

Instructor: Dr. Melany Fisk

Phone: 529-3181

Office: 160 Pearson Hall

Email: fiskmc@muohio.edu

Office hours: 9:30-11:00 Tues & Thurs and by appointment

Overview. This course is an introduction to the principles of general ecology and focuses on the interaction of organisms with their environment and each other. We will explore the ecology of individual organisms, the dynamics of populations and communities, and the functions of ecosystems. We will draw upon these fundamental ecological principles to analyze current environmental change issues, including questions about biodiversity, introduced species, and global climate.

In addition to learning the basic concepts in ecology, students in this course are expected to develop the ability to:

- Design and interpret appropriate observational or experimental tests of ecological questions
- Synthesize information from various disciplines to critically analyze ecological questions
- Apply and extend ecological information to better understand questions related to environmental change, or to identify additional information that would contribute to such understanding

These abilities are essential in the study of ecology, and complement the Miami Plan goals that are also emphasized in this course: 1) Thinking critically, 2) Understanding contexts, 3) Engaging with other learners, and 4) Reflecting and acting.

Reading. *Ecology, 2nd Edition* by M.L. Cain, W.D. Bowman, and S.D. Hacker is the required textbook for this course. Textbook readings are supplemental to class materials. They are intended to provide review, clarification, additional examples and, perhaps most important, different contexts in which to apply concepts that we cover in class. We will also read articles from scientific journals; these will be provided on the Niikha site.

Niikha. We will use the course Niikha site to post relevant material, such as the course schedule, class notes, readings, and assignments. I will communicate using the email list from the Niikha site. If for some reason this form of communication is not reliable for you, it is your responsibility to stay up to date by some other means. Powerpoint files will be posted the night before class. You may wish to print out the figures to draw on during class. These files are intended to provide a general outline of material that we cover and to provide pictures and figures that we will discuss. The powerpoint files will NOT include all of the course content – many of the key concepts that we will cover will be discussed in class and developed using notes and diagrams on the chalkboard.

Evaluation and Grading. You will be evaluated based on 2 in-class exams, a final exam, and a number of in-class and written homework assignments. Exams will be mostly multiple choice, possibly with some short answer and essay. Details will be provided for each assignment. Assignments handed in late will be accepted but will be penalized 10% per day.

Points will be approximately as follows (there may be some minor changes in assignments):

In-class exams	(100 pts each * 2)	200
Final Exam		100
Written homework assignments	(30- 40 pts each *6)	200
In-class assignments	(15 pts each * 6)	<u>100</u>
Total		600

Grades will not be curved, and will be assigned according to the following scale:

90-100%	A
80-89 %	B
70-79 %	C
60-69 %	D
< 60 %	F

Attendance. Students are expected to attend all classes and those students who regularly do not attend can be dropped from the class. Assignments will be given and discussed in class. Some will be collected in the same class period. It is each student's responsibility to be in class to complete these assignments. Exams will be based on class lectures and discussions. Make-up exams will be allowed only when students have documented medical excuses. Miami University Health Center does not provide such documentation unless the student is hospitalized, sent home, or in event of a death in the family.

Academic honesty. Students are reminded that the work they submit in this course must be original. This includes any written assignments. University policies on academic dishonesty are described in the Student Handbook, http://www.units.muohio.edu/secretary/policies_guidelines/student_handbook/ Students are expected to adhere to these policies.

Course Schedule (subject to change)

Bot/Zoo 209, Spring 2012

Date	Subject	Readings	Date assigned	
			In-class	Home-work
10 Jan	Intro and Natural Selection	Ch 1 (pp 2-8, 13-19), Ch 6 (pp 132-144)		
12 Jan	Climate principles	Ch 2 (pp 22-40), Reznick et al. (1990)		
17 Jan	Terrestrial Biomes	Ch 3 (pp 49-67), Ch 19 (pp 412-418)		
19 Jan	Aquatic environments	Ch 3 (pp 68-76)		
24 Jan	Climate and productivity	Knapp & Smith (2001), Knapp et al. (2004)		HW#1
26 Jan	Ecology of individuals: temperature	Ch 4 (pp 81-92, 112-113)		
31 Jan	Ecology of individuals: water relations	Ch 4 (pp 89-105); Ehleringer 1988	IC#1	
2 Feb	Ecology of individuals: energy	Ch 5 (pp 106-121)		
7 Feb	Ecology of individuals: carbon and energy	Ch 5 (pp 106-131)	IC#2	
9 Feb	Exam 1			
14 Feb	Resource allocation	Ch 7 (pp164-170)		HW#2
16 Feb	Population structure and growth	Ch 8, 9 (pp 177- 198, 207-219)		
21 Feb	Demography	Ch 9 (pp 199-208); Holmes 2011	IC#3	
23 Feb	Population dynamics	Ch 9, 10 (pp 199-236)		
28 Feb	Diversity, biogeography	Ch 17, 23 (pp 364-387, 508-516)		HW#3
1 Mar	Communities	Ch 15, 18 (pp 324-332; 388-391)		
6,8 Mar	Spring Break			
13 Mar	Interactions and community dynamics	Ch 11, 18 (pp 242-261; 391-408)		
15 Mar	More interactions		IC#4	
20 Mar	Community development: primary succession	Ch 16 (pp 343-353)		
22 Mar	Exam 2			
27 Mar	Community development: secondary succession	Ch 16 (pp 353-363)		
29 Mar	Disease Ecology	Ostfeld et al. 2006, Allan et al. 2003		HW#4
3 Apr	Ecosystems and productivity	Ch 19, 21 (pp 410-429, 452-457, 462-465)		
5 Apr	Decomposition	Ch 20 (pp 410-423, 458-460)		
10 Apr	Carbon balance, climate change	Ch 24 (pp 415, 526-529)	IC#5	
12 Apr	Nutrient cycling	Ch 19, 21 (pp 419-421, 454-466)		
17 Apr	Nitrogen deposition, eutrophication	Ch 19, 24 (pp 307-308, 319, 421-422, 467-470, 529-531, 539-543)		
19 Apr	No class: work on HW5	Galloway et al. (2008)		HW#5
24 Apr	Trophic dynamics	Ch 20, 24 (pp 430-444, 501-502, 520-523)		
26 Apr	Trophic dynamics	Ch 20, 24 (pp 430-444, 501-502, 520-523)	IC#6	
3 May	Final exam: 8:00 – 10:00			