

BIOLOGY 10L: Introduction to Life Science Lab Fall 2023

Instructor: Karen Walters, PhD

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Lab Section 52008: Monday 9:00-11:50am; LFS 17

Office Hours: TBA

I. COURSE DESCRIPTION

A. Title: Biology 10L – Introduction to Life Science Lab

B. Prerequisite or Co-requisite: Biology 10.

C. Summary: This lab course is recommended for the non-biological science and pre-education majors. This is an introductory course using biological concepts. The organismal structure, function, inheritance, evolution, and ecology are covered. Field trips may be required. Not open to students with credit in Biology 3.

D. Biology 10L is a 1-unit lab class.

II. COURSE CONTENT

Student Learning Outcomes:

Upon completion of this course, students will be able to:

- Evaluate current scientific literature and examine how the scientific method is employed in biological research.
- Identify levels of biological organization and apply these concepts to living systems.
 - By examining anatomical and physiological features.
 - By investigating chemical and energy relationships.
- Assess human impacts on natural systems and critically evaluate solutions to environmental problems.
- Explore the cellular basis of life.
- Apply the principles of Mendelian genetics to evolutionary theory and human medicine.
- Recognize the function of DNA and how its discovery has impacted modern science.
- Classify the wide range of living organisms and identify the evolutionary mechanisms that have impacted this diversity.
- Recognize the chemical basis of life.

Objectives:

In the process of completing this course, students will:

- compare and contrast Eukaryote and Prokaryote cell structure.
- recognize chemical elements, bonds and properties of water.
- compare anatomical and physiological features seen in the animal kingdom with emphasis on human body systems.
- calculate genetic probabilities based on the principles of Mendelian genetics.
- distinguish the processes of transcription and translation and identify their roles in protein synthesis.
- diagram plant life cycles and identify major plant adaptations.
- explain and compare the processes of photosynthesis and cellular respiration.
- demonstrate knowledge of evolutionary theory and identify the different mechanisms responsible for biological change.
- describe energy flow and nutrient cycling within an ecosystem.
- consider human impact on natural systems.
- relate principles of population ecology to the study of the global human population.
- read scientific literature and apply the steps of the scientific method to laboratory research.
- use the compound light microscope to examine cellular anatomy and reproduction.
- apply taxonomic classification in identifying animals through the use of a dichotomous key.

III. REQUIRED MATERIALS:

1. E-mail address. This can be obtained free through the school

IV. ATTENDANCE:

You will be dropped if you fail to attend the first lab. You will also be dropped if you miss more than two labs in the first 9 weeks.

V. TESTS AND EVALUATIONS:

A. Grading

<u>Description</u>	<u>Points Possible</u>
17 Lab Assignments (10 pts. each)	170
17 Lab Quizzes (10 pts. each)	170

Approximate Total Points = 340

B. Grading scale:

90% = A 80% = B 70% = C 60% = D 59% and below = F

At any point you can check your grades on our Canvas site through the Reedley College homepage: www.reedleycollege.edu
You are encouraged to check this site regularly and keep track of your own grades!

C. *Quizzes* will include multiple choice questions, true/false and Matching questions. The information on the quizzes is taken from the labs we have performed in class. There are no make-up quizzes.

VI. Other information:

Drops: You have until half way through the semester to drop. If you elect to do so, be sure to drop yourself. Do not assume you have been automatically dropped. This is very important, as after the half way point a grade must be given, by state law, whether you attend class or not.

VII. Help:

If you should have difficulty grasping the material presented during the course be sure to talk to your instructor at the first sign of trouble. Often, a few minutes can clear up many problems! If you are having trouble studying, perhaps you need a few study hints or a tutor at the Tutorial Center. Please go in for help!

Success comes before work only in the dictionary. Overall, I hope you have a fun semester and learn Biology along the way. Good Luck.

VIII. Academic Dishonesty

Students at Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure

this education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entire honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences. See college catalog for details.

IX. Accommodations

If you have a verified need for an academic accommodation or material in alternate media (i.e. Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

Lab Schedule Biology 10L – Fall 2023

Mondays 9:00-11:50 am LFS 17

Week 1: 8/7 Lab 1: Scientific Method	<u>Quiz</u>
Week 2: 8/14 Lab 2: Chemistry of Life	Quiz 1 Scientific Method
Week 3: 8/21 Lab 3: Microscopy	Quiz 2 Chemistry
Week 4: 8/28 Lab 4: Cells & Membranes	Quiz 3 Microscopy
Week 5: 9/4 (Holiday) **Lab will be online or students may attend an alternative lab during the week Lab 5: Cellular Respiration & Fermentation	Quiz 4 Cells (online)
Week 6: 9/11 Lab 6: Photosynthesis	Quiz 5 Cellular Respiration
Week 7: 9/18 Lab 7: DNA & Proteins	Quiz 6 Photosynthesis
Week 8: 9/25 Lab 8: Mitosis & Meiosis	Quiz 7 Protein Synthesis
Week 9: 10/2 (drop day) Lab 9: Genetics	Quiz 8 Mitosis & Meiosis

Week 10: 10/9 Lab 10: Epidemiology	Quiz 9 Genetics
Week 11: 10/16 Lab 11: Evolution	Quiz 10 Disease
Week 12: 10/23 Lab 12: Diversity of Life I	Quiz 11 Evolution
Week 13: 10/30 Lab 13: Diversity of Life II	Quiz 12 Diversity of Life I
Week 14: 11/6 Lab 14: Diversity of Life III	Quiz 13 Diversity of Life II
Week 15: 11/13 Lab 15: Ecology & Biodiversity	Quiz 14 Diversity of Life III
Week 16: 11/20 Lab 16: Humans & The Planet Assign Carbon Footprint Worksheet	Quiz 15 Ecology/Biodiversity
Week 17: 11/27 Lab 17: TBA	Quiz 16 Humans & the Planet
Week 18: 12/4	Quiz 17 TBA