

Syllabus for Biology 360

Ecology

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Office Hours: MWF 10:00-11:00 AM and by appointment

Classrooms: Lecture - 101 Pricilla Payne Hurd Academic Complex
Lab – Collier 300

Course Description: Ecology is the scientific study of the relationships of organisms to their environment and to each other. Broad in scope and evolutionary in perspective, ecology attempts to understand the reasons for the abundance and distribution of organisms, the flows and cycles of energy and matter in ecosystems, the intra- and interspecific relationships between organisms, and the structure and functions of communities.

Course Objectives: Upon completion of this course students will be able to demonstrate:

- 1) knowledge of basic concepts in ecology/environmental biology, including understanding the dynamic nature of ecological processes and the importance of variation in space and time
- 2) ability to make a scientific argument & support it with appropriate
- 3) knowledge of and ability to apply the scientific process
- 4) ability to find, evaluate, & use published scientific information
- 5) ability to objectively analyze and interpret data and to use other
- 6) competence in scientific writing and oral communication
- 7) ability to work together in teams
- 8) ability to integrate concepts within and among disciplines of science
- 9) understanding of the relevance of ecology to society

Grading: The grading system is as follows:

A	=	93-100	D+	=	67-69
A-	=	90-92	D	=	63-66
B+	=	87-89	D-	=	60-62
B	=	83-86	F	=	59 and below
B-	=	80-82			
C+	=	77-79			
C	=	73-76			
C-	=	70-72			

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Texts: Molles, Manuel C. Jr. 2008. *Ecology: Concepts and Applications* (4th edition), McGraw Hill, Boston (ISBN 978-0-07-305082-9).

Class Attendance: It has been my experience that students who do poorly in this course generally have numerous absences. I strongly suggest that you attend and participate in all lecture sessions unless you have a valid reason not to. I will not specifically maintain lecture attendance records. However, if I detect that you have excessive absences or are habitually tardy I will speak with you in private.

Laboratory sessions, because they involve hands-on experiences that cannot be mastered effectively without performing them, are especially critical if one is to become a successful scientist.

Grading:	Lecture Exam 1	100 points
	Lecture Exam 2	100 points
	Lecture Exam 3	100 points
	Final Exam	100 points
	Laboratory Assignments	<u>400 points</u>
		800 points

Policy on Academic Honesty: Moravian College's policies on academic honesty and disruptive course-related student behavior can be found in the Student Handbook. It is assumed that each of you has read and understands these policies and the consequences of violating them.

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Ecology Lecture Schedule Fall 2008

Day & Date		Topic	Molles Chapter
M	Aug. 25	Introduction: What is Ecology?	1
W	27	Climate & Biogeography	2
F	29	Field trip: Jacobsberg State Park Meet @ 11:30 AM Collier Entrance	
M	Sept. 01	Life on Land: Terrestrial Biomes	2
W	03	Life on Land: Terrestrial Biomes	2
F	05	Field Trip: Tannersville Bog Meet @ 11:30 AM Collier Entrance	
M	08	Life in Water	3
W	10	Life in Water	3
F	12	Temperature Relations	4
M	15	Temperature Relations	4
W	17	Water Relations	5
F	19	Weekend Field Trip: Lake Lacawac Meet @ 11:30 AM Collier Entrance	
M	22	Water Relations	5
W	24	Exam 1	1-5
F	26	Species Abundance & Diversity	16
M	29	Species Interactions & Community Structure	17
W	Oct. 01	Primary Production and Energy Flow	18
F	03	Primary Production and Energy Flow	18
M	06	No Class-Fall Break	
W	08	Nutrient Cycling and Retention	19
F	10	Field Trip: Lehigh Gap Nature Center Meet @ 11:30 AM Collier Entrance	
M	13	Nutrient Cycling and Retention	19
W	15	Succession & Stability	20
F	17	Succession & Stability	20
M	20	Exam 2	16-20
W	22	Population Genetics & Natural Selection	8
F	24	Population Genetics & Natural Selection	8
M	27	Population Distribution & Abundance	9
W	29	Population Distribution & Abundance	9
F	31	Population Dynamics	10
M	Nov. 03	Population Dynamics	10
W	05	Population Growth	11
F	07	Population Growth	11
M	10	Life Histories	12
W	12	Life Histories	12

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F	14	Exam 3	8-12
M	17	Competition	13
W	19	No Class-Thanksgiving	
F	21	No Class-Thanksgiving	
M	24	Competition	13
W	26	Predation, Herbivory, Parasitism & Disease	14
F	28	Predation, Herbivory, Parasitism & Disease	14
M	Dec. 01	Mutualism	15
W	03	Landscape Ecology	21
F	05	Geographic Ecology	22
M	08	Global Ecology	23
W	10	Global Ecology	23

Final Exam: Date, place & time to be announced **13-15; 21-23**

**Laboratory & Field Schedule
Fall 2008**

Date	Experiment	
Fri.	Aug. 29	Patterns in Nature Field Trip-Jacobsberg State Park Meet @ 11:30 AM, Collier front entrance
Fri.	Sept. 05	Tannersville Bog Field Trip Meet @ 11:30 AM, Collier front entrance
Fri.	Sept. 12	Leaf Angle, Light Interception & Water Relations- Jacobsberg State Park Meet @ 12:45 PM, Collier front entrance
Fri.-Sun	Sept 19-21	Lake Lacawac Trip Meet @ 11:30 AM, Collier front entrance on Friday 9/19 Return to Moravian @ 12:00 noon on Sunday 9/21
Fri.	Sept. 26	Quadrat Sampling Jacobsberg State Park Meet @ 12:45 PM, Collier front entrance
Fri.	Oct. 03	Quadrat Sampling Data Analysis Meet in Collier 300 @ 12:45 PM
Fri.	Oct. 10	Successional Analysis Lehigh Gap Nature Center Meet @ 11:30 AM, Collier front entrance
Fri.	Oct. 17	Stream Analysis: Aquatic Macroinvertebrate Sampling Monocacy Creek Meet in Collier 300 @ 12:45 PM
Fri.	Oct. 24	Stream Analysis: Discharge & Flux Measurements Monocacy Creek Meet in Collier 300 @ 12:45 PM
Fri.	Oct. 31	Aquatic Macroinvertebrate Identification and Analysis Meet in Collier 300 @ 12:45 PM
Fri.	Nov. 7	Determining Mean Life Expectancy & Survivorship Meet in Collier 300 @ 12:45 PM

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Fri. Nov. 14
Microarthropods

Island Biogeography, Diversity & Soil

Jacobsberg State Park
Meet @ 12:45 PM, Collier front entrance

Fri. Nov. 21

Soil Microarthropod Identification and Analysis
Meet in Collier 300 @ 12:45 PM

Fri. Dec. 05

Ecological Modelling
Meet in Collier 300 @ 12:45 PM