**BIOLOGY 10L: Introduction to Life Science Lab**

**Spring 2016**

Instructor: Daniel Jeffcoach

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Lab #56038: Thursday 2:00-3:50pm LFS C

Office Hours: By appointment only

**I. COURSE DESCRIPTION**

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

 **B. Prerequisite or Co-requisite:** Biology 10 Lecture.

**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**

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|   | **Student Learning Outcomes:** |
|   | *Upon completion of this course, students will be able to:*  |
|   | 1. Evaluate current scientific literature and examine how the scientific method is employed in biological research.
2. Identify levels of biological organization and apply these concepts to living systems.
	1. By examining anatomical and physiological features.
	2. By investigating chemical and energy relationships.
3. Assess human impacts on natural systems and critically evaluate solutions to environmental problems.
4. Explore the cellular basis of life.
5. Apply the principles of Mendelian genetics to evolutionary theory and human medicine.
6. Recognize the function of DNA and how its discovery has impacted modern science.
7. Classify the wide range of living organisms and identify the evolutionary mechanisms that have impacted this diversity.
8. Recognize the chemical basis of life.

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|   | **Objectives:** |
|   | *In the process of completing this course, students will:*  |
|   | 1. compare and contrast Eukaryote and Prokaryote cell structure.
2. recognize chemical elements, bonds and properties of water.
3. compare anatomical and physiological features seen in the animal kingdom with emphasis on human body systems.
4. calculate genetic probabilities based on the principles of Mendelian genetics.
5. distinguish the processes of transcription and translation and identify their roles in protein synthesis.
6. diagram plant life cycles and identify major plant adaptations.
7. explain and compare the processes of photosynthesis and cellular respiration.
8. demonstrate knowledge of evolutionary theory and identify the different mechanisms responsible for biological change.
9. describe energy flow and nutrient cycling within an ecosystem.
	* consider human impact on natural systems.
10. relate principles of population ecology to the study of the global human population.
11. read scientific literature and apply the steps of the scientific method to laboratory research.
12. use the compound light microscope to examine cellular anatomy and reproduction.
13. apply taxonomic classification in identifying animals through the use of a dichotomous key.
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**III. REQUIRED MATERIALS:**

1. Reedley College Biology Bio 10L Handouts. This can be obtained in the school bookstore.

**IV. ATTENDANCE:**

You will be dropped if you fail to attend the first lab. After that, you must drop yourself if you do not continue coming to class. You will not be automatically dropped and will receive an F.

**V. TESTS AND EVALUATIONS:**

 A. Grading

 **Description** **Points Possible**

 15 Lab Assignments (20 pts. each) 280

 15 Lab Quizzes (10 pts. each) 130

 Performance Art Project 50

Approximate Total Points = 460

 B. Grading scale:

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

C. Labs cannot be made up. The lowest lab will be dropped.

D. Quizzes cannot be made up. The lowest two will be dropped.

**VI. EXPECTATIONS AND POLICIES**

* Be respectful and discipline yourself so others don’t have to.
* No makeups without prior arrangement.
* Cheating and plagiarism will result in failing the assignment and discussed further with administration.
* Please keep electronic devices silent and electronics of any kind are not permitted during exams.
* No food or drink in class.
* I will do my best, I expect you to do the same.

**VII.** **ACCOMODATIONS**

 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.

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| **Lab Schedule** |
| **Biology 10L – Spring 2016** |
| **#56038 Thursday 2:00-3:50pm LFS C** |
| **Week 1: 1/14** |  |  |
| Microscope safety/use |  |
| Letter e slides |   |
| **Week 2: 1/21** |  |  |
| Cell Lab |  |  |
|   |  |   |
| **Week 3: 1/28** |  |  |
| Mitosis Lab |  |  |
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| **Week 4: 2/4** |  |  |
| Online Leaf Lab |  |
|  |   |   |
| **Week 5: 2/11** |  |  |
| Protein Synthesis & DNA Extraction |  |
|   |  |   |
| **Week 6: 2/18** |  |  |
| Genetics |  |
|   |   |   |
| **Week 7: 2/25** |  |  |
| Dot Game |  |  |
|   |   |   |
| **Week 8: 3/3** |  |  |
| TBA |  |  |
|  |  |   |
| **Week 9: 3/10** |  |
| Disease Lab |  |  |
|   |   |   |
| **Week 10: 3/17** |  |  |
| River Walk |  |
|   |  |   |
| **Week 11: 3/31** |  |  |
| Pollination Video |  |
|   |   |   |
| **Week 12: 4/7** |  |  |
| Animal Diversity Part I |  |
|   |  |   |
| **Week 13: 4/14** |  |  |
| Animal Diversity Part II |  |  |
|   |  |   |
| **Week 14: 4/21** |  |  |
| Food Inc. |  |
|   |  |   |
| **Week 15: 4/28** |  |  |
| **Pollination Project** |  |
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| **Week 16: 5/5** |  |  |
| Demography Lab |  |
| Assign Carbon Footprint Worksheet |  |   |
| **Week 17: 5/12** |  |  |
| Carbon Footprint Lab |  |
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