

| | Instructor | Teaching Assistant |
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| Name: | Dr. Paul Ode | Lauren Myers |
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| Office hours: | MW 3:00-4:00PM; or by appointment or drop-in | W: 10:00 – 11:00AM Th: 11:00AM – 12:00PM |

If you email us, please include “LIFE 320” in the subject line.

Overall course objectives:

Ecology is the study of the distribution and abundance of organisms; it focuses how organisms interact with each other and their environment.

After taking this course you will be able to explain ecological patterns and the processes that generate these patterns including being able to:

- predict patterns of population growth and decline.
- describe consumer-resource (e.g., predator-prey, herbivore-plant, parasite-host) dynamics.
- relate the consequences of global climate change for population and community ecology (e.g., species interactions).
- integrate knowledge gained from other courses (e.g., chemistry, biology, math) to interpret ecological models.
- apply ecological principles to evaluate environmental issues such as invasive species, rewilding, loss of biodiversity.

Lecture: MWF 2:00 – 2:50PM, Biology 136. This is an in-person course. PDFs of lecture slides will be posted before each lecture to facilitate note taking. Lectures will not be recorded. If you must miss a class, please ask a classmate for class notes. In addition, remember to attend office hours if you have questions after reviewing materials in Canvas.

Items to purchase or acquire:

- Textbook: *Ecology: the economy of nature* (9th Edition) by Rick Relyea (©2021 W.H. Freeman/Macmillan Learning). Earlier editions (much cheaper!) are also adequate. The CSU bookstore has physical copies (new and used) as well as e-book options (to purchase or to rent). Note: while this text is strongly recommended, it is not required. By attending and participating in lecture, accessing course materials on Canvas, you will be able to succeed in this course. The text is an excellent resource and I do encourage you to purchase/rent it if it is within your means.
- Simple calculator with power, exponent, log, and square root functions.

Canvas website: <https://canvas.colostate.edu/> will have lecture slides, additional resources, announcements, study guides, homework assignments, exams, and grades.

Grading:

| Assessment | Details | Number of assessments | Total points |
|--------------------|--|-----------------------|--------------|
| iClicker questions | 0.5 for answering; 0.5 for correct answer | ~80-90 | 50 |

| | | | |
|-------------------------|--|--|-------------|
| Homework (open book) | Canvas; you may work together, but each person must submit their own responses | 11 (@ 25 points each) | 275 |
| Exams | In class, closed book exams. No cumulative final exam. | 3 (@ 100 points each) | 300 |
| Pre-surveys | Canvas | 2 (15 points total – you must complete both to receive the full 15 points) | (15) |
| Post-surveys | Canvas | 2 (10 points total – you must complete both to receive the full 10 points) | (10) |
| | | | Total = 625 |

*Pre- and post-surveys are effectively extra credit – they are not included in the 625 total points.

Assessments:

There will be three types of assessments in this course: 1) in-class clicker questions; 2) Canvas homework assignments; and 3) in-class Exams. See below for more information about each of these. In addition, you are asked to take two pre-surveys on Canvas by Friday, January 19th and two post-surveys on Canvas by Friday, May 3rd. If you take all four surveys, you will gain an additional 25 points on top of the 625 possible points from iClicker questions, homework assignments, and exams.

iClicker participation:

- Around 80-90 questions will be asked throughout semester based on material in current or previous lectures. These cannot be made up if someone misses class because the answers are released during each class.
- You are encouraged to work with classmates to answer questions during class.
- Each question will be worth 1 point (0.5 point for answering a question and 0.5 point if your answer is correct) up to a maximum of 50 pts. With 80-90 questions, you will have ample opportunity to gain the full 50 points even if you miss a couple of lectures or get some of the questions wrong.
- To create an iClicker account, you can access iClicker from the iClicker student mobile app via the [App Store](#) or [Google Play](#), or by visiting the [iClicker student web app](#). CSU has single sign on enabled so students will need to select the option to [sign in through your campus portal](#) on the bottom of the screen. More detailed student information can be found on the [Student iClicker webpage](#).
- You must [connect to the csu-net wireless network](#), which is the fastest, most reliable network on campus to ensure the best experience when using iClicker Cloud. Connecting to other networks on campus, or a mobile network, may cause issues when using iClicker Cloud.

Homework Assignments

- Thirteen homework assignments (HW 2-12 @ 25 points each; pre- and post-surveys: HW 1 + HW 13 = 25 points) will be administered through Canvas. Questions will focus on the course content from the week before. In addition, homework assignments will involve reading primary and secondary scientific journal articles, focusing on the claims, hypotheses, predictions, backing, and rebuttals made by the authors. Questions will require open responses.
- Each homework assignment is due on Friday by **11:59 pm** indicated on the syllabus. The next homework assignment will be viewable (published) in Canvas by midnight. We encourage students to work together to complete homework assignments and to go to office hours to seek help. Please note that the instructors will not be available after 5:00pm on Friday. No homework assignments are due during weeks when an exam is scheduled.
- Reading-to-Learn (RTL): We have three goals for the in-class activities (Wednesdays) and the homework assignments (always due on Fridays (except for exam weeks): 1) connecting lecture to papers using REC (reinforcement, extension, challenging) tables, 2) identifying parts of scientific arguments (e.g., identifying the

claim, the backing, the hypotheses, and the rebuttals), and 3) interpreting images/figures using a visual literacy heuristic.

Exams

- Exams will be in class and consist of multiple-choice questions. Remember to bring a simple calculator as well as pen. Phone calculators and graphing calculators **will NOT** be allowed during exams.
- Make-up exams are provided for students with extenuating circumstances (e.g., illness, funeral, university-sanctioned event). Make-up exams will be open-response essay format.

Tips for doing well:

- Attend lectures.
- Take notes using lecture handouts. Review your notes and slides after each class – don't wait until the week of the exam.
- Work with your classmates to complete all iClicker questions during class.
- Participate in the Wednesday active learning discussions– these will help you with the homework assignments.
- Read textbook chapters to supplement lecture material.
- Go through all Canvas materials, including posted iClicker questions/ answer keys and study guides.
- Work with classmates on homework assignments and study guides
- Attend office hours. If the office hours for either me or the GTA do not work for you, please email one of us to arrange an alternate meeting time.

Students with Disabilities: Student Disability Center (SDC) – If you have a disability that requires special accommodation in this class (e.g., dyslexia, ADD, ADHD, Irlen Syndrome, etc.) you may be eligible for accommodations/auxiliary aids under the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973. Please contact Resources for Disabled Students in 100 General Services Building, 491-6385, (website: <https://disabilitycenter.colostate.edu/>) to determine eligibility for accommodations or auxiliary aids during this class. Once we receive the recommended accommodations through the SDC letter, these will be entered into Canvas for all homework assignments.

Academic Integrity: A summary of the University's Academic Integrity Policy and Misconduct Procedures may be found at the following website: <http://facultycouncil.colostate.edu/faculty-manual-section-i/#1.5>

A note on the use of artificial intelligence (AI) from TILT

Any work written, developed, created, or inspired by AI (e.g., ChatGPT) is considered plagiarism and will not be tolerated. While the ever-changing new developments with AI will find their place in our workforces and personal lives, in the realm of education and learning, this kind of technology does not belong. This is because the use of AI robs every one of the opportunities to learn from our experiences and from each other, to play with our creative freedoms, to problem-solve, and to contribute our ideas in authentic ways. In a nutshell, college is a place for learning, and this class is specifically a space for learning how to improve our writing. AI simply cannot do that learning for us.

Title IX: Sexual Assault, Sexual Violence, Sexual Harassment: CSU's Discrimination, Harassment, Sexual Harassment, Sexual Misconduct, Domestic Violence, Dating Violence, Stalking, and Retaliation policy designates faculty and employees of the University as "Responsible Employees." This designation is consistent with federal law and guidance and requires faculty to report information regarding students who may have experienced any form of sexual harassment, sexual misconduct, relationship violence, stalking or retaliation. This includes information shared with faculty in person, electronic communications or in class assignments. As "Responsible Employees," faculty may refer students to campus resources (see below), together with informing the Office of Support and Safety Assessment to help ensure student safety and welfare. Information regarding sexual harassment, sexual misconduct, relationship violence, stalking and retaliation is treated with the greatest degree of confidentiality possible while also ensuring student and campus safety.

Any student who may be the victim of sexual harassment, sexual misconduct, relationship violence, stalking or retaliation is encouraged to report to CSU through one or more of the following resources:

- Emergency Response 911
- Deputy Title IX Coordinator/Office of Support and Safety Assessment (970) 491-1350
- Colorado State University Police Department (non-emergency) (970) 491-6425

Visit: <https://titleix.colostate.edu> for more information.

Need Help?

If you are struggling with drugs or alcohol and/or experiencing depression, anxiety, overwhelming stress, or thoughts of hurting yourself or others please know there is help available. Counseling Services has trained professionals who can help. Contact 970-491-6053 or go to <https://health.colostate.edu/about-mental-health-services/>. If you are concerned about a friend or peer, tell someone by calling 970-491-1350 to discuss your concerns with a professional who can discreetly connect the distressed individual with the proper resources (<https://health.colostate.edu/crisis-intervention/>). Reach out and ask for help if you or someone you know is having a difficult time.

Important Dates:

- Last day to add without override: January 21st
- Add (with override)/drop deadline: January 31st
- Spring Break: March 11-15, 2024
- Last day to withdraw (W) from course: April 12, 2024
- Exams:
 - Exam 1: Feb 16th (lectures 1 – 13)
 - Exam 2: Mar 29th (lectures 14 – 27)
 - Exam 3: May 3rd (lectures 28 – 41)
 - **No final exam!!**
- Homework assignments due all other Fridays (see syllabus)

Lecture/ Reading Schedule (tentative! any changes will be posted on Canvas); recommended chapter readings are from: Relyea. 2021. Ecology: the economy of nature, 9th edition. W.H. Freeman & Co. (early editions are suitable). Lectures 1-7: climate/biomes/ecosystem ecology; lectures 8-23: individual and population ecology; lectures 24-37: community ecology; lectures 38-41: anthropogenic ecological changes

| week | Date | Lecture | Topic | Reading: | Homework |
|------------------------------------|------------|---------------|---|-----------|----------|
| 1 | Jan 17 (W) | 1 | Introduction to this course | | |
| | Jan 19 (F) | 2 | What is ecology? | Ch 1 | HW 1 |
| 2 | Jan 22 (M) | 3 | Climate | Ch 2 | |
| | Jan 24 (W) | 4 | Biomes | Ch 2 | |
| | Jan 26 (F) | 5 | Ecosystems I: flow of energy | Ch 19 | HW 2 |
| 3 | Jan 29 (M) | 6 | Ecosystems II: cycling of elements (N, K, C) | Ch 20 | |
| | Jan 31 (W) | 7 | Ecosystems II: cycling of elements (cont.) | Ch 20 | |
| | Feb 2 (F) | 8 | Challenges of life in water and on land | Ch 3, 4 | HW 3 |
| 4 | Feb 5 (M) | 9 | Adaptations to variable environments | Ch 5 | |
| | Feb 7 (W) | 10 | Evolutionary ecology I | Ch 6 | |
| | Feb 9 (F) | 11 | Evolutionary ecology II | Ch 6 | HW 4 |
| 5 | Feb 12 (M) | 12 | Life histories I | Ch 7 | |
| | Feb 14 (W) | 13 | Life histories II | Ch 7 | |
| | Feb 16 (F) | EXAM 1 | | | |
| 6 | Feb 19 (M) | 14 | Reproductive strategies I | Ch 8 | |
| | Feb 21 (W) | 15 | Reproductive strategies II | Ch 8 | |
| | Feb 23 (F) | 16 | Social behaviors | Ch 9 | HW 5 |
| 7 | Feb 26 (M) | 17 | Sociality - eusociality | Ch 9 | |
| | Feb 28 (W) | 18 | Population distributions | Ch 10 | |
| | Mar 1 (F) | 19 | Population growth | Ch 11 | HW 6 |
| 8 | Mar 4 (M) | 20 | Population regulation I (intraspecific competition) | Ch 11 | |
| | Mar 6 (W) | 21 | Population regulation II | Ch 11 | |
| | Mar 8 (F) | 22 | Life tables & population dynamics I | Ch 11, 12 | HW 7 |
| SPRING RECESS (March 11-15) | | | | | |
| 9 | Mar 18 (M) | 23 | Life tables & population dynamics II | Ch 11, 12 | |
| | Mar 20 (W) | 24 | Interspecific competition I | Ch 15 | |
| | Mar 22 (F) | 25 | Interspecific competition II | Ch 15 | HW 8 |
| 10 | Mar 25 (M) | 26 | Consumer-resource interactions: herbivory | Ch 13 | |
| | Mar 27 (W) | 27 | Consumer-resource interactions: predation | Ch 13 | |
| | Mar 29 (F) | EXAM 2 | | | |
| 11 | Apr 1 (M) | 28 | Consumer-resource interactions: models | Ch 13 | |
| | Apr 3 (W) | 29 | Host-parasite/parasitoid interactions I | Ch 14 | |
| | Apr 5 (F) | 30 | Host-parasite/parasitoid interactions II | Ch 14 | HW 9 |
| 12 | Apr 8 (M) | 31 | Mutualisms | Ch 16 | |
| | Apr 10 (W) | 32 | Community structure | Ch 17 | |
| | Apr 12 (F) | 33 | Community succession | Ch 18 | HW 10 |

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| 13 | Apr 15 (M) | 34 | Multispecies interactions and foodwebs I | | |
| | Apr 17 (W) | 35 | Multispecies interactions and foodwebs II | | |
| | Apr 19 (F) | 36 | Landscape ecology I | Ch 21 | HW 11 |
| 14 | Apr 22 (M) | 37 | Landscape ecology II | Ch 21 | |
| | Apr 24 (W) | 38 | Conservation of biodiversity | Ch 22 | |
| | Apr 26 (F) | 39 | Invasion biology | | HW 12 |
| 15 | Apr 29 (M) | 40 | The Anthropocene | | |
| | May 1 (W) | 41 | Climate change and species interactions | | |
| | May 3 (F) | | EXAM 3 (plus HW 13!) | | |