

**BIOLOGY 120, CONCEPTS IN BIOLOGY
COURSE SYLLABUS
FALL 2009**

Instructor: Dr. Amanda Pendleton
Office: Pierce Hall Room 105
Phone: (404) 784 – 4506
Office hours: T, Th 1:30 – 3:00, or feel free to make an appointment with me for another time.
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Lecture: T, Th 10:00 – 11:15, Pierce Hall Room 102
Laboratory: M, 2:00 – 5:00, Pierce Hall Room 123

Required texts: 1) *Essentials of Biology*, S.S. Mader, 2nd edition, McGraw Hill publishing company, 2010 – with access codes for online content.
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, and take good notes.
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!
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 BCRs, class objectives (found on the powerpoint presentation for each class), 'Survivor: Biology Island' quizzes at the end of each class, 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 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.
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 readings
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 that is presented in lecture or that can be found in course reading assignments. 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. Five of the 50 points for this project will be awarded for creativity. A rubric that gives more details will be provided separately.

Before-class readings (BCRs): Students will be given a small number of questions that will guide them through each textbook reading assignment. These questions are to be completed before class, and will be collected within the first 5 minutes of each class. Each question set will be graded as “full credit” / “no credit”. A student must receive ‘full credit’ on at least 19 BCRs to be awarded 10 points in the final grade. A student who receives full credit on less than 19 BCRs will receive no points. Before-class reading assignments will be posted on the course blackboard website, and students are responsible for downloading these assignments.

Biology journal: Students will keep a journal in which they write about their experiences with biology 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. Examples of topics for journaling include thoughts about a current news story related to biology, a conversation with friends or family about a biology topic, observations about one’s surroundings during a hike, reflections upon being sunburned, killing an insect in your dorm room, or running a race. Students should make two entries per week. Journals will be collected periodically and will receive either full credit or no credit at the end of the semester. A rubric with more details will be provided.

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 and write a short report, according to a rubric that will be provided.

Class Policies:

- 1. Attendance:** 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:** All before-class reading assignments will be collected in the first five minutes of each class. Late before-class reading assignments will not be accepted, except for serious reasons (such as death or illness) with proper 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 already know you have a conflict, please inform me before Sept. 7, and I will try and make arrangements for you to take a make-up exam **before** the scheduled exam time. If you miss an exam, and do not notify me before Sept. 7, the exam cannot be made up, except for serious reasons (such as death or illness) with proper documentation.
- 5. Challenging grades:** Any questions about a graded assignment must be submitted, in writing, no later than the following class period after the test was returned. I will then regrade 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> Aug. 27	Course overview, the scientific method, scientific resources	Ch. 1 pp. 10-14
<i>Week 2</i> Sept. 1	What is life? Common building blocks for life BCR 1 due	Ch. 1 pp. 2-4, Ch. 3
Sept. 3	Cells: Prokaryotes & Eukaryotes BCR 2 due	Ch. 4

<i>Week 3</i>		
Sept. 8	Energy & membrane transport BCR 3 due	Ch. 5
Sept. 10	Photosynthesis BCR 4 due	Ch. 6
<i>Week 4</i>		
Sept. 15	Cellular respiration BCR 5 due Turn in topic choice for independent project Biology Journals collected	Ch. 7
Sept. 17	Begin in-class case study: hypercholesterolemia	
<i>Week 5</i>		
Sept. 22	Cellular reproduction: mitosis BCR 6 due	Ch. 8
Sept. 24	Sexual reproduction: meiosis BCR 7 due Turn in "What I know / What I don't know but need to know" lists for independent project	Ch. 9
<i>Week 6</i>		
Sept. 29	Lecture Exam 1 (through Cellular respiration)	
Oct. 1	Mendelian inheritance BCR 8 due	Ch. 10 pp. 144-150
<i>Week 7</i>		
Oct. 6	Beyond Mendel BCR 9 due Biology Journals collected	Ch. 10 pp. 150-157
Oct. 8	The Central Dogma: transcription and translation BCR 10 due	Ch. 11
<i>Week 8</i>		
Oct. 13	Mid-semester break	
Oct. 15	Gene regulation, mutation and disease Continue in-class case study: hypercholesterolemia BCR 11 due	Ch. 12
<i>Week 9</i>		
Oct. 20	Darwin & evolution on a small scale BCR 12 due	Chs. 14 & 15

Oct. 22	Evolution on a large scale BCR 13 due	Ch. 16
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<i>Week 10</i>		
Oct. 27	Transport organ systems: Cardiovascular & lymph BCR 14 due Biology Journals collected	Ch. 23
Oct. 29	Maintenance organ systems: Respiration, digestion, urinary Finish in-class case study: hypercholesterolemia BCR 15 due	Ch. 24
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<i>Week 11</i>		
Nov. 3	Lecture Exam 2 (Cellular Reproduction through Evolution)	
Nov. 5	Control organ systems: Nervous & endocrine BCR 16 due Rough draft of independent project turned in to peers and to me for feedback	Ch. 26
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<i>Week 12</i>		
Nov. 10	Input & Output organ systems: Senses & motor functions BCR 17 due Peer feedback on individual projects due	Ch. 28
Nov. 12	Infectious organisms, immunity, & symbiosis BCR 18 due	Ch. 17 pp. 268 – 272 Ch. 26
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<i>Week 13</i>		
Nov. 17	Reproduction & development BCR 19 due Biology Journals collected	Ch. 29
Nov. 19	Plants: Structure, reproduction, & interactions with their environments BCR 20 due	Chs. 20 & 21
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<i>Week 14</i>		
Nov. 24	Lecture Exam 3 (Organ Systems through Plants)	
Nov. 26	Thanksgiving Holiday	
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<i>Week 15</i>		
Dec. 1	Ecology of populations BCR 21 due	Ch. 30
Dec. 3	Communities, ecosystems & human impact	Chs. 31 & 32

BCR 22 due
Final independent project due

Week 16

Dec. 8 Final overview day
 Biology Journals collected

FINAL EXAMINATION: Wednesday, December 16 from 2:00 – 5:00 p.m.

TENTATIVE LABORATORY SCHEDULE:

Date	Subject
Aug. 31	Scientific Inquiry – Lab Topic 1
Sept. 14	The Microscope: the Cell – Lab Topic 2 Diversity of unicellular organisms – Ch. 16, p. 263, Ch. 17 pp. 278 - 283
Sept. 21	Cell Transport – Lab Topic 4
Sept. 28	Photosynthesis – Lab Topic 3
Oct. 5	Lab Exam 1 (through Photosynthesis) Cellular Reproduction – Lab Topic 5
Oct. 19	Human genetics – Lab Topic 6 Genetic Counseling – Ch. 13
Oct. 26	Molecular Biology – Lab Topic 11
Nov. 2	Animal Diversity – Lab Topic 7
Nov. 9	Lab Exam 2 (through Animal Diversity) The Circulatory System – Lab Topic 9
Nov. 16	The Digestive System – Lab Topic 8 Nutrition – Ch. 25
Nov. 23	Reproduction & development – Lab Topic 10
Nov. 30	Aquatic Ecology – Lab Topic 12
Dec. 7	Lab Exam 3 (through Aquatic Ecology)

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