

BIOLOGY 10L: Introduction to Life Science Lab

Spring 2023 Instructor: Kevin Helwick M.S.

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Lab section: 50001 Thur. 9:00 AM – 11:50 AM

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. Reedley College Biology Handouts. This can be obtained in the bookstore or on Canvas.
2. E-mail address. This can be obtained free through the school.

IV. ATTENDANCE

This class is strictly a laboratory class, meaning your attendance is important. Failure to regularly attend class will result in failure. You **MUST** attend the first class to not be dropped. If you miss class without providing a documented reason for not attending you will not be given points for the week.

V. TESTS AND EVALUATIONS

A. Grading

Description	Points Possible
16 Lab Assignments (12 pts each)	192
3 Exams (50 pts each)	150
Citizen Science Project	50

Approximate Total Points = 392

B. Grading scale: 90% = A 80% = B 70% = C 60% = D 59% and below = F

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

VI. OTHER INFORMATION

Adds/Drops:

After the start of the semester, you must receive an add code to add the class. You must use your add code as soon as possible. Students who fail to use their add code to officially register for the class will not be permitted to stay.

You have until half way through the semester to drop. If you are enrolled in the class after the final drop deadline, you legally MUST BE GIVEN A GRADE even if you stop attending! Because of this, it is very important that if you want to drop, to drop yourself. Do not assume you have been automatically dropped.

Cancelled Classes:

If I must cancel a class meeting, you will be notified both on the door of the classroom with an official form as well as with a message sent from me via Canvas. I will NEVER leave a handwritten notice on the door cancelling class.

Technology/Cell Phones:

No cell phones to be used in class. I am aware that emergencies arise, so place your electronics on silent or vibrate mode. Distracting cell phone users will be asked to leave the class. Use of tablets and laptops are fine, provided they are not a distraction to other students. No technological devices (phones, laptops, tablets, smart watches, etc) may be used during any type of exam.

Laboratory Safety:

You will be given a Safety Rules sheet to sign in the lab, which delineates further safety procedures that you MUST follow. Please remember to clean up the lab after every exercise, as areas left dirty or messy at the end of the period will result in those student groups being **docked 5 points** for every offense. **No food, open beverages are allowed in the lab at any time.** Food and/or liquids in the laboratory is **never** allowed and may result in deduction of points or being asked to leave.

VII. TUTORING AND ASSISTANCE

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 (such as, but not limited to, copying/plagiarism, use of test banks, sharing work, and use of electronic devices during exams) is a very serious offense and will incur serious consequences such as receiving a zero on the assignment or being referred to the dean. See college catalog for details.

IX. ACCOMODATIONS

Students with diagnosed disabilities should contact the Disabled Students Programs and Services' (DSP&S). Please give me a copy of the letter you receive from DSP&S detailing class accommodations you may need. If you require accommodation for test-taking, please make sure I have the letter no less than three days before the test. 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.

BIOL 10L TENTATIVE SCHEDULE(subject to change):

Week 1 – Jan 12	Lab Safety, Lab 1 How Scientists Think
Week 2 – Jan 19	Lab 2 We Are What We Eat
Week 3 – Jan 26	Lab 3 On The Small Side
Week 4 – Feb 2	Lab 4 Cell's Kitchen
Week 5 – Feb 9	Lab 5 Cells Need Energy
Week 6 – Feb 16	Lab 6 Living On Sunshine
Week 7 – Feb 23	Lab 7 Putting Genes To Work Exam 1 (Labs 1-5)
Week 8 – Mar 2	Lab 8 From One Cell Comes Many
Week 9 – Mar 9	Lab 9 The Traits We Have
Week 10 – Mar 16	Lab 10 Sick Of It

Week 11 – Mar 23	Lab 11 Living Things Change Introduction to Citizen Science Project
Week 12 – Mar 30	Lab 12 The Diversity of Life I Exam 2 (Lab 6-10)
Week 13 – Apr 6 (Spring Break)	Lab 13 The Diversity of Life II
Week 14 – Apr 20	Lab 14 The Diversity of Life III
Week 15 – Apr 27	Citizen Science Project Presentations
Week 16 – May 4	Lab 15 Come Together
Week 17 – May 11	Lab 16 Our Impact
Week 18 – May 18 (Finals Week)	Exam 3 (Labs 11-16)

**I reserve all rights to change and update this syllabus as needed and any changes or updates will immediately be announced to the class.*