

# Syllabus: Biology 10L – Introduction to Life Science Lab

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## Course Information

Instructor: Edgar Munoz

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Semester: Spring 2022

Section: 53494

Class Meetings: Lab – Monday 7:00 – 09:50 PM, Life Science Room 17

## Course Description

Biology 10L is a 1-unit biology course with 3 lab hours per week. This is a course is recommended for 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.

## Student Learning Outcomes

Upon completion of this course, students will be able to

- analyze the process of meiosis as it relates to biological diversity.
- apply Darwin's theory of natural selection to genetic variation and its effects on environmental adaptation.
- apply the scientific method to design an experiment to test a hypothesis using appropriate controls based on current theories in biology.
- demonstrate how living organisms utilize ATP.
- describe the cell's structural components and their function.
- Understand how the Hardy-Weinberg equation measures genetic change within a population.

## Course Objectives

In the process of completing this course, students will

- Use their textbook, laboratory manual, and scientific literature along with the scientific method to design laboratory experiments to test a hypothesis.
- Understand the structure of elements and how elements are bonded to make molecules.
- Understand how the structure of water affects its polarity, cohesion, pH.
- Understand the function and structure of the molecular basis of life; carbohydrates, lipids, proteins, and nucleic acids.
- Identify prokaryotic and eukaryotic cells, organelles, and tissues.
- Diagram the plasma membrane of a cell and list their functions and structural components.
- Describe transport across a membrane in diffusion, osmosis, and active transport.
- List, in order, the parts of glycolysis, Krebs, and the Electron Transport Chain.
- Define the structure and function of a cell-signaling pathway.
- State the cell cycle, mitosis, and its controls.
- Demonstrate proficiency in pedigree analysis
- Calculate phenotypic and genotypic ratios
- Acquire and apply basic DNA technological laboratory skills.

- Understand microbial genetics and nutrition using prokaryote microorganisms and viruses.
- Examine the concepts and techniques associated with embryological development.
- Use critical thinking skills to perform and analyze laboratory experiments.
- Set up an evolutionary chart of representative organisms.
- Cite examples of evolutionary adaptations.
- Use the Hardy-Weinberg theorem in frequency of alleles in a population.
- Examine macroevolution.
- Compare and contrast mass extinctions in evolutionary history.
- Draw out the branches of new phylogenies.
- Compare eukaryotes to prokaryotes and the diversity of organisms on earth.

## Course Requirements and Policies

### Prerequisites or Co-requisites

Biology 10

### Required Course Materials

- Reedley College Biology Handouts, there will be printed and handed out to students by instructor.
- Desire to learn! 😊

### Technology Requirements

- Check Canvas and your Reedley College email accounts regularly (multiple times per week) for announcements.

### Class Policies

#### Communication Expectations

Identify yourself by your real name. Be mindful of your language, and avoid including personal information, such as phone numbers or addresses, in discussion forums. All online communications should be transmitted with the intent to inform, inspire, etc. and not to offend or breach personal privacy.

Use humor, joking, or sarcasm with caution. We often rely on non-verbal cues such as facial expressions to communicate joking or sarcasm, but these cues are not always clear in an online environment. These cues can be simulated with emoticons to reduce misunderstandings.

Be Professional, Clear and Respectful. Clear and effective writing translates to clear and effective communication. Writing the way, you would speak is a good rule of thumb, use a positive tone and adhere to the same rules you would follow in face- to-face communications.

Remember This Course is Online. Your instructor and fellow students may be located around the world or have very different schedules than you do. You may not always receive an immediate response.

## Attendance and Drop Policy

- Students are expected to attend person class sessions. Sign-in sheets will be used and each student must sign in for himself/herself ONLY.
- Excessive tardies (10 min late) will NOT be tolerated (three tardies equals one absence).
- Students will be dropped from this course if they do not attend the first lab without prior notification to the instructor.
- Students will be dropped from this course if they have excessive absences of 8 hours or more of lab by the end of the third week of instruction (January 28).
- **Attendance is mandatory** and will **affect your grade**
- 3 absences = grade drops a full letter grade
- 4 absences = grade drops 2 letter grades
- 5 absences = fail the course
- The final drop date for this course is March 11<sup>th</sup>, 2022.
  - It is the student's responsibility to drop this course if he/she feels necessary. The instructor will NOT drop any students after the third week of instruction.

## Late Assignments, Cheating, and Make-up Policy

Late assignments (such as lab reports) will not be accepted. There will be NO EXTENSIONS, NO EXCEPTIONS. After one week any missed grade may not be made up unless prior written arrangements have been made. This is to ensure fairness both to the other students and to me.

Any student caught cheating will be subject to the Reedley College disciplinary procedures (see the catalog). Be aware that the procedures require a written notification to the dean that will become a part of your permanent record.

Lab make ups cannot be made-up unless extreme circumstances, documented in writing, are provided. The instructor holds final decision on what constitutes an acceptable circumstance.

## Communication Policy

### *Email/Messaging*

The best and most effective way of communicating with me is to message me via CANVAS or email me at

[edgar.munoz-ruiz@reedleycollege.edu](mailto:edgar.munoz-ruiz@reedleycollege.edu)

- Please allow a 24hr response time! I will always respond to emails and messages within 24 hours, but please allow up to 24 hours. Do not send an email and two hours later send the email again if I haven't responded. If I don't respond within 24 hours, please double check the email address and resend your message then, chances are I didn't receive it!
- Emailing and messaging can be used 24 hours a day, 7 days a week!

## Grading Policy

Grades will be based on the following scale:

- A: 90.00% and above
- B: 80.00% to 89.99999%
- C: 70.00% to 79.99999%
- D: 60.00% to 69.99999%
- F: 59.99999% and below

Your total grade is the sum of the points that you earn in lecture. Grades will be posted on Canvas and will be updated regularly throughout the semester.

TASK	Points	Breakdown
Quizzes	160	16 quizzes @ 10 points each
Lab Reports	240	16 lab reports @ 15 points each
Presentation	50	1 presentation
Totals	450	

Grades will be posted on Canvas and will be updated regularly throughout the semester.

## Course Quizzes and Lab Reports

### Quizzes

Lab quizzes will be given at the *beginning* of all the lab sessions. Quizzes will consist of multiple choice, matching, and fill in the blank questions and will contain information from that day's scheduled lab. To prepare for the quizzes, students should always read through the scheduled lab *before* class.

### Lab Reports

Each lab session will have an associated lab report. Lab reports must be submitted on the lab report forms found in the lab manual. Lab reports are due at the end of their scheduled class session. No late lab reports will be accepted. You cannot turn in a lab report for a lab that you were not in attendance of.

## Participation Standards

All students must turn in their own lab reports even if you are instructed to work with a partner or group. When working with a partner or groups you must each fill out your own lab report and turn in your own lab report individually.

## Diversity Statement:

“Respect for Diversity: It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students’ learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you.

## Subject to Change Statement

This syllabus and tentative schedule are subject to change with notification. If you are absent from class, it is your responsibility to check on announcements made while you were absent.

Lab Schedule – Spring 2022	
<u>Labs</u>	<u>Quiz</u>
Week 1 (01/10): LAB 1: <b>Microscope safety/use Letter e slides</b>	
<b>Week 2 (01/17): Martin Luther King, Jr. Day observed (no class)</b>	
Week 3 (01/24): LAB 2: <b>Biological Molecules</b>	Quiz 1
LAB 3: <b>Cell Structure Function</b>	Quiz 2
Week 4 (01/31): LAB 4: <b>Fermentation</b>	Quiz 3
Week 5 (02/07): LAB 5: <b>Mitosis</b>	Quiz 4
Week 6 (02/14): LAB 6: <b>Protein Synthesis/DNA</b>	Quiz 5
Week 7 (02/21): LAB 7: <b>Genetics</b>	Quiz 6
Week 8 (02/28): LAB 8: <b>Natural Selection</b>	Quiz 7
Week 9 (03/07): LAB 9: <b>Disease Lab</b>	Quiz 8
Week 10 (03/14): LAB 10: <b>Protist Lab</b>	Quiz 9
<b>Week 11 (03/21): Washington Day observance (no class)</b>	
Week 12 (03/28): LAB 11: <b>Pollination</b>	Quiz 10
Week 13 (04/04): LAB 12: <b>Animal Diversity</b>	Quiz 11
<b>Week 14 (04/11): SPRING BREAK</b>	
Week 15 (04/18): LAB 13: <b>River Lab</b>	Quiz 12
Week 16 (04/25): <b>Pollination Project</b>	Quiz 13
Week 17 (05/02): LAB 14: <b>Population Demography</b>	
Week 18 (05/09): LAB 15: <b>Carbon Footprint Lab</b>	Quiz 15
Week 19 (05/16): SLOs	Quiz 16

\* This schedule is subject to change with notificatio