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BIOL 315-01, Ecology Lecture, Fall 2007

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Ecology – Biology 315 Lecture Fall - 2007

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

day	date	comment	reading
Wednesday	August 22	Introduction and Species Presentations	O & B Chap. 1 ¹
Friday	24	Species Presentations - continued	
Monday	27	Introduction and Discussion	Pimentel et al.'s Chap 1 ²
Wednesday	29	The Ecosystem - overview	O & B Chap. 2
Friday	31	Energy in Ecological Systems	O & B Chap. 3
Monday	September 3	Labor Day Holiday	
Wednesday	5	Energetics - continued	
Friday	7	Energetics - continued	
Monday	10	Bio-manipulation - discussion	Sheffer, et al. ³
Wednesday	12	Nutrient Cycling	O & B Chap 4
Friday	14	Nutrient Cycling	Smithsonian Article ⁴
Monday	17	Ecophysiology	O & B Chap 5
Wednesday	19	Soil	
Friday	21	Exam I – in-class at 9:00, take-home due at 17:00	
Monday	24	Exam I Review	
Wednesday	26	Population Ecology	O & B Chap 6
Friday	28	Population Ecology	
Monday	October 1	Population Ecology	
Wednesday	3	Optimal Foraging and Maximum Sustainable Yield	
Friday	5	Fishing down the food web - discussion	Pauly et al. ⁵
Monday	8	Community Ecology - Community Structure	O & B Chap 7 - to end of section 7
Wednesday	10	Interspecific Competition	
Friday	12	Fall Break	
Monday	15	Fall break	
Wednesday	17	Interspecific Competition	
Friday	19	Mutualism Lab Report due by 17:00	
Monday	22	Predation – Lab Report Review begins	
Wednesday	24	Predation	
Friday	26	Exam II – in-class at 9:00, take-home due at 17:00	
Monday	29	Exam II Review	
Wednesday	31	Parasitism and disease	

¹ Odum, E.P. and G.W. Barrett. 2005. Fundamentals of Ecology. Thomas, Brooks/Cole. 5th edition.

² Pimentel, D., L. Westra, and R.F. Noss. 2000. Ecological Integrity. Island Press – Chapter 1 by Miller and Rees – on reserve in library

³ Sheffer, M., et al. 2001. Catastrophic shifts in ecosystems. Nature 413:591-596- on reserve in library

⁴ “What’s Eating America” by Michael Pollan

⁵ 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

Friday	November 2	<i>Daphnia</i> epidemics – discussion Lab Report Reviews due at 17:00	Caceres et al. ⁶
Monday	5	Biodiversity	O & B Chap 7 – section 8 on
Wednesday	7	Landscape Ecology	O & B Chap 9
Friday	9	Regional Ecology	O & B Chap 10
Monday	12	Regional Ecology	
Wednesday	14	Curse of Akkad - Discussion	The Curse of Akkad – by E. Kolbert ⁷
Friday	16	Class Cancelled – Tennessee Academy of Science Meeting	O & B Chap 12, section 8
Monday	19	Conservation Biology	
W, F	21, 23	Thanksgiving Break	
Monday	26	Global Ecology - Revised Lab Report due by 17:00	O & B Chap 11
Wednesday	28	catch up, review, evaluations	
Friday	30	Exam III – in-class at 9:00, take-home due at 17:00	
Monday	December 3	Exam III Review	
Wednesday	5	Course Review	
Friday	7	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 activities as follows:

3 hourly exams	
(100 pts each)	200 (the lowest will be dropped)
1 final exam	100
Lab report initial and final version	100
Worksheets, Reviews, etc.	<u>100</u>
	500

The overall grade you earn will be reported for both Bio 315 and bio 315L.

- 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.

⁶ Caceres, C.E., et al.. 2006. Physical structure of lakes constrains epidemics in *Daphnia* populations. Ecology 87:1438-1444. See WebCT for a copy.

⁷ “The Curse of Akkad” by E. Kolbert from “The Best American Science Writing 2006”, A. Gawamde editor – on reserve in library

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.

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 19 by 17:00**. Your reviews of your colleagues' reports are due **November 2**, and your revised lab report is due **November 26 by 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.