

Reviewed by: G. Golling
Reviewed by: M. Mayfield
Reviewed by: A. Jarrahan
Review date: Fall 2016
C & GE approved: October 10, 2016
Board approved: November 9, 2016

Biology (BIOL)1501 Fundamentals of Biology Laboratory (1 Unit) CSU:UC
[formerly BIOL 1L]

Prerequisite/Concurrent Enrollment: Successful completion of Biology 1500 with a grade of C or better.

Advisory: Eligibility for English 1000 and Reading 1005 strongly recommended

Prerequisite knowledge and skills: Before entering the course, the student should be able to

1. understand fundamental principles of biology as illustrated by plants and animals,
2. understand the scientific method,
3. make critical observations,
4. recognize their interaction with their biological environment.

Total Hours: 48 hours lab

Catalog Description: Biology 1501 is an introductory laboratory course designed to survey the plant and animal kingdoms. The course includes microscopy of plants and lower animals, mitosis, life cycles, cell structure, and animal dissection.

Type of Class/Course: Degree Credit

Text: Enger, Eldon D., Frederick C. Ross. *Laboratory Manual: Concepts in Biology*. 14th edition.
Boston, MA: McGraw-Hill, 2011.

Additional Required Materials: None

Course Objectives:

By the end of the course, a successful student will be able to

1. provide a general introduction to biology,
2. develop the fundamental principles of biology as illustrated by plants and animals,
3. develop in the student an understanding of the scientific method,
4. develop the students' ability to make critical observations,
5. develop in the students an understanding of their interaction with their biological environment,
and
6. provide the students with a practical laboratory experience in the life sciences.

Course Scope and Content: (laboratory)

(Each unit involves approximately one week of lab work)

- Unit I The Scientific Method and Metric Measurements
- A. Metric measurements
 - B. Metric conversions
- Unit II Diffusion and Osmosis
- A. Differentiate between diffusion and osmosis
 - B. Kinetic energy and concentration effects
- Unit III The Microscope
- A. Using a compound microscope
 - B. Preparing wet mount slides
- Unit IV Cell Structure and Function
- A. Viewing organisms from 5 Kingdoms
 - B. Identifying cell structures and organelles
 - C. Enzymes
- Unit V Cell Metabolism
- A. Fermentation
 - B. Respiration
 - C. Photosynthesis
- Unit VI DNA and RNA
- A. DNA replication, transcription, translation
 - B. DNA purification
- Unit VII Mitosis – Cell Division
- A. Cell cycle phase
 - B. Microscopic examination of cell division in plants and animals
- Unit VIII Genetics & Human Variation
- A. Single and double factor crosses
 - B. Dominant and recessive human phenotypes
- Unit IX Plant Tissues
- A. Structure and function of plant organs
 - B. Reproduction of plants
- Unit X Frog Dissection
- A. Identification of vertebrate organs and structures
 - B. Animal Physiology

Unit XI Visit to Los Angeles County Natural History Museum

- A. Examine native and non-native species of plants and animals in a live context

Learning Activities Required Outside of Class:

The students in this class will spend a minimum of 3 hours per week outside of the regular class time doing the following:

1. Studying
2. Answering questions
3. Completing required reading
4. Completing written work

Methods of Instruction:

1. Assigned readings from text and selected references
2. Lecture and demonstration by instructor
3. Films and filmstrips
4. Field trips
5. Assignments, tests

Methods of Evaluation:

1. Substantial writing assignments, including:
 - a. laboratory reports
2. Computational or non-computational problem-solving demonstrations, including:
 - a. quizzes
 - b. laboratory reports
3. Skill demonstrations, including:
 - a. class performance
 - b. ability to problem solve
4. Other examinations, including:
 - a. multiple choice
 - b. true / false
 - c. essay
 - d. demonstration of laboratory techniques
 - e. identification of laboratory specimens

Laboratory Category: Extensive Laboratory

Pre delivery criteria: All of the following criteria are met by this lab.

1. Curriculum development for each lab.
2. Published schedule of individual laboratory activities.

3. Published laboratory activity objectives.
4. Published methods of evaluation.
5. Supervision of equipment maintenance, laboratory setup, and acquisition of lab materials and supplies.

During laboratory activity of the laboratory: All of the following criteria are met by this lab.

1. Instructor is physically present in lab when students are performing lab activities.
2. Instructor is responsible for active facilitation of laboratory learning.
3. Instructor is responsible for active delivery of curriculum.
4. Instructor is required for safety and mentoring of lab activities.
5. Instructor is responsible for presentation of significant evaluation.

Post laboratory activity of the laboratory: All of the following criteria are met by this lab.

1. Instructor is responsible for personal evaluation of significant student outcomes (lab exercises, exams, practicals, notebooks, portfolios, etc.) that become a component of the student grade that cover the majority of lab exercises performed during the course.
2. Instructor is responsible for supervision of laboratory clean up of equipment and materials.

Supplemental Data:

TOP Code:	040100- Biology
SAM Priority Code:	E: Non-Occupational
Funding Agency:	Y: Not Applicable
Program Status:	1: Program Applicable
Noncredit Category:	Y: Not Applicable
Special Class Status:	N: Course is not a special class
Basic Skills Status:	N: Not Applicable
Prior to College Level:	Y: Not Applicable
Cooperative Work Experience:	N: Course is not a part of a cooperative education program
Eligible for Credit by Exam:	No

Eligible for Pass/No Pass:	Yes
----------------------------	-----