

BSC 120 – Principles of Biology - Syllabus
Fall 2015 - Department of Biological Sciences - Marshall University

Professor: Dr. Brian L. Antonsen

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Office Hours: Tuesday and Thursday 9:30 AM – noon, or by appointment.

*I make every effort to keep scheduled office hours. Please be aware that sometimes there are conflicts with required meetings.

Lecture: TR 8:00 – 9:15 AM in S376.

Textbooks: *Biology*, 3rd Edition, 2013, Brooker et al. With Connect Plus (required)
Principles of Biology Laboratory Manual, Weinstein (required)
A Short Guide to Writing About Biology, Pechenik (strongly recommended)

Clicker: Turning Technologies Response Card NXT (required). You MUST bring your clicker to every lecture.

Penalties for not having clicker: a score of zero on a quiz, 25% penalty on an exam.

Computer Requirements: Access to and the ability to print Acrobat documents from MUOnline is required.

Access to and ability to use Microsoft Office or equivalent, with printing capability, is required. I send course notices to your Marshall email account, you are expected to check it regularly, and any electronic course communication must be through the Marshall email system (not gmail, yahoo, MUOnline, etc).

Connect: An access code for McGraw Hill's Connect Plus is required. Most online quizzes will be posted through Connect, as well as access to publisher-supplied study aids (LearnSmart), animations, and other materials. The document "Quiz Instructions" posted on MUOnline explains the full rules governing online quizzes, including the computer requirements necessary to use the site. The abovementioned document is part of the course syllabus.

Course description: 4 credit hrs: Study of basic principles common to all organisms through lecture and laboratory activities. Chemistry of life, cell biology, metabolism, heredity, and evolution. Intended for science majors and pre-professional students. 3 lec-2 lab. (PR: 21 or better on Math ACT, or C or better in MTH 121 or higher).

Responsibilities: By enrolling in this course, you agree to all policies in this syllabus, and all relevant University policies as outlined in this syllabus and on the Academic Affairs website (www.marshall.edu/academic-affairs, click on "Marshall University Policies").

Goals: Most of the students who take this course are interested in biological research or some aspect of the health sciences. As such, I feel it is important for me to give you the opportunity to begin to develop those skills necessary for pursuing a career in these fields. Although a foundation of basic knowledge is essential, this class will go beyond presenting you with a series of facts. You will make decisions based on complex information; you will read new information and gauge its validity; you will develop a basic knowledge of how scientific information is developed. As such, in this course we will strive to provide you with the following opportunities:

- to develop a thorough *understanding* of basic biological concepts.
- to develop your ability to integrate information and think about it critically, analytically, and conceptually.
- to apply your knowledge towards designing, conducting, analyzing, and reporting on scientific experiments.

General Learning Concepts: I organize my lectures loosely around material presented in the textbook, but I do bring in additional material, I will emphasize different topics, and I will occasionally argue points with the textbook. I base exams on lecture material, and EVERYTHING presented in lectures or reading assignments is examinable. Therefore, take notes!

Study Habits: This course will cover a great deal of material, and the exams will be comprehensive both in the scope of material covered and in the ways in which you will be asked to demonstrate how well you have learned the material. Cramming and memorizing from lecture handouts just before an exam tends not to result in good exam scores. You will want to develop good study habits. Among these are coming to class prepared, and taking good notes. Study often; it is best to review material at least weekly, and to rewrite your notes. Ask questions in class. Use the textbook to help fill in gaps in your understanding.

Find study habits that work for you. There are a few general rules (avoid distractions and stress, don't leave it to the last second), but aside from this different people respond very differently to different environments. Use this web page to read about different learning styles, and take the quiz to find out which ones might work best:

<http://www.learning-styles-online.com/overview/>

Connect: Access to McGraw-Hill's Connect website is required. Connect is designed to help students prepare themselves and guide their own learning - I will use this service to post exercises, quizzes and self tests. You must register for the class on Connect during the first week of classes - the first quiz will be posted during this time. If you bought the current version of the text new from the MU Bookstore, it should have come with a Connect access code; if not you can purchase access to Connect Plus from McGraw Hill directly. You can find more information about Connect, including how to register, on the course page on MUOnline.

Expected Learning Outcomes: I have expectations of you in terms of the knowledge and abilities you will develop over this course, which is the introductory, broad overview of the Biological Sciences for science majors. We will go beyond memorization of facts, and ask that you *learn* the material. However, you are the one paying to take this course, you are the one who will be competing for placement in graduate school, professional programs or jobs, you are the one who knows where your interests lie and what you need to pursue your chosen career. It is up to you to participate, to ask questions, to study, and to come to lecture and lab prepared. In aid of this, I will open the floor at the beginning of each class to questions or comments, and I will ask questions of you.

I anticipate that as the course progresses, you will develop and refine the ability to:

1. Understand the scientific method and how it is applied to scientific investigation.
2. Know the characteristics of biological molecules, and know how they interact at the cellular level.
3. Understand the relationship between form and function, as it applies to any biological structure.
4. Understand the processes involved in the transformation of energy in living systems.
5. Understand heritability and phenotypes.
6. Know the molecular basis of genetics.
7. Understand how genetics underlies speciation and evolution of organisms.

Personal Conduct: I will expect everyone in the labs and lectures to act in a professional and courteous manner. Disruptive, abusive, or offensive behavior directed at anyone involved in the class will not be tolerated, and offenders may be asked to leave the classroom and forfeit any associated grades. Use of cell phones, computers, or personal electronic devices is not allowed, unless their use is directly involved with class activities **and** has been approved by myself. If you are late, enter quietly and avoid disturbing the class. Any disruptive behavior, including but not limited to talking, reading other material in class, texting, or cell phone ringing, may result in the offender being required to leave the class. Furthermore, I only respond to emails that are written with professionalism.

Academic Honesty:

Students found guilty of academic dishonesty may be placed on academic probation, suspended, or dismissed from the University.

I take honesty and integrity seriously, and will not tolerate any form of dishonest conduct. You are responsible for knowing the University's policies, which can be found in the student handbook or at this web address:

http://www.marshall.edu/wpmu/academic-affairs/?page_id=802#AcademicDishonesty

During exams, I will expect you to NOT look at the work of those sitting around you, and NOT have any form of course related material or electronic devices either on or in view. In the lab, most experiments will be done in groups, but we expect that all assignments will be written up independently. Exceptions to independent work will only be allowed in cases where you are expressly instructed to write up your assignment in groups. We also expect that all references used in your reports be properly cited. Any incidence of dishonest conduct will result in a grade of ZERO for that test or assignment, an additional one letter grade penalty for the course, and possible failure or dismissal from the course. Every case will also be referred to Academic Affairs for further action.

An important note on plagiarism: Plagiarism is any use, whether intentional or not, of another person's words in your assignments. This includes the use of quotes to indicate borrowed words - using quotes is not allowed in this class. We are interested in how you express thoughts in your own words, not how well you can copy someone else's words, with or without quotes. Your writing must be your own. Safeassign, a plagiarism detection tool, will be used in this class. Students taking this class must agree to submit their written work to Safeassign for review.

Students with Disabilities: Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit <http://www.marshall.edu/disabled> or contact DSS Office at Prichard Hall 11, phone 304-696-2271.

Social Justice: Absolutely NO student will be discriminated against based on race, ethnicity, sex, age, sexual

orientation, social class, health condition, or religion. Every student is an integral and essential member of this class, and their opinions and discussion will be treated with value and respect.

Attendance: I do not take attendance in the lectures, but exams are based on material presented in class. The textbook is a valuable aid to understanding, but material in the lectures may go beyond the scope of the text. Concepts and knowledge in this course build upon one another and I use many examples relating ideas to one another, therefore it is very easy to fall behind. Unannounced quizzes occur through the term. Missed lecture quizzes cannot be made up but will not count if covered by a University excused absence. Online quizzes will always be announced at least 3 days before the due date; unless you have a University excused absence for the entire time between announcement of a quiz and the due date, these will not be omitted from grade calculations.

Missed exams can be made up only in the case of a University approved absence or a weather related University closure. It is **your** responsibility to ensure that the appropriate excused absence forms are delivered to me. In case of a university approved absence for an exam, you must contact me as soon as possible to arrange for a make up exam, and the exam must be taken on the FIRST POSSIBLE DAY after your return to the university. Make up exams may be in written or oral format, at the discretion of the instructor. In case of absence for a University sanctioned activity, arrangements to make up the exam must be made BEFORE your absence.

Marshall's full policy on excused absences can be found in the academic calendar. It is your responsibility to be familiar with University policy. Policies and the excused absence form can be found at these addresses:

<http://www.marshall.edu/student-affairs/absence.htm>

<http://www.marshall.edu/ucomm/weather.html>

In case of university closure on an exam day, the exam will be rescheduled to the next lecture session.

Failure to abide by any of these policies may, at my discretion, result in a score of zero for the missed exam.

Attendance is taken in the labs, every lab has an associated graded assignment. Instructions for completing an excused lab will be provided in the lab. If you miss a lab without a university excused absence, you will receive zero on that assignment. Furthermore, it is required that you complete all pre lab assignments before coming to lab.

Assessment: Written exams and quizzes are a necessary means of evaluating how well students have met my expectations, especially in large classes like BSC 120. The preliminary and final exams will be a mixture of multiple choice, fill in the blanks, matching, and true false. Questions will be written so as to test your preparation at every level, from memorization of facts to application of conceptual knowledge. I expect that you will be prepared to answer questions in the lecture, and with this in mind short announced or unannounced quizzes will be given. These should benefit your final scores as they help you to develop good study skills by keeping up with the material in the lecture and laboratory.

Reports written in the laboratory will give you the opportunity to apply knowledge in a more practical situation. They will cover similar material as the lectures, and will emphasize your ability to integrate and express facts, principles, and concepts.

Grading Policy:

Lecture Quizzes:	10%
Connect Quizzes	10%
Preliminary Exam 1:	10%
Preliminary Exam 2:	10%
Preliminary Exam 3:	10%
Lecture Final Exam:	25%
Laboratory:	<u>25%</u>
Total:	100%

There is also a bonus available of up to 1% of your final grade for participation in LA sessions.

I use this scale to determine final grades: 100 - 90 = A; 89 - 80 = B; 79 - 70 = C; 69 - 60 = D; <59 = F.

Tentative Lecture Schedule*

Week of	General Lecture Topics	Readings (Brooker 3rd ed)
Aug 24	Course overview ; An Introduction To Biology The Origin And History Of Life	Chapter 1 Chapter 22
Aug 31	An Introduction To Evolution The Chemical Basis Of Life I: Atoms, Molecules, And Water	Chapter 23 Chapter 2
Sept 7	Sept 7 is Labor Day Holiday, University Closed No labs this week The Chemical Basis Of Life I: Atoms, Molecules, And Water The Chemical Basis Of Life II: Organic Molecules	Chapter 2 Chapter 3
Sept 14	A Tour of the Cell Membrane Structure, Synthesis, And Transport	Chapter 4 Chapter 5
Sept 21	Membrane Structure, Synthesis, And Transport An Introduction To Energy, Enzymes, And Metabolism Exam I Sept 24	Chapter 5 Chapter 6
Sept 28	Cellular Respiration, Fermentation, And Secondary Metabolism Photosynthesis	Chapter 7 Chapter 8
Oct 5	Photosynthesis Cell Communication	Chapter 8 Chapter 9
Oct 12	Multicellularity Nucleic Acid Structure, DNA Replication, And Chromosomes	Chapter 10 Chapter 11
Oct 19	Exam II Oct 20 Gene Expression At The Molecular Level Gene Regulation	Chapter 12 Chapter 13
Oct 26	Mutation, DNA Repair, And Cancer The Eukaryotic Cell Cycle, Mitosis, And Meiosis	Chapter 14 Chapter 15
Nov 2	Simple Patterns Of Inheritance Complex Patterns Of Inheritance	Chapter 16 Chapter 17
Nov 9	Genetics Of Viruses And Bacteria Developmental Genetics	Chapter 18 Chapter 19
Nov 16	Exam III Nov 17 Genetic Technology Genomes, Proteomes, And Bioinformatics Population Genetics	Chapter 20 Chapter 21 Chapter 24
Nov 23	Thanksgiving/Fall Break , University closed	
Nov 30	Origin Of Species And Macroevolution	Chapter 25

Final Exam (cumulative): Thurs Dec 10, 8-10AM, In the lecture room

***-Subject to change – we may start specific topics earlier or later than outlined here, depending on how things progress through the term.**