

Bio 301L: Molecules to Organisms (Spring 2011)

TTh 12:30-2pm in BUR 112

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see class webpage for TA office hours, etc.

Week	Topic(s)	Relevant Textbook Chapter(s)
1. 1/18	Introduction and What is Life?	1
2. 1/25	Strong Inference and Experiments	(article on webpage)
3. 2/1	How do cells function?	6, 7
4. 2/8	What is a gene?	16, 17, 18
5. 2/15	Nature and Nurture	51
Thursday 2/17	Exam 1, in class and take-home due	
6. 2/22	Cancer: What is it and how to treat it?	12, 18.5
7. 3/1	Cancer and Evolution	22, 23, 24, 25
8. 3/8	Bacteria, Viruses, and Pathogens	19, 27
3/14-18	<i>no class, Spring Break</i>	
9. 3/22	How do organisms protect themselves?	39, 43
10. 3/29	How do organisms get energy and materials?	36, 37, 41
Thursday 3/31	Exam 2, in class and take-home due	
11. 4/5	How do organisms move materials?	36, 42
12. 4/12	How do organisms sense and respond to the environment?	39, 48, 49, 50
13. 4/19	Reproduction	
14. 4/26	Genetically Modified Organisms	20
15. 5/3	Genetically Modified Organisms	
Thursday 5/5	Exam 3, in class and take-home due	
Sat. 5/14	Optional Final Exam (2-5pm)	

Monday, **March 28** is the last day to drop a course except for non-academic reasons.

Classes will be divided between three different activities. About 50% of classes will be lectures where I present information from different sources related to the class topic. Approximately 33% of classes will be discussion driven, where I will assign a reading assignment one week before the lecture. Before class you will be asked to answer some questions about the reading assignment, and then during class, we will discuss parts of the reading assignment. These discussions will be in small groups as well as with the whole class. Lastly, in about 20% of classes we will perform an activity with the goal of making our own discoveries.

Assignments will include: homework such as readings and quizzes over readings; in class activities; a semester long experiment that you will design and perform, and three exams plus an optional final exam.

While a broad outline of topics is presented above, I will define more specific lecture topics based on our progress. We will not cover everything in every textbook chapter related to these topics. You can look at the related chapters to get a preview of the broad topics, and more specific readings and assignments will be posted on the class webpage (www.bio.utexas.edu/courses/stuart/class.html) a few days before each lecture.

Course Description: Important and life altering decisions about biology (genetically altered organisms, stem cell research, pollution, etc) are being and will be made. Informed and rational decisions can only be made with an understanding of the underlying biological principles. I hope this class will help provide you with the necessary information. Instead of only looking at generalized information in a textbook, we will learn about contemporary topics by studying journal articles. I hope this will lead to a dynamic and useful learning experience. The drawback is that there will not be an easy source of information outside of class.

Lecture: TTh 12:30-2pm in BUR 112. Exam material will come from information presented in lecture and the articles we study. Instead of asking you to regurgitate what we look at in lecture, I want you to be able to use what you are learning to come up with new information. I recommend that you take good notes and/or record the lectures. The easiest way to learn and perform well in my class is to attend the lectures and discussion sessions. A few days before each lecture, I will post on the class webpage relevant textbook sections and/or articles that we will be covering.

Discussion Sessions: The discussion sessions serve as an opportunity to review the information presented in class and to ask questions in a small class setting. At each discussion session there will be a short quiz that will allow you to test your mastery of the material prior to taking the exams. Discussions are not mandatory, but students who attend and participate in discussion sessions will be awarded up to 3 bonus points to their final course grade. You may attend whichever discussion session that best suits your schedule. The discussions are:

T 2-3pm in BIO 12H, T 3-4pm in BIO 12H, W 11am-noon in GAR 1.134, or W noon-1pm in GAR 1.134

Discussions will start T 1/25.

Grading and Exams: I find that much of the time grades discourage learning. I have designed the assignments in this class to encourage you to learn and participate in the class. I hope that the assignments will serve to help you learn and provide useful feedback on your progress.

The semester will be graded on a maximum of 100 points with up to 3 bonus points earned for participating in discussion sessions.

There will be **four exams**, three mid-terms and a cumulative final. The 60 minute mid-term exams will be during class on 2/17, 3/31, and 5/5. Each mid-term exam will include only the information presented since the previous exam. The final will be cumulative and is optional. If you take the final exam, this grade will replace a previous exam grade. If you miss an exam, contact Stuart as soon as possible. Each test will be equally weighted, and worth 20% of your final grade.

The mid-term exams will include both a take-home and in-class part. ***The exams will be short answer and essay.** There will be no multiple-choice questions.*

My teaching and testing style emphasizes the ability to understand and use the information presented in class; so, at each exam you will be allowed to bring **ONE** 8.5 x 11 inch sheet of paper with whatever information you want written on it. In this way I want to minimize your dependence on memorization and encourage you to think critically about biology. See the webpage for sample test questions from previous semesters and answer keys after this semester exams have been returned.

To get a feel for how scientists make discoveries, you will design and carry out a simple experiment. Details will be given in class. This will be a semester long project and be worth 20% of your final grade.

For some classes I will assign an article to read and a short homework. Then we will discuss the reading material in class and answer questions. Other classes will involve an activity performed during class. These homework and in-class assignments will be worth 20% of your final grade.

Bonus points can be received for attending and participating in discussion sections, up to 3 points.

Textbook: The textbook is not required. Questions on the exams will be based on material from lecture. Lectures will use information from "Biology" 8th ed. ©2008 by Campbell *et al* and supplement it with articles from current scientific journals. I will post my lecture slides on the webpage after class. Handouts and links to articles will be available on the webpage: www.bio.utexas.edu/courses/stuart/class.html.