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BIOL 315-01, Ecology, Fall 2004

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Ecology – Biology 315

Fall - 2004

All notes and PowerPoints are available on WebCT: <https://webct.rhodes.edu/webct/public/home.pl>.

Date		Topic	Reading
Wednesday	August 25	Introduction and Species Presentations	Ch. 1-Molles ¹
Friday	27	Species Presentation	
Monday	30	Introduction – Discussion	Ch.1- Pimentel et al. ²
Wednesday	September 1	Physical Conditions	Ch.2,3-Molles
Friday	3	Aquatic Habitats	
Monday	6	Labor Day Holiday	
Wednesday	8	Aquatic Habitats – continued	p 563-569-Molles
Friday	10	Discussion	Ch. 11- Daily ³
Monday	13	Physiological Ecology	Ch. 4,5-Molles
Wednesday	15	Physiological Ecology - continued	
Friday	17	Energy	pp.145-157-Molles
Monday	20	Energy – continued	Ch. 18-Molles
Wednesday	22	Exam I – in class and take home	
Friday	24	Exam Review	
Monday	27	Maximum Sustainable Yield - Discussion	Pauly et al. ⁴
Wednesday	29	Optimal Foraging	pp.157-164-Molles
Friday	October 1	Nutrient Cycles – Load Equipment	Ch. 19-Molles
Monday	4	Nutrient Cycles	pp. 569-570, 576-578-Molles
Wednesday	6	Climate and Life	Chapter 5 - Daily
Friday	8	Population Dynamics	Ch. 10-Molles
Monday	11	Population Growth	Ch. 11-Molles
Wednesday	13	Competition	Ch. 13-Molles
Friday	15	Competition - continued	
Monday	18	Fall Recess	
Wednesday	20	Parasitism and Disease	Ch. 14-Molles
Friday	22	Discussion – Health Gaines?	Ch. 14- Pimentel et al.
		Lab Report #1 Due at 17:00	
Monday	25	Time for Lab Report Reviews	
Wednesday	27	Exam II – in class and take home	
Friday	29	Exam Review	
Monday	November 1	Predation	pp.358-369-Molles
Wednesday	3	Predation - continued	
Friday	5	Mutualism	Ch. 15-Molles
Monday	8	Community Description	Ch. 16-Molles
Wednesday	10	Community Structure and Function	Ch. 17-Molles
Friday	12	Bio-manipulation – Discussion	Sheffer, et al. ⁵
Monday	15	Succession	Ch. 20-Molles
Wednesday	17	Landscape Ecology	Ch. 21-Molles
Friday	19	Geographical Ecology – Island Biogeography	Ch. 22-Molles
Monday	22	Special Topics – Exotic Species	
W, F	24, 26	Thanksgiving Break begins Tuesday, Nov. 23 at 10 p.m.	
Monday	29	Special Topics - Ozone	

¹ Molles, M.C. 2005. Ecology Concepts and Applications. WCB McGraw-Hill

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

³ Daily, G.C. 1997. Nature's Services. Island Press – on Reserve

⁴ Pauly, D., V. Christensen, J. Dalsgaard, R. Froese, and F.C. Torres Jr.. 1998. Fishing down marine food webs. Science 279:860-863. – on Reserve

⁵ Scheffer, M., et al. 2001. Catastrophic shifts in ecosystems. *Nature* 413:591-596 – on Reserve

Wednesday	December 1	TBA
Friday	3	Exam III – in class and take home
Monday	6	Exam Review, Lab Report 2 Due, 17:00
Wednesday	8	Last day of class – Review for Final
Wed	15 – 8:30 am	Final Exam

Course Requirements

- 1) Grading - There will be a total of 450 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

2 lab reports	100
Worksheets, Reviews, etc.	<u>50</u>
	450

- 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 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.
- 4) Laboratory – Attendance in all field experiences and laboratories are required. Two lab reports are required. A handout outlining their format 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.

Report #1 is due October 22 at 17:00. Report #2 is due December 6 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.