BIOLOGY 1320 **MODERN BIOLOGY 1: MOLECULES & CELLS**

DR. UPCHURCH **FALL 2007**

Section 004, MW 2:00-3:15 p.m., ASBS 315 **Tentative** lecture and examination schedule

DATE	LECTURE TOPIC	STARR AND TAGGART, 10th edition
8/22	Introduction	No assigned reading
8/27	Concepts and methods in Biology	Chapter 1
8/29	Chemical foundations for cells	Chapter 2
9/3	**Labor Day, classes do not meet**	
9/5	Carbon compounds in cells	Chapter 3
9/10	Cell structure and function-1	Chapter 4
9/12	Cell structure-2	Chapter 4
9/17	Cell membranes-1	Chapter 5
9/19	Cell membranes-2; Metabolism-1	Chapter 5, 6
9/24	Ground rules of metabolism-2	Chapter 6
9/26	Review of material/catch up	
10/1	**HOUR EXAM 1 (Introduction through Metabolism)**	
10/3	Cellular respiration-1	Chapter 8
10/8	Cellular respiration-2, Photosynthesis-1	Chapter 7, 8
10/10	Photosynthesis-2	Chapter 7
10/15	DNA structure and function	Chapter 13
10/17	Protein synthesis	Chapter 14
10/22	Cell division: Mitosis and Meiosis	Chapter 9, 10
10/24	Reproduction	Chapter 10
10/29	**HOUR EXAM 2 (Respiration through reproduction)**	
10/31	Mendelian genetics-1	Chapter 11
11/5	Mendelian genetics-2	Chapter 11
11/7	Human genetics-1	Chapter 12
11/12	Controls over genes	Chapter 15
11/14	DNA technology; PCR and DNA fingerprinting	Chapter 16
11/19	**Out of class assignment**	
11/21	**Classes do not meet (Thanksgiving vacation).**	
11/26	**HOUR EXAM 3 (Mendelian genetics through DNA fingerprinting)**	
11/28	Information flow and the neuron; nervous systems-1	Chapter 34
12/3	Drugs and the brain-1	Chapter 34
12/10	**FINAL EXAM (Comprehensive), 2:00 to 4:30 p.m., MONDAY**	

(http://www.registrar.txstate.edu/persistent-links/final-exam-schedule/contentParagraph/01/document/Fall%20Final%20Exam%202007.pdf)

Biology 1320 **Instructor: Dr. Gary Upchurch**
Modern Biology 1 **Office: JCS 338**
Fall 2007 **Telephone: 245-3751**
Course Policies **Email: gu01@txstate.edu**

OFFICE HOURS
MW 1-1:40 p.m.
After class in the ASBS lounge
By appointment

Please stop by during office hours or see me right after class if you have questions concerning the material. Please make an appointment if you need to see me at other times. As a general policy I do not answer questions about material on the day of an examination.

TEXTBOOKS

BIOLOGY: The Unity and Diversity of Life, by Cecie Starr and Ralph Taggart (**required–**lecture text) (The 10th edition is preferred because of lower cost, but the 11th edition is acceptable.)

Dictionary of Word Roots and Combining Forms, by Donald Borror (optional, but it is inexpensive and really helps you understand the terms)

The study guide for the 11th edition of Starr and Taggart is optional. Many students like it because it provides them with specific exercises and learning goals.

COURSE DESCRIPTION

Biology 1320 focuses on the important features of life at the molecular and cellular level. This course has four major areas of emphasis:

1. Cell structure and organization;
2. Important chemical processes within cells;
3. Principles of inheritance (genetics);
4. Physiology of relevance to human affairs.

The first set of lectures reviews the fundamentals of chemistry and provides an overview of cell structure and the principles of metabolism. The purpose is to give you the background necessary to understand the biology of the cell.

The second set of lectures provides an overview of the most important processes that occur within the cell. The first lectures in this set describe the principles of bioenergetics and provide an overview of respiration and photosynthesis. This is important, because the energy used to run cellular processes is derived from respiration and photosynthesis. The next lectures describe the structure of DNA and the process of protein synthesis. The last lectures in this set provide an overview of cell division and reproduction, which are needed to understand genetics.

The third set of lectures provides an overview of genetics. The section starts with the principles of inheritance with an emphasis on human genetics. This leads into a discussion of gene regulation and the principles of biotechnology and forensic DNA.

The fourth set of lectures describes the physiology of the nervous system, starting with individual nerve cells and ending with a discussion of brain function. The last lecture discusses the biology of drug use and drug addiction.

COURSE OBJECTIVES

Biology 1320 has six major objectives.

1. To provide the student with an understanding of basic cell structure and function.

2. To provide the student with an understanding of bioenergetics, including the transformation of energy within human cells and the means by which the energy of the sun ultimately feeds the biosphere.

3. To provide the student with an understanding of gene structure, function, and regulation, and the relevance of these areas to human affairs (e.g., cancer, birth defects).

4. To provide the student with an understanding of inheritance, with emphasis on how humans acquire their similarities and differences.

5. To provide the student with a basic understanding of biotechnology and forensic DNA.

6. To provide the student with a basic understanding of neurobiology, with the goal of understanding why people use drugs.

The overriding goal of Biology 1320 is to provide the student with some of the knowledge needed to understand the biotechnological world of the 21st Century. After completing this course people will be able to make better-informed decisions involving biology, both as voters and as jurors.

READING ASSIGNMENTS

Reading assignments are listed on page 1. Read the assigned material **before class** to prepare for lecture. Do the before-class reading as follows.

1. Read the Key Concepts and Summary.
2. Read the Main body of text for key words and general concepts.
3. Familiarize yourself with the illustrations.

After class you should do the following.

1. Re-read the Key Concepts and Summary.
2. Reread the main body of the chapter for detail.
3. Review the illustrations.
4. Review your lecture notes.
5. Review the Selected Key Terms at the end of the chapter.
6. Work through the Review Questions, Self Quiz, and Critical Thinking sections at the end of the chapter.

Please keep up with the assigned readings. Pace yourself, as you would in a long-distance marathon. Do not put off the assigned readings until right before the test. This almost always results in poor test performance. You should allot two hours to reading and studying for every hour spent in lecture. This is typical of a university class.

Please read the assigned material before coming to class. My lectures move much faster than those of a high-school biology class because I expect more out-of-class work on your part. **Lack of prior familiarity with the lecture material will create a major disaster <u>for you</u> because you will not adequately understand a large block of lecture material.**

The lecture starts with basic concepts, then builds on these concepts to introduce new concepts. Do not attempt to just memorize facts for tests! Straight memorization is a sure way to earn a low grade.

What will be on the tests? In brief, everything presented in the lecture is fair game on exams. I may assign reading material for exams as well.

I expect all students to conform to the Texas State University code of academic honesty (**http://www.txstate.edu/effective/upps/upps-07-10-01.html**). Cheating will not be tolerated. Cheating includes, but is by no means restricted to, copying answers from other people's tests, looking at other people's tests while taking an exam, and having another person take an exam for you. Please do not talk to another person while taking an exam, because this looks like collusion. People accused of cheating will be subjected to disciplinary procedures.

For each testing period, students will be expected to put their books, backpacks, purses, and other personal items in the aisles. Cell phones must be turned off! No cell phone calls are allowed during a test.

CLASSROOM POLICIES

1. **Attendance—**I do not require lecture attendance but recommend it highly. Students who regularly skip classes are the ones most likely to earn D's and F's.

   Before you decide to skip class ask yourself, "Do I really want to earn a D or F in Biology 1421?" Please do not become a statistic.

2. **Cell phones—**All cell phones must be turned off. (The exception is someone who is awaiting information on a family emergency.) Cell phone conversations and text messaging should not take place within the classroom.

3. **Newspapers—**Newspapers and other non-class reading material should be put away during class.

4. **Late arrivals—**People who arrive late or leave early should use the side aisles and avoid walking in front of the lecture podium. People should not try to walk in front of me or past me if I am up in the room and not behind the podium.

5. **Talking—**Please refrain from conversing with your neighbor unless the class is having a question and answer session or a discussion session. The acoustics of the lecture room are good, and talkers can disturb people many seats away. People who talk persistently may be asked publicly to stop.

   However, please raise your hand and ask me questions! This is an important part of the learning process.

6. **Academic honesty—**I expect all students to conform to the Texas State University code of academic honesty (**http://www.txstate.edu/effective/upps/upps-07-10-01.html**).

7. **Tests—**Please put all books and other items in the aisles before tests are distributed. Please do your own work and do not do anything that could be construed as cheating. Cheating includes copying answers from other people's tests, looking at other people's tests while taking an exam, and having another person take an exam for you.

   Please do not talk to another person while taking an exam. No cell phone calls are allowed during tests.

COURSE NOTES

Course notes are provided on Blackboard prior to lecture. These notes form an outline and are identical to what I provide on overhead transparencies. You are welcome to print out the notes and use them to follow along during lecture. That way you can focus on what I say and annotate as needed.

MY BLACKBOARD SITE

On my blackboard site you will find the syllabus, reading assignments, course notes, study questions, and additional material. **You must have a Texas State computer account to use this site**; outside accounts (such as Hotmail and AOL) will not work. I will be setting up the site over the next few days so that you can get notes prior to the next lecture. Please go the ready room at Derrick Hall (by the library) to set up a computer account if you do not already have one.

OUT-OF-CLASS WORK

I expect all students to put in significant out-of-class work. You probably need to spend 2–3 hours working outside of class for every hour spent inside of lecture to learn the material well. Out-of-class work includes reading the text, reviewing lecture notes, answering study questions, and so on. Try to develop the discipline needed to keep up with the work as the semester proceeds instead of waiting until just before the lecture exams. This discipline will usually pay off in a better grade.

Please see me if you need help.

Please keep in mind: Confusion precedes understanding. Confusion is an important part of the learning process. Do not grow discouraged if at first you have problems with the material.

LECTURE EXAMS

Lecture exams will be given as scheduled. Make-up exams will be given **only** if you have a **documented excuse** and **notify me in advance**.

Lecture exams are in multiple-choice format. The questions come in two forms: 1) standard questions, and 2) story and picture problems. The standard questions ask for basic recall of facts and concepts. The story and picture problems ask you to recognize a structure, interpret a graph or diagram, or apply your knowledge to a new situation. With respect to types of questions, my tests are similar to math tests, which have both calculation problems and story problems.

I supply a sample test prior to exam 1 but otherwise do not post tests on Blackboard.

Please write questions for the hour exams and final exam and email them to me. I like to use questions that are suggested by the students. I will give you one (1) bonus point for every exam question that I use.

EXTRA CREDIT

I give extra credit for exam questions. I also (when indicated on blackboard) give extra credit for out-of-class assignments. Extra credit, when given, must be available to all members of the class. **I do not give extra credit assignments on an individual basis; this is unfair to the rest of the class.**

GRADING

You may earn a total of 500 points in this course.

Hour exam 1	100 points
Hour exam 2	100 points
Hour exam 3	100 points
Final exam	200 points
Total	500 points

Final grades will be assigned using the following guidelines.

90–100%	A
80–89%	B
70–79%	C
60–69%	D
0–59%	F

I generally curve little or none for grades of A and B and a bit more for grades of C and D. Any student with a final average above one of the guideline cutoffs will make at least that grade.

MIDTERM GRADES

I will report midterm grades for all students making D's and F's.

FINAL GRADES

I will not post final grades. I will send you your final grade if provided with a stamped, self-addressed envelope. Final grades cannot be given over the telephone (Texas State Law).

PLEASE CONSIDER THE FOLLOWING.

Grades reflect the distribution of student performance within a class. A grade curve is a normalized distribution where the grades are assigned on the basis of relative performance. Thus, only about 30-40% of the class will earn a grade of either A or B. The remainder of the class will earn a grade of C, D, or F.

The grade curve is normalized to a final class average of about 76%. (This excludes drops and people who stopped taking exams.) I do little curving because the final class average is usually around 75%.

In the past, a few students have attempted to negotiate grade cutoffs and special deals based on their perceived personal circumstances. Please do not do this. Special deals are unfair to the other people in the class. **I will not negotiate special deals.**

So what about the curve? I only go so low with my grade cutoffs and then go no further. In particular, I go only as low as my historical curve. This means that, if the class shows poor performance due to a high rate of non-attendance, a high proportion of D and F grades will be assigned.

My Fall 2006 section of BIO 1320 had the highest rate of non-attendance and, not surprisingly, the highest proportion of D's and F's. **Please do not make the mistake of thinking that the curve can make up for poor attendance.**

COURSE DROPS

The policy regarding dropping and withdrawing from the university has been changed for the 2007-2008 Academic Year. Dropping means that you remain enrolled for at least one credit hour, while withdrawing means that you are no longer enrolled in classes. Please see the registrar's web site and the Fall academic calendar for an explanation of the policy change and details.

The last date to drop with a full refund is September 7. The last day you can drop with an automatic "W" is October 22. The last day you can drop and remain enrolled in at least one credit hour is October 23. The last day that you can withdraw from the university is Monday, November 19. Information on this is provided at **http://www.registrar.txstate.edu/persistent-links/academic-calendar/fall07/contentParagraph/0/document/Fall%202007.pdf**

SPECIAL NEEDS

Students with special needs (as documented by the Office of Disability Services) should identify themselves at the beginning of the semester.

INTELLECTUAL PROPERTY ISSUES

My lectures and exam questions are protected by copyright law. They are my own original expression and are properly recorded to bring them under the protection of the U.S. copyright laws. You are authorized to take notes in class and to be provided answers to examination questions, thereby creating derivative works from my lectures and examinations. However, this authorization extends only to making one set of notes or answers for your own personal use and no other use. You are not authorized to record my lectures, to provide notes or examination questions to anyone else, or to make any commercial use of them without my prior written consent.