

Course Title/Number	BSC 120: PRINCIPLES OF BIOLOGY
Semester/Year	Spring 2016
Instructor	Marcia Harrison-Pitaniello
Days/Time	Lecture: MWF 9:00 - 9:50 am Laboratory Sections: 201: Tues. 10-11:50 am; 202: Tues. 2-3:50 pm; 203: Wed. 12 - 1:50 pm.
Location	Lecture: Science 376; Lab: Science 210
Office	Office: Science 200A; Lab: Science 107
Phone	(304) 696-4867
E-Mail	harrison@marshall.edu
Office/Hours	Dr. Harrison: M/W/F 10:00-11:00 am; T/R 10:50-11:50 am; by appointment Paige Lansky (TA 201, 203): S209 - Tues. and Wed. 2-3:00 pm, lansky@live.marshall.edu Berlyna Heres (TA-202): S209 - Mon. 11-Noon, Tues. 9-10 am, heres@marshall.edu
University Policies	By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to http://www.marshall.edu/academic-affairs/?page_id=802 for Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment.

Course Description: From Catalog

Principles of Biology, 4 hrs. Study of basic biological principles common to all organisms through lecture and laboratory activities. Intended for science majors and pre-professional students. 3 lec-2 lab. . Prerequisites/Co-requisites: PR: ACT Math 21 , or SAT Mathematics 500 , or (MTH121 Minimum Grade C , or MTH123 Minimum Grade C , or MTH127 Minimum Grade C , or MTH130 Minimum Grade C , or MTH132 Minimum Grade C)

Course Outcomes	Opportunities to Practice Course Outcome	Course Outcome Assessment(s)
Describe and apply the basic biological principles common to all organisms	Homework, in-class discussions and laboratory exercises	Homework, examinations and quizzes
Discuss and use the scientific approach to solve problems within the field of biology	In-class discussions and laboratory experiments	Examinations, quizzes and laboratory reports
Read and analyze charts, graphs, and tables conveying scientific information	In-class discussions and laboratory exercises and experiments	Examinations, quizzes and laboratory reports
Collect, interpret, present and discuss scientific data	Laboratory experiments	Formal written laboratory report

Required Texts, Resources, and Devices ("Required" means **REQUIRED**. You will fail the class without these.)

Biology, 3rd Edition, 2014, Brooker, Widmaier, Graham and Stiling, McGraw Hill, Pubs. The one with a clownfish on the cover. Available in hardback, loose leaf or eBook.

Principles of Biology Laboratory Manual, Weinstein (this is the manual for the labs)

Turning Technologies ResponseCard (NXT: Rcxr-03 CLICKER). These will be used every week for in-class quizzes and participation (worth 5% of your final grade) and for exams.

Connect: Access to McGraw-Hill's Connect website is required. Connect is designed to help students prepare themselves and guide their own learning. This service will be linked within MU Online, where I will post pre-lecture assignments and homework. You must register for the class on Connect, during the first week of classes. The first graded assignment is due on January 20! 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.

All of your homework and pre-lecture assignments (LearnSmart) are on Connect, as is the eBook and other resources. Since these assignments are worth 5% of your final grade, you should expect to visit and work on this site many times per week. There is also a free Smartphone app (“LearnSmart” by McGraw-Hill) in the iTunes App Store.

Recommended Text: *A Short Guide to Writing About Biology*, Pechenik (helpful for preparing lab reports).

Course Requirements / Due Dates

1. **Exam 1:** Friday, January 29
2. **Exam 2:** Friday, February 19
3. **Exam 3:** Friday, March 11
4. **Exam 4:** Friday, April 8
5. **Exam 5:** Friday, May 6 from 8:00-10:00 a.m. (according to the Spring 2016 exam schedule)
6. **Laboratory evaluation:** Each lab requires the completing of a data sheet. The lab also includes one full Draft of a Research Paper and one full Research Paper. The deadlines will be provided by your lab TA.
7. **Homework:** Connect LearnSmart learning modules and homework will be assigned weekly to prepare for lecture and to practice topics discussed in lecture.
8. **In-class quizzes:** Lectures will include quiz questions which will be assessed by the response cards.

Grading Policy

<u>WI-Graded material:</u>		<u>Grading scale:</u>		
Exam 1	10%	A = 100–90%		
Exam 2	10%	B = 89.4–80%		
Exam 3	10%	C = 79.4–70%		
Exam 4	15%	D = 69.4–60%		
Exam 5	20%	F = <59.4%		
Lab work	25%			
Homework	5%			
<u>In-class quizzes</u>	<u>5%</u>			
Total	100%			

Lecture exams (65%): Tests will be given on the dates listed on the schedule (page 5). All tests (except the final exam) will be administered during the regular class time. Not all tests are weighted the same. Exams will be based on the LearnSmart modules, homework, and lecture content. Lecture slides with the clicker questions and a review slide will be posted on MUOnline. Exams are in multiple choice and short answer format. **Exam records:** Exams will be administered using the clickers. Students should mark the exams with their answers as a back-up to the electronic submission. Exams will usually be returned within one week from the exam date. Grades cannot be e-mailed or given over the phone. Make-up examinations will be offered in the case of a family emergency, illness, or other university excused absence. Please make every effort to contact Dr. Harrison prior to the test (e-mail will be fine) to inform her that you'll miss the test. **Students have ONE calendar week (seven days from day of the regularly scheduled exam) to make-up a missed test; not doing so will result in your final exam carrying proportionately more weight (equal to the weight of the missed test).** The make-up test may not be the same exact exam as that given on the regularly scheduled exam day. 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.

Laboratory evaluation (25%): Lab grades will consist of weekly data sheets and a formal laboratory report. The laboratory report is mandatory for passing the laboratory portion of BSC 120. Written instructions and deadlines will be provided by your lab instructor. Students are expected to keep their finished papers on computer disk until the graded copy is returned. Lab grade = 120 (data sheets: one sheet will be dropped) + 10 (draft of paper) + 30 (paper) = 160 pts.

In-class quizzes and participation (5%): Lecture content will be evaluated by in-class quizzes assessed by the response

cards (i.e. clickers) during most lectures. A weekly quiz grade will be determined from these quizzes and the worse 3 will be dropped. Note that participation extra credit may be included in the lecture work.

Homework on Connect (5%): On average, there will be at least two on-line homework assignments on Connect every week. Weekly scores will be recorded and the worse 3 dropped.

Attendance Policy

Attendance in lectures and laboratory exercises is integrated into your grade. You are responsible for any material missed by being absent. Absences from exams or quizzes due to illness, death in the family, or institutional activities will be excused with the appropriate notification from Marshall University Student Affairs Office.

Lecture attendance policy: Physically attending class and remaining engaged in the content is the main determinant regarding whether a student gets a good grade. As a student, you can't learn (and can't get a good grade) if you don't show up. Expect quiz questions in every lecture and these cannot be made-up. Also, lectures will go beyond the textbook material covering problems and application of biological concepts. Exam questions will be based on this material as well as the readings and homework. While you cannot recover work missed for unexcused absences, three of the lowest quiz scores will be dropped, which includes any zero's resulting from unexcused absences. If you have a University-excused absence, those missed quizzes will be forgiven, but only up to three. Please try to arrive on time. *If you arrive late, please enter by the back of the room. It is disrespectful to the class to arrive late and noisily.*

Lab Attendance Policy: The laboratory component of this class is a critical part of the learning objectives for Principles of Biology. The lab provides a "hands-on" experience that enables the student to appreciate the applicability of basic biology to scientific discovery. The labs cannot be made up if they are missed. If a student misses a lab due to a university excused absence, that particular lab grade will be excluded from the final grade calculation, but *only up to three*. If a student misses more than three labs, excused or not, they will receive a "zero" for the additional labs that are missed and these "zeros" will be included in the final grade calculation. ***If a student misses five labs in total they will automatically fail the course.*** The rationale behind this policy is that if a student misses five labs it stands to reason that they are in a situation that warrants withdrawal from the class, and possibly from the university. The last day to drop a class is March 18; the last day to withdraw completely from all classes is April 29.

Personal conduct

Cell Phone/Electronics Policy: Electronic devices are allowed within class as long as they are used for class purposes such as note-taking, information retrieval, etc. Study after study show that using an electronic device is distracting to both you and the students sitting around you. You also know that this distraction leads to an inability to learn, thus an inability to get good grades. This includes the inappropriate use of a laptop to surf the 'net, look at Facebook, etc., because this is very distracting to those around you. Inappropriate use of an electronic device will result in your being asked to leave. **Note: No electronic devices, EVER, during tests.** Do not even get it out or you will be asked to take your phone and leave, and receive a "zero" for that exam. Any cheating will result in your failing the course, a report to the university administration, and a note on your permanent university record that you are a cheater.

Policy Regarding Inclement Weather or Other Dangerous Events

Inclement Weather: Marshall will rarely close due to bad weather. However, when it is necessary to change the schedule every effort will be made to notify the local media. If classes are delayed until 9 a.m., then BSC 120 will meet at the regularly scheduled time, 9 a.m. For classes delayed until 10 a.m., BSC 120 will not meet. Make-up work will be posted on MUOnline.

Fire alarms: In the case of a fire alarm, students are to leave the building quickly and orderly. In the case of a tornado, students are to move into the hall, away from windows and doors. The MUPD phone number is 696-4357 (696-HELP).

Marshall University emergency text messaging system: It is a good idea to sign up to be notified of emergency situations and other important announcements. To sign up, go to: myMU; log in; click on MU Alert (a red triangle in the Launchpad), and complete the information to participate in MU's emergency notification system.

COURSE SCHEDULE

Dr. Harrison: Office: Science 200A; Lab: Science 107; (304) 696-4867; harrison@marshall.edu

Office hours - M/W/F 10:00-11:00 am; T/R 3:00-4:00 pm; by appointment

Paige Lansky (TA 201, 203): Science 209: Tues. 2-3:00 pm, Wed. 2-3:00 pm, lansky@live.marshall.edu

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LECTURE SCHEDULE

Note: The schedule of lecture topics is meant only as a guide to the basic textbook coverage. The amount of lecture time on each topic will vary (i.e., Topics, which include discussion of a case study or article will require more class time). Lecture preparation and coverage will be posted in weekly class announcements on MUOnline. However, note that the exam dates will not change.

Week	Laboratory (Science 210)	Lecture Topics (Science 376)
Jan 11-15	Laboratory Safety	Chapter 1. An Introduction to Biology
Jan 19-22	No lab this week	Chapter 2. Chemical Basis of Life I: Atoms, Molecules, and Water
Jan 25-29	Scientific Measurement	Chapter 3. The Chemical Basis of Life II: Organic Molecules Chapter 4. General Features of Cells Chapter 5 Membrane Structure, Synthesis, and Transport *****Friday, January 29 TEST 1*****
Feb 1-5	Hypothesis Testing	Chapter 6 Introduction to Energy, Enzymes and Metabolism Chapter
Feb 8-12	Biological Molecules	Chapter 7 Cellular Respiration and Fermentation
Feb 15-19	Microscope and Cells	Chapter 8 Photosynthesis Chapter 9 Cell Communication Chapter 10 Multicellularity ***** Friday, February 19 TEST 2*****
Feb 22-26	Diffusion and Osmosis	Chapter 11 Nucleic Acid Structure, DNA Replication, and
Feb 29-Mar 4	Measuring "Blood Glucose"	Chromosomes
March 7-11	Enzyme Kinetics	Chapter 12 Gene Expression at the Molecular Level
March 7	****Freshmen/Sophomore mid-term grades due****	Chapter 13 Gene Regulation Chapter 14 Mutation, DNA Repair, and Cancer Chapter 15 The Eukaryotic Cell Cycle, Mitosis, and Meiosis ***** Friday, March 11 TEST 3*****
March 14-18	Chromatography	Chapter 16 Simple Patterns of Inheritance
March 18	****Last day to drop an individual course****	Chapter 17 Complex Patterns of Inheritance Chapter 18 Genetics of Viruses and Bacteria
March 21-25	Spring Break	Chapter 19 Developmental Genetics
March 28-Apr 1	Photosynthesis	Chapter 20 Genetic Technology
April 4-8	Expression, Mutation, RNAi	***** Friday, April 8 TEST 4*****
April 11-15	Mendelian Genetics	Chapter 21 Genomes, Proteomes, and Bioinformatics
April 18-22	Microevolution	Chapter 22 The Origin and History Of Life on Earth
April 25-29		Chapter 23 Introduction to Evolution Chapter 24 Population Genetics Chapter 25 Origin of Species and Macroevolution Chapter 26 Taxonomy and Systematics
May 6 (8 - 10 AM)		TEST 5 FINAL EXAM (COMPREHENSIVE)