

Biology 305 – General Ecology

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Office Hours: By appointment via zoom. Just send me an email and let me know when you're available.

Text: *Ecology: Evolution, Application, Integration* (Krohne) 2nd edition.
I do not assign reading from the textbook, though I might refer to it on occasion. Think of it as a useful reference guide. Other (required) reading material can be found on Canvas.

Course description: 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, and 4) the relevance of ecological theory to human health and happiness.

Course modality: Thanks to COVID-19, this course takes place entirely online (asynchronous delivery). All course materials (lecture videos, non-textbook reading assignments, quizzes, exams, etc.) will occur on Canvas. On Canvas you will find a separate “module” associated with each week of the semester. Everything you need for a particular week will be found within its module.

Communication: In addition to our interactions on Canvas 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 and respond accordingly in a timely manner. If you need to reach me, email is probably your best bet, though you are welcome to stop by or try calling my office as well.

Lecture videos: I will record and post three lecture videos per week (two for weeks in which you're taking an exam). During a normal semester we meet in-person for three 50-minute lectures per week. I find that when I record lecture videos, I get through the same material a bit faster. Therefore, most of my lecture videos will be under 50 minutes (probably ~30-40 minutes). Videos will be posted on Mondays, Wednesdays, and Fridays, usually by the mid-afternoon. You will need to watch those videos regularly and in a timely manner. Do you need to watch them right after they're posted? No. But my advice is to get yourself in the habit of watching them within 24 hours, and do not let yourself fall behind. Also, take notes just as you would if you were in class. Doing so will help you stay engaged, and will also give you an additional tool to use while taking quizzes and exams (see below).

Quizzes: You will take a number of short quizzes this semester. Quizzes come in two forms. Many will focus on lecture material (providing an incentive to keep up with lecture videos). There will be one lecture material quiz per week, except weeks in which there is an exam. Other quizzes will focus on non-textbook reading assignments (providing an incentive to engage with those materials). Quizzes are not meant to be particularly difficult. They are simply meant to help keep you on track in the course. To provide you with some flexibility, you will generally have at least a several-day window in which to complete quizzes. Quizzes will be “open book open notes”; however, once you start, they will be timed, and you must work on quizzes alone and without help from anyone.

Exams: This course includes four exams total: three “midterms” and a final. Because this is a relatively large class being taught on Canvas, exams will be entirely multiple-choice. To provide you with some flexibility, you will generally have a 24-hour window in which to take exams (a 48-hour window for the final exam). Exams will be “open book open notes”; however, once you start, they will be timed, and you must work on exams alone and without help from anyone. Midterm exams will always occur on Fridays and will focus on the subset of content leading up to a specific exam. For example, the first exam will focus on content we cover from the first day of the semester up to the time of the first exam, while the second exam will focus on content covered after the first exam up to the time of the second exam. The final exam is cumulative and is worth a bit more than the midterms.

Non-textbook reading assignments: I will ask that you engage with a number of non-textbook reading assignments (mostly primary literature). All will be accompanied by a short quiz.

Grading: The total number of points possible in this course is 440, distributed as follows:

Activity	# Points possible
Midterm exams (3 total)	80 each (240 total)
Final exam	100
Quizzes (20 total)	5 each (100 total)

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

Policy about make-ups and alternative quiz/exam times: I understand that life is a bit stressful and chaotic right now, and I've tried to build as much flexibility into the course as I can. However, you must take quizzes and exams during the windows of time in which they are scheduled. Alternative scheduling and/or make-ups or for missed quizzes and exams are provided only in truly extraordinary situations. If one of those situations arises, you must communicate with me to discuss the situation as soon as possible, preferably at least a week before and certainly no later than 48 hours after the scheduled event. Depending on the situation I reserve the right to verify the legitimacy of whatever situation is leading to your need to reschedule.

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. In particular, you must work on all quizzes and exams on your own, without help or guidance from anyone else. Students found in violation of this policy will, at a minimum, receive a zero for the associated quiz or exam and will be reported for academic misconduct to the Dean of Students. Repeat offenders will be reported and given a failing grade for the course. Please take the time to read this document and let me know of any questions: <https://www.uwsp.edu/dos/Documents/UWS%2014-1.pdf>

Course topics: What follows is a rough schedule of the major topics we will cover in this course, and the order in which they will be covered. I do not provide specific dates here because I'm constantly tweaking (improving, I hope!) my lecture materials, and the relative amount of time devoted to a specific topic varies from term to term.

Topic
The science of ecology
Pattern and process in nature
Adaptation and evolutionary ecology
Species distributions and the ecological niche
Population ecology
Life history ecology
Behavioral ecology
Community ecology
Species diversity
Island biogeography
Large-scale ecology

Quizzes, exams, and non-textbook reading schedule: Note that I reserve the right to revise this schedule, with due notice, as we move through the semester.

Week	Things to do Quizzes will become available on Friday afternoons and must be completed by the end of the day on the following Wednesday. Midterm Exams will always occur on Fridays. Specific due dates/times can be found on Canvas.
1 1/25-1/29	Read Kunin 1997 (focus on Section 1.1 but skim the rest) Reading material Quiz Week 1 Lecture material Quiz Week 1
2 2/1-2/5	Lecture material Quiz Week 2
3 2/8-2/12	Read Grant and Grant 2002 Reading material Quiz Week 3 Lecture material Quiz Week 3
4 2/15-2/19	***Midterm Exam I***
5 2/22-2/26	Lecture material Quiz Week 5
6 3/1-3/5	Read Byers 2020 Reading material Quiz Week 6 Lecture material Quiz Week 6
7 3/8-3/12	Read Mace 2000 Reading material Quiz Week 7 Lecture material Quiz Week 7
8 3/15-3/19	***Midterm Exam II***
9 3/22-3/26	Spring break
10 3/29-4/2	Lecture material Quiz Week 10
11 4/5-4/9	Read Griffin and West 2003 Reading material Quiz Week 11 Lecture material Quiz Week 11
12 4/12-4/16	Read Hoy et al. 2019 Reading material Quiz Week 12 Lecture material Quiz Week 12
13 4/19-4/23	***Midterm Exam III***
14 4/26-4/30	Lecture material Quiz Week 14
15 5/3-5/7	Read Wilkinson 1999 Reading material Quiz Week 15 Lecture material Quiz Week 15
16 5/10-5/14	Botero et al. 2013 Reading material Quiz Week 16 Lecture material Quiz Week 16
17 5/17-5/18	***Final Exam***

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.

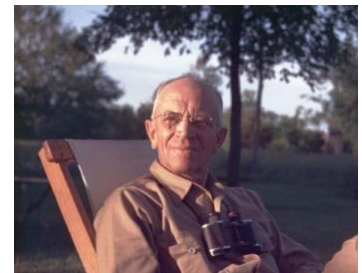
My own conviction on this score dates from the day I saw a wolf die. We were eating lunch on a high rimrock, at the foot of which a turbulent river elbowed its way. We saw what we thought was a doe fording the torrent, her breast awash in white water. When she climbed the bank toward us and shook out 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*.