

Biology 305 – General Ecology

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 Office: TNR 337
 Office Hours: Fri 11:00 – 1:00 or by appointment

Lecture: Tue/Thur/Fri 10:00 – 10:50 in TNR 170

Text: *Ecology: from Individuals to Ecosystems* (Begon, Townsend, Harper) 4th edition
 Other reading material (see below) can be found on D2L

Course description and goals: Ecology is an extremely broad scientific discipline; arguably the broadest in all of the life sciences. This course will provide students with a solid introduction to the science of ecology, with emphasis on 1) the interactions of organisms within and among populations of the same species, 2) the interactions among organisms of different species within communities, 3) the distributional patterns of living organisms on earth, 4) the dynamic aspects of energy and biogeochemical cycles, and 5) the relevance of ecological theory to human health and happiness.

Communication and course documents: In addition to our interactions in class I will frequently use email as a means for sharing information. While taking this course I expect that you will check your email on a regular basis. If you need to reach me outside of class or regular office hours email is probably your best bet, though you are welcome to stop by or try calling my office as well.

Most course documents (including slides used in lecture) will be made available to you via D2L. That said, anything and everything discussed in class is fair game for quizzes and exams and not everything we discuss will appear on my lecture slides. Bottom line? Attend lecture, take notes, and study them! Although I do expect you to read the textbook it should be viewed as supplemental information to help you understand concepts discussed in class. I rarely use the textbook when writing quizzes and exams. Focus on my slides and your notes.

Exams: This course includes four exams total: three midterms and a final. Because this is a relatively large class, exams will be entirely multiple-choice. Midterm exams will be given at the same time and place as our regular lecture (see schedule, below, for dates). The final exam is cumulative and is worth a bit more than the midterms (see grading, below). Bring a #2 pencil and a simple calculator (absolutely no cell phones or programmable calculators) to all exams. You will also need to know your student ID number.

Date	Event
2/16	Midterm I
3/16	Midterm II
4/20	Midterm III
5/17	Final exam (2:45-4:45)

Quizzes: A number of short, unannounced (i.e., “pop”) quizzes will be given to you during lecture at various times throughout the semester. Quizzes are not meant to be particularly difficult. If you attend and participate in lecture, study your notes on a regular basis, and complete assigned reading in a timely manner, you should find them to be relatively easy. Quizzes will always be administered promptly at the start of our meeting and collected after 4-5 minutes. Note that I will drop your lowest quiz score so if you miss or perform badly on one quiz it will not impact your final grade.

Attendance and participation policy: Although I do not formally take attendance during lecture you are expected to be there on time and to remain there until our meeting has concluded. You are also expected to be an active participant in our meetings (i.e., taking notes, asking questions, sharing opinions, etc.). Do not fool yourself into thinking that having access to my lecture slides is a substitute for attending lecture; it is not. If you regularly miss class I can virtually guarantee that your performance on exams will suffer. In addition, missing or being late to a lecture carries with it a finite chance of missing a quiz.

Extra credit: On occasion I might offer a small amount of extra credit (usually for attending relevant seminars held on campus or in the community). If/when these opportunities occur I will announce them in class and via email. I do not offer extra credit in response to student requests.

Grading: The total number of points possible in this course is 360-380, depending on how many quizzes I give and taking into account that one quiz will be dropped. A breakdown of how these points are distributed follows:

Activity	# Points possible
Midterm exams (3 total)	80 each
Final exam	100
Quizzes (3-5)	10 each

Your final grade in this course will be based on the percentage of all possible points that you earn throughout the semester via a combination of quizzes and exams. To determine your final grade the following metric will be used:

≥ 94%	90- 93%	87- 89%	84- 86%	80- 83%	77- 79%	74- 76%	70- 73%	67- 69%	60- 66%	≤ 59%
A	A-	B+	B	B-	C+	C	C-	D+	D	F

Make-up policy: Make-ups for missed exams and quizzes are given only in truly extraordinary situations. Make-ups are time-consuming and difficult to administer and students usually do poorly on them. However, if you have a university-sanctioned event or have an emergent medical situation, death in the family, etc., you can take a make-up. In order to qualify for a make-up, you must talk with me and provide a written, verifiable excuse from an authority figure (medical doctor, minister, coach, etc.), preferably at least a week before and certainly no later than 48 hours after the missed exam or quiz. I reserve the right to verify the legitimacy of all excuses by contacting the authority figure.

Students with disabilities: I will be happy to help you if you need special accommodations to succeed in this course. Please contact the Disability and Assistive Technology Center to complete the paperwork required to document your needs and then contact me so that appropriate arrangements can be made. More information can be found here: <http://www.uwsp.edu/disability/Pages/default.aspx>

Academic integrity: It is your responsibility to be aware of your rights and responsibilities as a UWSP student. Please take the time to read and understand the information found here, and let me know of any questions: <https://www.uwsp.edu/dos/Documents/CommunityRights.pdf>

Lecture topics and associated reading: The textbook should be viewed as supplemental information to help you understand concepts discussed in class. I rarely use the textbook when writing quizzes and exams. A few lecture topics are associated specifically with non-textbook reading assignments; these materials can be found on D2L. You are responsible for reading and understanding this material and questions based on this material might appear on exams.

A rough outline of topics we will cover this semester follows. Non-textbook reading assignments occur in parentheses, where appropriate. Note that I retain the right to add, rearrange, and/or delete topics from this list as we progress through the semester. The list is really just meant to give you some idea of the topics I plan to discuss this semester and the relative order in which they will be covered.

History of the science of ecology

Pattern and process in nature (Kunin 1997)

Evolutionary processes and ecology

Species and speciation

Introduction to global weather patterns, climate, and biomes (Molles 2009)

Abiotic environmental conditions and the ecological niche

Life history ecology

Population dynamics

Behavioral ecology (Freeman and Herron 2007)

Competition

Predation

Parasitism

Mutualism

Landscapes, biomes, and ecosystem ecology

Patterns in species diversity

Island biogeography

From: Leopold, Aldo: *A Sand County Almanac, and Sketches Here and There*, 1948, Oxford University Press, New York.

[...] Only the mountain has lived long enough to listen objectively to the howl of a wolf. Those unable to decipher the hidden meaning know nevertheless that it is there, for it is felt in all wolf country, and distinguishes that country from all other land. It tingles in the spine of all who hear wolves by night, or who scan their tracks by day. Even without sight or sound of wolf, it is implicit in a hundred small events: the midnight whinny of a pack horse, the rattle of rolling rocks, the bound of a fleeing deer, the way shadows lie under the spruces. Only the ineducable tyro can fail to sense the presence or absence of wolves, or the fact that mountains have a secret opinion about them.

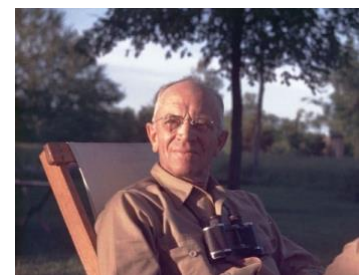
My own conviction on this score dates from the day I saw a wolf die. We were eating lunch on a high rimrock, at the foot of which a turbulent river elbowed its way. We saw what we thought was a doe fording the torrent, her breast awash in white water. When she climbed the bank toward us and shook out her tail, we realized our error: it was a wolf. A half-dozen others, evidently grown pups, sprang from the willows and all joined in a welcoming melee of wagging tails and playful maulings. What was literally a pile of wolves writhed and tumbled in the center of an open flat at the foot of our rimrock.

In those days we had never heard of passing up a chance to kill a wolf. In a second we were pumping lead into the pack, but with more excitement than accuracy; how to aim a steep downhill shot is always confusing. When our rifles were empty, the old wolf was down, and a pup was dragging a leg into impassable side-rocks.

We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes – something known only to her and to the mountain. I was young then, and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agreed with such a view.

Since then I have lived to see state after state extirpate its wolves. I have watched the face of many a newly wolfless mountain, and seen the south-facing slopes wrinkle with a maze of new deer trails. I have seen every edible bush and seedling browsed, first to anaemic desuetude, and then to death. I have seen every edible tree defoliated to the height of a saddlehorn. Such a mountain looks as if someone had given God a new pruning shears, and forbidden Him all other exercise. In the end the starved bones of the hoped-for deer herd, dead of its own too-much, bleach with the bones of the dead sage, or molder under the high-lined junipers.

Aldo Leopold was born in Burlington, Iowa, on January 11, 1887. As a boy he developed a lively interest in field ornithology and natural history, and after schooling in Burlington, at Lawrenceville Prep in New Jersey, and the Sheffield Scientific School at Yale, he enrolled in the Yale forestry school, the first graduate school of forestry in the United States. Graduating with a masters in 1909, he joined the U.S. Forest Service, by 1912 was supervisor of the million-acre Carson National Forest, and in 1924 accepted the position of Associate Director of the U.S. Forest Products Laboratory in Madison, Wisconsin, the principal research institution of the Forest Service at that time. In 1933 he was appointed to the newly created chair in Game Management at the University of Wisconsin, a position he held until his death.



Leopold was throughout his life at the forefront of the conservation movement – indeed, he is widely acknowledged as the father of wildlife conservation in America. Though perhaps best known for *A Sand County Almanac*, he was also an internationally respected scientist, authored the classic text *Game Management*, which is still in use today, wrote over 350 articles, most on scientific and policy matters, and was an advisor on conservation to the United Nations. He died of a heart attack on April 21, 1948 while helping his neighbors fight a grass fire. He has subsequently been named to the National Wildlife Federation's Conservation Hall of Fame, and in 1978, the John Burroughs Memorial Association awarded him the John Burroughs Medal for his lifework and, in particular, for *A Sand County Almanac*.