



Valdosta State University, Department of Biology

BIOL 1107: Principles of Biology I (Lab syllabus) Fall 2015
Laboratory Sections C and F

Instructor: Dr. Amber J. Reece

Classroom: BSC 1085 on Wednesdays from 9:30am – 12:20pm

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Office hours: Tuesdays 12:30 – 1:30pm, Thursdays 12:30 – 1:30pm, and by appointment

note

This syllabus is a working document and subject to modification by the instructor

Course Overview: Welcome to Bio1107 Lab. This course is a required companion to the lecture portion of Bio1107. The laboratory exercises in this course will complement the material presented in lecture. A major theme in this course will be the scientific method, and getting you to “think like a scientist.” You will be applying what you have learned in the classroom and from your laboratory manual to generate hypotheses, design experiments, test hypotheses, and make inferences about the natural world.

Course Objectives: The broad objectives of this course are to introduce you to the scientific method and to apply that method to understand scientific principles and biological phenomena. You will learn new technologies and techniques, learn concepts by experimentation, learn scientific writing, and be able to analyze, evaluate, and make inferences from oral, written, or visual materials.

Course Prerequisites and Expectations

There are no prerequisites for this course, except that you are also enrolled in the lecture portion of Bio1107.

Course Credits

BIOL 1107 is a 4 credit course, and the Lab section of the course will contribute 25% of your grade.

Required Texts and Materials

Goddard, R. H. 2013. *Methods and Investigations in Basic Biology*. Sixth edition. Hayden-McNeil Publishing, Plymouth, Michigan.

Basis for Final Grade

Lab Grade (25% of BIOL 1107 grade)

Quizzes (11*): 10 points each

Lab assignment (1): 25 points

Lab notebook (1): 25 points

Lab assessment (1): 25 points

*The lowest quiz grade is dropped

Average Percent Lab Grade = ((total # points earned / possible points earned so far) * 100)

Your lab grades will be posted to the BIOL 1107 section Grade Book on Blazeview. Assignment grades will be made available the week after they are due unless otherwise indicated. Students will have until the end of the following week to contest any grades; after that time grades are final. Any questions about grades must be made in writing through email.

Lab quizzes. There will be a 10 point quiz at the beginning of each lab session, so do not be late for lab! The quizzes will be based on material from the previous labs and the current lab, so you are required to read the lab for each day **BEFORE** coming to class. Quizzes are open notebook, but the lab manual may not be used. Grades for lab quizzes will be available at the end of each week on Blazeview, unless otherwise noted. If there is an error with your quiz grade you must contact me on the week the quiz is given, as grades will become final by the following week.

Lab Assignment. Each assignment is worth 25 points. Questions regarding assignment grades must be made during the week the grade has been given to you, as grades will become final by the following week. Assignments are due at the start of class unless otherwise directed, and will not be accepted late.

Lab Notebook. Students are required to keep a lab notebook in a ½” 3-ring binder. The lab notebook will be used on weekly lab quizzes and will be turned in the last day of lab to be graded. Your notebook grade will be based on completeness, accuracy, and order. More information can be found in the lab manual.

Attendance Policy. Students who miss two labs without an excuse or three labs total cannot receive a lab grade above a “D” (60%). Attendance will be recorded using the lab quiz, which will be given the first 10 minutes of the lab. So, do not be late to lab. In the event that a student misses a lab with an excuse, s/he should email the instructor within 24 hours of the missed lab. It is the instructor’s prerogative to accept the excuse or not. **Absolutely no laboratories can be made up, and no work will be accepted late.** If you are more than 15 minutes late, you may not be allowed to enter the lab, so please be on time.

Student Conduct. You will be respectful of your classmates and your instructor. Cell phone use is not allowed during lab. One point will be taken off of your quiz if a cell phone is observed during lab for any purpose. This includes checking your text messages. Refer to the lab manual for lab rules.

Email. Please email me only from a VSU email account. I am unable to respond to emails from non-VSU accounts.

Classroom Devices. You may NOT use your cell phones in class under any circumstances. Please bring calculators when needed. Timers will be made available when necessary.

Accommodations Statement

Students with disabilities who are experiencing barriers in this course may contact the Access Office for assistance in determining and implementing reasonable accommodations. The Access Office is located in Farber Hall. The phone numbers are 229-245-2498 (V), 229-375-5871 (Video Phone), and 229-219-1348 (TTY). For more information, please visit <http://www.valdosta.edu/student/disability> or email access@valdosta.edu.

Academic Integrity

Academic integrity is the responsibility of all VSU faculty and students. Students are responsible for knowing and abiding by the Academic Integrity Policy as set forth in the Student Code of Conduct and the syllabus. All students are expected to do their own work and to uphold a high standard of academic ethics. Cheating (including plagiarism) will not be tolerated. The instructor reserves the right to dismiss you from the course without credit if you are caught cheating. You will be respectful of your instructor and your fellow students at all times, or you will be dismissed from the class and potentially the course.

Tentative Laboratory Schedule, BIOL 1107, Fall 2015

Lab	Week of:	Topic:	Assignments
1	Aug 17	Lab Introduction – What is Science and Ex. 1 Black box/scientific method	
2	Aug 24	Ex. 2 Basics of the Light Microscope	<i>Quiz 1</i>
	Aug 31	Ex. 3 Observation of living cells with light microscopy and discuss independent microscopy lab proposals	-----
3	Sept 7	LABOR DAY WEEK – NO LABS	
4	Sept 14	Ex. 5 Cellular water relations	<i>Quiz 2</i>
5	Sept 20	Ex. 4 Independent group microscope project	<i>Quiz 3; Begin Assignment 1</i>
6	Sept 28	Ex. 4 Independent Group Microscope Project <i>continued</i>	<i>Quiz 4; Assign.1 first draft due at beginning of lab</i>
7	Oct 5	Ex. 6 Protein extraction and quantification	<i>Quiz 5; Assign. 1 final draft due at beginning of lab</i>
8	Oct 12	FALL BREAK WEEK – NO LABS	
9	Oct 19	Ex. 7 Enzymology: α -amylase activity	<i>Quiz 6</i>
10	Oct 26	Ex. 8 Enzymology: Investigation of the effects of temperature on enzyme activity	<i>Quiz 7</i>
11	Nov 2	10 Cell reproduction: mitosis, meiosis, & cytokinesis	<i>Quiz 8</i>
12	Nov 9	Handout: Mendelian Genetics	<i>Quiz 9</i>
13	Nov 16	Ex. 13 Identification of foodstuffs from genetically modified organisms	<i>Quiz 10; Notebooks Due at end of Class</i>
14	Nov 23	THANKSGIVING BREAK – NO LABS	
15	Nov 30	Handout: Crime scene lab	<i>Quiz 11; Course Assessment</i>

Grading Rubric for Assignment #1 Lab Reports: 25 points

Lab Report should be ~ 3-5 pages, Times New Roman 12-pt font, Double spaced, 1 inch margins

Section & Points	Description of Expectations	Points
Title (0.5 pt)	The title is short and to the point and concisely conveys what the paper is about.	
Abstract (1.5 pts)	The abstract contains a well-organized and written, concise and complete summary of the paper.	
Introduction (4 pts)	Successfully establishes the scientific concept of the lab by providing clear and complete background information. Effectively presents the objectives and purpose of the lab. States hypotheses and provides logical reasoning for it.	
	The writing is well organized & structured and contains no mechanical problems (e.g. spelling, grammar, punctuation). References are included where appropriate and are in correct format.	
Methods (4 pts)	Gives enough details to allow for replication of procedure. "Sign post" words are used appropriately. The source of the protocol used for the study is provided with an appropriate reference.	
	The writing is well organized & structured and contains no mechanical problems. Written in paragraph form.	
Results (4 pts)	Provides a summary of the findings in text format. Presents findings visually (tables, figures) as appropriate. Successfully integrates text and visual representations.	
	The writing is well organized & structured and contains no mechanical problems & references are cited appropriately. Format of tables & figures is correct.	
Discussion (5 pts)	Opens with effective statement of support/ rejection of hypothesis. Backs up statement with references to appropriate findings (results). Provides sufficient and logical explanation for the statement. Sufficiently addresses other issues pertinent to lab (possible sources of error, future studies)	
	The writing is well organized & structured and contains no mechanical problems. References are included where appropriate and are in correct format.	
Literature Cited (2 pts)	Two peer-reviewed papers will be referenced and cited correctly and fully in the CSE name-year format. The citations should be used as background or to frame the findings of the experiment. http://writing.wisc.edu/Handbook/DocCSE.html	
Format (2 pts)	The report is typed in an appropriate font; section titles are included; pages are numbered	
Appendix (2 pts)	Raw data are included with sufficient detail for the reader to interpret your results. Reader should be convinced that if multiple people collected data, they used standardized methods.	
Final Score:		

Lab Notebook Guidelines

General:

- Your lab notebook should be a ½ wide 3-ring binder notebook that **ONLY** includes materials from your 1107 lab (do not keep materials from other courses in this notebook).
- Try to keep your lab notebook legible
- You should be thorough in keeping your notes; the entire purpose for a lab notebook is to keep a record of your activities and results so that either you or others reading your lab notebook will be able to replicate your activities. In other words, details are important! If you add 10mL of 0.1 M HCl to 200mL of water, don't write down "added HCl to water", because it would be unclear what concentration the HCl was, how much you added, and how much water you added it to. Your notes should be a full and complete record of your activities in lab.
- We are also going to use your lab notebook for exercises in metacognitive learning. Studies have shown that students have improved understanding and memory when they think explicitly about the learning process. Your lab notebook will be one way in which you formally **THINK** about how you are learning from lab.
- You will often be working in groups, but each individual's lab notebook should be a stand-alone record of the experiment.
- Number every page
- Every entry begins with the date in MM/DD/YYYY format and the time of day
- Keep a table of contents in the front of your lab notebook that is updated every week
- If you make a mistake, just cross it out; don't remove pages
- Begin each lab on a new sheet of paper

Lab Notebook Format: Follow this format; you will be graded on having an entry for each numbered item in the following guidelines. Some labs may require additional information and sections, but all labs will have the following items unless you are told otherwise. **In bold are things you should fill out before coming to class, the rest you should fill out during lab.**

Introduction:

1. **Date and title, which will be the name of the exercise from your lab manual**
2. **Provide a brief title in your own words (but one that reflects the experiment's name from the lab manual). Use this title in the Table of Contents in your lab notebook**

Purpose/Objectives:

1. **Why are you performing this exercise (not just because Dr. Reece told me to...)?**
2. **What is this exercise supposed to teach you?**
3. **Write down at least two things that you already know about this topic.**
4. **Write down at least one thing that you expect to learn by the end of this experiment.**

Expectations or Predictions:

1. **State a hypothesis or objective for the experiment you will be performing.**
2. **State your expected results or predictions and describe the evidence you used to generate these predictions.**

Materials and Methods:

1. **What is your plan of attack for this lab? Your general outline for completing the lab? (You will write out your specific methods in lab.)**
2. Write down **EVERYTHING YOU DID IN THE ORDER YOU DID IT, NO DETAIL IS TOO MINUTE!**

Results:

1. Record the results of your experiment, including every pertinent detail. Always transfer your group's results to your lab notebook. This includes recreating any tables or graphs from your lab manual in your lab notebook.

Discussion/Conclusions:

1. What was the one most significant thing you learned in the laboratory? Was this what you expected to learn (see Purpose/Objectives #4)? What else did you learn?
2. Explain how the results support or do not support your hypothesis. If you do not understand your results, explain why you cannot explain the results, and what you need to know to be able to explain them. Be specific.
3. What further questions do you have on the subject now that you have finished the exercise? Do the results make you think of any other questions in general about the subject?
4. What further experiments can you suggest to carry out now that you have finished this experiment?

Rubric for Lab Notebooks (20 points total)

-2 points/ section (0.5 points for each of the four components of each of 10 sections)

-1 point for Table of contents, 1 point for pages numbered, 1 point for legibility

1. Exercise 1
 - a. Intro-purpose-expectations
 - b. Methods
 - c. Results
 - d. Discussion
2. Exercise 2
 - a. Intro-purpose-expectations
 - b. Methods
 - c. Results
 - d. Discussion
3. Exercise 3
 - a. Intro-purpose-expectations
 - b. Methods
 - c. Results
 - d. Discussion
4. Exercise 5
 - a. Intro-purpose-expectations
 - b. Methods
 - c. Results
 - d. Discussion
5. Exercise 4
 - a. Intro-purpose-expectations
 - b. Methods
 - c. Results
 - d. Discussion
6. Exercise 6
 - a. Intro-purpose-expectations
 - b. Methods
 - c. Results
 - d. Discussion
7. Exercise 7
 - a. Intro-purpose-expectations

- b. Methods
 - c. Results
 - d. Discussion
- 8. Exercise 8
 - a. Intro-purpose-expectations
 - b. Methods
 - c. Results
 - d. Discussion
- 9. Exercise 10
 - a. Intro-purpose-expectations
 - b. Methods
 - c. Results
 - d. Discussion
- 10. Mendelian Genetics handout
 - a. Intro-purpose-expectations
 - b. Methods
 - c. Results
 - d. Discussion
- 11. Exercise 13
 - a. Intro-purpose-expectations
 - b. Methods
 - c. Results
 - d. Discussion