Syllabus

Biology 141 General Biology I
Fall Semester 1998

Professor: Bruce Ostrow, Ph.D. **Office**: Pierce 104
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Office Hours: Monday through Friday 11:00 a.m. -12:00 p.m. *and* by appointment

Lecture Hours: Monday, Wednesday, Friday 10:05 - 10:55 a.m. **Room**: Pierce 102
Lab Hours: Tuesday 2:00 - 5:00 p.m. **Room**: Pierce 125

Required Text: (available at bookstore)
Biology, 4th ed. Campbell, Neil A. Benjamin/Cummings Publishing Company, Inc. 1996.

Required Lab text (available at bookstore)
Investigating Biology, 2nd ed. Morgan, Judith Giles and M. Eloise Brown Carter. Benjamin/Cummings Publishing Company, Inc. 1996. *Used lab manuals are not acceptable in this course.*

Course Plan:

1. The objective of this class is to learn the core concepts of several fields of Biology and to discuss issues relevant to these fields including social and environmental issues. There is no prerequisite for this course.

2. Attendance at all lectures and labs is required. The Biology Department Absence Policy is detailed at the end of the syllabus.

3. Your success in learning the material is dependent on attending class, taking good notes, and participating in discussion. You must work to understand the ideas, not just memorize the material. Open discussions that are informative and thought provoking will happen only if you come to class prepared. All lectures are structured to allow time for questions and discussion. You are encouraged to come to my office hours for additional discussion.

4. Supplemental Instruction is provided for this course. You are encouraged to form study groups and to work with your peers. However all work turned in is expected to be of your own thoughts and construction.

5. In the lab, we will be working with potentially infectious microbes and dangerous materials. **Food and drinks are absolutely prohibited**! It is imperative that you read the lab before attempting the experiment. Although we will be performing routine experiments, they might not work. Do not be disappointed, but consider failure as a lesson in setbacks typically encountered during research. We will discuss methods of troubleshooting.

6. Cheating is not acceptable. You must abide by the Honor Code. Your signature on items turned in for credit (examinations, homework, lab work) attests to your upholding the Honor Code.

7. Visitors are welcome to attend class with prior approval by the professor. Visitors will NOT be allowed on any field trips.

8. Evaluations of the course will be made during the week before the final exam. These are collected by students, given to the department, and are not seen by the instructor.

9. Grading			
	3 lecture exams	43%	300 points
	3 lab exams	21%	150 points
	1 final exam	25%	175 points
	6 writing assignments	5%	35 points
	1 lab project	7%	50 points
	Total	100%	710 points

Tests

There will be three lecture exams, three lab exams and a Final. Lecture exams will include multiple choice questions, questions requiring short answers, and longer essay questions. Lab exams have both a written part and a practical component. The Final exam will be comprehensive. Exams are held on Thursday mornings. Tests will be taken at the scheduled time. **There will be absolutely no makeup tests!**

Writing assignments

Library Exercise (5 points)

The objective of this exercise is to acquaint you with the Oxford College Library scientific literature holdings and how to conduct a scientific literature search. On Tuesday September 15, we will meet in the Library at which time you will get a worksheet that is due in class on Monday Sept. 21.

Lab writing assignments (20 points)

There is a writing assignment associated with four of the lab exercises. Each of those weeks, you will write one or two sections of a scientific paper. Writing assignments are due the beginning of the next lab period after the exercise is completed.

Interview with the Biologist (10 points)

The objective of this exercise is to acquaint you with what it means to be a biologist and what it takes to be a biologist. You will find someone employed in a field of Biology and after approval by the professor, conduct an interview with that person. You will write a report stating a) why you chose to interview that person, b) what you found and c) how the interview affected your thinking. This typed, double-spaced report is due on October 23 but can be turned in anytime before that.

Lab Project

During one lab period (week 10) you will complete a self-directed laboratory exercise. Using the skills learned from the writing assignments, you will write a complete scientific paper presenting the results obtained in your experiment. The lab project paper is due Tuesday Nov. 17.

Class Participation

The final grade you receive can be influenced by your attendance and class participation.

Your grade in the course will be based on a point system with an approximate total of 700 points. The scale is:

90-100% = A
80-89% = B
70-79% = C
60-69% = D
<60% = F

Plus and minus grades are given.

Course Schedule

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Week	Day	Date	Topic	Book Chapters
1	Wed.	Aug. 26	Introductions; The Scope of Biology	
	Fri.	Aug. 28	The Scientific Method	1
2	Mon.	Aug. 31	The Chemistry of Life: inorganics	2, 3
	Wed.	Sept. 2	The Chemistry of Life: carbohydrates and lipids	4, 5
	Fri.	Sept. 4	The Chemistry of Life: proteins and nucleic acids	5
3	Mon.	Sept. 7	No Class (Labor Day Holiday)	
	Wed.	Sept. 9	The Cell: The Unit of Life	7
	Fri.	Sept. 11	Membrane structure	8
4	Mon.	Sept. 14	Cellular transport	8
	Tues.	Sept. 15	Scientific Literature and Research (Handout) (Meet in the Library, 8:30- 9:30 a.m.)	
	Wed.	Sept. 16	Energy: enzymes, ATP, and electron carriers	6
	Thurs.	Sept. 17	**EXAM I 8:00 - 9:30 a.m. (through membrane transport)**	
	Fri.	Sept. 18	Cellular respiration I - Glycolysis	9
5	Mon.	Sept. 21	Respiration II - Transition and the TCA Cycle	9
	Wed.	Sept. 23	Respiration III - Electron Transport and Chemiosmosis	9
	Fri.	Sept. 25	Review of Respiration	
6	Mon.	Sept. 28	Energy for Life: Photosynthesis	10
	Wed.	Sept. 30	Photosynthesis I: light dependent reactions	10
	Fri.	Oct. 2	Photosynthesis II: light independent reactions	10
7	Mon.	Oct. 5	Review of Respiration and Photosynthesis	
	Wed.	Oct. 7	Continuity of Life: Mitosis and Cell division	11
	Fri.	Oct. 9	Continuity of Life: Meiosis and Life Cycles	12
8	Mon.	Oct. 12	No Class (Midsemester Break)	
	Wed.	Oct. 14	Chromosomal mutations	14
	Thurs.	Oct. 15	**EXAM II 8:00 - 9:30 a.m. (through photosynthesis)**	
	Fri.	Oct. 16	Mendelian Genetics	13

9	Mon.	Oct. 19	Non-Mendelian Genetics: Sex Linkage	14
	Wed.	Oct. 21	The Central Dogma: Replication	15
	Fri.	Oct. 23	Central Dogma II: Transcription and the genetic code	16,**
10	Mon.	Oct. 26	Central Dogma III: Translation and genetic mutations	16
	Wed.	Oct. 28	Control of gene expression	18
	Fri.	Oct. 30	Charles Darwin and the changing paradigm	20
11	Mon.	Nov. 2	Evidence for evolution	20, 23
	Wed.	Nov. 4	The power of molecular evolution	
	Thurs.	Nov. 5	**EXAM III 8:00 a.m. - 9:30 a.m. (through genetics)**	
	Fri.	Nov. 6	Microbiology: Viruses, Prokaryotes, and Protists	17, 25, 26
12	Mon.	Nov. 9	Adaptations to the land environment	27
	Wed.	Nov. 11	Bryophytes and seedless vascular plants	27
	Fri.	Nov. 13	Sexual reproduction in seed plants	27, 34
13	Mon.	Nov. 16	Review of plant evolution	
	Wed.	Nov. 18	Plant structure and function	31
	Fri.	Nov. 20	Transport in plants	32
14	Mon.	Nov. 23	Ecology I: population dynamics	46, 47
	Wed.	Nov. 25	No Class (Thanksgiving Break)	
	Fri.	Nov. 27	No Class (Thanksgiving Break)	
15	Mon.	Nov. 30	Ecology II: ecosystem structure and function	49
	Wed.	Dec. 2	Ecology III: community dynamics	48
	Fri.	Dec. 4	Habitats, Biodiversity, The Future of Life on Earth	
16	Mon.	Dec. 7	Review for Final; Course Evaluations	
	Wed.	Dec. 9	No Class (Reading Day)	

Finals Tues. Dec. 15 2:00-5:00 p.m. **Final Exam**

** Interview with the Biologist Due