Biology 120
Concepts in Biology
Spring Semester 2001

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Office Hours: Mon. through Fri. 11 a.m. -12 noon *and* by appointment

Lecture Hours: Tuesday, Thursday 9:35 a.m.-10:50 a.m. **Room**: Pierce 102
Lab Hours: Wednesdays 2:00 p.m.-5:00 p.m. **Room**: Pierce 123

Required Text: (available at bookstore)
Biology: Concepts and Applications, 4th ed. Starr, Cecie. Wadsworth Publishing Company. 2000.

Required Labtext: (available from Biology Department)
Laboratory Manual for Concepts in Biology, 3rd ed. Morgan, Judith Giles. Emory University Press, 1998.

Course Plan:

1. The objective of this class is to explore the core concepts of energy flow through biological systems by examining the biology of food, metabolism, and ecological relationships. Each day we will start with an observation about food and ask a question about that observation. We will then explore various hypotheses intended to answer that question. I can certainly lecture the whole class, but I prefer if the class is student-driven. Therefore it will be up to you to participate, if not lead the discussion. There will be times when you do run the class in the form of a presentation of your research. There is no prerequisite for this course.

2. This course has been approved as a writing intensive course. Therefore to satisfy the writing requirement, almost every week you will be turning in a writing assignment. You will write three current topics reports, three research papers, and one poem. You will be given general instruction in science writing and specific instructions for each writing assignment. You will be required to meet with me to go over your first research paper draft. You will get feedback on all research paper drafts and will have the opportunity to revise some of your writing assignments. Information about specific writing assignments is given below and details about each writing assignment will be discussed in class two weeks before the assignment is due.

3. Attendance at all lectures and labs is required. The Biology Department Absence Policy is reproduced at the end of this syllabus. Your success in learning the material is dependent on attending class, taking good notes, and participating in discussion. Open

discussions that are informative and thought provoking will happen only if you come to class prepared. All lectures are structured to encourage time for questions and discussion.

4. You are encouraged to form study groups and to work with your peers. However all work turned in for credit is to be of your own thoughts and construction. You must work to understand the ideas, not just memorize the material. You are encouraged to come to my office for additional discussion.

5. In the lab, we will be working with potentially infectious microbes and dangerous materials. There will be dissections of sharks, pigs, fish, earthworms, food pellets, and flowers. **Food and drinks are absolutely prohibited!** It is imperative that you read the lab before attempting the experiment.

6. We have a Learnlink Class Conference entitled "120 Ostrow" in the Oxford College/Class Conferences/Biology folder. Place the icon on your desktop and check the conference daily for announcements. Feel free to post messages related to the class.

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

8. I do not provide back-tests for this class. If you know of any back-tests for this class, please let me know and then I will make them available for the whole class.

9. Late material is accepted but I deduct 10% per day late.

10. Grading Your grade in the course will be based on a point system with an approximate total of 590 points. The final points for each item may vary.

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

Plus and minus grades are given.

2 midterm exams	34%	200 points
1 final exam	20%	120 points
3 lab exams	23%	135 points
8 writing assignments	23%	135 points
Total	100%	590 points

Tests

There will be two midterm exams and a final exam. Lecture tests will include multiple choice questions, short written answers and written essays. The Final exam will have a comprehensive essay. Lab tests have both a written part and a practical component. Tests will be taken at the scheduled time. If you are too sick to take a test **you must let me know prior to the test**; otherwise you will receive a 0 for that test!

Writing Assignments

All writing assignments will be typed, double-spaced, 12 point font, and due on the days listed in the schedule below. You must properly reference all citations (author, title of article, source, date, volume and page numbers, and publisher).

1 Library Resources Exercise (1 page) 5 points

The objective of this exercise is to get you used to finding research materials online and obtaining them in the library. You will use the handout provided in class to search various databases for a specific subject. The completed exercise is due in class Jan. 23.

3 Current Topics Reports (2 pages minimum each) 15 points each

The objective of these exercises is to acquaint you with Biology topics in the news. You should peruse newspapers and newsmagazines for an article about Biology (preferably the biology of food). Your current topic report (CTR) should contain a paraphrased summary describing the main highlights of the article (not just a repetition of what the article says), some background about the topic, and an opinion including your own thoughts, judgements or reactions to the article. Cite the article and any supplementary material in the text and reference them at the end. Include a copy of the article with your report.

One CTR article will be from a newspaper (e.g. Atlanta Journal-Constitution, New York Times), one article will be from a newsmagazine (such as *Discover, Time, Newsweek*), and the third article will be from either a newspaper or newsmagazine. Show me the articles before writing so I can confirm if they are appropriate.

3 Research papers

A. Cereal component (3 pages minimum) 20 points

I will provide you with a list of cereal components (e.g. niacin) from which you will choose. For your chosen cereal component, you will research its Biology and answer the following questions: What is it? Does it have another name? What is it doing in the cereal? Which cereal ingredient supplies it? Why do humans need it? What are the benefits of eating it? Where in the body do humans need it? How do humans use it? How much is needed per day? How does it taste? What is another food source of it? (Not all questions are pertinent to every component!). We will discuss our research in class during the Cereal Forum on February 8.

B. Strange foods (4 pages minimum) 25 points

Again I will provide you with a list of esoteric, unique, obscure, and questionable foods (e.g. haggis) from which you will choose. For your chosen food, you will research its Biology and history, maybe include a recipe, and answer the following questions: What is it? What is its scientific name? Where does it grow? How is it made? Where is it made? Who eats it? How is it served? How does it taste? What are the nutritional/dietary benefits of eating it? Have you ever eaten it? Do you know someone who has eaten it? Would you ever eat it? (Not all questions are pertinent to every food!). We will discuss our research in class during the Strange Food Forum on March 8.

C. Pesticide Usage (5 pages minimum) 30 points

In our unit on improving crop yield, we will be exploring the use of pesticides. You will research the Biology of pesticides and answer the following questions: What are pesticides? How are they made or obtained? Where are they made? Where are they used? How are they applied? How do they work? What are the risks/benefits of using them? Are they toxic, persistent, or damaging to the environment? What is your opinion about the use of pesticides? We will discuss our research and opinions in class during the Pesticide Forum on April 24.

1 Poetry (1 page minimum) 10 points

You are to write a poem about any subject of Biology that interests you. This can be written in any poetic format (rhyme, prose, ode, ballad, elegy, haiku, etc.). Your poem must be a minimum of 15 lines (equivalent to a sonnet plus title or 5 haikus). We will read our poems in class during the Poetry Slam! on March 20.

If you have not read any biology poetry you might want to peruse The Innocent Assassins, a 1973 book of poems by the late biologist and essayist Loren Eiseley (on 2-hour reserve at the Hoke O'Kelley Memorial Library).

Class Participation

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

Lecture Schedule

Biology 120 Concepts in Biology
Spring Semester 2001

Week	Date	Topic	Reading	Writing
1	1/18	Introductions, Resources, What is life?	Ch. 1; pp. 468-9	
2	1/23	Ecology of Food: Who eats who?	Ch. 41	Library Resources
	1/25	The Chemistry of Food: What is Food?	Ch. 3	
3	1/30	Olfaction, gustation, dentition	pp. 503, 603	
	2/1	Digestive Physiology I	Ch. 36	Cereal draft
4	2/6	Digestive Physiology II	Ch. 36	
	2/8	Cereal component Forum		Cereal paper
5	2/13	Food Acquisition Strategies	pp. 494-502	
	2/15	**EXAM I**		
6	2/20	Nutritional modes: Photosynthesis	Ch. 6	
	2/22	Nutritional modes: Respiration	Ch. 7	CTR 1
7	2/27	What's for dinner? Fungi and Plants	Ch. 21, 22	
	3/1	What's for dinner? Animal Diversity	Ch. 23, 24	Food draft
8	3/6	Microbiology of food	Ch. 20	
	3/8	Strange Food Forum		Food paper
		Spring Break March 12-16		
9	3/20	Poetry Slam!		Poem
	3/22	**EXAM II**		
10	3/27	Food Safety	Handout	
	3/29	Improving Crop Yield	Handout	CTR 2
11	4/3	Genetics of Food	Ch. 13, 14	
	4/5	Genetically Modified Organisms	Ch. 15	CTR 3
12	4/10	The struggle for food: Malthus and evolution	Ch. 16, 18	Pesticide draft
	4/12	The struggle for food: dynamic interactions	Ch. 39, 40	

Week	Date	Topic	Reading	Writing
13	4/17	Too much/Too little food	pp. 610-615	Pesticide draft 2
	4/19	Eating Disorders	Handout	
14	4/24	Pesticide Forum		Pesticide paper
	4/26	The Future of Food	Ch. 43	
15	5/1	MayDay! Review for Final on Thursday		
Thursday		5/3 2-5pm **Final Exam**		

Lab Schedule

Biology 120 Concepts in Biology
Spring Semester 2001
Wednesdays 2-5pm

Week	Date	Topic
2	Jan. 24	Scientific Investigation (Exercise 1)
3	Jan. 31	The Microscope; The Cell (Exercise 2)
4	Feb. 7	The Digestive System (Exercise 10.1)
5	Feb. 14	Testing Food Components (Exercises 10.2, 10.3)
6	Feb. 21	**LAB EXAM I** (first hour) Photosynthesis (Exercise 3)
7	Feb. 28	Plant Diversity and Anatomy (Exercise 8)
8	March 7	Animal Diversity (Exercise 9)
		Spring Break March 12-16
9	March 21	Monera, Protista, and Fungi (Exercise 7)
10	March 28	**LAB EXAM II** (first hour) Cellular Reproduction (Exercises 5.1-5.3)
11	April 4	Cell Membranes and Transport (Exercise 4)
12	April 11	Foraging Strategies
13	April 18	Aquatic Ecology (Exercise 11) (we will jump in a lake)
14	April 25	**LAB EXAM III (in lab)**

ABSENCE POLICY - Biology Department

All students are expected to attend all lecture and laboratory sessions. However, emergencies may arise which will necessitate absences from class. **Students are allowed 4 cuts in lecture and NO CUTS in lab.** Students may only miss lab without penalty in cases of illness, family emergency or a school sponsored event which is cleared with the professor in advance. Students are responsible for all material which is covered in laboratory and lecture. When possible, students will be allowed to "make-up" laboratory material missed due to an excused absence, however, because of the nature of laboratory material, actual "make-up of missed activities is usually impossible.

PENALTIES

Students who exceed the 4 cut limit in lecture for whatever reasons or have an unacceptable absence from laboratory will have their FINAL grade reduced 5 points per absence. Students who miss 2 labs without acceptable reasons will fail the course (see below).

LECTURE ABSENCES:

THERE ARE NO EXCUSED ABSENCES FOR LECTURE. Each student may be absent four times without penalty. These four cuts may be used for any reason: illness, studying, travel, family emergency, etc. However, ANY additional cuts will result in grade reduction. USE YOUR CUTS JUDICIOUSLY, e.g. for sick leave only.

ACCEPTABLE LABORATORY ABSENCES

Although no discretionary absences, i.e. "cuts", are allowed regarding laboratory, on rare occasions, illness, family emergencies, or certain school sponsored events may make it necessary for a student to miss a laboratory session. The instructor MUST be notified prior to the day of the absence in all but the most extreme emergencies.

In all cases, the final decision regarding whether or not an absence is acceptable will be made by the instructor.

AN UNACCEPTABLE ABSENCE FROM LABORATORY RESULTS IN A FIVE POINT REDUCTION IN THE FINAL GRADE. TWO UNACCEPTABLE LABORATORY ABSENCES RESULT IN FAILURE OF THE COURSE.

MISSED TESTS

Ordinarily, tests cannot be made up, however, this is up to the instructor. If a student misses a test, and the absence is acceptable the missed test will not count either for or against the student. If the absence is not excused the grade will be a zero. Students are cautioned that any excuse for missing an exam will come under severe scrutiny by the instructor. **THE INSTRUCTOR MUST BE NOTIFIED PRIOR TO THE TIME OF THE EXAM, AND THE INSTRUCTOR MAKES THE FINAL DECISION REGARDING WHETHER OR NOT AN ABSENCE IS ACCEPTABLE.**

Laboratory tests which are missed for a reason that is excused MUST be made up. The instructor must be notified prior to the time of the test.

RELIGIOUS HOLIDAYS:

Students must notify the instructor one week in advance if they intend to be absent for a religious holiday.

TARDINESS

Being late to class is rude and distracting. Continued tardiness by any student will result in the assignment of absences and ultimately a reduction in the student's grade. Three tardies equal an absence. The tardy student is responsible for notifying the instructor that she/he entered the classroom late and, therefore, was not absent. The instructor reserves the option of excluding a person from further classroom or laboratory participation if the student is continuously tardy.

Falsification of information regarding absences from class or laboratory will be considered as a breach of academic integrity.

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