Syllabus: Biology 10L – Introduction to Life Science Lab

**Course Information**

Instructor: Edgar Munoz

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Semester: Spring 2018

Section: 57175

Class Meetings: Lab – Tuesday 6:00 – 08:50 PM, Life Science Room 11

# 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.

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* apply Darwin's theory of natural selection to genetic variation and its effects on environmental adaptation.

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* apply the scientific method to design an experiment to test a hypothesis using appropriate controls based on current theories in biology.

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* demonstrate how living organisms utilize ATP.

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* describe the cell’s structural components and their function.

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* 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 it 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-requites

Biology 10

## Required Course Materials

* Reedley College Biology Handouts. This can be obtained in the school bookstore.

Text

## Technology Requirements

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

## Class Policies

### 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 29).
* **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 8th, 2019.
  + 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 Work Policy

No late work for any assignments/activities in-person or online, including but not limited to quizzes and lab reports, will be accepted for any reason. No exceptions.

**Communication Policy**

***Email/Messaging***

The best and most effective way of communicating with me is to email me at

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

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| **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.

# 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.

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| Lab Schedule – Spring 2019 | |
| Labs | **Quiz** |
| Week 1: Microscope safety/use  Letter e slides | SLO Quiz |
| Week 2: Macromolecule Chemistry | Quiz 1 Microscopes & Safety |
| Week 3: Cell Lab | Quiz 2 Macromolecules |
| Week 4: Mitosis Lab | Quiz 3 Cells |
| Week 5: Photosynthesis Lab | Quiz 4 Mitosis |
| Week 6: Protein Synthesis/DNA | Quiz 5 Photosynthesis |
| Week 7: Genetics Worksheet | Quiz 6 Protein Synthesis/DNA |
| Week 8: Dot Game | Quiz 7 Genetics |
| Week 9: (drop day)  Disease Lab | Quiz 8 Natural Selection |
| Week 10: River Walk | Quiz 9 Diseases |
| Week 11: Pollination Video  Intro to Pollination Project | Quiz 10 Kings River |
| Week 12: Animal Diversity | Quiz 11 Pollination |
| Week 13: Biomagnification Lab | Quiz 12 Animals |
| Week 14: |  |
| Week 14: Food Inc. | Quiz 13 Biomagnification |
| Week 15: Pollination Project | Quiz 14 Food Inc. |
| Week 16: Demography Lab  Assign Carbon Footprint Worksheet |  |
| Week 17: Carbon Footprint Lab  Extra Credit Due | Quiz 15 Demography |
| Week 18: SLOs | Quiz 16 Carbon Footprint |

\* This schedule is subject to change with notification