NRM F375 Natural Resource Ecology

Spring 2017
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 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. IBSN 978-1-4051-1117-1 Fourth Edition

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 organisms, the populations of organisms, and the communities of 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 will be 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 assignments will be given during the term which will be due approximately two weeks after they are assigned. Ten short "pop" quizzes (each worth 10 points) will also be given, unannounced, during the term; two 1-hour exams (100 points each) will be given during the term with a required 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/). Assignments will be turned in using 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

Academic Integrity – UA Policy

Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as and 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.

Disabilities Services

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.

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