

BIO L111 – MAJOR'S BIOLOGY LAB (1 credit)

Contents

Lab1. Introduction to the Scientific Method. Scientific Language. General Procedures in the Laboratory. Knowledge of Lab Reports.

Lab 2. Scientific Measures and Correct Use of Labware. Solutions. Weights and Measures. Reagents. Glassware. Use and care of Ph-Meter. Preparation of Commonly Used Solutions. Calculations for Dilutions. Calculations for Conversions.

Lab3. Light Microscopy. Principles of Microscopy. Use and care of the light microscope. Visualization of slides.

Lab4. Cell Isolation and Osmosis. Fractionation of Whole Blood by Centrifugation. Sample Storage. Red Blood Cells Morphology. *Oct*
Midterm Exam + Laboratory Notebook.

Lab5. Protein Determination. Principles of Spectrophotometry. Use and care of Spectrophotometer. Determination of protein in samples by absorbance value.

Lab6. Electrophoresis. Principles of Electrophoresis. Separation techniques. Separation of proteins using polyacrylamide gel electrophoresis.

Lab7. DNA isolation. Isolation techniques. DNA determination from blood samples.

Lab8. Enzyme Catalysis. Enzymology. Determination of β -galactosidase activity.

Lab9. Oral Presentation. *Final Exam + Laboratory Notebook.*

Goals

The goals of Biology Lab 111 are twofold. First, is to become used to laboratory work and acquire the necessary technical skills. Second, is to practice and develop the intellectual skills required for laboratory work.

Guidelines

Assistance is mandatory. Any unavoidable absences must be justified in writing (i.e. a doctor's note) and the document handed to the academic coordinator. Unjustified absences will lower the final lab grade by one point each.

Punctuality is a must and the instructor may refuse entry if students are late by more than five minutes.

Due to the nature of the lab, there is no possibility for make-up lab sessions. Should any unexpected situation arise, please notify both the instructor and academic coordinator as soon as possible.

Evaluation

Evaluation will consist on exams, lab notebook, quizzies, and oral presentation. Student participation is strongly encouraged and will count towards final lab grade. The exam format (which is really a 'short' exam) will consist of multiple choice questions and short definitions based on theory and practical procedures performed during lab sessions.

A 'working laboratory notebook' is required for the Biology 111 Lab. It must be comb- or spiral-bound and students will record procedures, results, observations, and calculations made during the lab sessions. The work is to be directly entered into the notebook and will be handed out for grading twice: October 17th (Midterm) and Nov 28th (Final).

Students will be asked to read a book (listed below), then choose a chapter and give a short oral presentation (5 minutes) on Nov 28th (last lab). A short question about general contents of the book will be included in the final lab exam. Further instructions will be given during the first lab session.

Grading will be divided as follows:

25% Lab final exam

25% Lab midterm exam

20% Lab notebook

20% Lab quizzies

10% Oral presentation

Reading Book

'DNA: The Secret of Life' (2003). James Watson. Arrow Books.