Course Syllabus: Biology 101 Section 01
Concepts in Biology
Spring 2012

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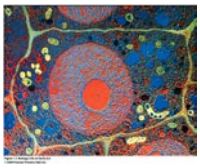
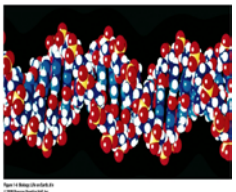
Overview:
This course is an introduction to the vast and growing field of modern biology. The content of this course will address information related to four basic questions:



1) What is the chemical and physical basis for life and its maintenance?



2) How do organisms use genetic information to build themselves and to reproduce?

3) What are the diverse forms that life on earth takes and how has that diversity arisen?

4) How do organisms interact with each other and with their environment?

During this course you also will explore methods that scientists use to decipher the natural world, and will have opportunities to practice your own deductive and critical thinking skills. In addition we will explore and discuss the science and ethics behind several topical issues in biology and modern medicine. Scientific knowledge is based on observation and curiosity. You should come to class prepared to see the world in a new way, and to ask questions about what you see. The goal of this class is to help students become better citizens and teachers of science by increasing their ability to make informed decisions regarding current and future scientific discoveries.

Course Structure:

Lecture: M, W, F, 10:30AM – 11:30AM **Laboratory:** T, 2:00PM – 5:00PM
Hoyt 206 Hoyt 315

Office Hours: M, W 1-2 PM or other times by appointment
Simply email, call or ask me for a time that will work for you. The sole purpose of making an appointment is that I simply want to be sure that I will be in my office at the time you can meet with me.

Required:

Text: *What is life? A guide to Biology with Physiology* by Jay Phelan

Lab manual: Weekly lab worksheets will be made available online the course my.westminster website the Friday before the lab. You are expected to print these worksheets, read them before class and bring them with you to lab.

Frequent visits to the Bio 101 01 coursepage on my.westminster for:
-Laboratory Handouts
- Online Quizzes and Assignments
-Detailed reading lists
- Lecture Diagrams

Course Objectives:
Students completing this course will….
1) Increase their comprehension of key concepts in modern biology.
2) Be able to apply biological concepts so modern society and current events.
3) Develop practical skills in observation and investigative science in order to experience the process of scientific inquiry.
4) Demonstrate proficiency with reading scientific literature, science communication and critical thinking.
5) Be able to explain scientific knowledge to the general public.

Graded Assignments:

EXAMS: There will be three (3) exams throughout the semester (100 points each) followed by a final that combines material from the fourth section of the course with comprehensive material from the previous three exams (200 points). The three semester exams and the comprehensive final are worth almost 50% of the course grade. The final exam will be administered on the date set by the final exam period and in the same room where we meet for lectures.

IN CLASS EXERCISES: There will be several, unannounced exercises, which you will work on during class either alone or in teams. The exercises are designed to reinforce concepts learned in class. Each exercise will be worth ~10 points. If you miss a class, it will be your responsibility to find out if there was an exercise that day, and to make up for what you missed (if you want your 10 points).

ONLINE QUIZZES AND ACTIVITIES For certain chapters there will be required online quizzes to be completed before the material is covered in class. Quizzes will open the my.westminster page the Friday before the chapter will be covered and will close/be due at the start of class the following Monday. Quizzes are worth 10 points each and intended to have you read the text in advance of lecture. In addition you will be required to complete online review activities for certain chapters. Each activity will be posted in the coursework section of the my.westminster page and include complete instructions. Activities are worth 10 points each. They will open on the Fridays and close the following Monday at the start of class.

LAB QUIZZES AND LAB WORKSHEETS: It is in your best interest to **read the labs *prior to* the scheduled lab period** because each new lab will begin with a pre-lab quiz (5 points for each) to assess student preparation. During each lab you will fill out a worksheet, which will include writing down observations, calculations, answers, and summaries that pertain to that day's lab. This must be completed and handed in prior to leaving the lab (30 points each).

PAPER: Newspapers and magazines report new discoveries in science every day, but do they really provide adequate information about the background and importance of the discoveries they report? Are science articles sometimes written from a biased point of view? Is there sometimes, another side to the story? Your task will be to find a tertiary article pertaining to a new study or discovery in biology – then find as much information as you can regarding the background, ethics and impact of your subject. When you have gathered your information, you will write a comprehensive report on your chosen subject and a critical review of the information you found. Your paper will be worth a total of 100 points. Additional information will on this assignment will be provided at a later date.

TEAM PRESENTATION: You will work as a group for this assignment. You have two options for this assignment.

> **OPTION 1:** You will work in a team to create a presentation for middle/high school students that explains one of the concepts you have learned in class. You will be provided with a list of these topics and specific guidelines. You may use audiovisual tools of your choice and/or practical demonstrations of your own design. You MAY NOT use movies or demos/learning tools downloaded from the internet. You may borrow materials from the biology department, with permission from the instructor. Grading criteria will be based on accuracy, originality, and creativity.
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> **OPTION2:** Using the provided article from the National Wildlife Federation Magazine (which describes the impact of toilet paper production on warblers) as inspiration, you and your team will gather information about how a commonly used product impacts the environment, what alternative products are available, and how people may make simple lifestyle changes to protect the environment or a particular species. You will present your findings to the rest of the class. Points will be given for your accurate yet persuasive arguments.

BIOLOGY SEMINARS: You are required to attend one biology seminars this semester. Immediately after each seminar, you will submit two questions that occurred to you as you listened to the presenter(s).

UNDERGRADUATE RESEARCH SYMPOSIUM: You are required to attend sessions at this event where senior capstone, honors and independent study students present their work. A specific assignment will be distributed to prior to attending the symposium.

Course Grading:

Lecture Exams (3; 100 pts. ea.)	300 points
Exam IV & Comprehensive Final	200 points
In Class Exercises	~50 points
Online Quizzes and Activities	~120 points
Lab Quizzes/Worksheets (~35 points ea.)	~350 points
Paper	100 points
Presentation	50 points
Biology Seminar	10 points
Undergraduate Research Symposium	20 points
Total	**~1200 points**

A	>93%	**C**	73-76%
A-	90-92%	**C-**	70-72%
B+	87-89%	**D+**	67-69%
B	83-86%	**D**	63-66%
B-	80-82%	**D-**	59-62%
C+	77-79%	**F**	<59%

NOTE: Total points may change based on the number of labs, quizzes and activities

POLICIES:

Attendance: Attendance to labs, field trips and exams is mandatory. Please identify any conflicts between these and college sponsored activities or events and report them to me one week *in advance* of the activity so that a make-up exercise can be arranged. The only excused absences for exams or labs are the ones stated in the Westminster catalog (college-sponsored activities; personal medical emergencies, etc.).

While attendance to lectures is not mandatory, there is a strong correlation between attendance and final grade. Your exams are the most important factor in determining your final grade, and it is your responsibility to make sure you understand the material. If you miss a lecture, you must find out what you missed and make sure you understand the content. **If you need help at *any* time, with *any* of the material – please ask. My door is always open.**

Academic integrity: The issue of academic integrity is taken very seriously at Westminster. Students are expected to abide by the College Policy on Academic Integrity. The policy can be found at: http://www.westminster.edu/acad/pdf/undergraduate_catalog.pdf.

Academic integrity is particularly important when dealing with scientific writing. Written assignments must be the student's own work. Quotes, data or ideas taken from another source must cite that source fully and correctly. I will be using turnitin.com to determine that your work is in fact your own. If you don't understand how to do this, please ask. **Work that is not the students own, i.e. copied from an external source, a classmate or class material is considered plagiarized, and will receive a score of zero. In addition, a written report will be sent to your academic advisor, and to the Dean.** Note: plagiarism includes extensive, unnecessary quoting from another source, even if it is cited. More than one incident of plagiarism may result in failure of the course. If in doubt – ask.

Electronic Devices

Please refrain from using any device in class that might disrupt the lecture or your colleagues. This includes, but is not limited to: cell phones, pagers, PDA, iPods (you get the idea).

Students are more than welcome to bring a laptop to lecture, but are not allowed to connect to the Internet. If a student has software or files opened other than what is necessary for class, I will ask the student to close them immediately.

Tentative schedule for Spring 2012 term is listed on the following page.

DAY	DATE	Theme (Chapter)	Online Assignments	Labs
W	1/18/12	What is Biology (1)	Pre-test opens	NO LAB
F	1/20/12		Pre-test due AND Molecules quiz opens	
M	1/23/12	Molecules of Life (2)	Molecules quiz due	Scientific Method
W	1/25/12			
F	1/27/12		Molecules activity opens	
M	1/30/12	Cells (3)	Molecules activity due	Information Literacy
W	2/1/12			
F	2/312		Energy quiz opens	
M	2/6/12	Energy (4)	Energy quiz due	Prokaryote Microscopy
W	2/8/12			
F	2/10/12		Energy activity opens	
M	2/13/12	**EXAM UNIT 1**	Energy activity due	Eukaryote Microscopy
W	2/15/12	DNA (5)		
F	2/17/12		Cell reproduction quiz opens	
M	2/20/12	Cell Reproduction(6)	Cell reproduction quiz due	Enzymes
W	2/22/12			
F	2/24/12		Cell reproduction activity opens	
M	2/27/12	Genetics and Inheritance(7)	Cell reproduction activity due	DNA Isolation and Mitosis
W	2/29/12			
F	3/2/12		animal phys quiz opens	
SPRING BREAK!	3/3/12-3/11/12			NO LAB
M	3/12/12	Animal Physiology (20)	animal phys quiz due	Genetics
W	3/14/12			
F	3/16/12		animal phys activity opens	
M	3/19/12	**EXAM UNIT 2**	animal phys activity due	Human Physiology
W	3/21/12	System 1: Nervous and Motor? (23)		
F	3/23/12		System II quiz opens	
M	3/26/12	System I cont. and System II: Immunity and Health? (26)	System II quiz due	Presentations
W	3/28/12			
F	3/30/12		System II activity opens	
M	4/2/12	System II cont.		Infection
W	4/4/12	Evolution (8)		
EASTER BREAK	4/5/12-4/9/12			
T(M)	4/10/12	Evolution cont (8)	System II activity due	NO LAB
W	4/11/12			
F	4/13/12	Animal Diversification (9 and 10)		
M	4/16/12	Animal Diversity cont.		Natural Selectior
W	4/18/12			
F	4/20/12	**EXAM UNIT 3**		
M	4/23/12	Populations (14)		NO LAB
W	4/25/12	**URAC**		
F	4/27/12	Populations cont.	Ecology quiz opens	
M	4/30/12	Ecology and Enviornments (15 and 16)	Ecology quiz due	Foraging
W	5/2/12			
F	5/4/12		Ecology activity opens	
M	5/7/11		Ecology activity due AND Post-test opens	
R	5/10/11	**FINAL EXAM 3PM**	Post-test due	