

**BIOLOGY 120, CONCEPTS IN BIOLOGY
COURSE SYLLABUS
SPRING 2010**

Instructor: Dr. Amanda Pendleton
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Office hours: T, Th 2:00 – 4:00, or feel free to make an appointment with me for another time.
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Lecture: T, Th 11:30 – 12:45, Pierce Hall Room 102
Laboratory: M, 2:00 – 5:00, Pierce Hall Room 125

Required texts: 1) *Essentials of Biology*, S.S. Mader, 2nd edition, McGraw Hill publishing company, 2010.
2) *Laboratory Manual for Concepts in Biology*, J.G. Morgan, 3rd edition, Emory University press (your student account will be charged).

Course description: Bio120 is an introductory biology course meant for students that are **not** majoring in biology. The course content is designed to help students understand core biology concepts, so that they can answer the essential questions listed below. This course will also give students practice using their understanding to solve problems and make predictions about biology. Additionally, I hope that this course will help students incorporate a biology perspective into their approaches to their own disciplines and future careers. Finally, I hope that this course will give students the background and tools for dealing with personal issues related to biology that are likely to arise in their futures.

Essential questions for this course:

1. What common structures are found in almost all living things?
2. What common principles govern almost all living things?
3. How did life on Earth become so diverse?
4. How does the human body remain healthy and balanced?
5. How do ecosystems remain healthy and balanced?
6. What principles and techniques do biologists use to study life?

Top tips on how to succeed in this course:

1. **Review, review, review ...** Any biology course these days will have **a lot** of information. So, the more you review that information, the more likely you are to remember, understand, and master it. I suggest that you complete the reading assignments before class, attend all classes, take good notes, and review biology topics a little **every day**.
2. **Use lab time productively ...** Lab time matters for this course. Not only is a significant portion of your grade determined by lab exams, but the lab topics and activities are designed to reinforce concepts covered in lecture. So, by preparing well for labs and by participating fully in labs, you're likely to also do better in the lecture portion of the course.
3. **Ask questions ...** If you don't understand something covered in class, ask questions in class, ask questions of your peers, or arrange to meet with me. I welcome your questions, and if you're struggling, it's important to get help early! And, keep in mind that the topics build on one another. So, if you get behind early on, it will be more difficult to catch up later.
4. **Study the right things ...** Each topic has a few key concepts that will be critical for performing well on course assignments. I will use class objectives (found on the powerpoint presentation for each class), short class lectures, and class activities to help point out these

key concepts. You will also need to know the details covered in this course, but focus on the key concepts first, and then fill in the details.

5. **Study the right way ...** This course is designed to ensure that you not only remember course concepts, but can also use them to solve problems. This means that you need to be **very** familiar with course concepts. I suggest that you write out course concepts by memory, make diagrams by memory, practice explaining course concepts to friends, and take practice exams online.
6. **Online resources ...** The textbook website has myriad resources, including tutorials, animations, explanations, and practice exams. Additionally, I will post all powerpoint slides and in-class activities on the course Blackboard website.
7. **Be on time ...** Complete and turn in all assignments when they are due. My due dates are fixed, unless you provide documentation of a serious life event.

Course Evaluation:

300 points	3 lecture exams
150 points	3 laboratory exams
175 points	Final exam
50 points	Independent project
10 points	Before-class quizzes
10 points	Biology journal

Exams: Exams will use a variety of formats (including multiple choice, fill-in-the-blank, matching, short answer, etc.) and may cover any material in the assigned readings or that is presented or used during class. The final exam will be cumulative.

Independent project: Students (in coordination with the instructor) will choose a biology-related topic. Students will then research this topic and present their findings in an informational pamphlet meant for the general public. A rubric that gives more details is available on the course Blackboard site.

Before-class quizzes (BCQs): Students will complete a simple, short quiz that accompanies each textbook reading assignment. These quizzes will be available on the course Blackboard website, and are to be completed before class (they will only be available to take before class). Each quiz will be graded as “full credit” / “no credit” and will be worth 0.5 points. To receive “full credit” on a BCQ, a student must score at least 60%. BCQ’s will count for no more than 10 points in the final grade, which means that a student can receive “no credit” on 1 BCQ without penalty.

Biology journal: Students will keep a journal in which they write about their experiences with biology topics outside of this course. The purpose of this journal is to help students see the ways in which they encounter biology in their everyday lives. Students will make one entry related to each class topic. Journals will be collected 5 times throughout the semester, and will be worth 2 points each time they are collected. Journals will receive either “full credit” or “no credit”. A rubric with more details is available on the course Blackboard site.

Extra credit: Students can complete two extra credit assignments worth 5 points each. Students can watch the ‘Journey of Man’ or ‘Guns, Germs, and Steel’ documentaries (on reserve in the library) and write a short report, according to a rubric that is available on the course Blackboard site.

Class Policies:

- 1. Attendance:** Missed classes, especially labs, can negatively impact your grade. Please see the attached sheet for the attendance policy.
- 2. Exams:** A student should place all book bags, purses, and other belongings at the front of the room while sitting for any type of exam or graded assignment. Cell phones should be turned off and should be placed in bags or on a bench at the front of the room. (Desktops should be clear except for the materials needed and authorized for testing).
- 3. Late work:** Make-up BCQ's will not be given, except for serious reasons (such as death or illness) with proper documentation. Biology journals will not be accepted past 5 p.m. on the day that they are due, except for serious reasons with documentation. The individual project will be accepted late, but the final grade will drop 10 points for every scheduled class period that it is late. All assignments must be handed to me personally.
- 4. 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 before** the scheduled exam time.
- 5. Challenging grades:** Any questions about a graded assignment must be submitted, in writing, no later than the following week after the test was returned. I will then re-grade the entire assignment; therefore, a student's grade could increase, stay the same, or decrease.
- 6. Electronic devices:** Please turn off all cell phones and other electronic devices prior to entering the classroom.
- 7. Academic dishonesty:** Honesty and ethical behaviors are imperatives in any career. Therefore, academic dishonesty will not be tolerated. See http://oxford.emory.edu/audiences/faculty_and_staff/resource_policies/faculty_handbook/honor_code.dot 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!

TENTATIVE LECTURE SCHEDULE:

Date	Subject & Assignments Due	Assigned Reading
<i>Week 1</i>		
Jan. 14	Course overview, the scientific method, scientific resources	Ch. 1 pp. 10-14
<i>Week 2</i>		
Jan. 19	What is life? Common building blocks for life BCQ 1	Ch. 1 pp. 2-4, Ch. 3
Jan. 21	Cells: Prokaryotes & Eukaryotes BCQ 2	Ch. 4

<i>Week 3</i>		
Jan. 26	Energy & membrane transport BCQ 3	Ch. 5
Jan. 28	Photosynthesis & cellular respiration BCQ 4	Ch. 6, pp. 85 – 89 Ch. 7, pp. 99 – 101, 106 - 109
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<i>Week 4</i>		
Feb. 2	Begin in-class case study: hypercholesterolemia Biology Journals collected (5 entries)	
Feb. 4	Cellular reproduction: mitosis BCQ 5 Turn in topic choice for independent project	Ch. 8
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<i>Week 5</i>		
Feb. 9	Lecture Exam I (through Photosynthesis & cellular respiration)	
Feb. 11	Sexual reproduction: meiosis BCQ 6 Turn in “What I know / What I don’t know but need to know” lists for independent project	Ch. 9
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<i>Week 6</i>		
Feb. 16	Mendelian inheritance BCQ 7	Ch. 10 pp. 144-150
Feb. 18	Beyond Mendel BCQ 8	Ch. 10 pp. 150-157
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<i>Week 7</i>		
Feb. 23	The Central Dogma: Transcription BCQ 9	Ch. 11, pp. 161 - 170
Feb. 25	The Central Dogma: Translation & Mutation Continue in-class case study: hypercholesterolemia BCQ 10 Biology Journals collected (5 entries)	Ch. 11, pp. 170 - 174
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<i>Week 8</i>		
Mar. 2	Darwin & evolution on a small scale BCQ 11	Ch. 14 Ch. 15, pp. 233 – 234, 237 – 243 Ch. 1, pp. 7-8
Mar. 4	Lecture Exam II (Photosynthesis through the Central Dogma)	
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<i>Week 9</i>		
Mar. 9 & 11	Spring recess	

<i>Week 10</i>		
Mar. 16	Evolution on a large scale BCQ 12	Ch. 16, pp. 247 – 260, 263 Ch. 17, pp. 273
Mar. 18	Ecology of Populations BCQ 13	Ch. 30
<i>Week 11</i>		
Mar. 23	Communities, Ecosystems, & Human Impact BCQ 14 Biology Journal collected (4 entries)	Ch. 31, pp. 557 - 573 Ch. 32
Mar. 25	Transport Organ Systems: Cardiovascular & lymph BCQ 15 Rough draft of independent project turned in to peers and to me for feedback	Ch. 23
<i>Week 12</i>		
Mar. 30	Lecture Exam III (Evolution through Ecosystems)	
Apr. 1	Maintenance organ systems: Respiration, digestion, urinary BCQ 16 Peer feedback on individual projects due	Ch. 24
<i>Week 13</i>		
Apr. 6	Control organ systems: Nervous & endocrine BCQ 17	Ch. 27
Apr. 8	The Human Body	
<i>Week 14</i>		
Apr. 13	Input & Output systems: Senses & motor functions BCQ 18 Biology Journal collected (5 entries)	Ch. 28
Apr. 15	Immunity BCQ 19	Ch. 26
<i>Week 15</i>		
Apr. 20	Infectious Organisms BCQ 20	Ch. 17, pp. 267 – 272, 277
Apr. 22	Infectious Organisms, con't Final independent project due	

Week 16

Apr. 27

Reproduction & Development

Ch. 29

BCQ 21

Biology Journals collected (3 entries)

FINAL EXAMINATION: FRIDAY, APRIL 30, 2:00 – 5:00 P.M.

TENTATIVE LABORATORY SCHEDULE:

Date	Subject
Jan. 25	Scientific Inquiry – Lab Topic 1
Feb. 1	The Microscope: the Cell – Lab Topic 2 Diversity of unicellular organisms – Ch. 16, p. 263, Ch. 17 pp. 278 - 283
Feb. 8	Cell Transport – Lab Topic 4
Feb. 15	Lab Exam 1 (through Cell Transport) Cellular Reproduction – Lab Topic 5
Feb. 22	Human genetics – Lab Topic 13 Genetic Counseling – Ch. 13
Mar. 1	Molecular Biology – Lab Topic 11 DNA Technology – Ch. 11, pp. 175 – 179
Mar. 15	Ecology – Lab Topic 17
Mar. 22	Lab Exam 2 (Cellular Reproduction through Ecology)
Mar. 29	The Circulatory System – Lab Topic 9
Apr. 5	The Digestive System – Lab Topic 8 Nutrition – Ch. 25
Apr. 12	Bacteriology – Lab Topic 6
Apr. 19	Finish Bacteriology – Lab Topic 6 Reproduction & Development – Lab Topic 10
Apr. 26	Lab Exam 3 (The Circulatory System through Reproduction)

The instructor reserves the right to make changes to this syllabus as necessary.