BIO 7 Introduction to the Science of Biology

Course Code: BIO 7

Instructor: Todd A. Wells, Ph.D.

Home Institution: University of Denver

Office Hours: TBA & By Appointment

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Credit: 4

Course Description:
This course is an introduction to basic principles common to all facets of biology. Topics include a brief history of biology, the diversity of life, cell structure and reproduction, and metabolism.

Required Textbooks:
We will also use an online textbook found at OpenStax Biology (open source e-book):https://openstax.org/details/books/biology-2e

Course Objectives:

1. Identify the internal and external structures of both the prokaryotic and eukaryotic cells.
2. Recognize energy pathways such as photosynthesis, respiration, and overall cellular metabolism.
3. Knowledge of basics in genetics, molecular/cellular biology.
4. Understanding of principles of evolution and phylogeny.
5. Ability to connect biological knowledge to society issues.
6. Appreciation of biological diversity.

Course Schedule

Week 1 (videos 1-5)

1. Introduction, Biological Macromolecules, Chemistry of Life
2. Cellular Structure
3. Bioenergetics: respiration and metabolism
4. Bioenergetics: photosynthesis

Lab1 – Cellular Morphology

Week 2 (videos 6-10)

5. The Cell Cycle
6. Meiosis and Sexual Reproduction
7. Mendelian genetics and heredity

Lab2 – Enzyme Catalyzed Reactions and Respiration

Week 3 (videos 11-15)

8. Mendelian genetics and heredity
9. DNA Structure and Function
10. Gene expression and control
11. Recombinant DNA technology Lab3 – Genetics

Week 4 (videos 16-20)

12. Bioethics
13. Genetic Diseases
14. Biotechnology and Genomics
15. Evolution and the Diversity of Life
16. The History of Life

Grading & Evaluation:

Lecture: The format of class meetings will be a combination of traditional lecture format, problem solving/ group activities, group discussions, and laboratory exercises. I will summarize new material and present illustrations and examples. In lecture, I WILL NOT identify and describe every detail you will read in the text and any supplemental materials. I will, however, emphasize the important topics covered in the reading. You should stop me at any time if you have questions about the material being covered.

Reading: You are expected to complete the assigned reading prior to the class lecture. After lecture, you should reread the assigned text. I recommend that you understand the material and how to solve the sample problems before proceeding to the next section. At the end of each chapter,
a summary of important equations and terms is provided that should prove helpful in the preparation for exams.

Homework: Each lecture has a group of homework problems assigned to it. The problems are chosen to prepare you for the hour exams. If you understand and can do all the homework, you probably will do well on the exams. To get the most benefit from homework, you should **do the assignments on schedule**. It is important to keep up with these assignments!

Exams: There are two hour exams during the course, plus a cumulative final exam. Exam problems will be similar to the problems assigned as homework and the problems worked in class.

Letter Grade Assignment
Final grades assigned for this course will be based on the percentage of total points earned and are assigned as follows:

Letter Grade	Percentage	Performance
A	93-100%	Excellent Work
A-	90-92%	Nearly Excellent Work
B+	87-89%	Very Good Work
B	83-86%	Good Work
B-	80-82%	Mostly Good Work
C+	77-79%	Above Average Work
C	73-76%	Average Work
C-	70-72%	Mostly Average Work
D+	67-69%	Below Average Work
D	60-66%	Poor Work
F	0-59%	Failing Work

Course Policies

Attend Class

Students are expected to attend all class sessions as listed on the course calendar.

Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let your instructor know as early as possible. As you will find, building rapport and effective relationships are key to becoming an effective professional. Make sure that you are proactive in informing your instructor when difficulties arise during the semester so that they can help you find a solution.

Understand When You May Drop This Course

It is the student's responsibility to understand when they need to consider disenrolling from a course. Refer to the Course Schedule for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons includes: (1) documented and significant change in work hours, leaving student unable to attend class, or (2) documented and severe physical/mental illness/injury to the student or student's family.

Commit to Integrity

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

Academic Honesty Policy & Procedures

"The principles of truth and honesty are recognized as fundamental to a community of scholars and teachers. University expects that both faculty and students will honor these principles, and in so doing, will protect the integrity of academic work and student grades."

Definitions

"**Cheating** is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means."

"Plagiarism is a form of cheating."

"Plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person's contribution."