

BIOL 1107L: Principles of Biology I Laboratory
Department of Biology, College of Science and Math, Valdosta State University
Spring 2020; Laboratory Syllabus

Instructor: Dr. Eric W. Chambers, Associate Professor of Biology

Laboratory: BSC 1083 Section G: (CRN# 26473) Thursday 2:00 – 4:50 pm

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Office hours: Tuesday and Thursday 10:00-11:30 am or by appointment.

Course Description: A laboratory course to accompany BIOL 1107 lecture, with exercises dealing with the cellular nature of life.

Course Objectives: Upon completion of this course the student should be able to:

1. Develop and test hypotheses, collect and analyze data, and present the results and conclusions in written formats used in peer-reviewed journals.
2. Understand basic biological chemistry from elements to organic compounds to macromolecules.
3. Demonstrate an understanding of the cellular basis of life.
4. Relate the structure and the function of DNA/RNA to the development of form and function of the organism and to heredity
5. Understand energy transformation in biological systems through the study of photosynthesis and other metabolic reactions

See Department of Biology Educational Outcomes and the University General Educational Outcomes as listed at the end of this syllabus

Required Materials:

- 1) Goddard, R. H. 2010. Methods and Investigations in Basic Biology. 6th edition. Hayden-McNeil Publishing, Plymouth, Michigan.
- 2) Composition Book: 9 ¾ X 7 ½ in (Mead or similar is fine; Office Max, Office Depot, Walmart, Target, etc. – usually available for less than \$1.50)

Laboratory Assignments and Grading: Students will be graded on their performance in laboratory based on attendance, quiz grades, group lab projects, selected homework assignments, and other assignments as specified by your instructor.

Lab Quizzes (100 points): Quizzes (worth 10 points each) are given weekly during the first 10 minutes of each laboratory. **DO NOT BE LATE.** You will not be allowed extra time if you are late. If you miss the quiz completely, you will receive a zero for the quiz. Some of the questions will cover the procedures and results of the previous week's exercises. Other questions will pertain to procedures for the upcoming lab. **You may use your lab notebook or lab manual for the quizzes.**

Lab Assignments (100 points):

- 1) **A1 Group Microscopy Project (25 points):** Each lab group will develop and complete a microscope-based experiment. Each group member will prepare and submit a written lab report. All students are required to complete this assignment.
- 2) **A2 Enzymology report (25 points):** Each student will complete a short report on data collected during Exercise 8 Enzymology: Investigation of the effects of temperature and pH on enzyme activity. Further information will be provided in lab. All students are required to complete this assignment.
- 3) **N1 Lab notebook (50 points):** A laboratory notebook is an important element for conducting scientific research. Each student will maintain a lab notebook for recording the methods employed in the experiment as well as the experimental results. Students are required to have their notebook at every lab class. Lab notebooks will be submitted and graded at periodic intervals throughout the semester. I will provide additional details throughout the semester.

To assess your lab grade divide the total points earned by the total possible points (200) & then multiply by 100.

Table 1. Lab Points earned

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	A1	A2	N1	EC	Total
10	10	10	10	10	10	10	10	10	10	10	25	25	50	--	200

Q= Laboratory Quiz, A1, A2 = Laboratory Assignment, N1 = lab notebook, EC = Extra Credit Assignments. Use the empty second row in the table above to keep track of your individual points and lab percentage at any point in the semester. Lowest quiz will be dropped.

Attendance Policy: This course follows the university policy on class absences:

“Whether online or face-to-face, a student who misses or does not participate in more than 20% of the scheduled course or course activities could be subject to receiving a failing grade in the course” – 2019-2020 Undergraduate Catalog

Also, as stated in the Undergraduate Catalog, “the University does not issue an excuse to students for class absences. In case of absences as a result of illness or special situations, instructors may be informed of reasons for absences, but these are not excuses”. I will consider all absences on a case-by case basis.

Students who miss **3 or more** labs during the course of the semester could be subject to the stated policy. If you are absent from lab or know you will be absent from lab, please contact me within 24 hours with the reason. If I consider it an excused absence, I may be able to give you an opportunity to attend another lab session during that same week.

No labs can be made up once the week has ended.

Athletes and other University representatives: Please let me know in advance if you will be missing a lab due to an away game or other required event. We can make arrangements for you to attend an alternative lab section.

Lab Conduct:

1. Please arrive on time. If you are late and the quiz has started, you will not be given additional time to complete it.
2. You **MUST** maintain a laboratory notebook with drawings, descriptions, data, etc. of the laboratory exercises. Please bring your notebook to lab each week. You may use your lab notebook or lab manual during lab quizzes.
3. **No eating or drinking in the lab is allowed!!!**
4. You must take care of lab equipment. Notify the professor if something is not working properly or if something breaks during the course of the lab.
5. You will be assigned a microscope. It is your responsibility to properly use the microscope. Please notify me if the microscope is not functioning properly.
6. Cell phones are not to be used in lab.
7. A laboratory course is a collaborative effort. You will often work with your lab group or a lab partner. Please be prepared for lab each week and be fully engaged in the lab experiments.

Academic Integrity: By taking this course, you agree that all required course work may be subject to submission for textual similarity review to Turnitin, a tool within BlazeVIEW.

Mid-term, or in-progress grades: The instructor is required to submit in-progress grades prior to mid-term (March 5, 2020). I will assign an overall average grade at this point on the normal scale of A-F viewable on Banner. Students receiving a grade of "D" or lower should therefore carefully evaluate their option of dropping this course by midterm without academic penalty. The deadline for withdrawal through Banner is March 12, 2020.

Biology Tutoring: The Academic Support Center (ASC) at Valdosta State University is located on the second floor of the Odum Library. The ASC provides free peer tutoring in core curriculum courses, including biology. Call 333-7570 to make an appointment, or visit their website at <https://www.valdosta.edu/asc/>

Privacy Act (FERPA): The Family Educational Rights and Privacy Act (FERPA) prohibits the public posting of grades by social security number or in any manner personally identifiable to the individual student. No grades can be given over the telephone or over email because positive identification can't be made.

Access 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 Farbar Hall. The phone numbers are 229-245-2498 (V), 229-375-5871 (VP) and 229-219-1348 (TTY). For more information, please visit VSU's Access Office or email: access@valdosta.edu.

Title IX Statement: Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including pregnancy status, sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, national origin, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: Maggie Viverette, Director of the Office of Social Equity, titleix@valosta.edu, 1208 N. Patterson St., Valdosta State University, Valdosta, Georgia 31608, 229-333-5463.

Campus Gun Carry Statement (HB 280): If you choose to carry a concealed weapon on campus, you are responsible for knowing and following the law. Refer here for FAQ: <https://www.valdosta.edu/administration/finance-admin/police/campuscarry/>

SOI Statement: At the end of the term, all students will be expected to complete an online Student Opinion of Instruction survey (SOI) that will be available through SmartEvals. Students will receive an email notification through their VSU email address.

LABORATORY EXERCISES Spring 2020

Lab	Week of:	Topic:
1	Jan. 13-17	Introduction to the Lab, Safety, and Laboratory Notebooks Exercise 1: Introduction to the Scientific Method and Black Box Experiment
--	Jan. 20-24	Martin Luther King Jr. Holiday - NO LABS
2	Jan. 27-31	Exercise 2: Basic Light Microscopy
3	Feb. 3-7	Exercise 3: Light Microscopy Observations of Cells and Organisms Exercise 4: Design Experiment for Independent Group Microscopy Lab
4	Feb. 10-14	Exercise 5: Cellular Water Relations
5	Feb. 17-21	Exercise 4 Cont'd: Independent Microscopy Project: Data Collection
6	Feb. 24-28	Exercise 6: Protein Extraction & Quantification from Living Tissues
7	Mar. 2-6	Exercise 7: Enzymology Lab: basics of α -amylase activity
8	Mar. 9-13	Exercise 8: Enzyme Regulation: Investigation of the Effects of Temperature and pH on α -amylase
--	Mar. 16-20	Spring Break - NO LABS
9	Mar. 23-27	Exercise 9: Photosynthesis
10	Mar. 30-Apr. 3	Exercise 10: Cellular Reproduction: Cell Cycle, Mitosis & Meiosis
11	Apr. 6-10	DNA Forensic RFLP Lab; Set up digestion reactions
12	Apr. 13-17	DNA Forensic RFLP Lab; run gel electrophoresis
13	Apr. 20-24	Exercise 14: Transformation of pGLO plasmid
14	Apr. 27-May 1	Exercise 14- Analyze Transformations and complete course assessments

Valdosta State University General Educational Outcomes (GEO)

1. Students will demonstrate understanding of the society of the United States and its ideals.
2. Students will demonstrate cross-cultural perspectives and knowledge of other societies.
3. Students will use computer and information technology when appropriate.
4. Students will express themselves clearly, logically and precisely in writing and in speaking, and they will demonstrate competence in reading and listening.
5. Students will demonstrate knowledge of scientific and mathematical principles and proficiency in laboratory practices.
6. Students will demonstrate knowledge of diverse cultural heritages in the arts, the humanities, and the social sciences.
7. Students will demonstrate the ability to analyze, to evaluate, and to make inferences from oral, written and visual materials.
8. Students will demonstrate knowledge of principles of ethics and their employment in the analysis and resolution of moral problems.
9. Students will demonstrate understanding of the physical universe and the nature of science, and they will use scientific methods and/or mathematical reasoning and concepts to solve problems.

Department of Biology Educational Outcomes (BEO)

1. Develop and test hypotheses, collect and analyze data, and present the results and conclusions in both written and oral format used in peer- reviewed journals and at scientific meetings.
2. Describe the evolutionary process responsible for biological diversity, explain the phylogenetic relationships among the other taxa of life, and provide illustrative examples.
3. Demonstrate an understanding of the cellular basis of life.
4. Relate the structure and function of DNA/RNA to the development of form and function of the organism and to heredity
5. Interpret ecological data pertaining to the behavior of the individual organism in its natural environment; to the structure and function of populations, communities, and ecosystems; and to human impacts on these systems and the environment.