

# General Biology 112

## Spring 2010 Revised

**Lecturer & Coordinator:** Prof. Brian White  
**office:** W-3-003 x7-6630  
**lab:** W-2-074 x7-6608  
**office hours:** Wednesdays 3:30 – 4:30  
brian.white@umb.edu

**World-Wide Web Site:** <http://intro.bio.umb.edu/111-112/>

### Course Policies:

**Lectures:** Lectures meet in Lipke Auditorium: Mon, Weds, Fri 12:00 to 12:50; regular attendance is expected. Extra copies of handouts can be found outside W-3-003; all handouts can be found on the course web site.

**Lab Sections:** Lab sections meet in W-2-030 and -032. Some labs involve hands-on activities; others involve problem-solving exercises. Lab sections will be assigned during the first week of class; you may not switch sections after that time. Attendance in lab is expected.

In an emergency, you may make up lab a missed lab by attending another section that meets during the *same week with the permission of the TA*. This is only for emergencies and you may not be admitted if the lab is full. You may make up a maximum of two labs per semester.

You are expected to read the lab manual and the readings listed in the lab manual before lab. Some labs have pre-lab exercises based on the lab manual. Pre-labs can be found in the lab manual or on-line. Pre-labs are due at the start of lab and will not be accepted late.

**You will not be admitted to lab unless you have a copy the relevant section(s) of the lab manual and a completed pre-lab with you.**

The lab sections are as follows:

<u>Section</u>	<u>Time</u>	<u>Room</u>	<u>Section</u>	<u>Time</u>	<u>Room</u>
1	Tues 9:30 - 12:30	W-2-032	6	Wed 1:00 - 4:00	W-2-030
2	Tues 9:30 - 12:30	W-2-030	7	Thurs 9:30 - 12:30	W-2-032
3	Tues 2:00 - 5:00	W-2-032	8	Thurs 2:00 - 5:00	W-2-032
4	Wed 8:30 - 11:30	W-2-032	9	Tues 2:00 - 5:00	W-2-030
5	Wed 1:00 - 4:00	W-2-032	10	Thurs 2:00 - 5:00	W-2-030

**Development Group:** I will meet weekly (Tuesdays from 1:00 to 2:00 in W-2-032) with a group of students to discuss the course material. It is a combination of a tutorial for you and a chance for me to see how the class is learning the material as well as how the course can be improved. All are welcome.

## **Required Materials:**

1. **Textbooks:** there are two. All are available at the bookstore.
  1. *Biology* by Campbell & Reece, 8th edition. This is available at the UMB Bookstore & some on-line bookstores like amazon.com.
  2. *Lab Atlas for Biology* (6th edition) by Van De Graaff and Crawley
2. **Lecture Handouts:** Each lecture has a handout; this provides material *essential* for understanding the lecture. This is not available at the Bookstore, but you can purchase (\$15.25) a 3-ring binder with all the lecture handouts from Quinn Graphics (Admin Building LL-024). These handouts are also available for free download on the course website. I *strongly* advise you to buy the collected handouts.
3. **Lab Manual:** These materials are *essential* for performing the lab activities; the lab manual also contains pre-labs, worksheets, practice problems, and exams from past years. This is not available at the Bookstore, but you can purchase a 3-ring binder with the entire lab manual (\$13.00) from Quinn Graphics (Admin Building LL-024). The sections of the lab manual are also available for free download on the course website. I *strongly* advise you to buy the lab manual.
4. **iClicker:** All students must have an iClicker (see later for details) and bring it to each lecture. These are available at the UMB Bookstore.
5. **Population Growth SimUText:** During the last two weeks of the semester, you will need to complete an on-line exercise on Population Growth. This will cost \$9.00 and will be available via a web link on the Lecture resources page for Ecology 2.

Lectures and readings are designed to be complementary. Often, the emphasis of lecture will be different from the book. Although the course emphasizes lecture material more than readings, exams will draw freely from both lectures and readings.

**Lab Reports:** Lab reports represent a substantial fraction of your grade and should be prepared with care; you may consult your TA for comments on drafts of your report. Although you will work in groups and share data, your lab report must be in your own words. Lab reports will not be accepted late. One of the first two lab reports can be revised and re-submitted for a better grade; you should arrange this in advance with your TA before Plants 4.

**Exams:** There will be four exams: three hour exams given in class during the semester and a comprehensive final exam. There will be no make up exams. No conflict exams will be given. We will drop the lowest grade of the three hour exams when calculating your overall grade. The final exam will be scheduled during the semester. The final exam score cannot be dropped. You may bring one 8.5 x 11 sheet of notes to each hour exam; you may bring 4 such sheets to the final exam.

### **Exam Lectures Covered**

- |       |  |
|-------|--|
| 1     | Evolution 1 through and including Themes 3   |
| 2     | Themes 4 through and including Plants 5      |
| 3     | Animals 1 through and including Physiology 8 |
| Final | Evolution 1 through and including Ecology 8  |

**Exam Re-grades:** Occasionally, we make mistakes when grading. If you feel that your exam was graded in error, you can request a re-grade. Instructions and notes for re-grading:

- Re-grades must be in writing; because different TAs graded different questions, neither I nor your TA can re-grade your exam “on the spot”.
- When asking for a re-grade, you should include the following:
  - Your whole exam. Do not mark on it in any way. In order to prevent cheating, we xerox or scan some or all of the exams; any marks made on your exam after it was graded and given to you in lab may be interpreted as cheating. Students who alter their answers and submit these altered answers for a re-grade will receive a grade of “F” for the course and a letter will be sent to the Dean of Undergraduate Education notifying him/her of the incident.
  - A note on a separate piece of paper (attached to your exam) explaining what needs to be re-graded. Don’t simply say, “Re-grade question 3”; you should explain why your answer deserves more credit that we gave. If it is an addition error, explain which numbers were added up incorrectly.
  - Re-grade requests that do not follow these rules will be returned without review.
- Re-grade requests must be turned in to your TA or Brian White within 2 weeks of the date the exam was handed back in lab.
- Re-graded exams will be returned in lab about 2 weeks later.

**Due dates:** Lab reports are due as indicated in this syllabus or as modified by your TA. In cases where there is a conflict between when the Lab Manual says that a report is due and when the syllabus or TA says so, ignore the Lab Manual. In certain cases, and with the permission of your TA, lab reports may be turned in to the TA's mailbox in the Biology office (W-3-021) by 5:00 PM on the day that they are due without any penalty. In all other cases, late reports will not be accepted\* – do not assume that we will grant you an exception. I have very limited flexibility; if you need an exception, it can only be granted if you come to me in advance.

\* Each student will be allowed to turn in one and only one lab report one week late for a maximum of ½ credit. Specifically, if the lab report is turned in between 1 and 7 days late (relative to the student’s assigned lab section meeting time), the student’s lab report will be graded; the score received will be ½ of the grade earned. Each student may do this only once per semester.

- If you have computer problems with your lab report, you have several options for turning it in on time:
  - Turn in a partially-complete report on time.
  - Bring your report to your TA on disk.
  - E-mail your report to your TA as an attachment.
  - Fax your report to the Biology office (617 287-6650); attention: your TA.

It is always good practice to keep backup copies of lab reports on other disks to guard against hard drive crashes.

**Extra Credit:** On a limited basis, extra credit for a missed exam, or lab report may be granted for contributions to the course electronic archives. This must be arranged with Brian White in advance on a first-come-first-served and time available basis. Contributions include lab write-ups, solutions, practice problems, etc. and must

- (1) be entirely electronic: on Mac formatted disk in Microsoft Word format
- (2) be apropos of the material you want to make up
- (3) be useful to future generations of Bio 112 students

Only one exam or lab report can be made up in this way per student. All such projects must be arranged with Brian White by Ecology 4 and be completed by the last day of classes. Typically, these projects require one or more revisions; make-up projects with inadequate first drafts may be rejected.

**Grades:** Your final grade will be calculated as follows:

40% Hour Exams (20% for each of your best 2 grades)

20% Final Exam

40% Lab: 780 points, divided as follows:

Lab reports & Practical Exams: (570)

- HMNH: 60
- Skulls & Evolution: 70
- Molecular Phylogeny: 35
- Aipotu IV: 30
- Eukaryotes: 40
- Plant Lab Practical Exam: 60
- Plant Diversity: 30
- Animal Lab Practical Exam: 60
- Animal Diversity: 25
- Animal Behavior: 50
- Phylogenetic Collection: 60
- Phylogeny Report: 50

Other Grades: (210)

- Pre-labs(#2, 3, 4, 5, 6, 7, & 8):  $7 \times 10 = 70$
- Evolution Survey I : 15
- Evolution Survey II: 15
- Tree Building Survey: 15
  
- Current Research I: 10
- Current Research II: 10
- Current Research III: 10
  
- iClicker Points:  $70 \times 0.5 = 35$
- Population Growth Exercise: 30

\*\* You should save all your graded papers and exams in case there is a discrepancy with your grade.

**Incompletes:** Incompletes will only be granted under certain special conditions (see Brian White for details). To receive an incomplete, you must be doing well in the course and the work to be completed must be a well-defined unit of the course.

**Academic Conduct:** It is important that you are familiar with the following sections of the UMass Boston 2007-2009 Undergraduate Catalog: Academic Standards, Cheating, and Plagiarism (pp. 333-334); and Student Rights and Responsibilities -- Academic Dishonesty and Misconduct (pp. 336-342). In this course, penalties for academic misconduct, including plagiarism (copying from another student, a book, or the internet), are strictly enforced. It is my policy to make the consequences of being caught cheating on a given exercise much more severe than the consequences of not turning in that particular exercise.

**Snow days:** If class is cancelled due to snow, check the web site or my office phone for announcements. In general, snow days before exams will not cause the exams to be moved; if a snow day falls on an exam day, the exam will be held in the next lecture period.

Bio 112 Lecture and Lab Schedule: REVISED DUE TO SNOW

<u>Date</u>	<u>Topic</u>	<u>Lab &amp; Due dates</u>
M 1/25	Evolution 1: Introduction	NONE
W 1/27	Evolution 2: Details	
F 1/29	Evolution 3: Population Genetics I	
M 2/1	Evolution 4: Population Genetics II	01: Field Trip:
W 2/3	Evolution 5: Population Genetics III	Museum of Natural History
F 2/5	Evolution 6: Natural Selection	[report due week of 2/8]
M 2/8	Evolution 7: Species & Phylogeny	02: Skulls & Evolution
W 2/10	SNOW	
F 2/12	Evolution 9: Molecular Phylogeny	[report due week of 2/15]
M 2/15	<b>Presidents' Day</b>	03: Molecular Phylogeny
W 2/17	Evolution 8: Taxonomy & Earth History	
F 2/19	Themes 1: Major Groups & Nutrition	[report due week of 2/22]
M 2/22	Themes 2: Size and Scale	04: Aipotu IV
W 2/24	Themes 3: Size, Respiration, and Circulation	
F 2/26	Themes 4: Reproduction	[report due week of 3/1]
M 3/1	<b>EXAM 1: Evolution &amp; Themes</b>	05: Eukaryotic Cells
W 3/3	Plants 1: Introduction	
F 3/5	Plants 2: Mosses & Ferns	[report due week of 3/8]
M 3/8	Plants 3: Gymnosperms & Angiosperms I	06: Plant Diversity I
W 3/10	Plants 4: Angiosperms II	
F 3/12	Plants 5: Monocots & Dicots	
M 3/15	<b>SPRING BREAK</b>	NONE
W 3/17	<b>SPRING BREAK</b>	
F 3/19	<b>SPRING BREAK</b>	
M 3/22	Animals 1: Introduction	06: Plant Diversity II
W 3/24	Animals 2: Invertebrates I	
F 3/26	Animals 3: Invertebrates II	[report due week of 4/5]
M 3/29	Animals 4: Invertebrates III	06: Plant Diversity III
W 3/31	Animals 5: Vertebrates	Lab Practical Exam
F 4/2	Physiology 1: Nervous Systems Introduction	
M 4/5	<b>EXAM 2: Themes &amp; Plants</b>	07: Animal Diversity I: Trout
W 4/7	Physiology 2: Resting Potential	
F 4/9	Physiology 3: Action Potential	
M 4/12	Physiology 5: Input & Output	07: Animal Diversity II: Squid
W 4/14	Physiology 6: Scent & Smell	[report due week of 4/26]
F 4/16	Physiology 7: Muscle	
M 4/19	<b>Patriots' Day</b>	07: Animal Diversity III:
W 4/21	Physiology 8: Neurotoxins & Excretion	Lab Practical Exam
F 4/23	Ecology 1: Introduction & Climate	
M 4/26	<b>EXAM 3: Animals &amp; Physiology</b>	08: Animal Behavior
W 4/28	Ecology 2: Population Growth	
F 4/30	Ecology 3: Interactions I	[report due week of 5/3]
M 5/3	Ecology 4: Interactions II	09: Phylogenetic Collection
W 5/5	Ecology 5: Interactions III	
F 5/7	Ecology 6: Community Structure	[rpt. to TA mailbox wk of 5/10]
M 5/10	Ecology 7: Ecosystems	NONE
W 5/12	Ecology 8: Biogeochemical Cycles	

**Changes:**

- Evolution 8 and 9 switched
- Physiology 4 cancelled
- Wednesday afternoon and night labs (sections 5, 6, and 11) will do **both** *Skulls & Evolution* and *Molecular Phylogeny* on 2/17. Their *HMNH* reports will be due 2/17; the *Skulls* and *Mol Phyl* reports will be due on 2/24.

## Reading List:

Note: The readings are listed lecture-by-lecture to show roughly the material that will be covered in each particular lecture. Readings are intended to be read before the lecture listed.

- Page numbers in {braces} refer to relevant readings in Campbell.
- Page numbers in (parentheses) refer to relevant pages in the Lab Atlas.
- Numbers marked with an asterisk (\*) refer to exercises on the Campbell Website.

Evolution 1:	{452-459}	Animals 3:	{676-692} (155-159, 163-165, 173-177)
Evolution 2:	{460-466, 529-530}	Animals 4:	{693-696} (160-162, 178-182)
Evolution 3:	{468-475}	Animals 5:	{698-734} (202) *42.2, 42.3
Evolution 4:	*23.2	Physiology 1:	{1047-1049, 1064-1069}
Evolution 5:	{475-479}	Physiology 2:	{132-138, 1050-1052}
Evolution 6:	{479-485}	Physiology 3:	{1052-1056} *48.3
Evolution 7:	{487-504, 536-543}	Physiology 4:	None
Evolution 8:	{507-525, 544-548} *25.3 & 26.1	Physiology 5:	{1056-1061}
Evolution 9:	{548-553} *26.3	Physiology 6:	{206-225, 1087-1091, 1096-1103}
Themes 1:	{100-101, 575-577, skim 578-597 636-638, 785-798, 875-880}	Physiology 7:	{1105-1117} *50.5
Themes 2:	{99, 1114}	Physiology 8:	{132-134, 954-958}
Themes 3:	{248-249, 898-902, 915-921}	Ecology 1:	{skim 1148-1171}
Themes 4:	{250-252, 606-609, 646-647}	Ecology 2:	{1174-1194}
Plants 1:	{600-606}	Ecology 3:	{1198-1202, 20-22}
Plants 2:	{606-615} (83-86, 97-100) *29.2, 29.3	Ecology 4:	{1202-1203}
Plants 3:	{618-634} (108-114) *30.2, 30.3	Ecology 5:	none
Plants 4:	{801-811} (126-132) *38.1	Ecology 6:	{1204-1214} *54.3
Plants 5:	{738-747} (115-125)	Ecology 7:	{1222-1230} *55.3
Animals 1:	{654-664, 852-872}	Ecology 8:	{1231-1242} *55.4
Animals 2:	{666-676} (142-154)		

**iClicker** Beginning with Evolution 3, at the end of each lecture, I will ask a short multiple-choice question (note that the exams will **not** be multiple-choice); these questions are designed to see if you have understood a major point from my lecture. Beginning with Evolution 5, you will also be asked a question at the beginning of class based on the reading for that day.

You will submit your answer as described below; you will receive 0.5 lab points for each answer you submit, whether it is correct or not. Answers are due during the lecture on the day the question was asked; no late answers will be accepted; there are no make-ups for missed iClicker questions. After all the answers have been logged in, I will announce the correct answer. Answers are available for download from the course website. You are *strongly* advised to look at the answers *after* the lecture; the point of these questions is to get you thinking about the lecture material – that is why you get full credit for any answer, right or wrong.

You may only use an iClicker for yourself; you may not beam in answers for any other student. Any student caught operating more than one iClicker will automatically receive a grade of "F" for the course.

**Using an iClicker:** This looks like a small TV remote control. You transmit your answer to the receiver in Lipke and your answer is logged by the computer.

**You will need to register your iClicker using the link on the Bio 112 course website.** You should **not** register your iClicker through the iClicker.com website.

**Lecture Audio** I make a digital audio recording of each lecture and post these on iTunesU. A complete set of lecture audio from last year's Bio 112 is currently available on the website; they are filed under 112 S09. This year's lecture audio files will be posted under 112 S10. Many students find these recordings helpful when reviewing their lecture notes. **DANGER:** these are not a substitute for attending lecture!!!

#### How to access lecture audio on iTunesU:

- 1) Get iTunes. It is free from this site: <http://www.apple.com/itunes/overview/>  
It works for both Mac and PC. You only have to do this once.
- 2) Start iTunes.

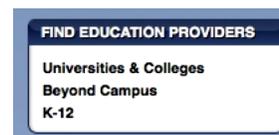
- 3) Click the "iTunes Store" button on the left of the iTunes window:



- 4) Click the "iTunesU" button under "iTunes STORE":



- 5) Click the "Universities & Colleges" button under "FIND EDUCATION PROVIDERS":



- 6) Find the "University of Massachusetts Boston" link and click it.
- 7) You'll find Bio 111 and 112 under "Open Courseware"
- 8) Click the link for the course you want. Be sure you choose the correct year.
- 9) Clicking on the lecture name will play it in iTunes.
- 10) Clicking the "Get" button will download the file to your computer and make it available to put on your .mp3 player:



**Lecture notes from Bio 112 Spring 2009** - are available (\$18.25) in Quinn Reprographics (Quinn LL-024) and on the course website listed under each lecture.

\*\*\*DANGER\*\*\* please read these notes and warnings before buying them.

Notes:

1. They are intended for people who have trouble keeping up with me in lecture; you can make notes on these pages if you like.
2. These are the notes I used in lecture in Bio 112 Spring 2009.
3. They are just what I wrote on the board, nothing more.
4. I have not edited these – they may contain errors.

Warnings:

1. These are not a substitute for lecture! There is much more to lecture than what I write on the board.
2. This year's lectures will be similar but not identical to these. You should be sure to look at what I write on the board carefully.

They may contain errors. You should go by what I write on the board this year & what you find in the book.

**Lecture Notes from this year.** I am using a Tablet PC to write notes on the screen. After each lecture, I will post these notes on the course website.