

BIOZ 151 - Introduction to Biological Science I Laboratory
1 credit

LAB SCHEDULE – Spring 2017
Virginia Commonwealth University

| Week | Lab Dates | Topic/Activity | Homework |
|-------------|-------------------|--|---|
| 1 | Jan 17th – 20th | Lab Safety and Orientation Academic Integrity Module | <ul style="list-style-type: none"> •Academic Integrity Module •Read Chapter 1 in “A Student Handbook for the Biological Sciences” for an in-class quiz *online safety training modules |
| 2 | Jan 23rd – 27th | Microscopes and Cells What is Primary Literature? | <ul style="list-style-type: none"> •Primary Research Article Assignment on salt and germination •Microscope and Cell Quiz •Scientific Inquiry Module |
| 3 | Jan 30th – Feb3rd | Diffusion and Osmosis Think Pair Share (re: articles) Discuss Germination Experiment | <ul style="list-style-type: none"> •Diffusion and Osmosis Quiz •Find an additional article about germination, write introduction for experiment, and submit. |
| 4 | Feb 6th – 10th | Start Germination Experiment Writing Methods and Materials | <ul style="list-style-type: none"> •Submit Materials and Methods for Seed Germination experiment. •Record data for Seed Germination experiment |
| 5 | Feb 13th – 17th | Comparing Results and Analyzing Data In class Peer Evaluations Writing Results and Discussion Null Hypothesis | <ul style="list-style-type: none"> •Complete graphs, write results and discussion for Seed Germination Experiment, and submit. • Read Article and write a summary. |

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| 6 | Feb 20th – 24th | Macromolecules | <ul style="list-style-type: none"> • Submission of Experiment summary • Protein Module |
| 7 | Feb 27th – Mar 3rd | Effect of Environmental Conditions on Enzyme Activity | <ul style="list-style-type: none"> • Turn in revised and complete seed germination paper (Monday, March 14th by 11:59pm) • Submission of Enzyme Lab Summary • Photosynthetic Machinery Module |
| 8 | Mar 6th – 10th | SPRING BREAK | |
| 9 | Mar 13th – 17th | Photoactive Macromolecules Introduction to Experiment II | <ul style="list-style-type: none"> • Settling an Argument Write-up, submission and bring in hard copy • Designing an Experiment <p>Photosynthesis movie and quiz</p> |
| 10 | Mar 20st – 24th | Photosynthesis | <ul style="list-style-type: none"> • Reviewing Cellular Respiration • Outline of proposed experiment • Photosynthesis lab summary |
| 11 | Mar 27th – Mar 31st | How Does Temperature Affect Cellular Respiration? Experimental Design II | <ul style="list-style-type: none"> • Cellular Respiration Post-Lab Quiz • Exploring Fruit Fly Genetics Assignment • Begin Experimental Lab Notebook |

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| 12 | Apr 3rd – 7th | Genetics | <ul style="list-style-type: none"> •Application of Genetics Quiz *Building DNA Module •Continue Experimental Lab Notebook •Read Molecular Biology I Lab in your lab book |
| 13 | Apr 10th – 14th | Molecular Biology I | <ul style="list-style-type: none"> • Read Molecular Biology Article • Summary of Molecular Biology article |
| 14 | Apr 17th –21st | Molecular Biology II | <ul style="list-style-type: none"> •Molecular Biology Quiz •Prepare Presentation of Project |
| 15 | Apr 24th – 28th | Project Presentations | |

**Syllabus is subject to change.*

Course Overview:

This lab focuses on first-hand experience in employing scientific methods for experimental design. Emphasis is placed on developing skills and experience in experimental design, data analysis, and written and oral communication in the sciences. As part of the course, key concepts in the biological sciences will be explored.

Course Objectives (what you should be able to do by the end of the semester):

- Ø Explain the basic principles of experimental design, including the use of controls and experimental variables
- Ø Research peer reviewed articles and discuss how select literature is relevant to an experiment
- Ø Demonstrate basic methods for collecting, graphing and analyzing data
- Ø Construct a basic scientific research paper, including the introduction, methods, results and discussion sections
- Ø Present experimental results in both written and oral formats
- Ø Apply core biological concepts to experimental design and interpretation

Required Material for Lab

Textbook: A Student Handbook for Writing in the Biological Sciences by Karin Knisely 4th edition, Sinauer and Freeman Publishers, 2014)

Lab Book: Introduction to Biological Science Laboratory Workbook available in the Barnes and Noble VCU Bookstore. The new edition was printed August 2016. You must have the new edition for this class.

Chemical safety goggles and a lab coat

Scientific articles: Throughout the semester you will be assigned all or part of selected scientific articles to read. These will be made available in PDF form on the course Bb page

Course Expectations:

- Ø You are expected to arrive for lab before the schedule time and to stay for the entire lab period.
- Ø Prior to lab, you are expected to read over the lab materials in your lab book and complete all homework assignments.
- Ø For each 3hrs in lab, you can expect to spend between 3-6 hours/week completing homework assignments.
- Ø Writing is an essential component of lab work so you can expect at least one written assignment every week. It is essential that all written work be in your own words and **printed out** (hand written assignments are not acceptable)
- Ø Any assignments that are unable to be evaluated by SafeAssign will not be graded.
- Ø Homework assignments need to be turned in at the beginning of the laboratory session on the date indicated by the course schedule. Any late work will not be accepted.
- Ø Course assignments, announcements and grades will be posted on Blackboard. It is your responsibility to check Blackboard regularly for announcements, assignments and due dates.

Attendance:

- Ø Attendance is mandatory.
- Ø **No credit for assignment or lab work will be given in the event of an unexcused absence, nor will any make-up work be accepted.** In special circumstances, such as a death in the family or

illness, excused absences may be accepted but must be accompanied with documentation of reason (Doctor's note, obituary, police report), and be provided within 24hrs of the absence. At the discretion of the instructor, such absences, may result in an Incomplete for the course and the assignment/lab must be completed the next semester.

Ø Tardiness is NOT acceptable. Arriving late will result in missed opportunities to take quizzes and/or to turn in assignments. Tardiness will count as a lab absence.

Ø **Missing more than two laboratories will automatically result in a grade of “F.”**

Ø **In addition**, leaving after a quiz, assignment submission or without completing the entire lab exercise will result in a 0 for that day's assignments and will also count as an absence. This includes arriving late for lab.

Grading:

· Research Experiment Assignments (15%): Each item counts equally

- o Final Paper of first experiment
- o Poster Presentation of second Experiment

· Lab assignments (85%): Each item counts equally

- o Pre-Lab Modules/Assignments
- o Data sheets
- o Class discussion participation
- o Experiment Summaries
- o Article Summaries
- o Other Assignments
- o Introduction Draft
- o Methods and Materials Self-Peer Assessment
- o Results and Discussion Draft
- o Outline of Second Experiment

| Letter | Point |
|---------------|--------------|
| Grade | Value |
| A | 100 – 90 |
| B | 90 – 80 |
| C | 80 – 70 |
| D | 70 – 60 |
| F | < 60 |

Important Dates:

First week of Lab: Jan 17th-20th

Add/Drop Period: Jan 17th-23rd

Notification of intent to Observe Religious Holiday: Friday, Jan 27th, 2017

Required Syllabus Statements

Since this is a legacy/archived document, the statements that were originally provided may be out-of-date and have therefore been removed.

Students should visit <http://go.vcu.edu/syllabus> and review all syllabus statement information. The full university syllabus statement includes information on safety, registration, the VCU Honor Code, student conduct, withdrawal and more.