

ECOLOGY**Course Times & Location**

T/Th 12:00-1:20pm
LINC 200

Course website

Canvas: <https://oregonstate.instructure.com>

Course Credits

Three credits

Prerequisites

BI 211/H, BI 212/H, BI 213/H
or BI 204, BI 205, BI 206

Instructor:

Dr. Sarah Henkel, Hatfield Marine Science Center sarah.henkel@oregonstate.edu

Office Hours:

In person/group study: Tuesday after class, 4th floor of LINC

One-on-one: Tuesday mornings, in person, time and place by appointment

Zoom: By appointment

Textbook (Highly encouraged):

Ecology: Cain, Bowman and Hacker (4th Edition)

Additional required and suggested readings will be posted to the course's Canvas website

Course Catalog Description: Examines the interactions between organisms and their biotic and abiotic environments at the population, community, ecosystem, and biosphere levels of organization.

Course Summary: This ecology course consists of an introduction to the scientific study of the processes that shape the distribution, structure, and dynamics of populations, species and their communities. Topics include the methods and approaches of ecological research, the distribution of biodiversity across the globe, the interactions between species and the environment, the processes regulating population growth, how species interact with one another, the impact of species extinctions and invasions on ecosystem services and function, implications for conservation, and the varied and profound impacts of humans on ecological systems.

Teaching philosophy: Ecology is an ever-changing field that encompasses all aspects of our lives and the ecosystems in which we live. My goal is for you to gain an understanding of the interactions between organisms (humans included) and their environment (and how to quantify it) at scales ranging from the individual to populations to communities to the entire biosphere.

Course Goals (Learning Outcomes):

By the end of this course, you will be able to:

- Describe the patterns, processes, and mechanisms important to organisms from the individual to biosphere levels of organization.
- Connect and synthesize knowledge of ecological systems across varying spatial and temporal scales.
- Analyze and interpret ecological questions and data using quantitative reasoning, graphs, and symbolic math
- Describe the role of statistics and modeling in ecology
- Assess how anthropogenic activities, including global change, modify the structure and function of ecological systems.

Expectations: My goal is to facilitate your learning of ecology in an environment of mutual respect. Learning is not a passive activity but requires you to be an active participant in the process. You are expected to (1) attend classes, (2) actively participate by answering polls and asking questions during lecture, (3) complete homework assignments and be ready to discuss them in class, (4) attend office hours/communicate with me when something isn't working for you, and last but not least (5) work cooperatively, productively, and respectfully with your class colleagues on activities.

Attending with attention are a critical part of doing well in this class. Lectures provide most of the information that will be drawn on for exams. Additional exam material will be drawn from homework worksheets and activities as well as Canvas discussions. It is *essential* that you practice the important skill of note-taking when attending lectures and create your own set of organized notes for the course.

Chapters in the textbook listed on the schedule are those from which the lecture material has been drawn. You are not *required* to read a chapter before each lecture. However, it will be beneficial for you to skim the chapter before lecture and then *use it as a reference* if anything in the presented lecture is unclear to you. These readings may provide additional examples and in-depth reviews of topics. Any additional readings, assignments, and media will be made available on Canvas. You are responsible for the major concepts presented in the readings, not all minor details; however, *if details are also covered in the lecture, you are responsible for them.*

Grading Summary: You are not in competition with each other for success in this course. Grades will be assigned on the following types of assessments. I also consider effort, participation, and overall improvement throughout the course. The standard +/- grading scale will be used.

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|-----|-----------------------------------|
| 15% | Homework worksheets/data analysis |
| 5% | In class poll participation |
| 5% | Canvas discussion posts |
| 15% | Biodiversity project |
| 25% | Midterm exam |
| 35% | Final exam |

Homework: Over the course of the quarter you will be assigned homework worksheets and data analysis assignments via Canvas. These are designed to give you a chance to provide me with feedback about what is working and what needs reviewing, provide you with extra practice with the concepts presented in class, as well as familiarize you with the types of questions I will be asking on the exams. Points will be given for completing each survey and assignment. On the schedule, homework is listed on the date assigned. Homework should be turned in via Canvas upload by the date/time indicated on the Canvas assignment. **Late assignments will be deducted 10% per day late.** In some cases, it may be better for you to turn in a late, complete assignment as opposed turning in an incomplete assignment on time. Your grade will be based on completeness, not correctness; I expect you to self-evaluate your grasp of the material using answer keys that I will post via Canvas.

Participation (10% total): Your participation in class will be evaluated both synchronously (via poll participation in class) and asynchronously (via Canvas Discussion posts).

Exams: (*Closed book*)

- Midterm exam: TBD
- Final exam: TBD

You are expected to take examinations at the times listed. I recognize that crises do arise, thus exceptions can be made but only under extreme circumstances (e.g. serious illness or family matter – NOT you already booked your flight for spring break without checking the exam schedule) and must be arranged in advance. *Missing an exam without prior arrangement and appropriate justification will result in a score of zero for that exam.*

Course Grading Scale

Final course grades will be based on the percentage of overall points you earned across all assessment activities.

| Final Letter Grade | Percentage of Course Total |
|--------------------|----------------------------|
| A | 92% - 100% |
| A- | 90% - 91.99% |
| B+ | 88% - 89.99% |
| B | 82% - 87.99% |
| B- | 80% - 81.99% |
| C+ | 78% - 79.99% |
| C | 72% - 77.99% |
| C- | 70% - 71.99% |
| D+ | 68% - 69.99% |
| D | 62% - 67.99% |
| D- | 60% - 61.99% |
| F | Below 60% |

Statement on Equity and Inclusion: I strive to create an equitable and inclusive online learning community in which all members are welcomed and treated with respect. In the field of Ecology, social barriers have systematically marginalized and excluded specific people and communities from learning, research, employment, and decision-making. We work toward the goal of making the field of Ecology accessible to all. We will uphold these values in this class and take the opportunity to learn from each other's diverse perspectives, lived experiences, and expertise. Please share your preferred pronouns with me whether or not they are listed on Canvas. If I make a mistake, please correct me. Please reach out if you feel I could make the content of this class more accessible or the atmosphere more inclusive.

Academic Calendar: All students are subject to the registration and refund deadlines as stated in the Academic Calendar: <https://registrar.oregonstate.edu/osu-academic-calendar>

Religious Holidays: Oregon State University strives to respect all religious practices. If you have religious holidays that are in conflict with any of the requirements of this class, please contact me immediately so that we can make alternative arrangements.

Academic Honesty: The Integrative Biology Department follows the University's rules on student conduct. All the work you do in this class must be your own, must be new, and must be original. Plagiarism or cheating of any type will result in a zero on the illegitimate assessment. Cases of academic dishonesty will also be referred to the academic unit and the Student Conduct and Community Standards Office for additional disciplinary action.

Conduct in this classroom: Students are expected to conduct themselves in the course (e.g., in person and online via discussion boards, email postings) in compliance with the university's regulations regarding civility (summarized on the following page and linked [here](#)). Students will

be expected to treat all others with the same respect as they would want afforded to themselves. Disrespectful behavior to others (such as harassing behavior, personal insults, inappropriate language) or disruptive behaviors in the course (such as persistent and unreasonable demands for time and attention both in and out of the classroom) is unacceptable and can result in sanctions detailed under Oregon State University's Student Conduct Code: <https://beav.es/codeofconduct>

Masking: Masks are welcome but no longer required at OSU.

Statement Regarding Students with Disabilities: Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Accessibility of Course Materials: I aim for all materials used in this course are accessible. If you require accommodations, please contact [Disability Access Services \(DAS\)](#). Additionally, Canvas, the learning management system through which this course is offered, provides a [vendor statement](#) certifying how the platform is accessible to students with disabilities. If you encounter content on Canvas that I have provided that you do not find to be accessible, please let me know as soon as possible so I can make adjustments.

Reach Out for Success: University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success at oregonstate.edu/ReachOut. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255)

Basic Needs: Any student whose academic performance is impacted due to financial stress or the inability to afford groceries, housing, and other necessities for any reason is urged to contact the Director of Care for support (541-737-8748). Additionally, the HSRC Textbook Lending Program offers eligible students the opportunity to check out required textbooks for the academic term, including copies of the books required for this course. Copies also are available in the course reserves in the OSU Valley Library. If you are comfortable in doing so, please notify me about your concerns. This will enable me to point you toward any other resources I know about.

"The goal of Oregon State University is to provide students with the knowledge, skill and wisdom they need to contribute to society. Our rules are formulated to guarantee each student's freedom to learn and to protect the fundamental rights of others. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action Office."

Disclaimer: I reserve the right to change the schedule, policies, and assignments in this course due to extenuating circumstances or by mutual agreement between the instructor and students.

Student Bill of Rights

OSU has twelve established student rights. They include due process in all university disciplinary processes, an equal opportunity to learn, and grading in accordance with the course

BI370

Winter 2023

syllabus: <https://asou.oregonstate.edu/advocacy/rights>

| Date | Lecture | Activity/Topic | Book Chapter/Additional Resources |
|------------------|----------------|--|--|
| Week 1 Jan 10 | 1 | Class Expectations, Scientific Method, Ecology | Chapter 1 |
| Jan 12 | 2 | The Physical Environment & Natural Change | Chapter 2 |
| Week 2 Jan 17 | 3 | Biomes and Gradients | Chapter 3 |
| Jan 19 | 4 | Coping with Environment: Temp, Water, Nutrients | Chapter 4 & Chapter 22 (pgs 491-496, 500-50) |
| Week 3 Jan 24 | 5 | Productivity and Energy Flow | Chapter 5 (skip 5.3) & Chapter 20 |
| Jan 26 | 6 | Population Distribution and Abundance | Chapter 9 |
| Week 4 Jan 31 | 7 | Population Growth: Demography and Turtles | Chapter 11 (pgs 247-248 & 258-263) |
| Feb 2 | 8 | Population Growth: Density- <i>in</i> dependence | Chapter 11 (pgs 249-254), Gotelli: 2-14; 20-2 |
| Week 5 Feb 7 | 9 | Population Growth: Density- <i>de</i> pendence | Chapter 11 (pgs 252-258), Gotelli: 26-32; 35-3 |
| Feb 9 | 10 | Life History Variation & Review for Midterm | Chapter 7 & Chapter 11 |
| Week 6 Feb 14 | | Midterm Exam (Regular class time; covers lectures 1-10) | |
| Feb 16 | 11 | Competition, Coexistence, and Exclusion | Chapter 14, DeLong & Vasseur 2012 |
| Week 7 Feb 21 | 12 | Predation | Chapter 12 |
| Feb 23 | 13 | Mutualism & Commensalism | Chapter 15 |
| Week 8 Feb 28 | 14 | Trophic Tangles and Interaction Webs | Chapter 16, Chapter 21 (Concept 21.4) |
| Mar 2 | 15 | Biodiversity/Ecosystem Services & BioBlitz Kickoff | Chapter 19 |
| Week 9 Mar 7 | 16 | BioBlitz Data Analysis & Biogeography | Chapter 16 & 18 |

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|----------------|----|---|---|
| Mar 9 | 17 | Extinction and Shifting Baselines | Chapter 23 |
| Week 10 Mar 14 | 18 | Discover Anthropogenic "Habitats" | Schell et al. 2020 |
| Mar 16 | 19 | Anthropogenic Climate Change & Oceans | Chapter 25: 569-583, Harley et al. 2006 |
| Mar 24 | | Friday @ 9:30a Final Exam (Cumulative) | |

Assignment Start

Canvas Post: Code of Conduct

Ecology Worksheet

Biome Worksheet

1)

Listen/read Banana story before class

Watch Turtle video before next class

Turtles Life Table Worksheet

Gray Seals & Bacteria

7; 41-47

Isoclines Worksheet

Foraging Info (Req. Group Data)

Canvas Post: Making Better Graphs

Interaction Web

Make Collections over the weekend

BioBlitz Files

Canvas Post: Better Explanations

Canvas Post: Upload a Map

