

Syllabus
ECOSYSTEM SCIENCE AND MANAGEMENT
NRE 5150 (3 credits), University of Connecticut
Spring 2021

Instructor: Dr. Lauren Koenig
Email: lauren.koenig@uconn.edu
Office hours: virtual drop-in Tu 3:30-5:00 PM, or by appointment

Course Schedule: Tuesdays/Thursdays 2:00 – 3:15 PM, online via webex

Course Materials: Weathers, Strayer, and Likens. 2013. Fundamentals of Ecosystem Science. Available as an e-book via the UConn library.

Readings will be based on the above text as well as papers from the primary literature that will be posted to HuskyCT.

Course Overview:

We will examine the interactions between physical, chemical, and biological processes that regulate terrestrial and aquatic systems, as well as management strategies that explicitly consider ecosystem structure and function. The objective of this course is to provide a graduate-level overview of the principles of ecosystem science – including concepts, theories, and tools – that will help you advance your own study of ecological systems.

Course Goals and Learning Objectives:

Upon completion of this course, students should be able to:

- 1) Explain the physical, chemical, biological, and human social processes that regulate ecosystem structure and function.
- 2) Describe the biogeochemical cycles of carbon, nitrogen, and phosphorus, including the fine-scale processes involved and the ways human activities are altering these cycles.
- 3) Evaluate experimental and computational approaches used in ecosystem science.
- 4) Assess contemporary approaches in ecosystem management, including a systems approach toward effective environmental decision-making.
- 5) Express research findings and scientific arguments for a general audience; communicate uncertainty to natural resource managers.

Assessment and Evaluation:

Your grade in this course will be based on the points earned from leading paper discussions, an evaluation of an ecosystem management plan, and a group case study project (100 points total):

- Group discussion lead – 30 pts
- Participation and engagement in class discussions and activities – 10 pts
- Ecosystem management plan assignment – 20 pts
- Group project – 40 pts

Note that the course schedule may change as the semester progresses. Any changes to assignment due dates will be communicated during class meetings, through an email message, and through announcements on HuskyCT. The following grading scale will be used:

Grade	Letter Grade	Grade	Letter Grade
93 - 100	A	73 - 76	C
90 - 92	A-	70 - 72	C-
87 - 89	B+	67 - 69	D+
83 - 86	B	63 - 66	D
80 - 82	B-	60 - 62	D-
77 - 79	C+	<60	F

Student Responsibilities and Resources

More information about the academic standards and policies that apply to members of the UConn student community, as well as resources to facilitate success, can be found at <https://community.uconn.edu>.

Student Code: All students in this course are expected to act in accordance with the [Student Conduct Code](#) and the [Guidelines for Academic Integrity](#). Additional resources for avoiding plagiarism are available from the [UConn Library](#).

Student Health and Wellness: Students who feel they may benefit from speaking with a mental health professional can find support and resources through the [Student Health and Wellness-Mental Health](#) office. Students can contact the office at (860) 486-4705 for services or questions.

Students Accommodations: Students requesting accommodations for this course should contact the Center for Students with Disabilities, (860) 486-2020 or <http://csd.uconn.edu/>.

Policy Against Discrimination and Harassment: The University is committed to maintaining an environment free of discrimination or discriminatory harassment directed toward any person or group within its community – students, employees, or visitors. Academic and professional excellence can flourish only when each member of our community is assured an atmosphere of mutual respect. All members of the University community are responsible for the maintenance of an academic and work environment in which people are free to learn and work without fear of discrimination or discriminatory harassment. In addition, inappropriate amorous relationships can undermine the University’s mission when those in positions of authority abuse or appear to abuse their authority. To that end, and in accordance with federal and state law, the University prohibits discrimination and discriminatory harassment, as well as inappropriate amorous relationships, and such behavior will be met with appropriate disciplinary action, up to and including dismissal from the University. Additionally, to protect the campus community, all non-confidential University employees (including faculty) are required to report sexual assaults, intimate partner violence, and/or stalking involving a student that they witness or are told about to the Office of Institutional Equity. The University takes all reports with the utmost seriousness. Please be aware that while the information you provide will remain private, it will not be confidential and will be shared with University officials who can help.

Course Outline and Meeting Schedule:

Section	Week	Date	Lecture topic
Introduction to Ecosystem Science	1	19-Jan	Introduction to ecosystem science: the ecosystem concept
		21-Jan	Approaches to ecosystem science
Ecosystem Energetics	2	26-Jan	Primary production
		28-Jan	Primary production
	3	2-Feb	Secondary production
		4-Feb	Trophic interactions
	4	9-Feb	Decomposition
		11-Feb	Fates of organic matter
Biogeochemical Cycles	5	16-Feb	Introduction to elemental cycling; case study planning
		18-Feb	The watershed approach to element cycling
	6	23-Feb	The carbon cycle
		25-Feb	The carbon cycle
	7	2-Mar	The nitrogen cycle
		4-Mar	The phosphorus cycle
	8	9-Mar	Linked elemental cycles
		11-Mar	Controls on ecosystem structure and function
Ecosystem Heterogeneity, Disturbance, and Resilience	9	16-Mar	Heterogeneity and scaling
		18-Mar	Populations and ecosystem processes: Lyme disease
	10	23-Mar	Ecosystem change
		25-Mar	Ecosystem change
	11	30-Mar	Resilience and regime shifts
		1-Apr	Disturbance and the landscape mosaic: invasive species
Ecosystems as socio-ecological systems	12	6-Apr	Adaptive ecosystem management
		8-Apr	Ecosystem management plans
	13	13-Apr	Spring Break - no class
		15-Apr	Spring Break - no class
	14	20-Apr	Managing socio-ecological systems
		22-Apr	Case studies
	15	27-Apr	Revisiting the ecosystem concept: frontiers and opportunities in ecosystem science
		29-Apr	University Reading Day - no class