

Instructor: Dr. Jennifer L. Morse (*she/they*)

Course time: Tues/Thurs 10-11:50 AM

Classroom: Cramer Hall 150

Office: SRTC B1-04B, Portland State University

Student drop-in hours (in person or by Zoom):
Mon 10:30-11:30, Fri 2-3pm, by appt

Zoom link for drop-in hours:

<https://pdx.zoom.us/j/7024512248>

Zoom link for lecture:

<https://pdx.zoom.us/j/87403498751>

Contact: jlmorse@pdx.edu; 503-725-2826

Meeting Format: This course is fully in-person, but lectures will be recorded via Zoom and posted in Canvas, to allow students who may need attendance flexibility to stay caught up in the course. There is no attendance requirement per se, but your experience will be of lesser quality and your participation grade will be affected if you do not come to class. I am open to accommodations if you need them, so please talk to me and see the Disability Resource Center for a formal request to start the process.

Course Overview: This course focuses on ecosystem science, the study of how energy and materials move through organisms (microbes, plants, animals) and the non-living environment (soils, atmosphere, water). Cycles of energy and matter are fundamental to all life on Earth, and they provide ecosystem services that human societies rely on. Understanding how terrestrial and aquatic ecosystems work is key to managing natural resources and to addressing environmental problems from local to global scales.

Part 1 will introduce ecosystem science and energetics (primary production, secondary production, and decomposition), while Part 2 will focus on biogeochemistry (cycles of the major elements: C, N, and P) and the factors that control ecosystem processes. The last two weeks will serve to integrate concepts through case studies and examples.

Learning objectives:

- Gain an understanding of the ecosystem approach to environmental science
- Quantify interactions between living and nonliving ecosystem components using equations and data
- Explore how human activities impact ecosystem components and processes

Texts:

- Weathers, Strayer, and Likens 2021. Fundamentals of Ecosystem Science (2nd ed). It is linked in online library course reserves under Morse or here (must be logged into PSU network): <https://www.sciencedirect.com/book/9780128127629/fundamentals-of-ecosystem-science>
- Readings/other materials posted in Canvas

Prerequisites: Required: ESM 320; recommended: algebra, chemistry, biology, ecology

Co-requisite: ESM 324 (laboratory course)

Lecture notes: Slides will be placed online in Canvas before class. Lectures will be recorded by Zoom and placed online after class. If you need captioning, try www.otter.ai for free.

Inclusivity Statement: I intend to serve students from all backgrounds and perspectives in this course, to address students' learning needs both in and out of class, and to ensure that the diversity that students bring to this class is viewed as a resource, strength, and benefit. I try to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. But there is always room for improvement. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, please let me know of any religious or other events that may conflict with any class meetings this term so that we can make arrangements.

Instructor Expectations: This course is the second in a sequence of three courses in the Environmental Science major and minor. In addition to covering material from the textbook, I present a variety of sources, scientific concepts, complex environmental problems, and open-ended questions for discussion. I also offer

some opportunities for individual choice in assignments and activities. In this way, I hope you will engage with the topics, materials, and activities in ways that interest you, motivate you, and help you to master and enjoy the course content. All students should feel empowered and supported in pursuing topics that are connected to their particular interests. If the materials are challenging to read and understand, do your best, ask questions, and connect with other students. This is part of learning! Your skills will improve with time, practice, and engagement. I allow students to resubmit assignments and the midterm, to learn from my feedback and improve your work and score. I think this will help you get the most out of the course and be successful.

Communication and Availability: I am happy to answer questions via email (I rarely check my voicemail), but please allow 24-48 hours for a response and check the syllabus and Canvas first! I encourage you to visit during my drop-in hours to discuss the course. If you are having difficulties with the course material, workload, or other course-related issues, please come see me early in the term.

Evaluation and Grades: All assignments will be graded on a point basis and weighted as shown below. Assignments and due dates are shown on the course schedule.

Grades:		Grading scale:	
Participation	10%	90-100	A
Quizzes	20%	80-89	B
Homework	30%	70-79	C
Midterm	20%	60-69	D
Final	20%	< 60	F

Preparation and participation (10%): I expect you to do the assigned readings before class. This will help you get the most out of the lectures and in-class activities. Active participation in class and in Canvas is encouraged, for example through asking and answering questions, informal discussion, in-class writing, and small-group discussions. Participation and engagement are essential for success in the course. Lectures will cover topics that are key to your success in ESM 324 (lab course), so you are encouraged to attend class so that you can stay current on materials that will also help with your understanding of the lab topics.

Quizzes (20%): These quiz activities will vary throughout the term. The quiz could consist of discussion questions and responses to a reading or podcast or video, a problem-solving activity, or a multiple-choice quiz. Quizzes will be open-notes, timed, due on Mondays by midnight, and can be retaken multiple times.

Homework (30%):

- HW1 (10%) and HW2 (10%) are extensive problem-solving assignments due in hard copy at the beginning of class on the due date.
- HW3 (5%) will be a 4-minute individual presentation (plus 1 minute for questions). Students will sign up for time slots online at the beginning of the term. Instructions for HW3 will be posted in Canvas.
- HW4 (5%): Students will form groups of 3-6 to present an ecosystem-based case study (10 min per group), from the Weathers book (chapters 13-18) or another topic. Details will be posted in Canvas.

Exams (40%): The midterm (20%) and final exam (20%) will both be cumulative, open-book, open-note, and given via Canvas. If you have DRC testing accommodations, contact me early to make a plan.

Late Work and Resubmissions: Each student will be allowed to submit one homework up to 3 days late without penalty or justification; beyond that, you will lose 10% for each day the assignment is late. If your

circumstances need more flexibility, please talk to me so that we can find a solution that works for you. Homeworks and the midterm can be resubmitted for partial credit (up to 50% of points lost, minus late deductions) if you incorporate my feedback and follow the resubmission process that will be posted in Canvas. Resubmissions will be due one week after graded materials have been returned.

Course schedule:

Table includes schedule of dates, topics, readings, and due dates

<u>Week/Date</u>	<u>Topic</u>	<u>Readings</u>	<u>Activities/Due Dates (graded items bold)</u>
1: Jan 9	Course intro, ecosystem principles	W1	
1: Jan 11	Measurements and sampling	W1, R1	Signups open for HW3 Quiz 1 (Mon 1/15)
2: Jan 16	Statistics review	R2	
2: Jan 18	Terrestrial primary production	W2, R3	
3: Jan 23	Aquatic primary production	W2, R4	HW1 due in class
3: Jan 25	Secondary production	W3	Quiz 2 (Mon 1/29)
4: Jan 30	Decomposition	W4	
4: Feb 1	Decomposition/redox reactions	W5	Quiz 3 (Mon 2/5)
5: Feb 6	Practice problems, review		Questions for midterm
5: Feb 8	Midterm		
6: Feb 13	Elements, soil	W6	
6: Feb 15	C cycle	W7	Quiz 4 (Mon 2/19)
7: Feb 20	N cycle	W8, R5	
7: Feb 22	P cycle	W9	form case study groups Quiz 5 (Mon 2/26)
8: Feb 27	Synthesis	W10	HW2 due in class
8: Feb 19	Heterogeneity	W11, R6	
9: Mar 5	Controls on ecosystem processes	W12, R7	
9: Mar 7	Watershed management	R8	Quiz 6 (Mon 3/11 pm)
10: Mar 12	Case studies (HW4) presentations		HW4 due in class
10: Mar 14	Frontiers/review	R9	Questions for final
Mar 19	Final Exam: Posted Sat Mar 16 at 10am; due by Tues, Mar 19 at 12:05pm		

Classroom Recommendations for All Students and Faculty Due to Covid-19

Masks: Portland State no longer requires that masks be worn in classrooms, offices, and most other public and private indoor spaces. The Centers for Disease Control and Multnomah County Public Health recommend that anyone recovering from COVID-19 wears a mask through day 10 and that anyone exposed

to COVID-19Links to an external site. wears a mask around others for 10 days from the date of exposure as well. In addition, I understand that some in our community may feel more comfortable continuing to wear a mask. That is a personal decision that I wholeheartedly support. I ask that our community respect the choice of colleagues and students who keep their masks on. I also respectfully request that faculty, staff and students refrain from asking students or colleagues to wear a mask. Adapted from

<https://www.pdx.edu/covid-19-response/masks>

Illness, Exposure or Positive Test for COVID-19

- If you have symptoms of COVID-19 or if you were a close contact of someone with COVID-19, you should get tested regardless of your vaccination status. If you are getting tested because you had close contact with someone who has COVID-19, it's best to get tested 5 days after exposure.
- Testing resources: <https://www.pdx.edu/covid-19-response/testing>
- If you test positive for COVID-19, please stay home, take care, and don't come to campus.
- Please notify me, (i.e. your instructor), should you need to miss a class period for any of these reasons so that we can discuss strategies to support your learning during this time.
- If I become ill or need to isolate during the term, either I or the department chair will notify you via PSU email about my absence and how course instruction will continue.

Guidance May Change

Please note that the University rules, policies, and guidance may change at any time at the direction of the CDC, State, or County requirements. Please review the University's [main COVID-19 Response](#) webpage and look for emails from the University on these topics.

Additional Important Resources

1. Student Conduct Code

Portland State has a well-defined conduct code. [This link takes you to the official description.](#)

Conduct: We are to realize the highest ethical standards of behavior, as per the Code of Conduct to which we are bound: <http://www.pdx.edu/dos/codeofconduct#ProscribedPSU>. If you have not yet done so, please go through the on-line training for creating a safe, respectful campus:

<https://www.pdx.edu/diversity/understanding-sexual-misconduct-and-resources-student-module> .

Plagiarism or other academic dishonesty will not be permitted and will yield a failing grade for the project.

Please consult the Purdue OWL, one of the TAs, or me regarding plagiarism and other writing issues: <https://owl.english.purdue.edu/owl/resource/589/01/>

2. Academic Honesty

The issue of academic dishonesty has become a growing issue with which most universities have had to contend. There are various reasons why students 'cheat' in their classes such as lack of time, unwillingness to put forth own effort, lack of understanding of course material or assignments, and a different interpretation of what constitutes academic dishonesty. In this class, academic dishonesty is broadly defined as the use of someone else's work as yours. This includes some obvious actions such as:

- Having someone take a class for you
- Having someone take or complete part of your test or an assignment for you
- Having someone else write a paper, or a section of a paper for you
- Using a quote or direct passage from some secondary source (e.g., book, article) in a paper without citing it (this does not include your responses provided on tests that are taken directly from the professor's lecture or other class material]
- Working collaboratively on projects or assignments that are expected to be completed on an individual basis.
- There also other actions that are considered academically dishonest that are less obvious:

- Submitting a paper that utilizes another person or source's theories, thoughts, ideas, concepts without proper citation
- Using a paper or assignment, or a segment of a previous paper or assignment created by another group in which you participated.
- Taking material off the Internet and using it without full and proper citation.

The above list of actions is not intended to be exhaustive. If you have any question about how to appropriately to cite particular information, please contact your instructor or TA.

3. DRC statement: Access and Inclusion for Students with Disabilities

PSU values diversity and inclusion; we are committed to fostering mutual respect and full participation for all students. My goal is to create a learning environment that is equitable, useable, inclusive, and welcoming. If any aspects of instruction or course design result in barriers to your inclusion or learning, please notify me. The Disability Resource Center (DRC) provides reasonable accommodations for students who encounter barriers in the learning environment.

If you have, or think you may have, a disability that may affect your work in this class and feel you need accommodations, contact the Disability Resource Center to schedule an appointment and initiate a conversation about reasonable accommodations. The DRC is located in 116 Smith Memorial Student Union, 503-725-4150, drc@pdx.edu, <https://www.pdx.edu/disability-resource-center>.

- If you already have accommodations, please contact me to make sure that I have received a faculty notification letter and discuss your accommodations.
- Students who need accommodations for tests and quizzes are expected to schedule their tests to overlap with the time the class is taking the test.
- Please be aware that the accessible tables or chairs in the room should remain available for students who find that standard classroom seating is not useable.
- For information about emergency preparedness, please go to the Environmental Health and Safety webpage (<https://www.pdx.edu/environmental-health-safety/>) for information.

4. Title IX Reporting Obligations

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. We expect a culture of professionalism and mutual respect in our department and class. You may report any incident of discrimination or discriminatory harassment, including sexual harassment, to either the [Office of Equity and Compliance](#) or the [Office of the Dean of Student Life](#).

Please be aware that as a faculty member, I have the responsibility to report any instances of sexual harassment, sexual violence and/or other forms of prohibited discrimination. If you would rather share information about sexual harassment or sexual violence to a confidential employee who does not have this reporting responsibility, including an Interpersonal Violence Advocate at the Women's Resource Center (503-725-5672), the Queer Resource Center (503-725-9742), or Center for Student Health and Counseling (SHAC): 1880 SW 6th Ave, (503) 725-2800. This [Sexual Misconduct Website](#) provides a complete of those confidential employees and off campus resources.

5. Mandatory Safe Campus Online Training Module

If you have not done so already, please complete the required learning module in Canvas titled "Understanding Sexual Misconduct and Resources." <https://www.pdx.edu/diversity/understanding-sexual-misconduct-and-resources-student-module>. If you or someone you know has been harassed or assaulted, you can find resources on PSU's Enrollment Management & Student Affairs: Sexual Prevention & Response website at <http://www.pdx.edu/sexual-assault>. PSU's [Student Code of Conduct](#) makes it clear that violence and harassment based on sex and gender are strictly prohibited and offenses are subject to the full realm of sanctions, up to and including suspension and expulsion. If you are having technical difficulties with the

module contact OIT's help desk at 503-725-HELP (4357) or help@pdx.edu. If you have any questions about the module requirement refer to [Safe Campus Module FAQs](#) or contact saveact@pdx.edu. Do not contact your instructor.

6. Students' Right to Privacy

The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. Â§ 1232g; 34 CFR Part 99) is a Federal law that protects the privacy of student education records. Under FERPA, students have the right to inspect and review their education records maintained by the school. Schools are not required to provide copies of records unless, for reasons such as great distance, it is impossible for parents or eligible students to review the records. Schools may charge a fee for copies.

Students have the right to request that a school correct records which they believe to be inaccurate or misleading. If the school decides not to amend the record, the student has the right to place a statement with the record setting forth his or her view about the contested information.

Generally, schools must have written permission from the student in order to release any information from a student's education record. However, FERPA allows schools to disclose those records, without consent, to certain parties or under the specific conditions (34 CFR Â§ 99.31): for example, school officials with legitimate educational interest; other schools to which a student is transferring; financial aid officers; state and local authorities in cases of health and safety emergencies; etc.

Schools may disclose, without consent, "directory" information such as a student's name, address, telephone number, unless the student has requested that the school not disclose directory information about them. For additional information about the law, see these sites

<https://www.pdx.edu/registration/student-records-privacy-policy>

7. Returning Work to Students

FERPA requires faculty to be very careful in safeguarding our students' right to privacy when returning students' exams papers.

Faculty can do one of the following:

1. Return work directly to students in class
 - Pass out assignments to students at the end of class
 - Students retrieve their work, before or at the end of class, in individual, labeled file folders or envelopes that guard the confidentiality of the work inside, under the observation of the instructor, ensuring that only the student whose name is on the label removes the material.
2. Return work and send feedback electronically.
3. Students arrange to pick up work from instructors outside of class.
4. Students provide instructors with a self-addressed and stamped envelope that instructors can use to return material directly to students.

8. Communication

Questions and Email: As much as possible, please ask questions during and after class and come to my office hours. If these times do not work for you, send me a message to set up an alternative time. Please don't leave a voicemail on my office phone. If you email me, please follow these general guidelines:

- include an informative subject line (e.g., ESM 221, assignment #1)
- include a salutation (e.g., Hello Dr. Morse,...)
- include your name
- do not expect an immediate reply. Some days I will be able to respond to your email within the day, while other times it may take me 1-2 days to respond.

9. Canvas Learning Management System

Hardware/software requirements: This course uses Canvas as the web-based course management system. It can display material on a wide range of platforms from desktops to tablets to phones, but you may need to use functions that are only available on a fully functioning browser. If your device/browser combination is not fully supported, please make other arrangements for taking quizzes or submitting work. Many computers are available across campus, in the library or campus computer labs, to use or borrow. Submitting documents to Canvas: It is best to submit documents as .docx or .pdf. Viewing .pdf documents on a smart phone: We will often supply .pdf documents and these can be challenging to read on a small screen. Our best advice is to find a larger screen device. Our second recommendation is to download the .pdf and then use a PDF viewer on your phone.

10. Resources & Services:

ESM webpage for info on the department: <https://www.pdx.edu/environmental-science/>

Career Services: <https://www.pdx.edu/careers/> and

<https://www.pdx.edu/careers/what-can-i-do-degree-environmental-studiesenvironmental-sciences>

Departmental honors: <http://www.pdx.edu/environmental-science/esm-undergraduate-honors-program>

Disability Resource Center: <https://www.pdx.edu/disability-resource-center/> If you are a student with a documented disability and are registered with the Disability Resource Center, please contact me so that we can arrange whatever academic accommodations you need.

ESM student council: Email the ESM student council <esmsc@pdx.edu> with ideas for developing the ESM community, issues regarding student advocacy or to join the council.

Financial insecurity: <https://www.pdx.edu/student-finance/emergency-fund>

Food insecurity: <https://www.pdx.edu/student-access-center/food-assistance>

Global Diversity and Inclusion: <http://www.pdx.edu/diversity/>

Learning Center/Free Tutoring: <http://www.pdx.edu/tutoring/> PSU library rm 245

Library Research Tutorials: <http://guides.library.pdx.edu/home/howto> and <http://guides.library.pdx.edu/biology>

LSAMP (Louise Stokes Alliance for Minority Participation) enhances the undergraduate experience for underrepresented students in STEM. Funded by the NSF, our LSAMP program focuses on: Creating a community among LSAMP scholars that values excellence, diversity, and persistence; and Expanding opportunities for LSAMP scholars through participation in undergraduate research experiences and leadership initiatives. If you're interested in finding out more, visit our LSAMP center in 103 Epler Hall, talk to ESM-LSAMP faculty advisory member Cat de Rivera <derivera@pdx.edu>, SRTC 238e, or check out: <https://www.pdx.edu/alliance-minority-participation/>

Mental and physical health: <https://www.pdx.edu/health-counseling/>

Multicultural Centers: <https://www.pdx.edu/cultural-resource-centers/multicultural-student-center> ;

<https://www.pdx.edu/cultural-resource-centers/native-american-student-community-center> ;

<https://www.pdx.edu/cultural-resource-centers/la-casa-latina-student-center> ;

<https://www.pdx.edu/cultural-resource-centers/pacific-islander-asian-asian-american-student-center>

<https://www.pdx.edu/cultural-resource-centers/middle-east-north-africa-south-asia-initiative> ;

<https://www.pdx.edu/cultural-resource-centers/pan-african-commons>

PSU Food Pantry: SMSU 47A, <https://sites.google.com/pdx.edu/psufoodpantry/home>

Queer Resource Center: <https://www.pdx.edu/queer-resource-center>

Veterans: If you are a Veteran and have questions about University services or need assistance with your transition from military to campus life, please contact Chris Goodrich, Coordinator of Veterans Services at the Office of Veterans' Services, SMSU room 425.

Women's Resource Center: <http://www.pdx.edu/womens-resource-center/>

Writing Center: for class assignments, resumes... <https://www.pdx.edu/writing-center> Cramer Hall rm 188

Please consult the Purdue OWL regarding *plagiarism* and other writing issues:

<https://owl.english.purdue.edu/owl/resource/589/01/>

Additional Student Resources: <https://www.pdx.edu/dean-student-life/student-resources>