

**Valdosta State University**

**BIOL 1107: Principles of Biology I  
Lecture Syllabus (Sections A-F)  
Fall 2014**

**Lecture (BC 1011): MWF 12:00-12:50 PM**

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Office hours: Tuesday and Thursday 10-11 am; or by appointment

**Required Materials:**

**Lecture Text:** Sadava, D., Hillis, D.M., Heller, H.C., and Berenbaum, M.R. 2014. Life: The Science of Biology. 10<sup>th</sup> edition. Sinauer Associates Inc., Sunderland, MA (ISBN 9781464141652).

\*Please Note that there is a GRADED component to this course using the interactive quizzing software (Learning Curve) available through the publisher's web page called BioPortal (Publisher's BioPortal Web Page Access: <http://courses.bfwpub.com/life10e.php>)

**Laboratory text:** Goddard, R. H. 2013. Methods and Investigations in Basic Biology. 6th edition. Hayden-McNeil Publishing, Plymouth, Michigan (ISBN 9780738060064)

**Clicker:** You are required to obtain a Turning Technologies NXT Clicker. You can purchase these in the bookstore. You can earn lecture participation points by attending class and answering interactive clicker questions. You must bring your clicker to every class in order to earn the points. Never give your clicker to someone else! Never have someone else's clicker in your possession! If you are caught doing this each of you will lose all your clicker points for the semester!

Clicker info is available at [http://www.valdosta.edu/academics/elearning/documents/nxt\\_student-response-guide.pdf](http://www.valdosta.edu/academics/elearning/documents/nxt_student-response-guide.pdf). Assistance for clicker problems is available in the eLearning office (behind the help desk) in the Odum Library.

**Course Description:** An introduction to the principles of biology for science majors, with an emphasis on the cellular basis of life, genetics, and evolution. Concepts the course will focus on will include (but not be limited to): the origin and early evolution of cellular life; cell structure, function, metabolism and reproduction; cell signaling; and gene function in bacteria and eukaryotes.

**Course goals:** The purpose of this course is to provide you with a broad introduction to the study of biology. The course is introductory and topical in nature but upon completion of this course you will be prepared for advanced specialized courses in biology. It will also provide you with a background to better understand many of the technological issues and challenges confronting our nation and the world.

This course will assist you in developing communication skills as well as information processing skills. These abilities are critical for all students, both those who wish to attend professional school (medical, dental, etc.) and graduate school as well as those who will move directly into the job market following graduation. Your critical thinking skills will be enhanced through analysis of lab exercises, class assignments, and test questions.

**Educational outcomes: Listed at the end of syllabus**

**Attendance:** Attendance in lecture is expected of all students. You will not earn clicker lecture points unless you attend lecture. You will have difficulty passing this course if you do not consistently attend lecture! Attendance in laboratory is mandatory; see lab syllabus from your lab instructor

**Lecture Conduct:**

- Arrive on time.
- Turn off/silence cell phones during class and lab.
- Remove headphones and earbuds while in lecture and lab.
- Don't talk during lecture; if you don't understand something or didn't hear something ask.
- Unless it's an emergency (and using your cell phone does not constitute an emergency) do not get up in the middle of lecture, leave and come back.
- **Do not leave class early** unless it's an emergency.
- During exams NOBODY can leave the exam and re-enter the exam room. If a student leaves, their exam will be graded as is; the student will not be allowed to finish the exam.
- You and you alone use your clicker in class. If your clicker is found in the possession of another student both of you will lose all your clicker points for the semester! Further sanctions including failure of the course are possible.

**Withdrawing from the course:** The last day to withdraw from the course is October 9, 2014. If you don't officially withdraw, and instead just stop coming to class, you will receive an F for the course.

**Procedure for exams:**

- No books, electronic devices, or notebooks will be allowed during exams and students using such items will be asked to leave and will receive a zero for the exam.
- No talking will be allowed during the exam, but students are permitted to ask the instructor questions.
- Each student will be given an exam to be completed and handed back to the instructor.
- Students must bring a pencil and will take the exam during the stated lecture time only.
- **NOTE:** You will have the class time only to complete each lecture exam.

**Grade Assessment:** Your final grade will be based on your performance on lecture examinations, learning curve assessments, clicker questions, and the laboratory.

**Exams (500 pts)** There will be four lecture exams followed by a cumulative final. Students are required to learn the lecture material and the readings from the text for all exams. Unit exams will consist of 40 questions while the final will consist of 80 questions. Each of the unit exams and the cumulative final exam will be worth 100 points. The final exam will be taken during the allotted time published online and posted below. **There are NO MAKEUP EXAMS.** Students who will not be present for the exam due to an official University activity may be allowed to take the exam early.

**Learning Curve Homework (100 pts)** Learning curve is an adaptive quizzing and personalized homework program available at the BioPortal web site. In the past, a substantial number of BIOL 1107 students have struggled with this course primarily due to poor preparation (i.e. not reading the chapters before lecture!). You will be required to read a chapter and then complete the learning curve homework. By reading the chapters in advance, and completing the Learning Curve assignments, you should be better prepared for the exam questions.

The due date for completion of the quiz is found on the lecture schedule in the syllabus. Due dates may be pushed back if the instructor falls behind the lecture schedule. Learning curve is only available through the BioPortal web site and is **not** available on Blazeview. The Learning Curve final grade will be normalized to 100 points. Learning curve will be demonstrated on the first day of class by the instructor.

Publisher's BioPortal Web Page Access: <http://courses.bfwpub.com/life10e.php>

**Clicker Questions (100 pts)** In this course you will utilize "clicker" technology in order to be more engaged with the material during lecture. Clicker questions will provide you a chance to receive immediate feedback on your understanding and interpretation of important biological principles. Clicker questions will begin during the second week of class. Each correct answer will count 2 points, incorrect answers will count 1 point, and questions that are not answered will count 0 points. Individual clicker assessments will be posted to Blazeview the day following the lecture. At the end of the semester, a Pooled Clicker Grade will be calculated as the average percentage of all clicker quizzes and will equal one exam grade.

**\* The Pooled Clicker Grade will be scored as zero if you allow someone to use your clicker in your absence, or if you use someone's clicker in his or her absence.**

**Dropped Grade:** The lowest score you receive among either the four unit exams, the Learning Curve homework or the Pooled Clicker Grade will be dropped and not used to calculate your final grade. The final exam is mandatory and cannot be dropped. This means that although there are 700 possible lecture points only 600 points will count toward your final grade.

To determine your lecture grade divide the total points earned by the total possible points and divide by 100.

Table 1.

Exam 1	Exam 2	Exam 3	Exam 4	Learning Curve	Clicker questions	Final Exam	Total minus lowest score
100	100	100	100	100	100	100	600

Fill in the empty cells with your exam and assignment scores.

Laboratory: Your lab grade is worth 25% of your overall course grade.

**Calculate your overall grade using the following formula:**  
**(Lab percentage grade X 0.25) + (Lecture percentage grade X 0.75) = Course Grade**

Grade Scale: For Biology majors a grade of C or higher is required for this course.

- A 90-100%
- B 80-89%
- C 70-79%
- D 60-69%
- F < 60%

**Notes on grading:** Students should note that a grade of "A" in this course represents an exemplary command of the material covered. To obtain this grade of excellence, it is recommended that students study daily and clarify with their instructor any problems regarding course information, as they arise.

**Mid-term, or in-progress grades:** The instructor is required to submit in-progress grades prior to mid-term as posted. In theory, a mid-term grade is necessary for a student to assess how s/he is doing in class by midterm. In this course, students will have feedback on at least one major exam by midterm, clicker questions, learning Curve homework assignment, as well as several lab quizzes and lab assignments. The instructor will, in general, 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.

**Biology Tutoring:** The Student Success Center (SSC) at Valdosta State University is located in Langdale Residence Hall above the Tech Shop and is available to all students. The SSC provides free peer tutoring in core curriculum courses, including biology, chemistry, math, writing, and foreign languages. The SSC also provides free professional academic advising and on-campus job information in one location. Call 333-7570 to make an appointment, or visit the website: [www.valdosta.edu/ssc](http://www.valdosta.edu/ssc).

**Academic conduct:** Cheating and plagiarism will not be tolerated and may result in a failing grade for the assignment, exam or the class.

**Disruptive behavior:** No disruptive behavior of any kind will be tolerated in this course. Talking during lectures is disruptive due to the nature of the acoustic design of the room. Students should restrict talking and discussion to pertinent questions related to course material and these questions should be directed toward the instructor.

Entering a classroom late is discouraged, particularly from the front of the room, because it is disruptive, as is leaving early. Any student disrupting lectures will be required to leave the classroom. Use of cellular telephones, pagers, or any similar remote communication device is prohibited during scheduled lectures, laboratories, or examinations. If students bring cellular telephones or similar devices to lecture, it is their responsibility to switch them off prior to the beginning of the lecture period. Ringing, buzzing, or any other sounds emitted from such devices will be treated as disruptive behavior on the part of the owner/possessor, and the owner/possessor will be asked to leave class immediately (including during exams!).

**Student identification:** Students should have in their possession at all times their VSU student identification card. In order to verify the identification of students officially enrolled in the course, it is the instructor's prerogative to request official student photo identification cards at any time during lecture. During examinations, students will routinely be asked to display their VSU student identification cards visibly on the desktop and to make them available for inspection by their instructor and/or assistants.

**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.

**Students with disabilities:** Students requiring special accommodations because of disability should discuss their needs with me as soon as possible. Those needing accommodations that are not registered with the Special Services Program must contact the Access Office for Students with Disabilities located in Farber Hall. The phone numbers are 245-2498 (voice) and 219-1348 (tty).

### TENTATIVE LECTURE OUTLINE

Lecture	Date	Topics	Chapters	LC due
1	AUG 18 (M)	Course Intro; Introduction to Biology	1	
2	AUG 20 (W)	Introduction to Biology	1	
3	AUG 22 (F)	Introduction to Biology	1	
4	AUG 25 (M)	Chemistry of Life	2	08/25/14
5	AUG 27 (W)	Chemistry of Life	2	
6	AUG 29 (F)	Chemistry of Life	2	
--	SEP 1 (M)	No Class-Labor Day Holiday	--	
7	SEP 3 (W)	Proteins, Carbohydrates, and Lipids	3	09/03/14
8	SEP 5 (F)	Proteins, Carbohydrates, and Lipids	3	
9	SEP 8 (M)	Proteins, Carbohydrates, and Lipids	3	
10	SEP 10 (W)	Nucleic Acids and the Origins of Life	4	09/10/14
11	SEP 12 (F)	Nucleic Acids and the Origins of Life	4	
--	<b>SEP 15 (M)</b>	<b>Exam # 1</b>	<b>(1-4)</b>	
12	SEP 17 (W)	Cells: The Working Units of Life	5	09/17/14
13	SEP 19 (F)	Cells: The Working Units of Life	5	
14	SEP 22 (M)	Cells: The Working Units of Life	5	
15	SEP 24 (W)	Cell Membranes	6	09/24/14
16	SEP 26 (F)	Cell Membranes	6	
17	SEP 29 (M)	Cell Membranes	6	
18	OCT 1 (W)	Cell Communication and Multicellularity	7	10/01/14
19	OCT 3 (F)	Cell Communication and Multicellularity	7	
--	<b>OCT 6 (M)</b>	<b>Exam #2</b>	<b>(5-7)</b>	
20	OCT 8 (W)	Energy, Enzymes and Metabolism	8	10/08/14
21	OCT 10 (F)	Energy, Enzymes and Metabolism	8	
22	OCT 13 (M)	Energy, Enzymes and Metabolism	8	
23	OCT 15 (W)	Pathways that Harvest Chemical Energy	9	10/15/14
24	OCT 17 (F)	Pathways that Harvest Chemical Energy	9	
25	OCT 20 (M)	Pathways that Harvest Chemical Energy	9	
26	OCT 22 (W)	Photosynthesis: Energy from Sunlight	10	10/22/14
27	OCT 24 (F)	Photosynthesis: Energy from Sunlight	10	
28	OCT 27 (M)	Photosynthesis: Energy from Sunlight	10	
--	<b>OCT 29 (W)</b>	<b>Exam #3</b>	<b>(8-10)</b>	
29	OCT 31 (F)	The Cell Cycle and Cell Division	11	10/31/14
30	NOV 3 (M)	The Cell Cycle and Cell Division	11	
31	NOV 5 (W)	The Cell Cycle and Cell Division	11	
32	NOV 7 (F)	DNA and Its Role in Heredity	13	11/07/14
33	NOV 10 (M)	DNA and Its Role in Heredity	13	
34	NOV 12 (W)	DNA and Its Role in Heredity	13	
35	NOV 14 (F)	From DNA to Protein: Gene Expression	14	11/14/14
36	NOV 17 (M)	From DNA to Protein: Gene Expression	14	
37	NOV 19 (W)	From DNA to Protein: Gene Expression	14	
38	NOV 21 (F)	Gene Mutation and Molecular Medicine	15	11/21/14
--	<b>NOV 24 (M)</b>	<b>Thanksgiving break</b>	--	
--	<b>NOV 26 (W)</b>	<b>Thanksgiving break</b>	--	
--	<b>NOV 28 (F)</b>	<b>Thanksgiving break</b>	--	
39	DEC 1 (M)	Gene Mutation and Molecular Medicine	15	
40	DEC 3 (W)	Recombinant DNA and Biotechnology	18	12/3/14
--	<b>DEC 5 (F)</b>	<b>Exam #4</b>	<b>(11,13-15, 8)</b>	
41	DEC 8 (M)	<b>Review Session</b>	--	
--	<b>DEC 11 (TH)</b>	<b>Final Exam (12:30-2:30 PM)</b>	<b>Cumulative</b>	

## **VALDOSTA STATE UNIVERSITY GENERAL EDUCATIONAL OUTCOMES (GEO)**

1. Students will demonstrate understanding of the society of the United States and its ideals. They will possess the requisite knowledge of the society of the United States, its ideals, and its functions to enable them to become informed and responsible citizens. They will understand the connections between the individual and society and the roles of social institutions. They will understand the structure and operational principles of the United States government and economic system. They will understand United States history and both the historical and present role of the United States in the world.

2. Students will demonstrate cross-cultural perspectives and knowledge of other societies. They will possess sufficient knowledge of various aspects of another culture, including the language, social and religious customs, aesthetic expression, geography, and intellectual and political history, to enable them to interact with individuals within that society from an informed perspective. They will possess an international viewpoint that will allow them to examine critically the culture of their own nation and to participate in global society.

3. Students will use computer and information technology when appropriate. They will demonstrate knowledge of computer concepts and terminology. They will possess basic working knowledge of a computer operating system. They will be able to use at least two software tools, such as word processors, spreadsheets, database management systems, or statistical packages. They will be able to find information using computer searching tools.

4. Students will express themselves clearly, logically and precisely in writing and in speaking, and they will demonstrate competence in reading and listening. They will display the ability to write coherently in standard English; to speak well; to read, to understand, and to interpret the content of written materials in various disciplines; and to listen effectively and to understand different modes of communication.

5. Students will demonstrate knowledge of scientific and mathematical principles and proficiency in laboratory practices. They will understand the basic concepts and principles underlying scientific methodology and be able to collect, analyze, and interpret data. They will learn a body of scientific knowledge and be able to judge the merits of arguments about scientific issues. They will be able to perform basic algebraic manipulations and to use fundamental algebraic concepts to solve word problems and equations. They will be able to use basic knowledge of statistics to interpret and to analyze data. They will be able to evaluate arguments based on quantitative data.

6. Students will demonstrate knowledge of diverse cultural heritages in the arts, the humanities, and the social sciences. They will develop understanding of the relationships among the visual and performing arts, literature and languages, and history and the social sciences. Students will be versed in approaches appropriate to the study of those disciplines; they will identify and respond to a variety of aesthetic experiences and engage in critical thinking about diverse issues. They will be able to identify the components of and respond to aesthetic experiences in the visual and performing arts. They will develop knowledge of world literature within its historical and cultural frameworks. They will understand modern issues within a historical context and the role

of the individual in various forms of societies and governments.

7. Students will demonstrate the ability to analyze, to evaluate, and to make inferences from oral, written and visual materials. They will be skilled in inquiry, logical reasoning, and critical analysis. They will be able to acquire and evaluate relevant information, analyze arguments, synthesize facts and information, and offer logical arguments leading to creative solutions to problems.

8. Students will demonstrate knowledge of principles of ethics and their employment in the analysis and resolution of moral problems. They will recognize and understand issues in applied ethics. They will understand their own value systems in relation to other value systems. They will judge values and practices in a variety of disciplines.

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.