

ECOLOGY
Biology 270

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Lecture: Mon., Wed., (Fri.): 0930-1050
204 Carnegie

Lab: Mon./Tue. 1300-1600
430/431 Carnegie

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Course Description: The goal of this course is to introduce you to the basic principles of ecology and the process of ecological inquiry. By the end of this course you should understand the biological and evolutionary processes that determine ecosystem structure and function. This goal will be reached by examining increasingly more complex components of ecosystems. Finally, the structure and function of ecosystems will be discussed. Principles discussed in class will be emphasized in laboratory investigations. In both lecture and laboratory, the methods used by ecologists to observe, interpret, and report natural phenomena will be stressed.

Readings:

Text: Molles, M.C. 2005. Ecology, Concepts and Applications 3^d edition. WCB McGraw-Hill.

Reserved: Assigned articles listed under “Reading” on the schedule are on 2 hr. reserve in Ladd Library.. Several of these are available on line. You should study these articles as you do the text. Additional articles may be assigned. Web reading can be found at:

<http://www.bates.edu/~ganderso/biology/resources/>

Laboratories: The laboratory focuses on three investigations: acid rain, pine tree demography, and rocky intertidal community structure. You are expected to read and be familiar with the lab exercises **prior** to lab and to have the appropriate clothes and supplies as detailed in the laboratory manual. Failure to be adequately prepared may preclude your participation. The pine lab and rocky intertidal lab involve field trips that leave **promptly** at the designated times (**see dates and times in the laboratory manual**). If you are late you will miss the lab and associated credit. The principal investigator (PI) system of organization will be used for the pine tree and rocky intertidal investigations. Students are expected to work independently on these investigations during the time between labs. Written work must be done according to guidelines set forth in “Statement on Plagiarism and a Guide to Source Acknowledgment” (Bates College).

Office Hours: I maintain an “open door” policy. Formal office hours are **Monday 1000-1200**. I am generally available any time I am on campus and you are welcome to drop by my office without an appointment. Make an appointment, however, if you want to be sure of seeing me.

Exams. If you require alternate arrangements for testing please see me well in advance of the first exam. The final exam is comprehensive

Communication: Many communications in this course will be transmitted via e-mail. You are subscribed to the mailing list (wbio 270a). Instructions for using the mailing list are in the laboratory manual.

Grading: Final grades will be computed according to the percentages below:

Test I	20%
Test II	20%
Final Exam	25%

Laboratory Reports: 35% (2 @ 14% each; 1 @ 7%-rocky intertidal)

To pass this course, you must have passing grades both in the laboratory and in the lecture portions; that is, in **each** portion, your grade must be $\geq 56\%$. Excellence in one area will not offset a failing grade (55%) in the other. Participation/Preparation: will be considered in final grade determination.

DATE	TOPIC	READING ¹
10 January	Introduction, course structure; What is Ecology?	Ch. 1
12 January	How many species are there? Review 5 Kingdoms	Wolf 1988; Raven 1994
14 January	Statistics I	Web site: "Painless guide to statistics" ²

17 January	Martin Luther King Day: College Activities (no classes)	
19 January	Climate and Terrestrial Biomes	Ch. 2
21 January	How to write an abstract and results	

24 January	Aquatic Biomes	Ch 3
26 January	Variation & Speciation	Ch. 8 (198-206; 216-219)
28 January	Statistics II	Web site: "Painless guide to statistics" ²

31 January	Populations: Age Parameters & Measurements	Ch. 9
2 February	Survivorship & Life Table	Ch 10 (254-262)
4 February	TBA	

7 February	Life & Fecundity Table	Ch 10 (262-276)
9 February	Life Tables (continued), Exam review	
11 February	TBA	

DATE	TOPIC	READING¹
14 February	EXAM I	
16 February	Population Dynamics: Growth & Regulation	Ch. 11
18 February	TBA	

21-25 February	BREAK	

28 February	Life History	Ch 12, Commito 1982
2 March	Competition	Ch 13
4 March	TBA	

7 March	Predation: Models, studies, functional response	Ch. 14; Ch 6 (158-159)
9 March	Community Structure Top down and bottom up organization	Ch 17; Carpenter <i>et al.</i> 1987
11 March	TBA	

14 March	Diversity	Chs. 16; Ch 22 (546-550)
16 March	Succession: Patterns	Ch. 20
18 March	TBA	

21 March	Succession: Mechanisms	Gallagher <i>et al.</i> 1983
23 March	EXAM II	
25 March	TBA	

28 March	Island Biogeography: Patterns, Parks, Preserves	Ch. 22 (536-546)
30 March	Ecosystem Energetics	Ch. 18
1 April	TBA	

DATE	TOPIC	READING¹
4 April	Biogeochemical Cycles I	Ch. 19; DeLucia <i>et al.</i> 1999; Falkowski <i>et al.</i> 2000
6 April	Biogeochemical Cycles II	
8 April	TBA	

COMPRSHENSIVE FINAL EXAM: 12 APRIL AT 1030

¹ Where text pages are assigned, begin and end with section titles on first and last pages respectively.

² Web page address: <http://www.bates.edu/~ganderso/biology/resources/> See laboratory manual for more details.