

General Biology 112

Spring 2012

Lecturer & Coordinator: Prof. Brian White
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World-Wide Web Site: <http://intro.bio.umb.edu/111-112/>

Course Blackboard site: Bio 112 also has a site on Blackboard. This site has links for the Warm-ups and Homework. It also has links to the lab discussion boards and your grades. You should be sure to check it regularly for announcements.

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-2-030	7	Thurs 9:30 - 12:30	W-2-032
2	Tues 9:30 - 12:30	W-2-032	8	Thurs 2:00 - 5:00	W-2-032
3	Tues 2:00 - 5:00	W-2-030	9	Tues 2:00 - 5:00	W-2-032
4	Wed 8:30 - 11:30	W-2-032	10	Thurs 2:00 - 5:00	W-2-030
5	Wed 1:00 - 4:00	W-2-030	11	Weds 5:30 – 8:30	W-2-030
6	Wed 1:00 - 4:00	W-2-032	12	Thurs 9:30 – 12:30	W-2-030
			13	Weds 5:30 – 8:30	W-2-032

Optional Discussion Section: 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, 9th 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 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 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.

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* (see next page for details).

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. A subset of the students may be asked to take the exam in a nearby location to relieve the crowding in Lipke. If you miss an exam and you contact Brian White within one week of the exam date notifying him of the reason for your absence, your final exam score will be counted twice: once to replace the missing grade, and once for the final exam. The final exam will be scheduled during the semester. 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 (information in *Themes* 2 handout)
- 2 *Themes* 4 through and including *Plants* 5 (information in *Animals* 3 handout)
- 3 *Animals* 1 through and including *Physiology* 8 (information in *Ecology I* handout)
- Final *Evolution* 1 through and including *Ecology* 8 (information in *Ecology* 5 handout)

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 than 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.

Warm-up Problems These are designed to give you practice with the material before the lectures. These are an essential part of the course. They are due at 11:00 AM before the lecture listed above; they will not be accepted late for any reason. They will be very challenging but you do not have to get them right; you only have to try. You will get full credit for trying as long as it is clear that you have given the question(s) serious thought. You will complete each of these assignments individually; they must be in your own words. They are designed to help you come to class prepared and help me to target my lectures to the difficulties you are having

with the material. Your answers must be submitted on line through the Bio 112 Blackboard site; details about each of the Warm-ups can be found on the Bio 112 Blackboard site. You need only complete 8 of the 9 warm-ups; that is, you can miss one with no loss in credit.

Homework These are designed to give you graded practice with the material after lectures. They are due at 11:00 PM on the day listed above; they will not be accepted late for any reason. In order to get full credit, you must give the correct answers to these problems; partly correct answers may receive only part credit. Your answers must be submitted on line through the Bio 112 Blackboard site; details about each of the Homeworks can be found on the Bio 112 Blackboard site. You need only complete 4 of the 5 warm-ups; that is, you can miss one with no loss in credit.

Note on Blackboard Assignments In order to receive credit, these assignments must be turned in on time and in the format specified. Be sure that you follow the directions exactly or you may not receive credit. One particularly common problem is submitting .lnk files when you are trying to submit a screenshot – unfortunately, .lnk files are not images, so we can't give you credit for submitting them. Be very careful about the files you submit!

Also, it does not appear to be possible to edit your submissions to Blackboard once you have submitted them; as a result, you should be *extremely careful* that your submission is *exactly* as you want it before submitting it.

Grades: Your final grade will be calculated on the basis of 600 points as follows:

300 points for the three hour exams (100 points each)

100 points final exam

200 points lab: Your lab grade will be totaled (max = 858) and scaled to a maximum of 200 points (multiplied by $200/858$), assigned as follows:

Lab reports & Practical Exams: (570)

- HMNH: 60
- Skulls & Evolution: 70
- Molecular Phylogeny: 35
- Aipotu IV: 30
- Plankton: 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: (288)

- Pre-labs(#2, 3, 4, 5, 6, 7, & 8): $7 \times 10 = 70$
- Homeworks (best 4 of 5 x 25): 100
- Warm-ups (best 8 of 9 x 10): 80
- iClicker Points: $76 \times 0.5 = 38$

Each of your exams and your total lab grade will be assigned letter grades using (approximately) this breakdown:

89 – 101 = A

59 – 73 = C

0 – 43 F

74 – 88 = B

44 – 58 = D

** 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: Students are required to adhere to the Code of Student Conduct, including requirements for the Academic Honesty Policy, delineated in the University of Massachusetts Boston Graduate Studies Bulletin and relevant program student handbook(s). <http://media.umassp.edu/massedu/policy/3-08%20UMB%20Code%20of%20Conduct.pdf> 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.

Lecture Bonus Points At one or more times during most lectures, I will ask students to consider a question and discuss the answer among themselves. I will then call on a student randomly by name to answer that question. If you respond to the question by 'passing', you will receive no extra credit; however, if you respond with an answer – even if it is incorrect – you will receive 2 points towards your exam total grade. If you do not respond at all, you will be penalized by the loss of one point from your exam total grade unless you speak to me by the end of that lecture to explain why you did not respond.

Students will be called on a maximum of once per semester; once your name has been called, it will not be called again.

Students who do not wish to be called on at all can e-mail me their name and I will make sure not to call them.

In order to be eligible to be called on in a given lecture, you must have registered your iClicker and beamed in an answer to the iClicker question at the beginning of that lecture.

Lecture and Lab Schedule:

Date	Topic	Warm-up & Homework DUE	Lab & Due dates
M 1/23	<i>Evolution 1:</i> Introduction		NONE
W 1/25	<i>Evolution 2:</i> Details	(1) Cheetah Speed	
F 1/27	<i>Evolution 3:</i> Population Genetics I		
M 1/30	<i>Evolution 4:</i> Population Genetics II	(2) Deme I	01: Field Trip: Museum of Natural History [report due week of 2/6]
W 2/1	<i>Evolution 5:</i> Population Genetics III		
F 2/3	<i>Evolution 6:</i> Natural Selection	(3) Diversity in Nature	
M 2/6	<i>Evolution 7:</i> Species & Phylogeny	(A) Deme II	02: Skulls & Evolution
W 2/8	<i>Evolution 8:</i> Taxonomy & Earth History	(4) Build a Tree I	[report due week of 2/13]
F 2/10	<i>Evolution 9:</i> Molecular Phylogeny		
M 2/13	<i>Themes 1:</i> Major Groups & Nutrition	(B) Build a Tree II	03: Molecular Phylogeny
W 2/15	<i>Themes 2:</i> Size and Scale	(5) Fish Size & Scale	[report due week of 2/20]
F 2/17	<i>Themes 3:</i> Size, Respiration, and Circulation		
M 2/20	Presidents' Day		04: Aipotu IV
W 2/22	<i>Themes 4:</i> Reproduction		[report due week of 2/27]
F 2/24	<i>Plants 1:</i> Introduction		
M 2/27	EXAM 1: Evolution & Themes		05: Plankton of Boston Harbor
W 2/29	<i>Plants 2:</i> Mosses & Ferns		[report due week of 3/5]
F 3/2	<i>Plants 3:</i> Gymnosperms & Angiosperms I		
M 3/5	<i>Plants 4:</i> Angiosperms II		06: Plant Diversity I
W 3/7	<i>Plants 5:</i> Monocots & Dicots	(6) Archaeofructus	
F 3/9	<i>Animals 1:</i> Introduction		
M 3/12	SPRING BREAK		NONE
W 3/14	SPRING BREAK		
F 3/16	SPRING BREAK		

Date	Topic	Warm-up & Homework	Lab & Due dates
M 3/19	<i>Animals 2:</i> Invertebrates I	(C) Hofmeister	06: Plant Diversity II
W 3/21	<i>Animals 3:</i> Invertebrates II		[report due week of 4/2]
F 3/23	<i>Animals 4:</i> Invertebrates III		
M 3/26	<i>Animals 5:</i> Vertebrates		06: Plant Diversity III Lab Practical Exam
W 3/28	<i>Physiology 1:</i> Nervous Systems Introduction		
F 3/30	<i>Physiology 2:</i> Resting Potential	(7) Membrane Potentials I	
M 4/2	EXAM 2: Themes & Plants		07: Animal Diversity I: Trout
W 4/4	<i>Physiology 3:</i> Action Potential		
F 4/6	<i>Physiology 4:</i> Nerve Communication	(D) Membrane Potentials II	
M 4/9	<i>Physiology 5:</i> Input & Output		07: Animal Diversity II: Squid
W 4/11	<i>Physiology 6:</i> Scent & Smell		[report due week of 4/23]
F 4/13	<i>Physiology 7:</i> Muscle		
M 4/16	Patriots' Day		07: Animal Diversity III: Lab Practical Exam
W 4/18	<i>Physiology 8:</i> Neurotoxins & Excretion		
F 4/20	<i>Ecology 1:</i> Introduction & Climate		
M 4/23	EXAM 3: Animals & Physiology		08: Animal Behavior
W 4/25	<i>Ecology 2:</i> Population Growth		[report due week of 4/30]
F 4/27	<i>Ecology 3:</i> Interactions I	(E) <i>Zombies Attack!</i>	
M 4/30	<i>Ecology 4:</i> Interactions II		09: Phylogenetic Collection
W 5/2	<i>Ecology 5:</i> Interactions III	(8) Mighty Mites	[rpt. to TA mailbox wk of 5/17]
F 5/4	<i>Ecology 6:</i> Community Structure	(9) Rocky Intertidal	
M 5/7	<i>Ecology 7:</i> Ecosystems		NONE
W 5/9	<i>Ecology 8:</i> Biogeochemical Cycles		

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:	{452-460}	Animals 3:	{676-692} (155-159, 163-165, 173-177)
Evolution 2:	{460-467, 529-531}	Animals 4:	{693-695} (160-162, 178-182)
Evolution 3:	{469-476}	Animals 5:	{697-734} (202) *42.2, 42.3
Evolution 4:	*23.2	Physiology 1:	{1045-1047, 1062-1067}
Evolution 5:	{476-480}	Physiology 2:	{132-138, 1048-1050}
Evolution 6:	{480-485}	Physiology 3:	{1050-1054} *48.3
Evolution 7:	{488-504, 536-543}	Physiology 4:	None
Evolution 8:	{507-525, 544-548} *25.3 & 26.1	Physiology 5:	{1055-1060} *48.4
Evolution 9:	{548-553} *26.3	Physiology 6:	{206-225, 1085-1088, 1095-1103}
Themes 1:	{100-101, 575-577, skim 578-597 636-639, 785-798, 875-880}	Physiology 7:	{1103-1115} *50.5
Themes 2:	{99, 1112-1113}	Physiology 8:	{132-134, 953-958}
Themes 3:	{248-249, 897-901, 915-922}	Ecology 1:	{skim 1144-1167}
Themes 4:	{250-252, 606-609, 646-647}	Ecology 2:	{1170-1191}
Plants 1:	{600-606}	Ecology 3:	{1194-1198, 20-22}
Plants 2:	{606-615} (83-86, 97-100) *29.2, 29.3	Ecology 4:	{1198-1200}
Plants 3:	{618-634} (108-114) *30.2, 30.3	Ecology 5:	none
Plants 4:	{801-810} (126-132) *38.1	Ecology 6:	{1200-1215} *54.3
Plants 5:	{738-747} (115-125)	Ecology 7:	{1218-1226} *55.3
Animals 1:	{654-664, 852-872}	Ecology 8:	{1227-1235; 1256-1258} *55.4
Animals 2:	{666-676} (142-154)		

iClicker Beginning with Evolution 2, at the beginning and 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 prepare you for the lecture and to see if you have understood a major point from my lecture, respectively.

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.

If you did not register your iClicker in Bio 111 this fall, you will need to register your iClicker. You can register your iClicker using the computer visible through the window at W-2-031; this is available anytime. 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 the course website. Many students find these recordings helpful when reviewing their lecture notes.

DANGER: these are not a substitute for attending lecture!!!

Lecture notes from Bio 112 Spring 2010 - are available 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 2010.
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.