SYLLABUS

Biology 303, Ecology

Spring 2005

Course Instructor:	Dr. Adrien C. Finzi	Office: BRB 527	Phone: 353-2453 E-mail: afinzi@bu.edu
Office Hours:	Thursday 12:30 – 2:00 PM Friday 3:30 – 5:00 PM		
Teaching Fellows:	Vikki Rodgers Meredith Zaccherio	Office: BRB 515 Office: BRB 515	vrodgers@bu.edu mtzach@bu.edu
Lectures:	MWF 9:00-9:50AM	Photonics, Room 210	
Laboratory Sections:	MTW 2:00-4:50PM	Metcalf Science Building, Room 409	
Required Texts:	*The Economy of Nature*. 5th Edition. Robert E. Ricklefs. W.H. Freeman and Co., New York		
Website:	PowerPoint lecture notes can be down loaded from http://courseinfo.bu.edu/		
E-mail:	E-mails received on Friday afternoon after 5:00pm will not be read before the following Monday at 10:30am. Please plan accordingly (especially for exams).		

Course Requirements:

1. Two hourly exams and one final exam
2. Attend all lectures (attendance will be take)
3. Attend all laboratory sessions (attendance will be taken)
4. Prepare and submit lab reports (as assigned)
5. Write one term paper
6. Participate in class and lab discussions
7. Calculator

Grading:	**Percent**	**Points**
Two Hourly Exams	40%	200
Final Exam	20%	100
Laboratory Reports (*Includes Term Paper*)	40%	200
Total	100%	500

Important Dates:

Last day to drop without a W grade is Tuesday February 22.
Last day to drop with a W is Friday, March 18.

Course Notes

Spring 2005

Objectives

The objectives of this course are to introduce you to the concepts and important topics in ecological research. We will integrate individual, population and community level processes to understand the factors that affect the distribution and abundance of organisms in the natural world. We will learn how ecological interactions regulate the flow of energy and elements in different ecosystems. We will also take a close look at the role of human activity in modifying ecological interactions. The foundations for the course are lectures, readings from the text, readings from the scientific literature, and discussions.

Lectures

Lectures are considered to be the core of the course. They are designed to introduce the important concepts in ecology, and help clarify information presented in the text and supplementary readings. Lectures will be illustrated with overheads and handouts, and occasionally slides and videos. A large fraction of the information presented is only available in lectures. Failure to attend lectures will seriously compromise opportunities for gaining the full benefits of this course. *Only two unexcused absences will be allowed without penalty. For each unexcused absence thereafter, your grade will automatically drop one-half grade for each absence (A to A-, A- to B+, B+ to B, etc.).* Attendance will be taken.

Laboratory

The laboratory is considered an integral part of the course and is thus required. Laboratory sessions consist of a mixture of field trips, lab exercises, and discussions. You may not change to another section without approval from your TF; it is important to keep the number of students in each section approximately equal. Attendance will be taken taken every week.. Labs are meant to be fun rather than a chore, so come with an open mind and a willingness to work hard, to ask questions, and offer an opinion! Five laboratory write-ups and one library review paper are required for this course. Guidelines for each write up and the library review paper will be discussed in the lab sections. *Due dates are absolute*! *Points will be deducted for late papers, and after one week the papers will not be accepted*.

Text and Supplemental Readings/Exercises

The text, *Economy of Nature,* 5th Edition by Robert E. Ricklefs, is meant to reinforce material presented in lecture. Each lecture has an associated reading assignment in a particular chapter. Some of the latest breaking news from the frontiers of ecological science will also be presented. This material is not covered in your text. This makes it absolutely critical that you attend lecture. There will also be a series of supplemental readings that will form the basis of occasional Friday morning discussions. Questions from these supplemental readings will be included on each hour exam and the final exam. Make sure you read the articles and participate in the Friday morning discussions to get the most out of these readings.

Independence of Work

The coursework should reflect your own contribution. While you should feel free to study together as a group, you cannot work together on your term papers or exchange information with one another on exams.

Studying for Exams

When studying for exams, you should rely equally on lecture material, relevant sections in your textbook and the supplemental readings. Questions on hourly exams and the final will be drawn from these sources. In other words, you should do the assigned readings and attend lectures if you expect to do well in the course.

Exams will be given during a regularly schedule lecture time. No make-up exams will be given without extensive documentation that the absence was unavoidable. In such cases, make-up examinations will be scheduled on a case-by-case basis.

Academic Conduct

Below is a reprint the CAS Code of Academic Conduct as it appears in the Undergraduate Bulletin. Departures from this code can have serious repercussions.

"For students in the College of Arts and Sciences charges of academic misconduct, such as cheating on examinations, theft of examinations, plagiarism, alteration of work after submission, or alteration of records are referred to the College of Arts and Sciences Academic Conduct Committee.

Students are advised that by vote of the College faculty, the penalty against College of Arts and Sciences students for cheating on examinations or plagiarism may be expulsion from the University or such other penalty as may be recommended by the committee on Student Academic Conduct, subject to approval by the Dean. All students are responsible for having read the College of Arts and Sciences statement on plagiarism, which is available in the *Academic Conduct Code*.

In all charges of academic misconduct against a student, the student is entitled to full procedural fairness in any disciplinary proceedings that may be conducted. A description of the procedures adopted by the Committee on Student Academic Conduct appears in the *Academic Conduct Code* available from CAS in room 105."

LECTURE SCHEDULE

Date		Topic	Text Assignment
January	19	Introduction and Course Overview	
	21	Population Structure	Chapter 13
	24	Population Growth	Chapter 14
	26	Population Regulation	Chapter 15
	28	Metapopulations	Chapter 15
	31	Population Fluctuation and Dynamics	Chapter 18
February	2	Population Fluctuation and Dynamics	Chapter 18
	4	Evolution and Adaptation	Chapter 16
	7	Evolution and Adaptation	Chapter 16
	9	Resources and Consumers	
	11	Sex: Guest Lecture, Dr. Michael Sorenson *Sexual selection in the Indigo birds of Africa*	No Reading
	14	Competition Theory	Chapter 19
	16	Competition in Nature	Chapter 19
	18	Competition in Nature	Chapter 19
	22	**EXAM 1** (*Monday Schedule of Classes*)	
	23	Predation	Chapter 17
	25	Predation	Chapter 17
	28	Concept of the Community	Chapter 21
March	2	Structure of the Community	Chapter 21
	4	Community Development	Chapter 22
	7th - 11th	***SPRING BREAK!***	
	14	Community Development	Chapter 22
	16	Biodiversity	Chapter 23
	18	Biodiversity	Chapter 23
	21	Animal Ecophysiology, Dr. Thomas Kunz	
	23	Animal Ecophysiology, Dr. Thomas Kunz	
	25	Plant Ecophysiology	Chapter 3

Date		Topic	Text Assignment
	28	Plant Ecophysiology	Chapter 3
	30	Plant Ecophysiology	Chapter 3
April	1	Climate, Topography…	Chapter 4
	4	…and Biomes	Chapter 5
	6	Aquatic Ecology (*In a nut shell…*)	
	8	**EXAM II**	
	11	The Ecosystem Concept	Chapter 6
	13	Carbon Cycling	Chapter 6
	15	Carbon Cycling	Chapter 7
	18	**No Classes**	
	20	Nitrogen Cycling	
	22	Nitrogen Cycling	Chapter 7
	25	Carbon – Nitrogen Interactions	Chapter 7
	27	Regulation of Ecosystem Function	Chapter 8
	29	Human Ecology I: Rising Atmospheric CO_2	Library Reserve
May	2	Human Ecology II: Nitrogen Fixation	Library Reserve
	4	Human Ecology III: Biotic Invasions	Library Reserve

LABORATORY SCHEDULE & GRADING

Teaching Fellows: Vikki Rodgers

Sections: Monday 2-5pm, Wednesday 2-5pm
Office: BRB 515 - **Phone**: 353-6989
E-mail: vrodgers@bu.edu
Office Hours: Wed 12-2pm

Meredith Zaccherio

Sections: Tuesday 2-5pm, Wednesday 6-9pm
Office: BRB 515 - **Phone**: 353-6989
E-mail: mtzach@bu.edu
Office Hours: Tues 9-11am

SCHEDULE

Date		Laboratory Exercise
January	17 - 19	No Labs
	24 - 26	Introduction & Forest Succession Intro to Excel
	31 - Feb 2	Life Table I: Data Collection (Field Trip to Mt Auburn Cemetery) * ***(Forest Succession Report Due)***
February	7 - 9	Plant Competition I: Experiment Set Up *
	14 - 16	Life Tables II: Data Analysis
	21 - 23	No Labs ***(Life Table Lab Report Due)***
	28 - Mar 2	Plant Competition II: Harvest and Drying ***(Research Paper approval form due)***
March	7 - 9	**SPRING BREAK**
	14 - 16	Plant Competition III: Weighing and Statistics *
	21 - 23	Estimating Population Density * ***(Plant Competition Lab Report Due)***
	28 - 30	Evolutionary Ecology * ***(Pop Density post-lab due)***
April	4 - 6	Ecosystem Ecology I: Lab Methods * ***(Evol Ecology post-lab due)***
	11 - 13	Ecosystem Ecology II: Data Analysis
	18 - 20	No Labs ***(Ecosystem Ecology Lab Report Due)***
	25 - 27	Optimal Foraging * ***(Opt Foraging due in lab)*** ***(Library Research Paper Due)***
May	2 - 4	Oral Presentations

*** = Pre-lab questions due on this date**

GRADING

Assignments:	**Points**	**Lab Percentage**	**Percent of Total Grade**
Forest Succession Lab Report	10	5%	2%
Life Table Lab Report	30	15%	6%
Plant Competition Lab Report	30	15%	6%
Ecosystem Ecology Lab Report	30	15%	6%
Estimating Population Density Post-lab	7	3.5%	1.4%
Evolutionary Ecology Post-lab	7	3.5%	1.4%
Optimal Foraging Post-lab	7	3.5%	1.4%
Pre-lab Questions (7 x 2pts each)	14	7%	2.8%
Term Paper & approval form	45	22.5%	9%
Oral Presentation	20	10%	4%
TOTAL	200	100%	40%