

## BSC 120 – Principles of Biology - Syllabus Fall 2015

**Professor:** Dr. J.V. Valluri

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**Office Hours:** Monday & Wednesday 10:00 AM – 12 Noon

**Lecture:** MWF 9:00 – 9:50 am in Science Building Room 376.

**Textbooks:** Biology, 3rd Edition, 2013, Brooker et al. With Connect Plus access (required)  
Principles of Biology Laboratory Manual, Weinstein (required)

**Course description:** 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).

**Required Internet Site:** Go to: <https://connect.mheducation.com/class/j-valluri-bsc-120---fall-2015---dr-valluri> (click, or “cut and paste” into your browser’s address bar)

- Using the Connect access code that came with your book, you must register and enter the site for this particular class. All of your homework, assignments, exercises, etc. are on this site, as is the eBook and other resources. You should expect to visit and work on this site many times per week (this is probably much less time than some of you are currently spending on Face book or some other social media, so please think about your priorities). In addition, you need to check your Marshall email every day.

- You should also spend time on the Learn Smart study module link on the Connect site. These on-line “flashcard” exercises are enjoyable (at least to serious students), low pressure and self-paced ways to test your own knowledge and understanding. There is also a free Smartphone app (“Learn Smart” by McGraw-Hill) in the iTunes App Store. This allows you to use your Smartphone smarter and study biology anytime.

**Computer Requirements:** Access to and the ability to print documents from MU Online is required. I use MUOnline to distribute slides from my lectures, supplementary material, study aids, and possibly short quizzes. I send notices to your Marshall Email account; you are expected to check it regularly. All electronic course communication must be through your Marshall account (not Gmail, yahoo, blackboard email, etc). You must also have access to McGraw-Hill’s Connect website.

**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](http://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.

**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. Many of you may find this somewhat difficult, as 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/>

**Expected Learning Outcomes:** 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. Understand major biological molecules, and know how they interact at the cellular level.
3. Understand the relationship between form and function, as it relates to 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

**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.

### **Academic Honesty:**

Students found guilty of academic dishonesty may be placed on academic probation, suspended, or dismissed from the University. 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](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. Any incidence of dishonest conduct will result in a grade of ZERO for that test or assignment, and possible failure or dismissal from the course.

**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, visit <http://www.marshall.edu/disabled> or contact DSS at Prichard Hall 11, phone 304-696-2271.

**Attendance:** I do not take attendance in the lectures, but my exams are based on material I present 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 different aspects of biology to one another, therefore it is very easy to fall behind and difficult to catch up. You will also receive unannounced quizzes through the term that will count towards your final grade.

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 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.

Missed lecture quizzes cannot be made up but will not count if covered by a University excused absence. Online

quizzes will 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. 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 grades associated with it, and missed labs can only be made up if a university excused absence is granted for that lab. Details for how to make up an excused lab will be provided in lab. If you miss a lab without a university excused absence, you will receive zero on that assignment.

**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, true false, and short and long answer. 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.

<b>Grading Policy:</b>	Online Quizzes:	10%
	Exam 1 (Sept 21)	15%
	Exam 2:(Oct 19)	15%
	Exam 3:(Nov 16)	15%
	Final Exam (Dec 11 @ 8 am)	20%
	Laboratory:	<u>25%</u>
	Total:	100%

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

## **BSC 120 – Principles of Biology - Syllabus\***

Chapter 1 An Introduction to Biology

Chapter 2 The Chemical Basis of Life I: Atoms, Molecules, and Water

Chapter 3 The Chemical Basis of Life II: Organic Molecules

Chapter 4 General Features of Cells

Chapter 5 Membrane Structure, Transport, and Cell Junctions

**EXAM 1 September 21**

Chapter 6 Energy, Enzymes, and Cellular Respiration

Chapter 7 Photosynthesis

Chapter 8 Cell Communication

Chapter 9 Nucleic Acid Structure, DNA Replication, and Chromosome Structure

Chapter 10 Gene Expression at the Molecular Level

**EXAM 2 October 19**

Chapter 11 Gene Regulation

Chapter 12 Mutation, DNA Repair, and Cancer

Chapter 13 The Eukaryotic Cell Cycle, Mitosis, and Meiosis

Chapter 14 Patterns of Inheritance

**EXAM 3 November 16**

Chapter 15 Genetics of Viruses and Bacteria

Chapter 16 Genetic Technology

Chapter 17 Genomes, Repetitive Sequences, and Bioinformatics

Chapter 18 The Origin and History of Life on Earth

Chapter 19 An Introduction to Evolution and Population Genetics

**FINAL EXAM Dec 11 (8AM – 10 AM)**

**\*-Subject to change – we may start specific topics earlier or later than outlined here, depending on how things progress through the term. Exam Dates will not change.**

