

**BIOL 1107 E - PRINCIPLES OF BIOLOGY 1 - FALL 2013
LABORATORY SYLLABUS & POLICIES**

Section E meets Thursday 1:00 – 3:50 in BSC 1083

Instructor: Dr. Mark Blackmore

Office: BSC 2218

Office Hours: M, W 11:15-11:45 or by appointment

Contact information

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Text: *Methods and Investigations in Basic Biology* 6th ed. by Goddard.

BIOL 1107 Course Description. An introduction to the principles of biology for science majors, with an emphasis on the cellular nature of life. Concepts covered include the origin and early evolution of cellular life; cell structure, function, metabolism, and reproduction; cell signaling; and gene regulation in bacteria and eukaryotes.

There are no prerequisites for this course. BIOL 1100 is a co-requisite for Biology majors.

Learning Goal

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.

Course scope and objectives: This course is a prerequisite for all other courses required in the biology major. The primary objective is to provide a foundation for further studies in biology. It is also hoped that you will gain an understanding of how biologists and other scientists approach problems.

Course Objectives and Outcomes (refer to General (GEO) & Biology (BEO) Educational Outcomes listed below for more information)

By the end of this course, students will be able to

- 1) answer questions that demonstrate an understanding of fundamental concepts of biology, including the scientific method and experimental design; cellular structure, function, metabolism, and reproduction; the nature of the gene and its action; and the mechanisms of evolution (GEO 5; BEO 1-4)
- 2) perform a variety of standard lab techniques used in biological research (GEO 5)
- 3) use critical thinking skills and written communication skills to present the results and conclusions of data collected in the lab in standard scientific writing format (GEO 4 & 7; BEO 1)

Valdosta State University General Educational Outcomes (GEO)

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.
7. Students will demonstrate the ability to analyze, to evaluate, and to make inferences from oral, written and visual materials.

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

Course requirements & grading policy: Students are expected to attend all scheduled laboratory sessions and attendance will be recorded each week. Students with valid, documented excuses (*eg.* a death in the immediate family) may receive special consideration but must contact the instructor immediately. Unexcused absences will result in loss of 5 points plus quiz or notebook points. Missing 3 labs = automatic failure.

Laboratory grading:

| | |
|------------------------|-------------|
| 10 Quizzes | = 100 |
| 14 Attendance | = 70 |
| <u>Notebook Checks</u> | <u>= 30</u> |
| Total possible | = 200 |

Laboratory grade (computed as % possible points) = (25%) of final course grade - reported to Dr. Elder.

Special needs: Students requesting classroom accommodations or modifications due to a documented disability must contact the Access Office for Students with Disabilities located in the Farber Hall. The phone numbers are 245-2498 (V/VP) and 219-1348 (TTY). Please discuss any such needs with me at the beginning of the semester.

Academic Integrity & Conduct: I follow the Academic Honesty Policies and Procedures of the University www.valdosta.edu/academic/AcademicHonestyPoliciesandProcedures.shtml and the Department of Biology's Policy on Plagiarism www.valdosta.edu/biology/documents/biologyplagiarism.doc. I expect my students to read and understand the information provided on those web sites. "Academic Integrity/ Honesty" means performing all academic work without plagiarism, cheating, lying, tampering, stealing, receiving unauthorized or illegitimate assistance from any other person, or using any source of information that is not common knowledge. All electronic devices including cell phones must be turned off and kept out of sight during examinations.

Student conduct should follow guidelines specified in the VSU Student Handbook. It is expected that students will maintain the highest ethical standards, honesty and courtesy at all times. To avoid disruptions, all cellular telephones and pagers should be turned off for the duration of class. Students failing to abide by this policy may face disciplinary action. Evidence of dishonesty in the completion of assignments or during quizzes will result in the forfeiture of the points allocated for that task. Any student caught cheating may be reported to the University Administration. A second offense will be grounds for dismissal with a failing grade.

FALL 2013- Tentative Laboratory Schedule, BIOL 1107 E

LABORATORY EXERCISES:

| Lab Week | Days: | Topic: | Assignments |
|----------|--------------|---|----------------------|
| 1 | August 15 | Laboratory Introduction – What is Science? | |
| 2 | August 22 | Ex. 1 Introduction to the Use of the Scientific Method | Quiz 1 |
| 3 | August 29 | Ex. 2 Basics of the Light Microscope | Quiz 2 |
| 4 | September 5 | NO LABS THIS WEEK | |
| 5 | September 12 | Ex. 3 Observation of Living Cells with Light Microscopy | Quiz 3 |
| 6 | September 19 | Ex. 5 Cellular Water Relations | Quiz 4 |
| 7 | September 26 | Ex. 4 Independent Group Microscope Project: Proposal | Quiz 5 |
| 8 | October 3 | Ex. 4 Independent Group Microscopy Project: Data collection lab | |
| 9 | October 10 | Ex. 6 Protein extraction & quantification | Notebook check |
| 10 | October 17 | Ex. 7 Enzymology: α -amylase activity | Quiz 6 |
| 11 | October 24 | Ex. 9 Photosynthesis Ex. 8 Enzymology: Investigation of the effects of temperature on enzyme activity | Quiz 7 |
| 12 | October 31 | Ex. 10 Cell reproduction: Mitosis, Meiosis, & Cytokinesis | Quiz 8 |
| 13 | November 7 | Mendelian Genetics - Handout | Quiz 9 |
| 14 | November 14 | DNA fingerprinting & Ex. 12 PCR-Based VNTR Human DNA Typing | Quiz 10 |
| 15 | November 21 | Complete DNA work | Notebooks Due |
| | November 28 | Thanksgiving Holiday | |