

BIOLOGY FOR MAJORS I , BIO 1306 ALP, FALL 2024
Sul Ross State University/Alpine High School
Dual Credit Syllabus

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Textbooks: Recommended Text: Urry, L., M. Cain, S. Wasserman, and P. Minorsky, 2017. Campbell Biology 11th ed. Pearson

Course Description: A general introduction which considers the fundamentals of biological principles and processes as they apply molecular biology. Structure and functions of prokaryotic and eukaryotic cells will be elucidated, as well as the cell membrane and its environment. The genetic code—DNA, RNA, and protein synthesis are explored as a major theme of the course. In addition, Mitosis, Meiosis are discussed as a prelude to Mendelian Genetics.

Tentative Lecture Schedule and Reading Assignments (subject to change):

Week 1 (8/28 – 8/28) Introduction, Biological Themes

(8/29 – 8/30) Biological Processes, Scientific Method

Week 2 (9/3 – 9/6) Organic and Inorganic Molecules; Carbohydrates, Lipids, Proteins

Week 3 (9/9 – 9/13) Prokaryotic cells: Archaeobacteria, Eubacteria structure and function

Week 4 (9/16– 9/20) EXAM 1; Prokaryotic vs Eukaryotic cells, Classification: Six Kingdoms

Week 5 (9/23– 9/27) Eukaryotic Cells: Plant Cell Structure and Function

Week 6 (9/30 – 10/4) Eukaryotic Cells: Animal Cell Structure and Function

Week 7 (10/7 – 10/11) EXAM 2; Cell Structure and Function{cont}

Week 8 (10/15– 10/18) Nucleic Acids: DNA and RNA Structure; Genes

Week 9 (10/21 – 10/25) DNA Replication:Leading Strand, Lagging Strand, Okazaki Fragments

Week 10 (10/28– 11/1) RNA Structure; Transcription, Translation

Week 11 (11/4 – 11/8) EXAM 3: Photosynthesis

Week 12 (11/11 – 11/15) Photosynthesis, Cellular Respiration

Week 14 (11/18– 11/22) Somatic Cell Formation: Mitosis and Sex Cell Formation: Meiosis

Week (11/25 – 11/29) THANKSGIVING HOLIDAY

Week 15 (12/2-12-4) Fertilization and Gastrulation (Final Review)

Week 16 (12/09 – 12/11) EXAM 4 (FINAL) –TBD

Program Learning Outcomes

The graduating biology student graduating with a BS in Biology should be able to:

- 1) Demonstrate a mastery of aerobic respiration and its significance for living organisms.
- 2) Be able to identify evolution and the processes that influence it.
- 3) Be able to identify the components of cell structure and their functions.
- 4) Compare the fundamental concepts of Mendelian genetics.
- 5) Compare and contrast the process of photosynthesis to other cellular processes.
- 6) Be able to identify the processes of molecular biology.

OBJECTIVES OF THIS COURSE:

1. Learn the sub disciplines of biology and their applications to modern science.
2. Understand the molecular basis of life.
3. Recognize major cell structures and their function.
4. Analyze cell division and reproduction.
5. Understand genes, and chromosomes.
6. Understand the role of DNA and RNA in the process of protein synthesis.
7. Understand respiration and photosynthesis

GRADING

POINT DISTRIBUTION:

Three Major Exams @ 100 points	300
10 Lecture & Lab Quizzes	500
Final Exam (Exam 4)	<u>100</u>
TOTAL POINTS COURSE:	900

SRSU Distance Education Statement

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

Academic Integrity

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation is appreciated. Examples of academic dishonesty include but are not limited to: Turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden.

Classroom Climate of Respect

Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Diversity Statement

I aim to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). I also understand that the crisis of COVID, economic disparity, and health concerns, or even unexpected life events could impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create an inclusive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.