# BIOL 151 Introduction to Biological Sciences I Fall 2016 Syllabus

Class time:[Removed]Class time:[Removed]Classroom:[Removed]Classroom:[Removed]

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By appointment

# **Course Description**

Semester course: 3 lecture hours. 3 credits. Pre- or co-requisites: MATH 151 and CHEM 101. Introduction to core biological concepts including cell structure, cellular metabolism, cell division, DNA replication, gene expression and genetics. Designed for biology majors.

### **Course Overview**

This course will focus on the introduction to science and scientific thinking, along will all things related to and around the cell. This course will specifically explore basic principles of the scientific method, general chemistry, organic chemistry, biochemistry, biophysics and energy, cell and molecular biology, genetics, and the introduction/learning of specific vocabulary, details, and concepts, emphasis will be placed on the development of critical thinking skills including the application of the material to novel scenarios and the analysis of novel information. This course is intended to cultivate a passion for the biological sciences and facilitate synthesis of existing student knowledge with new topics for a more comprehensive understanding of biological concepts, thereby preparing students for advanced courses in biology.

### **Learning Objectives**

By the end of this course students should be able to:

- 1. To be able to use chemical concepts, such as moles, isotopes, and redox, in a biological context
- 2. Have a conceptual understanding of what makes up a cell, and the biochemical processes that synthesize DNA, RNA and proteins.
- 3. Explain cellular processes including photosynthesis, mitosis, meiosis, gene expression, and cellular respiration
- 4. Understand the flow of energy within an organism to maintain life and the relationship between biochemical processes and the laws of thermodynamics
- 5. Understand transfer of genetic information across generations and the regulation of gene expression within an individual
- 6. Given the content of and rigor of the course, the student will evaluate current study and time management skills and devise new methods for learning the material.

## **Required Materials**

### Textbook

Biology: How Life Works 2nd edition by Morris, J et al.

### Top Hat

We will be using the Top Hat (<u>www.tophat.com</u>) classroom response system in class. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message.

Please see the document under the Getting Started in the Weekly Assignments tab on Blackboard to enroll in Top Hat. An invitation will be sent to you by email before the end of the first, but if don't receive this email, you can register by simply visiting our course website.

### WARNING!!! BE SURE TO ENROLL IN THE CORRECT SECTION!

Section 005 – 8AM [removed]

Section 001 – 9:30AM [removed]

Top Hat will require a paid subscription, and a full breakdown of all subscription options available can be found here: www.tophat.com/pricing.

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email (<a href="mailto:support@tophat.com">support@tophat.com</a>), the in app support button, or by calling 1-888-663-5491.

### **Lecture Exams**

There will be four lecture exams and a final. Each exam can and will build from previous information and so will likely have questions about previous material. Ergo, do not forget anything. Exams can consist of multiple choice, fill-in-the-blank questions, short answer, drawings, and essays.

### Lecture Exam policies:

# Failure to comply with any of these policies may result in the forfeit of the exam or the involvement of the honor system

- Memorize your V# prior to your first exam.
- Bring a photo ID for each exam.
- No cell phones during the exam... for any reason.
- No hats
- No ear devices or any other electronic devices
- No clipboards
- You may leave the class during an exam with the permission by the instructor
- Do not look at any exam but your own
- Do not speak to your classmates once the exam has commenced.
- Turn in all exam materials to the Instructor, to include extra exams.
- No duplication of exams in any way.

## Class Attendance/Participation:

Attendance will be taken daily via Top Hat following add/drop. We will often be doing work during class in the form of top hat questions, group work, or individual work. This work will allow both of us to assess your mastery of the material, and make adjustments accordingly.\*\*

#### **Online Work:**

Each week you will have several online assignments that must be completed primarily through Top Hat. It is your responsibility to make sure that assignments are completed before due dates. Loss of internet access, computer issues, browser issues or other technology related problems may not be considered legitimate excuses for failure to complete assignments before due dates.\*\*

# **Attendance & Missed Work Policy:**

## Missed Work

It is the student's responsibility to get notes from a classmate due to an absence. It is the student's responsibility to find out from a classmate what was missed, so be kind and courteous to your colleagues!

### Make-Ups

Lecture exams may be made up at the instructor's discretion, but will require an acceptable reason for missing the exam.

### **Final Grade Calculation**

Final grades will be calculated in one of two ways. 1) Final grades will be based on your exam grades alone, meaning that each of your exams is worth 100 points and your final exam is worth 200 points for a total of 600 points. \*\*This method will not consider grades associated with class attendance/participation and any online assignments. 2) Final grades will be based on both exam grades and your other class grades. Exams grades will count for 70% of your overall final grade with point values as listed in option 1. The other 30% will be calculated from your classroom/participation and online work grades. At the end of the semester, each method will be calculated and your grade will be the higher of the two calculations.

## **Classroom Conduct & Computer Use Policy:**

Any behavior which is distracting or disruptive to fellow students or to me will not be tolerated – you will be asked to leave. If you bring a computer to lecture it must be used solely for that class. If you are caught doing something other than class work, you will lose your privilege to bring a computer to class for the rest of the semester.

### **Grading Scale & Extra Credit:**

90.00-100% = A 80-89.99% = B 70.00-79.99% = C

60.00-69.99% = D Below 60.00% = F

No extra credit

# Statements for Syllabi and Blackboard Pages

Since this is a legacy/archived document, the statements that were originally provided may be out-of-date and have therefore been removed.

Students should visit <a href="http://go.vcu.edu/syllabus">http://go.vcu.edu/syllabus</a> and review all syllabus statement information. The full university syllabus statement includes information on safety, registration, the VCU Honor Code, student conduct, withdrawal and more.

Date	Topic	Chapter
25-Aug	Syllabus, Intro to Biology	Syllabus, Ch. 1
30-Aug	Chemistry for Biology	Ch. 1 & 2
1-Sep	Molecules of Life	Ch. 2 & 3
6-Sep	Cellular Organization	Ch. 5 & 10
8-Sep	Roll of DNA	Ch. 3
13-Sep	RNA Synthesis	Ch. 3
15-Sep	Proteins and Protein Synthesis	Ch. 4
20-Sep	Exam 1	
22-Sep	Metabolism - Energy Transfer	Ch. 6
27-Sep	Photosynthesis	Ch. 8
29-Sep	Photosynthesis	Ch. 8
4-0ct	Photosynthesis	Ch. 8
6-0ct	Cellular Respiration	Ch. 7
11-0ct	Cellular Respiration	Ch. 7
13-0ct	Cell Communication (Exam 3 material)	Ch. 9
18-0ct	Exam 2	
20-0ct	Reading Day - NO CLASS	
25-0ct	Cell Communication - The Cell Cycle	Ch. 9 & 11
27-0ct	Mitosis & Meiosis	Ch. 11
1-Nov	DNA Synthesis	Ch. 12.1 & 12.2
3-Nov	DNA Mutation & Repair	Ch. 14
8-Nov	Genomes and Bio Complexity	Ch. 13.1, 13.3, 13.4
10-Nov	Exam 3	
15-Nov	Genotype & Phenotype	Ch. 15
17-Nov	Patterns of Inheritance	Ch. 16
22-Nov	Exceptions to Mendel's Laws	Ch. 17
24-Nov	Thanksgiving - NO CLASS	
29-Nov	Complex Traits & the Environment	Ch. 18
1-Dec	Epigenetics	Ch. 19
6-Dec	Lac Operon	Ch. 19
8-Dec	Exam 4	

	Section	Date and Time
FINAL	Section 05 – [removed]	[removed]
FINAL	Section 01 – [removed]	[removed]