

# INTRODUCTION TO BIOLOGICAL SCIENCES I

## BIOL 151 Sec. 003 [removed]

**Instructor:** Dr. Joseph Battistelli  
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**Office:** LSB, Rm. 218c  
**Office Hours:** [removed]

### Required Materials:

- Biology: How Life Works, 2nd edition
  - by Morris, Hartl, Knoll, and Lue
- Top Hat Subscription available from <https://tophat.com/>
  - Join Code [removed]
  - It is the responsibility of the student to ensure Top Hat is functioning on their mobile device and correctly recording grades.
  - Support is available direct from Top Hat: <https://success.tophat.com/s/contact-main>

### Important Dates:

- Exams
  - Exam 1: Thursday, February 9th
  - Exam 2: Thursday, March 2nd
  - Exam 3: Tuesday, April 4th
  - Exam 4: Thursday, April 27th
  - Final Exam: Tuesday, May 9, LFSCB Rm. 151, 8:00 am – 10:50 am
- Last day to Add/Drop: Monday, January 23rd
- Last day to notify instructor of pre-existing travel conflicts: Monday, January 23rd
- Last day to Withdraw: March 24st
- Spring Break March 4th – 12th

### Course Policies

#### Course description:

This course is an introduction to major biological principles including cell biology, energy and metabolism, genetics, and inheritance. The major goal of this course is to provide you with a strong foundation for future courses in biology. Whether you pursue a degree in biology or not, by the end of the semester you will have developed your problem solving and critical thinking skills. You will also be able to speak the “language” of biology.

#### Course objectives:

By the end of the semester you should:

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. Be able to 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

## **VCU Honor System:**

The Honor System is designed to provide an atmosphere of honor and dignity within the University setting; academic pursuits are utterly incompatible with dishonorable behavior. Thus, academic dishonesty of any kind will not be tolerated. This includes cheating, stealing, lying, plagiarism, facilitating academic dishonesty, and/or abuse of academic materials. In order to maintain an honorable setting, those who fail to uphold the Honor System will be prosecuted to the fullest extent possible; a failing grade in the course is the *minimum* consequence of such a violation. Please note that an honor system sanction resulting in a course grade of "F" cannot be voided by course withdrawal, repeat course option, or grade appeal. A transcript notation is also recorded for such a grade sanction.

## **Blackboard – <http://blackboard.vcu.edu>**

You will find information for our course on blackboard. You will need your VCU e-mail address and password to log in. *You are responsible* for ensuring that your grades are accurately recorded on Blackboard. Mistakes occur and will be corrected when they are discovered. It is your responsibility to review your grades in Blackboard and make sure they are correctly transferred from Top Hat to Blackboard. Any errors must be reported before we move on to the next unit of the course. For example, if you think there was an error on the syllabus quiz and tell me immediately it will be corrected immediately. If you wait until the last week of class, it is too late to make revisions to assignments from the first week of class.

## **Top Hat, Attendance, In-lecture questions, & In-class Activities:**

Attendance will be taken through Top Hat, and is not usually part of your grade; however, it does enable students to use the "off-line" feature of Top Hat so if there are network issues, students will still be able to participate fully on in-class activities. Top Hat will be used for **in-lecture** questions and **in-class activities**.

In-lecture questions are questions that are inserted in the middle of lecture. All the in-lecture questions combined will count as **one** assignment grade. There will be approximately 3 questions per class, each worth ~2 points, meaning you can earn approximately 144 points over the course of the semester. For each question you get half credit just for participating and half credit if you get the right answer. For in-lecture questions **only**, the grade is based off 100 points. This means if you answer every question wrong, you can still get a 72 for the in-lecture questions assignment.

In-class activities will be primarily short essays where students will peer-evaluate each other's essays, and then self-report grades using Top Hat. There will also be problem solving activities using Top Hat where students will work in groups during class. In-class activities cannot be made up. From the pool of in-class and homework activities the lowest two will be dropped. If students provide appropriate documentation they may be excused from an in-class activity. Homework and in-class activities will count for 20% of your grade.

## **Homework Activities:**

Homework activities will be multiple choice, fill-in-the-blank, matching and calculation based questions. The homework is intended to prepare you for in-class activities by reviewing the lectures and readings. Homework and in-class activities will count for 20% of your grade. For homework activities on Blackboard, you will have 3 attempts and the highest of the three attempts will be recorded as your grade.

## Exams:

All exams are included as part of your grade. Each exam is worth 16% of your grade. Make-up exams will only be provided under extreme circumstances as decided by the instructor. Make up exams will usually include additional free response questions to account for added study time. It is the responsibility of the student to provide documentation of the extenuating circumstances when contacting the instructor.

Each section exam (Exams 1-4 during the course of the semester) will consist of **two** parts. There will be a fill-in-the-blank, matching, multiple-answer portion of the exam that students complete on blackboard. This part of the test is automatically graded and worth 10-15% of the exam grade. This portion of the test has harder questions, but is open-book, open-note, open-internet. You are still expected to adhere to the VCU Honor Code and expected to do your own work and not consult other people or offer aid to other people. The second part of the exam will be held in class on the days indicated on the syllabus. The in-class portion will be multiple choice GradelT (scantron) exams worth 85-90% of your exam grade. The multiple choice portion will be approximately 50 questions.

On exam days bring a pencil and your **student ID**. You will need to provide your **V#** to sign in with your clicker; please have it memorized. Your grade will be penalized if I need to provide any one of these things more than once. Arrive early, as students who arrive after the first student has turned in the exam will not be allowed to take the exam. **NO cell phones, tablets, or any other electronic devices can be used during the exam.** During the exam, keep your eyes on your own exam and keep your answer sheet covered.

If you have any writing on your hand it must be removed before the start of the exam. If writing is discovered during the exam and it is in a foreign language, or cannot be readily deciphered, you will automatically be submitted to the honor council for them to evaluate the situation. Even if it is just your grocery list or a note to call your parents, if I cannot readily deduce this you will be submitted to the honor council so they can evaluate the writing.

Once the exam begins you may not leave the room until you submit your exam, unless an exam proctor accompanies you. Make sure your car is parked legally for the duration of the exam. You cannot move your car during the exam.

## NO Extra Credit:

Extra credit projects outside of class will **NOT** be provided under any circumstances. Spend your time studying **BEFORE** the tests. The only planned extra credit activity is for completion of the course evaluations at the end of the semester. Do not rely on this for your grade.

## Grading:

*Exams* - There are 4 sections exams, and a cumulative final. **The final is mandatory.** Take each exam seriously. I do **not** offer make-up exams unless you are hospitalized for an extended time period or there is a death in your immediate family. In the rare event that a make-up exam is granted, some multiple-choice questions will be converted to open ended questions to account for extra study time. Although each exam focuses on the material covered in its corresponding unit, each unit builds upon the material from the preceding unit so the exams are effectively cumulative.

*Assignments* – Top Hat will be used for in-class assignments and the in-lecture questions which all combined count as one assignment. There are also homework assignments completed on Blackboard. All assignments are equally weighted evenly though some assignments are easy while others are hard. Do not miss the opportunities to score easy points. Twenty percent of your grade will be based on your performance on assignments.

*Course Grade* – Letter grades will be assigned based on a 10 point scale (i.e. 90% and up is an A, 80-89% is a B, etc.). The grading breakdown is as follows:  $((\text{Average of 4 Unit Exams and the Final}) \times 0.8) + ((\text{Assignment Grade}) \times 0.2) = \text{Course Grade}$ . I round to the nearest, eg. 89.5 = 90, but 89.4 = 89.

|                   |            |
|-------------------|------------|
| Exam 1            | 16%        |
| Exam 2            | 16%        |
| Exam 3            | 16%        |
| Exam 4            | 16%        |
| Final Exam        | 16%        |
| <u>Activities</u> | <u>20%</u> |
| Course Grade      | 100%       |

### **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 <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.

## Lecture Schedule

| Lecture Topics                      | Chapter Reading      | Lecture (Date)     |
|-------------------------------------|----------------------|--------------------|
| Syllabus, Intro to Biology          | Syllabus, Ch. 1      | Tue Jan 17         |
| Chemistry for Biology               | Ch. 1 & 2            | Thur Jan 19        |
| Molecules of Life                   | Ch. 2 & 3            | Tue Jan 24         |
| Cellular Organization               | Ch. 5, Ch 10         | Thur Jan 26        |
| Roll of DNA                         | Ch. 3                | Tue Jan 31         |
| RNA Synthesis                       | Ch. 3                | Thur Feb 2         |
| Proteins and Protein Synthesis      | Ch. 4                | Tue Feb 7          |
| <b>Exam 1</b>                       |                      | <b>Thur Feb 9</b>  |
| Metabolism – Energy Transfer        | Ch. 6                | Tue Feb 14         |
| Photosynthesis                      | Ch. 8                | Thur Feb 16        |
| Photosynthesis                      | Ch. 8                | Tue Feb 21         |
| Respiration                         | Ch. 7                | Thur Feb 23        |
| Respiration                         | Ch. 7                | Tue Mar 28         |
| <b>Exam 2</b>                       |                      | <b>Thur Mar 2</b>  |
| <i>Spring Break Mar 4-12</i>        |                      |                    |
| Cell Communication                  | Ch. 9                | Tue Mar 14         |
| Cell Communication – The Cell Cycle | Ch. 9 & 11           | Thur Mar 16        |
| Mitosis & Meiosis                   | Ch. 11               | Tue Mar 21         |
| DNA Synthesis                       | Ch. 12.1 & 12.2      | Thur Mar 23        |
| DNA Mutation & Repair               | Ch. 14               | Tue Mar 28         |
| Genomes & Bio Complexity            | Ch. 13.1, 13.3, 13.4 | Thur Mar 30        |
| <b>Exam 3</b>                       |                      | <b>Tue Apr 4</b>   |
| Genotype & Phenotype                | Ch. 15               | Thur Apr 6         |
| Patterns of Inheritance             | Ch. 16               | Tue Apr 11         |
| Exceptions to Mendel's Laws         | Ch. 17               | Thur Apr 13        |
| Complex Traits & the Environment    | Ch. 18               | Tue Apr 18         |
| Epigenetics                         | Ch. 19               | Thur Apr 20        |
| Lac Operon                          | Ch. 19               | Tue Apr 25         |
| <b>Exam 4</b>                       |                      | <b>Thur Apr 27</b> |
| Guest Lecture w/ Dr. Hancock        | Attendance Counts    | Tue May 2          |
| Cumulative Final Exam               | 8:00 am – 10:50 am   | Tue May 9          |