

Ecology – Biology 315 Lecture Fall - 2006

All notes and PowerPoints are available on WebCT: <https://webct.rhodes.edu/webct/entryPage.dowebct>.

day	date	comment	reading
Wednesday	August 23	Introduction and Species Presentations	S & S Chap. 1 ¹
Friday	25	Species Presentations - continued	
Monday	28	Introduction and Discussion	Pimentel et al.'s Chap 1 ²
Wednesday	30	Evolution	S & S Chap. 2
Friday	September 1	Physical Conditions	S & S Chap. 3
Monday	4	Labor Day Holiday	
Wednesday	6	Aquatic Habitats and ENSO	S & S Chap. 4, 24
Friday	8	Terrestrial Habitats - Soils	S & S Chap. 5
Monday	11	Physiological Ecology	S & S Chap. 7
Wednesday	13	Physiological Ecology	
Friday	15	Life History	S & S Chap. 8
Monday	18	Population Properties	S & S Chap. 9
Wednesday	20	Population Growth	S & S Chap. 10
Friday	22	Exam I – in-class at 9:00, take-home due at 17:00	
Monday	25	Exam I Review	
Wednesday	27	Intraspecific Competition	S & S Chap. 11
Friday	29	Interspecific Competition	S & S Chap. 13
Monday	October 2	Predation	S & S Chap. 14
Wednesday	4	Optimal Foraging	
Friday	6	Parasitism and Disease (mutualism)	S & S Chap. 15
Monday	9	Epidemics in <i>Daphnia</i> - Discussion	Caceres et al. ³
Wednesday	11	Community Structure	S & S Chap. 16
Friday	13	Community Ecology	S & S Chap. 17
Monday	16	Fall break	
Wednesday	18	Biomanipulation – Discussion	Sheffer, et al. ⁴
Friday	20	Succession Lab Report due at 17:00	S & S Chap. 18
Monday	23	Landscape Ecology – Lab Report Review begins	S & S Chap. 19
Wednesday	25	Island Biogeography	
Friday	27	Exam II – in-class at 9:00, take-home due at 17:00	
Monday	30	Exam II Review – Lab Report Reviews due at 17:00	
Wednesday	November 1	Energetics	S & S Chap. 20
Friday	3	Energetics	
Monday	6	Nutrient Cycling	S & S Chap. 21, 22
Wednesday	8	Nutrient Cycling	Smithsonian article
Friday	10	Carbon Cycle and Global Climate Change	S & S Chap. 29
Monday	13	Climate and Life - Discussion	Daily Chap. 5 ⁵

¹ Smith, T.M. and R.L. Smith. 2006. Elements of Ecology. 6th edition.

² Pimentel, D., L. Westra, and R.F. Noss. 2000. Ecological Integrity. Island Press – on reserve in library

³ Caceres, C.E., et al.. 2006. Physical structure of lakes constrains epidemics in *Daphnia* populations. Limnol. Oceanogr. 87:1438-1444. See WebCT for a copy.

⁴ Sheffer, M., et al. 2001. Catastrophic shifts in ecosystems. Nature 413:591-596- on reserve in library

⁵ Daily, G.S. 1997. Nature's Services. Island Press – on reserve in library

Wednesday	15		
Friday	17	Class Cancelled – Tennessee Academy of Science Meeting	
Monday	20	Sustainability and Maximum Sustainable Yield	S & S, Chap. 27
W, F	22, 24	Thanksgiving Break	
Monday	27	Fishing down food webs - Discussion	Pauly et al. ⁶
Wednesday	29	Conservation Biology	S & S, Chap. 28
Friday	December 1	Exam III – in-class at 9:00, take-home due at 17:00	
Monday	4	Exam III Review - Revised Lab Report due at 17:00	
Wednesday	6	Review	
Tuesday	12	13:00 - Final Exam – in-class, closed-book exam	

Course Requirements

- 1) Grading - There will be a total of 500 points possible. These will be divided between lecture and laboratory as follows:

Lecture

3 hourly exams (100 pts each)	200 (the lowest will be dropped)
1 final exam	100

Laboratory

Lab report initial and final version	100
Worksheets, Reviews, etc.	<u>100</u>
	500

- 2) Hourly exams - These will be both objective (short answers, multiple choice, graphs) and subjective (short essays). These will be both in-class, closed-book and take-home, timed (2.0-2.5 hrs), open-book exams. The honor code allows this format and you will be asked to pledge your exams. Laboratory material will be covered on hourly exams. You will be responsible only for material covered from the previous exam. You may drop the lowest of the three exams. Make-up exams, if needed for a legitimate reason, will be totally subjective.

Copies of previous exams will be available to all students in the class.

- 3) Final exam - The final exam will be a comprehensive, closed-book, timed exam. This will be given during the final exam period only. No make-up final exams will be given.

A lab report as an initial submission and revised version is required. A handout outlining “instructions to authors” is available.

⁶ Pauly, D.V. et al. 1998. Fishing down marine food webs. *Science* 279:860-863 on WebCT– or
Pauly, D.V. et al. 2000. Fishing down aquatic food webs. *Amer. Sci.* 88:46- on WebCT or
Pauly, D.V. et al. 2005. Fishing down marine food web: it is far more pervasive than we thought. *Bull. Marine Sci.* 76:197-211 - on WebCT

You are hereby notified that use of lab reports from previous Ecology classes is prohibited. Use of previous Ecology laboratory reports is an Honor Council offense.

Your initial lab report is **due October 20 at 17:00**. Your reviews of your colleagues' reports are due **October 30th**, and your revised lab report is due **December 4 at 17:00**. Reports received after these times will receive a 2.5 point/day penalty (Saturday-Monday = 1 day). I strongly advise you to set an earlier deadline for yourself and to begin writing much before these deadlines.

Most of the labs will require the collection of data by everyone in the class. Your participation and efforts will help determine the success of these labs. Participation in off-campus field trips is required unless advanced permission is given. Material covered on these off-campus trips may be on hourly examinations and/or the final exam.

Course Objectives

One objective of mine is for you to realize and appreciate the interactions of the biological world. These interactions take place between the biological components themselves and between the biological components and the physical world. Hopefully you will come to see that "everything affects everything else."

The study of these interactions will take the form of "predation", "competition", "nutrient cycling", to mention a few, which are arbitrarily divided and categorized for our convenience. At times these studies may seem disconnected from the real world and may be too simplistic. The specific facts that you learn will become outdated very quickly, but the general processes and mechanisms of our world will remain the same.

Perhaps more importantly are the processes that you will go through in learning that the world can be viewed from many perspectives. There are no rules or laws of ecology, and there are many different ways to study the world. I hope that besides learning about some of these ways you will also learn how to continue to change after this course is finished.

An objective of the laboratory is to expose you to aquatic field experiences. I want to familiarize you with aquatic field work, i.e. the methods of data collection, the types of questions which can be answered, and limits involved. As our natural world continues to degrade, I find it unconscionable to offer a biology degree without the option of some field experience.

Another objective of the laboratory is the teaching of problem-finding and problem solving skills. Experiences to promote these skills will be in your developing a question the whole class can address and then the attempted answer of that question. Too often the problem-finding aspect of science is neglected in science education.

A further objective of this course is acquisition of writing skills. This can only come by doing. I take the two lab report assignments seriously. This is seen, hopefully, by the amount of feedback I will give on your writing.