Valdosta State University, BIOL 1107K, Sections H-N (4 Credit Hours)
Principles of Biology I – FALL 2015
Syllabus & Course Policies

Instructor: Joshua S. Reece

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. This syllabus is subject to modification at the discretion of the instructor.

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 Freshman Biology majors.

A Note from Dr. Reece: I wrote a grant and secured $30,000 from the University of Georgia to be able to provide you with free textbooks. You are welcome. In exchange, I want your pledge to come to class prepared, this means reading the chapters in your free book, and doing the practice questions in your book and on Blazeview.

Required Resources:

- **Lucky you! Your e-textbook is free and a print version is available at very low cost! The book is available in a wide variety of free online formats via the website listed below. You can use the book in whichever format(s) you want; we recommend that you download the entire .pdf so that you always have access to your book. Biology from OpenStax College, ISBN 1-938168-09-7, https://openstaxcollege.org/textbooks/biology**
    - **Printed copies at a significantly reduced textbook rate are also for sale via your college bookstore or http://www.openstaxcollege.org**
- Turning Technologies Clicker QT
- R.H. Goddard. 2011. Methods and Investigations in Basic Biology. Sixth Edition. Hayden-McNeil Publishing, Plymouth, MI. (Lab manual)

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)

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.

Primary Literature. Primary literature will be used throughout the course. Two scientific papers will be given out as assignments. The rubric for reading and summarizing/critiquing these papers will be provided to you (about a 1 page summary/critique).

Blazeview Quizzes. Blazeview quizzes will be available for completion prior to class. With the exception of the first few lectures, they will not be available after lecture, so you MUST read the chapters and complete the quizzes prior to that material being covered in class. Quizzes are typically 10 multiple choice questions.

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

Pooled Clicker Grade. Beginning in the second week of class, lectures will include an assessment using clicker questions. 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 immediately following the lecture.

Tentative Lecture Schedule, BIOL 1107K, Sections H-N, Fall 2015

Date	Subject	Chapters
Aug 17	Introduction and first Chapter: What is Biology?	Chapter 1
Aug 19	The chemical foundation of life	Chapter 2
Aug 24	Biological macromolecules	Chapter 3
Aug 26	Biological macromolecules (cont.)	Chapter 3
Aug 31	Cell structure	Chapter 4
Sept 2	**Exam 1 (Chapters 1-3)**	-
Sept 7	*Labor day, no class*	-
Sept 9	Structure and function of plasma membranes	Chapter 5
Sept 14	Metabolism	Chapter 6
Sept 16	Cellular respiration	Chapter 7
Sept 21	Photosynthesis	Chapter 8
Sept 23	Cell communication	Chapter 9
Sept 28	Cell reproduction	Chapter 10
Sept 30	**Exam 2 (Chapters 4-10)**	-
Oct 5	Meiosis and sexual reproduction	Chapter 11
Oct 7	Mendel and Heredity/ Modern inheritance	Chapter 12 Chapter 13
Oct 12	*Fall Break, no class*	-
Oct 14	DNA structure and function	Chapter 14

Oct 19	Genes and protein	Chapter 15
Oct 21	Gene expression	Chapter 16
Oct 26	Biotechnology and genomics	Chapter 17
Oct 28	Dr. Reece out of town – no class –	-
Nov 2	Review	-
Nov 4	Review	-
Nov 9	**Exam 3 (Chapters 11-17)**	-
Nov 11	Evolution and origin of species	Chapter 18
Nov 16	Evolution of populations	Chapter 19
Nov 18	Evolution (cont.)	Chapter 18-19
Nov 23	Thanksgiving week – no class	-
Nov 25	Thanksgiving week – no class	-
Nov 30	Review	-
Dec 2	**Exam 4 (Chapters 18-19)**	-
Dec 7	**Final Exam (Dec 7)**	-

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.

Rubric for Primary Literature Assignments

Read the assigned paper. Type up a 500 word paper that addressing the following five components:

1) What did the authors' study, or what was the question being addressed?
2) How was the study conducted, or how did they address their question?
3) What was their major finding?
4) What is the significance of the finding?
5) How is this paper relevant to the material we have covered in class?

There is a maximum of 5 points available for each of the give components listed above, for a maximum of 25 points for each 500 word paper. There will be two of these throughout the semester.

Links to materials:
Lecture Powerpoints: https://www.dropbox.com/sh/d40kly8tbn6fkg6/AAC7xC5JX4mEBwUvvRgllX6oa?dl=0
Primary papers: https://www.dropbox.com/sh/fsua1a2t8n0s72s/AAD9hsdG37DvMovj1vFwnu5ta?dl=0
Assessments: https://www.dropbox.com/sh/0bvyd31tp1lahvg/AADW8gupYnmqLKfwhd_Ql8fTa?dl=0