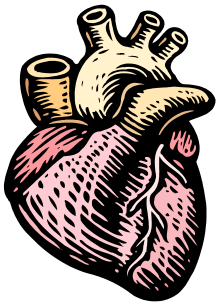
Concepts in Biology
Biology 120Q – Fall 2013



Instructor: Dr. Steve Baker Email: sbaker@emory.edu
Office: Pierce Hall #117
Phone: 770-784-8446

Office Hours: By appointment or chance. I am generally in the building (8:30-5:00) except during class/lab time and am happy to meet with you! You are welcome to make an appointment by email or in class as well.

Lecture Hours: MWF 10:45-11:50 **Room:** Pierce 101
Lab Hours: Wednesday 2:30-5:30 **Room:** Pierce 125

Required Texts: *Essentials of Biology*, S.S. Mader & M. Windelspecht, 3rd edition, McGraw Hill publishing company, 2012.

Laboratory Manual for Concepts in Biology, 3rd Edition. Morgan, Judith Giles. Emory University Press. Will be available in the lab; your student account will be charged, amount TBA.

Course Objectives:

- Biology 120Q is categorized as a "Ways of Inquiry" course. As such, the understanding and use of the scientific process, scientific inquiry and critical thinking skills will be an integral part of this course.
- Students should gain a basic knowledge of biological concepts such as cellularity, cellular reproduction, energy, genetics, and evolution.
- Students should learn about the basic structure and function of major body systems
- An underlying theme of this course relates to the interruption of body homeostasis by disease; this will be addressed through the addition of relevant clinical topics.

Tentative Lecture Syllabus

Topic		Chapter
I. Science and Life		
8/28	Introduction to Course; How do you view the world?	1
8/30	Scientific Inquiry -- observe and question	1
9/4	Science Case Study	
9/6	Basic Biology: Are you alive?	1
9/9	Viruses; Are they alive?	p.288-292
	Intro to independent project	
II. Cells and Cell Function		
9/11	Prokaryotes/introduction to cells	p.293-299
9/13	Eukaryotic Cell Structure and Function	4
9/16	*Clinical Issues: Breakdowns in Cellular Function*	
9/18	Lipids and Membrane Structure	p.42-44, 4.3
9/20	Cell Transport	5.4
9/23	Transport in action; neuron function	p. 517-521
III. Energy		
9/25	Energy Basics	5.1-5.3
9/27	The Foundation of Life: Photosynthesis	6.2-6.4
9/30	**Exam I, through transport**	
10/2	Overview of Respiration	7
10/4	Gaining nutrients: Digestion	24.3
	Media Reflection #1 due in class	
IV. Growth		
10/7	DNA	11.1
10/9	The Central Dogma	11.2
	Polished draft of paper due; 5 PM	
10/11	Mitosis and Cell Division	8
	10/12-10/15 Fall Break!	
10/16	*Clinical Issues--Loss of Control: Cancer*	12.3
10/18	Molecular Biology workshop	

V. Inheritance

10/21	Mendel and his Peas; Mendelian genetics	10.1
10/23	Non Mendelian Genetics	10.2
10/25	***Exam 2 through cancer***	
10/28	Genetics problems	
10/30	Molecular Genetics and Cloning	11.3, 12.1
11/1	Clinical Issues: Human Genetics	13

VI. Homeostasis

11/4	National Geographic; The Human Body	
11/6	Distributing nutrients: Circulation	23
11/8	*Clinical Issues: Coronary Artery Disease* *Research Paper due, 5 PM*	
11/11	Respiration	24.1
11/13	The Battle Rages: Immunity	26
11/15	Urinary	24.2
11/18	***Exam 3 genetics through immunity***	
11/20	Central Nervous System; Brain overview	p.522-530
11/22	Sex and Reproduction	29

11/27-11/29 Thanksgiving

VII. Interactions with other organisms and the environment

11/25	Changes in genes; evolution and natural selection *Media Reflection #2 due in class*	14.1
12/2	Evidences for Evolution	14.2
12/4	Introduction to Ecology/Ecosystems and Communities	30-31
12/6	Human Impacts/Populations	32.1-32.2
12/9	Human Impacts	

12/18 FINAL EXAM: FRIDAY 2-5 PM, December 13

The instructor reserves the right to modify this syllabus or the lab syllabus as he deems it necessary.

Additional Course Information / Class Policies:

Writing: Students will write about current topics in biology and as a component of classroom and laboratory learning. Assignments will be made in class and lab.

Independent project*:* Students (in coordination with the instructor) will choose a biology topic of interest to research. Students will then research and present their findings. Handouts will be provided to outline specific requirements.

Laboratory: Your lab experience will involve working with living organisms. In addition, you will be learning anatomy through review of dissections. This is an important component of some of your labs!

***Honor Code**:* All examinations and work for credit in this course, including draft assignments, come under the regulations of the Honor Code. Your signature on your examination or paper attests to your upholding the Honor Code in your work.

Honesty and ethical behavior are imperatives in any career. Therefore, academic dishonesty will not be tolerated. See http://oxford.emory.edu/audiences/current_students/Academic/academic-success/student-honor-code/ for descriptions of what constitutes academic dishonesty. Anyone caught violating this policy will be reported to the Honor Council, as detailed in the honor code. If you have any questions about what constitutes your own work, definitely ask!

Absences: The policy on absences is outlined in a separate handout. Unexcused absences or a failure to follow the procedures outlined in that handout will result in a reduction of your grade. Additionally, frequent tardiness is exceptionally rude and will result in a decreased grade.

Missed exams: In general, missed exams may not be made up (see the attached sheet for the absence policy). However, if you know that you have a conflict ahead of time, please inform me **at least a week <u>before</u>** the scheduled exam time. Situations will be evaluated on a case by case basis.

Cell Phones: They must be turned off if brought into class or lab. Cell phones must be turned off and left at the front of class in your book-bag during exams. Computers, tablets, or smart phones may not be used in the classroom unless part of an activity or by special permission. Use of laptops for surfing the web, Facebook, Skype, or other networking/chatting during class is not appropriate or respectful classroom behavior.

Evaluation: Students will be evaluated on their performance in the classroom and the laboratory. Points are distributed as follows:

300 points	3 lecture exams
135 points	laboratory exams (three at 50 points)
175 points	final exam
50 points	independent project
30 points	media reflection write-up
20 points	in class writings (approximate)
710 points	total (approximate)

Plus and minus grades are given in this course.

"Student work submitted as part of this course may be reviewed by Oxford College and Emory College faculty and staff for the purposes of improving instruction and enhancing Emory education."

Lab Schedule
Biology 120Q
Fall 2013

Sep	4	Scientific investigation using bacteria
	11	Microscope/Cell
	18	Cell Transport
	25	***Lab Exam 1***
Oct	2	Aquatic Ecology
	7	Using nutrients/digestion
	16	Mitosis
	23	Molecular Biology
	30	***Lab Exam 2***
Nov	6	Circulation and Respiration
	13	Reproduction/Development
	20	Behavior
Dec	**4**	***Lab Exam 3***