

Valdosta State University, BIOL 1107K, Sections A, B, C (4 Credit Hours)
Principles of Biology I – Spring 2012
Syllabus & Course Policies

Lecture: BC 1023 – Mondays & Wednesdays – 3:30-4:45

Lab: BC 1083 – Section A - Mondays 11-1:50; Section B - Tuesdays 9-11:50; Section C - Tuesdays 2:30-5:20

Instructor: Dr. Emily Cantonwine (Dr. Cantonwine)

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Office hours: Wednesdays, Thursdays, & Fridays 1:00-2:00, or by appointment.

Welcome to Principles of Biology I. This is the first course in a series designed to help you develop a strong foundation in the biological sciences to build on throughout your studies at VSU and beyond.

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 incoming Biology majors.

Required Resources:

- Sadava, D., Hillis, D.M., Heller, & Berenbaum, M.R. 2009. LIFE: The Science of Biology. Ninth Edition. Sinauer Associates, Inc., Sunderland, MA, and W.H. Freeman & Co., Gordonsville, VA.
- R.H. Goddard. 2011. Methods and Investigations in Basic Biology. Fifth Edition. Hayden-McNeil Publishing, Plymouth, MI. (Lab manual)
- Turning Technologies Clicker NXT

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 Objectives and Outcomes (refer to Outcome section at end of syllabus 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)

Assessments:

Lecture (75% of grade):
Unit Exams (4): percentage score
Clicker Grade: percentage score
Cumulative Final Exam: percentage score
Lab (25% of grade):
12 lab quizzes (9 points each)
2 lab assignments (50 points each)
Notebook grade (50 points)
Bonus (+5%)
Homework (7): percentage score

The lowest lecture grade (exam or clicker grade) will be dropped
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SCALE

A ≥ 90.0%
B ≥ 80.0%
C ≥ 70.0%
D ≥ 60.0%
F ≤ 59.99%

Explanation of Lecture Assessments:

Unit Exams. A percentage score will be determined for each unit exam. There are no make-up exams, regardless of excuse. If you miss an exam, this will be the grade that is dropped. Students may not take exams early, with the exception of students with a university-related or religious excuse. The unit exams are not cumulative.

Clicker Grade. Beginning the second or third week of class, each lecture will include clicker questions. Correct answers will count 2 points, incorrect answers will count 1 point, and questions that are not answered will count 0 points. The total number of questions, and therefore potential points (2 points × # questions), will vary each lecture. Your lowest clicker assessment will be dropped to account for various technical and personal issues. The final clicker grade will be computed by adding up all earned clicker points and dividing by possible points (after the lowest clicker assessment is dropped). If the clicker grade is lower than the lowest unit exam grade, this grade will be dropped. If you use someone else's clicker or allow someone to use your clicker (meaning you do not attend class or you "click" for someone who is not present), your clicker grade will be the grade that is dropped whether it is the lowest grade or not.

Final Exam. The final exam will be cumulative, and is weighed the same as unit exams and the clicker grade. Students may choose to not take the final, but in this case, none of the previous lecture grades will be dropped.

Bonus Homework (HW) - There will be 7 HW assignments throughout the semester, each worth 10 points. HW will be assigned either as a pdf file on Blazeview or as an assessment on Blazeview. These assignments will be posted no later than Friday at 5:00pm and will be due the following Wednesday at the beginning of class (3:30). You may turn HW in early to the HW box that is located on the counter outside my office door. No HW will be accepted after 3:30pm. Your HW must be handwritten on the assignment printout, unless submitted as Blazeview assignment. This bonus opportunity may be terminated for any reason.

Lab quizzes. There will be a 9 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 (7 pt) and the current lab (2 pt). Quizzes are open notebook, but the lab manual may not be used.

Lab Assignments. Each assignment is worth 50 points. Assignments will be due at the beginning of the following lab in which they were assigned. 5 points will be taken off for late assignments (10 minutes late – 24 hours late). Assignments will not be accepted after 24 hours without an acceptable & documented excuse.

Lab Notebook. Students are required to keep a lab notebook (recommend 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.

All lecture grades will be posted on the Blazeview cross-listed page **Arts and Sciences Cross-Listed - SP2012-BIOL-1107K-A_B_C**. All lab grades will be posted on the Blazeview section page. Your grade can be computed at anytime using the following equation:

$$\text{Grade} = (\text{average lecture grade after lowest grade is dropped}) \times 0.75 + (\text{average lab grade} \times 0.25) + (\text{average HW grade} \times 0.5)$$

General Rules:

Attendance Policy. Attendance in lecture will be monitored using clickers. There is no minimum number of lecture periods that you must attend to pass the class. Attendance in lab will be recorded using the lab quizzes. Students who miss two labs without an excuse or three labs total cannot receive a **lab grade** above a “D” (60%). 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."**

Student conduct

- Arrive on time and have all the materials you need when class begins.
- I expect your full attention to be on the course material. If this is not possible, please be respectful of your fellow students and do not be disruptive.
- You do not need my permission to leave class early. Please do so in the least disruptive way. For example, if you know you have to leave early, sit near the door.
- Disruptive students may be asked to leave the classroom. I consider listening to music, surfing the internet, and obvious texting to be disruptive.

Food and Drink

- Drinks and snacks are allowed in the lecture hall as long as their consumption and storage are not a disturbance to yourself or other students. Each student must clean up after him or herself; otherwise, this privilege will be revoked. Drinks and snacks are not allowed in lab!

Electronic Devices

- Bring your clicker to lecture every day! Clickers will not be used in labs.
- Turn off your cell phone during class!
- Turn off your MP3 player and remove your earbuds/headphones during lecture.
- Laptops & related tools are allowed for note taking as long as its use is not disruptive (see above).

Special Needs: If you have need for special arrangements to allow you to meet the requirements of this course, please contact the Access Office for Students with Disabilities in Nevins Hall, 245-2498. Also, please discuss this need with me before the end of the second week of class.

Academic Integrity: I follow the Academic Honesty Policies and Procedures of the University and the Department of Biology’s Policy on Plagiarism. For more information, refer to www.valdosta.edu/academic/AcademicHonestyPoliciesandProcedures.shtml and www.valdosta.edu/biology/documents/biologyplagiarism.doc. “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.

Important information:

- For Biology majors, a grade of C or higher is required in this course before additional biology courses can be attempted.
- Midterm, March 1st, is the last day for withdrawing without penalty.

Tentative Lecture Schedule, BIOL 1107, sections A, B, C Spring Semester 2012

Week	Subject	Chapters	HW Due Wednesdays by 3:30
Jan 9	Introduction to Biology; Chemistry of Life	1, 2	
Jan 16	<i>MLK day, no class (Jan 16)</i> ; Chemistry of Life; Proteins, Carbohydrates, and Lipids	2, 3	HW 1 assigned
Jan 23	Proteins, Carbohydrates, and Lipids; Nucleic Acids	3,4	
Jan 30	EXAM 1 (Chapters 1-4 on Jan 30) ; Cells	5	
Feb 6	Cells; Cell membrane	5, 6	HW 2 assigned
Feb 13	The Cell Cycle & Cell Division (mitosis, apoptosis, & cancer cells)	11.1-11.3, 11.6-11.7	HW 3 assigned
Feb 20	Cell Signaling & Communication	7	
Feb 27	EXAM 2 (Chapters 5, 6, 7, 11 part 1 on Feb 27) ; Energy, Enzymes, & Metabolism	8	HW 4 assigned
Mar 5	Pathways that harvest chemical energy;	9	HW 5 assigned
Mar 12	<i>Spring Break</i>		
Mar 19	Photosynthesis; Chapter 8-10 Review	10	
Mar 26	EXAM 3 (Chapters 8-10 on Mar 26) ; The Cell Cycle & Cell Division (meiosis)	11.4-11.5	
Apr 2	Inheritance, Genes, & Chromosomes; DNA & Its Role in Heredity	12, 13	HW 6 assigned
Apr 9	From DNA to Protein	14	HW 7 assigned
Apr 16	Gene Mutation and Molecular Medicine;	15	
Apr 23	Regulation of Gene Expression	16	
Apr 30	EXAM 4 (April 30) Final Exam (April 4, 5-7pm)		

Tentative Laboratory Schedule, BIOL 1107, sections A, B, C, Spring 2012

LABORATORY EXERCISES:

Lab	Day:	Topic:	Due Dates
1	Jan 9 or 10	Laboratory Introduction; Ex. 1 Introduction to the use of the Scientific Method	
--	Jan 16 or 17	Martin Luther King Holiday – no lab	
2	Jan 23 or 24	Ex. 2 Basics of the Light Microscope	
3	Jan 30 or 31	Ex. 3 Observation of Living Cells with Light Microscopy	
4	Feb 6 or 7	Ex. 4 Independent Group Microscopy Project: Data collection lab (<i>Lab assignment 1</i>)	Assignment 1 due beginning of next lab
5	Feb 13 or 14	Ex. 5 Cellular Water Relations	
6	Feb 20 or 21	Ex. 6 Protein extraction & quantification	
7	Feb 27 or 28	Ex. 7 Enzymology: α -amylase activity	
8	Mar 5 or 6	Ex. 8 Enzymology: Investigation of the effects of temperature on enzyme activity (<i>Lab assignment 2</i>)	Assignment 2 due beginning of next lab
--	Mar 12 or 13	Spring Break – no lab	
9	Mar 19 or 20	Cellular Respiration Activity (handout)	
10	Mar 26 or 27	Ex. 9 Photosynthesis	
11	Apr 2 or 3	Ex. 10 Cell reproduction: Mitosis, Meiosis, & Cytokinesis (Bring lecture notes to lab)	
12	Apr 9 or 10	DNA fingerprinting & Ex. 12 PCR-Based VNTR Human DNA Typing	
13	Apr 16 or 17	Ex. 13 Genetically Modified Organisms part 1	
14	Apr 23 or 24	Ex. 13 GMO part 2	<i>Notebooks due end of lab</i>

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.

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.