

NRM F375 Natural Resource Ecology

Spring 2018

3 Credits

Instructor: Norman R. Harris
UAF Matanuska Experiment Farm
1509 South Georgeson Drive
Palmer, AK 99645

Contact Information

Office Hours: 10:00 to 12:00 PM Tuesdays, Thursdays or by appointment. I maintain an open-door policy. If I am in, I can usually talk.

E-mail: nrharris@alaska.edu Please include "Ecology Class" in the subject line, so you do not get buried in my email!

Phone: (907) 746-9475 (Leave a message if I am not in and I will get back to you)

Prerequisites: NRM 240 or permission of instructor. Recommended: NRM F370

Text: **Ecology: From Individuals to Ecosystems**, Begon et al. ISBN 978-1-4051-1117-1
Fourth Edition

Course Description:

Explore the distribution and abundance of organisms on earth and the interactions determining spatial pattern and abundance. Concepts studied include conditions, resources, intraspecific and interspecific competition, dispersal, succession and abundance. The course then traces the dynamic regulating effects of energy, predation, decomposition, parasitism, and disease on different populations of organisms.

Course Objectives:

- 1) Introduce students to ecology with its complex relationships between climatic conditions, geographic attributes, soils, vegetation and animals.
- 2) Describe the three levels of the biological hierarchy namely the organism, the population of organisms, and the communities of different populations.
- 3) Explore the ecological principles that determine the distribution and abundance of organisms and the interactions of those organisms with each other and the environment.

Student Learning Outcomes:

Students will be able to:

- 1) Recognize the complexity of the biotic and abiotic interactions that influence an organism.
- 2) Demonstrate a fundamental comprehension of ecological principles by citing examples from nature.
- 3) Apply a conceptual framework to solve problems in ecology and make informed management decisions.
- 4) Determine the ecological basis for regional and global environmental issues.
- 5) Critically analyze ecological manuscripts and create a synthesis paper relating the ecological functioning of a landscape.

Class Format:

This class consists of 41 sessions of 1 hour each. These sessions are a combination of instructor lectures and student-led discussions. The class is offered at both the Fairbanks campus and the Matanuska Experiment Farm in Palmer via a real-time video link with the instructor occasionally switching to teach from both ends. Most classes will be taught from Palmer. This is pushing the technology to its maximum and there may (will?) be trying and frustrating periods involved, so please be patient. Four short, written assignments requiring students to extrapolate ecological aspects of two Alaskan landscapes based on geographic environmental conditions will be given during the term. These will be due approximately two weeks after they are assigned. Ten short “pop” quizzes (10 points each) will also be given, unannounced, during the term. Two 1-hour exams (100 points each) will be given during the term with a 2-hour final exam (200 points) at the end of the term. Course materials will be transmitted using the Blackboard system (<http://classes.alaska.edu/>) with assignments turned in by email.

Testing and grading:

“Pop” quizzes (10)	100 points
1-hour exam (2)	200 points
Final exam	200 points
Homework Assignments (4)	160 points
Class Participation	40 points

The instructor will award 40 points based on class participation. Class participation means you attend class. Your attendance at all lectures is expected and would be a great ego boost. So remember,

AN INSTRUCTOR WITH AN INFLATED EGO IS AN EASY GRADER!!!

Grading Scale:	Percentage (rounded to nearest integer)
A	100 – 90
B	89 – 80
C	79 – 70
D	69 – 60
F	<60
I	Incomplete; missing tests and/or final exam

Plus “+” and minus “-” grades are not given in this class, therefore a grade of “C” (2.0) is the minimum acceptable grade that undergraduate students may receive for this course to count toward major or minor degree requirements, or as a prerequisite for another course.

Your instructor follows the University of Alaska Fairbanks Incomplete Grade Policy: The letter “I” (Incomplete) is a temporary grade used to indicate that the student has satisfactorily completed (C or better) the majority of work in a course but for personal reasons beyond the student’s control, such as sickness, he or she has not been able to complete the course during the regular semester. Negligence and indifference are not acceptable reasons for an “I” grade.

Academic Integrity – UA Policy

Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

- Cheating – use or attempted use of unauthorized materials, information or study aids
- Fabrication – falsification or invention of any information
- Tampering – altering or interfering with evaluation instruments and documents
- Plagiarism – representing the words or ideas of another person as one’s own
- Assisting – helping another commit an act of academic dishonesty

Students participating in any of the above actions will be given an incomplete in the course and referred to the Dean of Student Affairs.

UAF eLearning Student Services

Helps students with registration and course schedules, provides information about lessons and student records, assists with the examination process, and answers general questions. Our Academic Advisor can help students communicate with instructors, locate helpful resources, and maximize their distance learning experience. Contact the UAF eLearning Student Services staff at 907. 479.3444 or toll free 1.800.277.8060 or contact staff directly – for directory listing see: <http://elearning.uaf.edu/contact>

Disabilities Services

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (208 WHITAKER BLDG, 474-5655) to provide reasonable accommodation to students with disabilities.
<http://uaf.edu/disability/>

Effective communication

Students who have difficulties with oral presentations and/or writing are strongly encouraged to get help from the UAF Department of Communication's Speaking Center (Phone 907-474-5470, email speak@uaf.edu) and the UAF English's Department's Writing Center (Phone 907-474-5314, location Gruening 8th floor).

Research Help

Contact the Elmer E. Rasmuson Library at UAF reference desk for help with research.
<http://library.uaf.edu> or 907-474-7481

UAF Help Desk

Go to <http://www.alaska.edu/oit/> to see about current network outages and news. Reach the Help Desk at: e-mail at helpdesk@alaska.edu or phone: 450.8300 (in the Fairbanks area) or 1.800.478.8226 (outside of Fairbanks)

Title IX

See <http://www.uaf.edu/oeo/civil-rights/aa-eo/> University of Alaska Board of Regents have clearly stated in BOR Policy that discrimination, harassment and violence will not be tolerated on any campus of the University of Alaska. If you believe you are experiencing discrimination or any form of harassment including sexual harassment/misconduct/assault, you are encouraged to report that behavior. If you report to a faculty member or any university employee, they must notify the UAF Title IX Coordinator about the basic facts of the incident. Your choices for reporting include: 1) You may access confidential counseling by contacting the UAF Health & Counseling Center at 474-7043; 2) You may access support and file a Title IX report by contacting the UAF Title IX Coordinator at 474-6600; 3) You may file a criminal complaint by contacting the University Police Department at 474-7721.

Discrimination

UA is an AA/EO employer and educational institution and prohibits illegal discrimination against any individual: www.alaska.edu/nondiscrimination.

Session Schedule and Content

NRM F375 Natural Resource Ecology

11:45 am – 12:45 pm MWF, Room 183 AHRB (Fairbanks) and Mess Hall (Palmer)

Lecture	Date	Topic	Readings/Assign
1	Jan. 17	The Evolutionary Backdrop	Chapter 1
2	Jan. 19	Communities Match Environment	
3	Jan. 22	Conditions – Ecological Niches	Chapter 2 Assign. 1 (20 pts)
4	Jan. 24	Conditions – Physical Forces	
5	Jan. 26	Resources – Obtaining Energy	Chapter 3
6	Jan. 29	Resources – Keeping Your Energy	
7	Jan. 31	Life and Death	Chapter 4
8	Feb. 2	Life Strategies	Assign. 1 Due
9	Feb. 5	Intraspecific Competition	Chapter 5
10	Feb. 7	Dispersal	
11	Feb. 9	Dormancy	Chapter 6
12	Feb. 12	Game Theory	Assign. 2 (40 pts)
13	Feb. 14	Ecological Applications – Single-species Populations	Chapter 7
14	Feb. 16	Exam 1	
15	Feb. 19	Interspecific Competition	Chapter 8
16	Feb. 21	Heterogeneity	
17	Feb. 23	Predation	Chapter 9
18	Feb. 26	Diet Composition	Assign. 2 Due
19	Feb. 28	Population Dynamics of Predation	Chapter 10
20	Mar. 2	Aggregation and Spatial Variation	Assign. 3 (50 pts)
21	Mar. 5	Decomposers and Detritivores	Chapter 11
22	Mar. 7	Parasitism and Disease	Chapter 12
23	Mar. 9	Survivorship, Growth and Fecundity of Hosts	
24	Mar. 19	Symbiosis and Mutualism	Chapter 13
25	Mar. 21	Mutualism Involving Gut Organisms	
26	Mar. 23	Abundance	Chapter 14
27	Mar. 26	Density	Assign. 3 Due
28	Mar. 28	Ecological Applications – Pest Control/Harvest	Chapter 15
29	Mar. 30	Exam 2	
30	Apr. 2	Patterns in Space and Time	Chapter 16
31	Apr. 4	Succession	Assign. 4 (50 pts)
32	Apr. 6	Energy Flux	Chapter 17
33	Apr. 9	Fate of Energy	
34	Apr. 11	Flux of Matter	Chapter 18
35	Apr. 13	Influence of Population Interactions on Community	Chapter 19
36	Apr. 16	Influence of Parasitism	
37	Apr. 18	Food Webs	Chapter 20
38	Apr. 23	Species Richness	Chapter 21
39	Apr. 25	Island Biogeography	Assign. 4 Due
40	Apr. 27	Ecological Applications – Ecosystem Functioning	Chapter 22
41	Apr. 30	Sustainability – Review for Final	
42	May 4	(Friday) Final Exam 10:15 am – 12:15 pm	