

BIOL 151 Introduction to Biological Sciences I Fall 2018 Syllabus

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Classroom: [removed]
Class time: [removed]

Course Description

Semester course: 3 lecture hours. 3 credits. Pre- or corequisites: 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 with 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 help 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 more advanced courses in biology.

Course Objectives:

By the end of the course you should be able to:

- Correlate the structure of organic molecules with their basic functions and their roles in cells
- Describe how energy enters living systems and how it is used by different organisms and organelles to keep life going.
- Compare and contrast the formation of new cells with the formation of gametic cells
- Outline the relationships between genes, inheritable traits and gene expression patterns
- Relate key biological themes to examples found in the natural world
- Explain how scientists learn more about the world around them, and the changing nature of scientific information.
- Apply key concepts in biology to information/scenarios outside of the course

Required Materials

Textbook

The department is committed to keeping the cost of your education to a minimum and so has adopted an OER (Open Educational Resource), meaning it will cost you nothing. As such, your textbook was modified from OpenStax and will be electronically incorporated into Top Hat (see below).

Top Hat

We will be using the Top Hat (www.tophat.com) classroom response system in class to present lecture material, engage in active learning, take assessments, and present chapter readings. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message.

You can visit the Top Hat Overview (<https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide>) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system.

An email invitation will be sent to you by email, but if you don't receive this email, you can register by simply visiting our course website:

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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 (support@tophat.com), the in app support button, or by calling 1-888-663-5491.

Packback

Part of what helps you to learn information in this class (or any class) is making connections between and among ideas you have learned and are learning (see the intro video). This is often more easily accomplished when you truly engage with the material. We will be doing that in class, and we will also be doing that outside of class with this program (Packback).

What do I expect? I expect that each of you will use Packback to apply their knowledge, ask big, open-ended questions, and critically think in order to understand the course content better. The point is that you should use Packback as a tool to synthesize information and prepare you for exams.

You should ask questions that:

- Clarify materials that went over your head in lecture or in your work outside of class... but if you are asking these sorts of questions, you should explain in great detail what you do not understand so that both your colleagues and I can help you out.
- Go beyond the lecture – application, synthesis and relationship making!
- Discuss current events!

Your Packback questions will be due each Monday over the semester by NOON and we will dedicate a small portion of the class to discussing a few noteworthy questions from Packback a week.

Please go to: <https://www.packback.co/>

Sign up for a student account. The cost is \$25. The join code for our discussions is:
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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 a written portion.

Dates:

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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.

Lecture Rebuttal Policies:

All exams have will have a written component to them. Given the sheer number of students in this class, I will have several people (preceptors, graduate students, faculty, or others with college biology training as needed and available) help grade exams. Though a key/rubric will be provided, human error is always possible. This process allows any student to review their own graded work against the exam key/rubric and determine whether or not appropriate points were given to any question of the written section. This process will follow the following steps: ***NOTE: If you are ONLY seeking points for miscalculations, you may bring your tests to the instructor directly and bypass the subsequent steps.***

- 1) The written portion of the exam will be returned to the students as soon as grading is completed and recorded.
- 2) Students may then visit the main biology office (126 Trani Life Sciences) and compare their answers to the answer key/rubric and assess the points.
 - a. ***When you visit the office, please identify who you are, the specific course in which you are enrolled, the specific instructor for the course (me), and the specific test key to which you are requesting access. Please have your ID ready to be given to the personnel at the front desk.***
 - b. Students may not copy the keys in any way, but only take general notes about the topics on which they lost points. The individuals at the front desk will monitor this part.
- 3) If students identify a possible discrepancy in the points they were awarded, they must TYPE their rationale defending why they believe they should have received more points – this INCLUDES arithmetic errors (though see note above).

- 4) Students then must turn in their written portion of their test **and** their typed rebuttal to the instructor (me) within ONE WEEK of the tests being returned one of the following ways:
 - a. Give them directly to me.
 - b. Turn them into the front office (126 Trani Life Sciences).
 - c. Sliding them under my office door.
- 5) Failure to comply with any of these steps will result in the no points being awarded.

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 through Top Hat and Blackboard. 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 your 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 60% of your overall final grade with point values as listed in option 1. The other 40% will be calculated from your classroom/participation and online work grades, all equally weighted with one exception - Packback is 1/4 of the 40% of your grade (10% of your overall grade). At the end of the semester, each method will be calculated and your grade will be the higher of the two calculations.

Grading Scale:

90.00-100% = A
60.00-69.99% = D

80-89.99% = B
Below 60.00% = F

70.00-79.99% = C

Unit	Date	Topic
Unit I - Organization and Structure	[Removed]	Syllabus, Module 1 - Commonalities of living organisms
	[Removed]	Module 2 - Reviewing atoms, bond & water
	[Removed]	Labor Day - NO CLASS
	[Removed]	Module 3 - Carbon & organic molecules
	[Removed]	Module 3 con't
	[Removed]	Module 4 - Molecules and membranes
	[Removed]	Module 5 - Membrane Properties: permeability
	[Removed]	Module 6 - Comparing components of cells
	[Removed]	Exam 1
Unit II - Energy for Life	[Removed]	Module 7 - Energy for life: chemical reactions and enzymes
	[Removed]	Module 7 con't
	[Removed]	Module 8 - Pulling energy from the sun: basics of photosynthesis
	[Removed]	Module 8 con't
	[Removed]	Module 9 - Getting energy from food: basics of cellular respiration
	[Removed]	Module 9 con't
	[Removed]	Exam 2
Unit III - DNA and Cell Division	[Removed]	Module 10 - From one cell to two: fundamentals of the cell cycle
	[Removed]	Module 10 con't
	[Removed]	Module 11 - Copying DNA: DNA structure and replication
	[Removed]	Module 11 con't
	[Removed]	Module 12 - Meiosis and sexual reproduction
	[Removed]	Module 12 - con't
	[Removed]	Exam 3
Unit IV - Inheritance and gene expression	[Removed]	Module 13 - Introduction to Mendelian genetics
	[Removed]	Module 13/14
	[Removed]	Thanksgiving Holiday - NO CLASS
	[Removed]	Module 14 - From gene to protein
	[Removed]	Module 14/15
	[Removed]	Module 15 - Controlling gene expression
	[Removed]	Exam 4
CUMULATIVE FINAL EXAM	[Removed]	[Removed]

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.

Statements for Syllabi and Blackboard Pages

The required syllabus statements originally included here are maintained by the Office of the Provost and are regularly updated. To prevent the dissemination of information which may no longer be accurate or complete, the full text of the required syllabus statements have been removed from this document.

Students should visit <http://go.vcu.edu/syllabus> 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.