab or lecture. Exams will be taken as 'Quizzes' on Canvas and will be timed. You will be given a 3-day window in which to take each exam, please plan accordingly. You are expected to do your own work.

### **iNATURALIST OBSERVATIONS**

As a way to get you out and observing nature on your own, you will be responsible for making and posting twenty observations (safety permitting) 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.

### **DISCUSSION POSTS**

You will be required to post to Discussion Forums on a regular basis. Each week there will be one primary contribution to both a course-wide Discussion and to smaller "study group" Discussions. 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. I will occasionally ask Lecture Activity questions or DRQ questions that will be submitted as Discussion posts. You will be required to respond to someone else's post (**for all Discussions**). This will hopefully lead to the kinds of interactions that would normally take place in a classroom.

### **HOMEWORK ASSIGNMENTS**

There will be two assignments that you can do at your own pace. One is to watch a film on potential environmental links to cancer and answer a series of questions ('Living Downstream Reflection' on the schedule), and the other will be to assess some proposed mitigation strategies in response to climate change ('Drawdown Reflection' on the schedule). Further details will be available in the Assignments section of Canvas.

## **COURSE ASSESSMENTS**

### **DEADLINES AND DUE DATES**

All assignments for each week will be due at 11:59 pm on the Sunday of that week. These regular deadlines are intended to help keep you on track with the material and to help space out the assessment and feedback from staff. There is no penalty for early submissions, but late submissions will be penalized at the rate of 5% per day. No work will be accepted more than a week late, unless you have

made special arrangements. No work will be accepted after the term ends (9/12). **SEE CANVAS FOR DUE DATES.**

### **MENTAL HEALTH OPT-OUT POLICY**

Due to the unprecedented nature of our times (pandemic, social unrest, economic challenges, climate chaos) I am offering everyone the option to not do ONE assignment, of your choosing. Couldn't do a reading quiz? No problem. Don't want to take the final exam? No worries. Thinking about the realities of climate change too overwhelming? Don't do the lab. If you need a break, take a break. **Students MUST communicate to me that you are opting out of an assignment BY THE DUE DATE, in order to not receive a zero for that assignment.** I don't need to know why, just that you are opting out. Keep in mind that any assignments that you opt out of will not count toward your final grade. You will effectively get graded on fewer things and therefore the assignments that you do complete will have more weight than what is listed in the syllabus. This is a different concept than 'dropping your lowest score'. Please let me know if you have any questions about this option.

<b>Assessment</b>	<b>Number</b>	<b>Each Worth</b>	<b>Total</b>
SimBio "Labs"	6	50	300
EXAMS	2	100	200
Reading Quizzes	12	10	120
Lecture Activities	12	10	120
iNaturalist	20	5	100
Homework	2	30	60
Discussion Posts	8	6	~50
Nature Journals	4	10	40
Pre/Post Survey	2	5	10
<b>TOTAL</b>	<b>82</b>		<b>~1000</b>

## **COURSE POLICIES**

### **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).

### **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.

### **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 try to make myself as available as possible for questions related to course material. However, I ask that you pose 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 130” 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.

## **CAMPUS RESOURCES**

### **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.

In order to promote social distancing to limit the spread of COVID-19, the Accessible Education Center is currently operating remotely. They are available Monday-Friday 8am-5pm by calling (541) 346-1155 or emailing [uoaec@uoregon.edu](mailto:uoaec@uoregon.edu). Appointments can be made by calling, emailing, or completing our [online scheduling form](#).

Appointments are available by **phone or by computer/smartphone using [Microsoft Teams](#)**. **Teams is free to the UO community**. For more information, please visit the [UO Teams Download Instructions](#). **Support will also be available through email and a text-based chat window.**

### **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. [cmae@uoregon.edu](mailto:cmae@uoregon.edu).

All CMAE advising services will be offered remotely. Please connect with us, we are still here providing you support. **To schedule an appointment**, log into Navigate with your Duck ID: <http://uo.campus.eab.com> or call the front desk at 541-346-3479. You can also access the CMAE Advising Helpdesk live Chat Monday-Friday from 10am- 12pm & 1pm-4pm.

### **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. We are working to provide telemental health (video) sessions to students physically located in Oregon and California soon. Updates will be posted to [this website](#) when available, or call for more information.

## LECTURE AND LAB SCHEDULE

Week	Format	Topic	Reading	Assignments
1	Lecture	Introduction to Ecology & Scientific Thinking	'What is Ecology?'; OpenStax 1.1 & 1.2; Kimmerer 2013	DRQ 1
1	Lecture	Ecosystems: Energy	OpenStax 5.1, 20.1 & 20.2	DRQ 2
1	Lecture	Ecosystems: Nutrients	OpenStax 20.2	DRQ 3
1	LAB	Ecosystem Ecology		SimBio;
<b>8/21</b>				<b>Pre-course survey; 'Living Downstream' Reflection; Discussion Post 1; Nature Journal 1</b>
2	Lecture	Species Distributions	OpenStax 20.3 & 20.4	DRQ 4
2	Lecture	Population Growth	OpenStax 19.1-19.3	DRQ 5
2	Lecture	Population Regulation	OpenStax 19.1-19.3	DRQ 6
2	LAB	Physiological Ecology		SimBio
2	LAB	Population Growth		SimBio
<b>8/28</b>				<b>Discussion Post 2; Nature Journal 2; MIDTERM EXAM</b>
3	Lecture	Consumption	McLaren & Peterson 1994; Dobson <i>et.al.</i> 2020	DRQ 7
3	Lecture	Competition & Mutualisms	OpenStax 19.4; Gilbert <i>et.al.</i> 2018	DRQ 8
3	Lecture	Community Structure	OpenStax 19.4; Cronenwett 2014	DRQ 9
3	LAB	Isle Royale	<i>Maybe done in either order</i>	SimBio
3	LAB	Epidemiology Explored	<i>Maybe done in either order</i>	SimBio
<b>9/4</b>				<b>Discussion Post 3; Nature Journal 3;</b>
4	Lecture	Natural Selection	OpenStax 11.1; <i>Viewing: 'Selection and the Rock Pocket Mouse'</i>	DRQ 10
4	Lecture	Evolution	OpenStax 11.2-11.5, Appendix A2; Raguso 2020	DRQ 11
4	Lecture	Biodiversity & Conservation	OpenStax 12.1, 21.1 - 21.3; Worldwatch Institute 2002	DRQ 12
4	LAB	Climate Change		SimBio
<b>9/11</b>				<b>Drawdown Reflection; Discussion Post 4; Nature Journal 4; iNaturalist Observations; Post-Course survey; FINAL EXAM</b>

- OpenStax = Concepts of Biology 2017; all other readings are posted to Canvas.



*"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."* - Edward Abbey