

Course Syllabus

Instructor: Dr. Jennifer L. Morse (*she, her, hers*)
Course time: Mon/Wed 2-3:50 PM
Classroom: SRTC 247

Office: SRTC 218e, Portland State University
Office hours: Mon 11-12, Tues 12-1, by appt
Contact: jlmorse@pdx.edu; 503-725-8038

Course Description: This course introduces theories, principles, and regulations that guide restoration practices in a variety of ecosystems, including rivers, wetlands, forests, grasslands, and urban areas. We explore the causes of ecosystem degradation, motivations for restoration, and ways of evaluating restoration success, considering scientific, philosophical, management, political, and cultural dimensions. While most examples are drawn from the US, we will cover some international perspectives as well. This is not a practical course on how to design and implement restoration projects.

Learning Objectives:

- Understanding of the various motivations and goals for ecosystem restoration
- Learning about theories in restoration ecology and biophysical factors that influence ecosystem restoration practices and outcomes
- Critical thinking about motivations, goals, planning, implementation, and outcomes of restoration
- Skills in reading, analyzing, and writing about restoration from multiple disciplinary perspectives
- Community-based learning: engaging with restoration professionals, participating in restoration activities in the community, and conducting an interview with a restoration professional
- Grad only: Leading a group project with other students to present findings on a case study

Sustainability: This course contributes to the study of Sustainability by giving students opportunities to connect scientific and ethical dimensions of ecosystem restoration with applied aspects like the political, engineering, and societal perspectives on restoration.

Attendance and Participation: Engaged participation is expected in all class activities. Participation will be a significant portion of the grade. There will be a required half-day field trip (details will be provided during the term). If you need special accommodations, please discuss your needs as early as possible with me and the Disability Resource Center. If you are ill, please let me know by email and stay home so that others don't get sick too! Extended absences will require notes from a doctor's office.

No Required Text: required readings will be posted on D2L or placed on reserve at the library. Ecological Restoration: Practices, Values, and Structure of an Emerging Profession (2nd Ed.) by Clewell and Aronson, 2013, is available through online course reserves and as an e-book through the library. Some lecture material will be drawn from here, so it may be a good reference but not required.

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 D2L first! I encourage you to visit during my office hours to discuss questions about the course. If you are having difficulties with the course, please come see me early in the term.

Class Format and Student Activities: Most class periods will be devoted to small-group and whole-class discussions on reading assignments, with lectures to introduce key concepts and provide context for the readings. Other activities include case studies, guest lectures, and student presentations.

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

Homework: Assignments are due in D2L at the beginning of class on the due date.

Late work policy: Late assignments will lose 10% credit each day they are late and will not be accepted 5 days after the original due date.

Notes on writing for this class: During the course, students will write in several ways: online discussions, homework assignments, and research papers. Homework assignments and research papers require higher levels of engagement, with clear structure and thinking that emerge from writing and re-writing. All writing should be taken seriously, as it is an important tool for thinking and learning.

Class Participation (10%):

- The nature of the course lends itself to active student participation in class, for example through asking and answering questions, informal discussion, and in-class writing, in addition to small-group discussions. Participation is essential for success in the course.

Reading Discussions (10%)

- Discussion of readings is central to this course. All students will actively participate in discussions, with the roles of *facilitator*, *reporter*, and *participants* to be determined at the start of each class. The *reporter* in each group will provide highlights of the discussion for the whole class.
- Readings for class discussion will be posted in D2L at the beginning of the term. Students must be prepared to discuss the articles and ask/answer questions for each class.
- Each student must submit *one question and one response* for discussion relating to each paper in the appropriate D2L forum *by 9AM on the day of class*. Completeness and quality of the discussion questions and responses will be counted toward this grade.
- One day of missed posts (question(s) and response(s) for that day) will be allowed without penalty.

Homework: (40%): Details for each assignment will be posted in D2L. Students in 416 choose two of four assignments; students in 516 choose three of four.

- HW1: Writing assignment in response to an assigned reading
- HW2: Conduct an informational interview with a restoration professional regarding their career path and outlook toward the present and future of restoration and write a short summary of the interview.
- HW3: Attend one of two half-day field trips and write a structured response
- HW4: Volunteer to participate in organized volunteer restoration activities to meet this requirement and will write a structured response. Ideas of organizations to contact will be posted in D2L.

Case Studies (40%): Students will form groups of 2-5 students to present case studies of restoration projects. One-two graduate students must be in each group, and will be the group organizers and leaders. Each graduate student (or pair) will pitch an idea for a restoration case study topic during the second week of class. A list of candidate sites will be given, but groups are free to choose other case study sites (with instructor approval).

Case studies will result in two deliverables: an oral presentation (20%) and a group paper (20%). The case study will generally deal with: site geography and cultural history, cause of degradation, motivations for restoration, restoration goals, ecological theories that inform restoration goals and practices, restoration practices used, who did the restoration, monitoring, project evaluation, and how the project was perceived in the community and the media. Presentations will occur throughout the term, linked with the class topic for the day. The format for the oral presentation is a PowerPoint presentation, covering the required topics in an informative, effective, and engaging manner. A discussion about whether the project is considered successful, and the basis for that determination, will follow the presentation. The final report will be due on the date of the final, 12/10/2019, at 12:30PM in D2L. Detailed instructions for both the group presentation and report will be posted in D2L.

Course Schedule

Day	Date	Topic	Readings	Assignments
Week 1	9/30	Course overview; what is restoration?	0	(Optional reading)
	10/2	Intro: Motivations for restoration	1, 2	516: Sign up for case study topics (CS)
Week 2	10/7	Intro: History, disturbance, impairment, recovery	3, 4	516: pitch CS topics in class
	10/9	Intro: Design, planning, evaluation	5	416: sign up for CS topics (D2L)
Week 3	10/14	Wetlands I, guest lecture: Phil Scoles	6	
	10/16	Wetlands II	7, 8	CS1
	10/20	Field trip 1: Oaks Bottom Leader: Laura Guderyahn	A	Read materials before trip
Week 4	10/21	Rivers and streams I	9, 10	CS2
	10/23	Rivers and streams II	11, 12	CS3 HW1 due in D2L
	10/26	Field trip 2: Fanno Creek Leaders: Erin Poor and John Goetz III	B	Read materials before trip
Week 5	10/28	Terrestrial systems I	13, 14	Research paper topic due in D2L; CS4
	10/30	Terrestrial systems, guest lecture: Dr. Sahan Dissanayake	15, 16	CS5
Week 6	11/4	Terrestrial systems, guest lecture: Lindsay Cornelius	17	HW2 due in D2L
	11/6	Terrestrial systems, guest lecture: Dr. Jean Baptiste Nduwayezu	18	
Week 7	11/11	Veterans' Day: PSU CLOSED		
	11/13	Urban ecosystems I	19, 20	CS6; HW3 due in D2L
Week 8	11/18	Urban ecosystems, guest lecture: Toby Query	21	
	11/20	Coastal systems I	22, 23	CS7
Week 9	11/25	Coastal systems II	24, 25	CS8
	11/27	Climate change and restoration	26, 27	CS9
Week 10	12/2	Communities and restoration	28, 29	
	12/4	Looking ahead; class discussion of HW2-4	30, 31	HW4 due in D2L
	12/10	Final		Papers due in D2L at 12:30PM

Readings:

- Gann, G.D. et al. International principles and standards for the practice of ecological restoration. Second edition. Restoration Ecology, 2019. S1-S46
- Clewell, A.F. and Aronson, J. Motivations for the restoration of ecosystems. Conservation Biology, 2006. 20(2): 420-428
- Garibaldi, A. and Turner, N. Cultural keystone species: implications for ecological conservation and restoration. Ecology and Society, 2004. 9(3).
- Jordan, W.R., Some reflections on Curtis Prairie and the genesis of ecological restoration. Ecological Management & Restoration, 2010. 11(2): 99-107
- Suding, K.N., K.L. Gross, and G.R. Houseman. Alternative states and positive feedbacks in restoration ecology. Trends in Ecology & Evolution, 2004. 19(1): 46-53
- Example of a restoration plan
- Phil Scoles: Compilation of resources
- Zedler, J.P. 2000. Progress in wetland restoration ecology. Trends in Ecology and Evolution, 2000. 20(10):402-407
- Moreno-Mateos, D., Meli, P., Vara-Rodríguez, M.I., Aronson, J. Ecosystem response to interventions: lessons from restored and created wetland ecosystems. Journal of Applied Ecology, 2015. 52(6):1528-37

9. Palmer, M. & Ruhi, A. Linkages between flow regime, biota, and ecosystem processes: Implications for river restoration. *Science*, 2019. 365: eaaw2087
10. Naiman, R.J., et al. Developing a broader scientific foundation for river restoration: Columbia River food webs. *Proceedings of the National Academy of Sciences*, 2012. 109(52): 21201-21207
11. Neeson, T. et al. Aging infrastructure creates opportunities for cost-efficient restoration of aquatic ecosystem connectivity. *Ecological Applications*, 2018. 28(6): 1494–1502
12. Fox, C.A., et al. “You kill the dam, you are killing a part of me”: Dam removal and the environmental politics of river restoration. *Geoforum*, 2016. 70: 93-104
13. Crouzeilles, R. et al. A global meta-analysis on the ecological drivers of forest restoration success. *Nature Communications*, 2016. 7:11666
14. Rissman, A. et al. Forest management for novelty, persistence, and restoration influenced by policy and society. *Frontiers in Ecology & Environment*, 2018. 16(8): 454-462
15. Rinella, M.J., E.K. Espeland, and B.J. Moffatt. Studying long-term, large-scale grassland restoration outcomes to improve seeding methods and reveal knowledge gaps. *Journal of Applied Ecology*, 2016.
16. Dissanayake, S.T.M and Ando, A.W. Valuing grassland restoration: Proximity to substitutes and trade-offs among conservation attributes. *Land Economics*, 2014. 90(2): 237-259
17. Lindsay Cornelius: Compilation of resources
18. Jean Baptiste Nduwayezu: Compilation of resources
19. Johnson, L.R. and Handel, S.N. Restoration treatments in urban park forests drive long-term changes in vegetation trajectories. *Ecological Applications*, 2016. 26(3): 940-956
20. Hughes, R.M., et al., A review of urban water body challenges and approaches:(1) rehabilitation and remediation. *Fisheries*, 2014. 39(1): p. 18-29.
21. Toby Query: Compilation of resources
22. Duarte, C., et al. Return to Neverland: shifting baselines affect eutrophication restoration targets. *Estuaries and Coasts*, 2009. 32: 29–36
23. Ardón, M., et al. Fertilizer legacies meet saltwater incursion: challenges and constraints for coastal plain wetland restoration. *Elementa: Science of the Anthropocene*, 2017. 5: 41, DOI: <https://doi.org/10.1525/elementa.236>
24. Sutton-Grier et al. Investing in natural and nature-based infrastructure: building better along our coasts. *Sustainability*, 2018. 10, 523; doi:10.3390/su10020523
25. Biswas, S.R. et al. A unified framework for the restoration of Southeast Asian mangroves—bridging ecology, society and economics. *Wetlands Ecology and Management*, 2009. 17(4): 365-383.
26. Bradley, B.A., M. Oppenheimer, and Wilcove, D.S. Climate change and plant invasions: restoration opportunities ahead? *Global Change Biology*, 2009. 15(6): p. 1511-1521.
27. Battin, J., et al. Projected impacts of climate change on salmon habitat restoration. *Proceedings of the National Academy of Sciences*, 2007. 104(16): p. 6720-6725.
28. Flitcroft, R.L., et al. Social infrastructure to integrate science and practice: the experience of the Long Tom Watershed Council. *Ecology and Society*, 2009. 14(2): 36.
29. Senos, R. et al. Traditional ecological knowledge and restoration practice. 2006, Chapter 17 in *Restoring the Pacific Northwest, the Art and Science of Restoration in Cascadia*. Island Press. 34 p.
30. Hobbs, R.J. et al. Managing the whole landscape: historical, hybrid, and novel ecosystems. *Frontiers in Ecology and Environment*, 2014. 12(10): 557–564
31. Hiers et al., The precision problem in conservation and restoration. *Trends in Ecology and Evolution*, 2016. 31(11): 820-830

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://d2l.pdx.edu/d2l/home/425907>. 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 of 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 what is an appropriate way 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/drc>.

- 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 [Fire and Life Safety webpage](https://www.pdx.edu/environmental-health-safety/fire-and-life-safety)(<https://www.pdx.edu/environmental-health-safety/fire-and-life-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. For more information about Title IX please complete the required student module [Creating a Safe Campus](#) in D2L.

5. New Mandatory Safe Campus Online Training Module

If you have not done so already, please complete the [Safe Campus Module in D2L](#). The course is titled "Creating a Safe Campus: Preventing Gender Discrimination, Sexual Harassment, Sexual Misconduct and Sexual Assault." As of Fall, 2014, PSU *requires* all students to take the learning module entitled "Creating a Safe Campus: Preventing Gender Discrimination, Sexual Harassment, Sexual Misconduct and Sexual Assault." The module should take approximately 45 minutes to complete and contains important information and resources.

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 www.pdx.edu/dos/ferpafacts www.pdx.edu/registration/studentrecordsprivacy www.pdx.edu/registration/guidelinesreleasestudentrecords http://www.pdx.edu/sites/www.pdx.edu.education/files/gse_handbook_student_privacy.pdf

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. D2L-Daylight

Hardware/software requirements

This course may require the use of D2L-Daylight. Although this web-based course management system can display material on a wide range of platforms from desktops to tablets to phones, you may need to use functions that are only available on a fully functioning browser. You should check if the devices and browsers that you intend to use are supported in D2L-Daylight by checking this page:

https://d2l.custhelp.com/app/answers/detail/a_id/1483/kw/supported%20browsers

If your device/browser combination is not fully supported it is your responsibility to make arrangements for taking quizzes or submitting work. Many computers are available across campus.

Submitting documents to D2L-Daylight

It is best to submit documents to D2L-Daylight as .docx, .rtf, or .pdf. D2L is not able to view .pages.

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 viewer on your phone such as iBooks.

10. Resources & Services:

Check out the ESM webpage for all sorts of info on the department: <http://www.pdx.edu/esm/>

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/esm/esm-undergraduate-honors-program>

DRC: 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.

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:

<http://www.pdx.edu/lsamp/home>

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

<https://www.pdx.edu/dmss/native-american-student-community-center> ; <https://www.pdx.edu/dmss/la-casa-latina-student-center>

PSU Food Pantry: SMSU 325, <https://sites.google.com/a/pdx.edu/psufoodpantry/>

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

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.

Writing Center: for class assignments, resumes... <http://www.writingcenter.pdx.edu/> Cramer rm 188

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

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