

BIOL 1107K, Principles of Biology I
Fall Semester, 2012 **Sections G, H, I**

Lecture (BC 1023): **TR** **11:00 a.m. - 12:15 p.m.**
Laboratory (BC 1083): **Section G (CRN 80531):** **Wed.: 8:00 a.m. – 10:50 a.m.**
 Section H (CRN 80532): **Wed.: 11:30 a.m. – 2:20 p.m.**
 Section I (CRN 80533): **Wed.: 3:00 - 5:50 p.m.**

Instructor: Dr. Russ Goddard, BC 2090. (Phone 249-2642; or Dept. office 333-5759)
(**Office hours:** TR 9:30 – 10:50 a.m.; or by appt.)
email: rgoddard@valdosta.edu

Course Catalog Description: BIOL 1107 Principles of Biology I; 3-3-4; Co-requisite for biology majors: BIOL 1100.
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.

Required Materials:

Text: Sadava, D., D.M. Hillis, H.C. Heller, and M.R. Berenbaum. 2011. Life: The Science of Biology. 9th edition. Sinauer Associates Inc., Sunderland, MA and W.H. Freeman & Co. Gordonsville, VA.

Laboratory Manual: Goddard, R.H. 2011. Methods and Investigations in Basic Biology, 5th ed. Hayden-McNeil Publishing, Plymouth, MI.

“Clickers”: Each student is required to obtain a Turning Technologies NXT clicker (available in the bookstore). All students are responsible for having their clickers with them in class. All points accumulated in lecture are generated by clickers. If you do not bring your clicker, no points will be recorded for your participation @. Clicker info at: <http://www.valdosta.edu/distance/clickers/index.shtml>. Ms. Brenda Drew Hoke (BJ) is the current Turning Technologies Intern working in the eLearning office (back behind the Help Desk in the library) and may be available to address issues students are having with clickers.

Additional Course Materials on the WWW: <http://www.valdosta.edu/~rgoddard/> or the BlazeView Course Page.

General Objectives: This course provides an introduction to basic principles of biology. Information presented in this class includes an emphasis on topics encompassing cell structure and function, metabolism, cell reproduction, gene structure and function, genetics, and evolution as unifying principles of all life. The goal of this course is to stimulate student learning of these basic concepts and to encourage contemplation of the significance of each concept to the complexity of life. Specific course learning objectives addressed in this course that are aligned with Department and University learning objectives (listed at the end of this syllabus) include BIOL objectives 1 through 5 and VSU objectives 3-5 and 7-8. Additionally, as aligned with our new core curriculum (<http://www.valdosta.edu/academic/VSUCore.shtml>), 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.

Attendance: Attendance in this course absolutely is required. Students should be seated at the beginning of class. Attendance is recorded through the use of clickece Eleise mance in the following course components:

ount toward the final grade during the semester.
andatory comprehensive final exam given on the dates listed
aterial and the readings from the text for exams and quizzes.
included in these exams. Each exam is 100 pts. Clicker

Lecture “Clicker” grade: (100 pts). During this course the instructor will be using “clicker” technology to better

- No talking will be allowed during the exam, but students are welcome to come to the instructor's desk to ask questions about the exam. If a cell phone rings during an exam, disrupting the exam, the student will be asked to leave. ***Turn off your cell phones during exams!***
- Every student should bring their University ID.

BlazeView. Some resources will be made available through BlazeView, and it also will be used to post exam grades. To access BlazeView, select the link from the Valdosta State University homepage or go directly to the following address: <http://blazeview.valdosta.edu/webct/entryPageIns.dowebct>. **Note that students can use the BlazeView email tool to contact each other but if you need to contact Dr. Goddard, it is best to use the VSU email address at the beginning of this syllabus. Dr. Goddard does NOT check BlazeView email.**

Students experiencing difficulties using BlazeView should seek assistance through the VSU Microcomputing & System Services HELP-Desk located in Odum Library (telephone 245-4357).

Mid-term, or in-progress grades: The instructor is required to submit in-progress grades prior to mid-term (9/26/12). In this course, students will have feedback on at least one major exam by midterm, several lecture quizzes, lab quizzes, etc.. Because the grading procedure in this course is designed to allow students to recover from initial failures (e.g. one major exam grade is dropped), all students at midterm still have the potential of passing the course. Even a failing mid-term grade can be changed to a grade of excellence (e.g. "A") by the end of the course. Students should therefore carefully evaluate their option of dropping this course by midterm without academic penalty.

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 desk top and to make them available for inspection by their instructor and/or assistants.

Academic Integrity: Any behavior suggestive of academic dishonesty will lead to a reprimand, failure of an assignment, or failure of the course at the discretion of the instructor, but based on the severity of the infraction(s). Cooperative learning and group interactions are common and necessary to scientists and this activity is encouraged in the form of laboratory work and discussions about data and information. However, on assignments designed to assess individual learning of material in the class or writing and analytical skills, work must be completed totally independently. Behavior contrary to this principle constitutes cheating. Students should fully understand that plagiarism is not tolerated in this department or by the instructor and full appreciation for the intellectual property of others should be respected completely.

Plagiarism is the representation of someone else's work as your own. You may not blatantly copy phrases, paragraphs, or ideas from another's work. You cannot paraphrase someone else's ideas and use them as your own. You must analyze all data and work by others and then integrate this information with new data and conclusions that you independently synthesize, properly citing past work that supports your conclusions.

Students should read and be familiar with the Biology Department policy on plagiarism:

<http://www.valdosta.edu/biology/documents/biologyplagiarism.doc> and read and understand the University policy on Academic Integrity:

<http://www.valdosta.edu/academic/AcademicHonestyPoliciesandProcedures.shtml>

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 lecture immediately (including during exams!).

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, as positive identification cannot be made by this manner. Students may check their grades and unreturned papers/exams any time during the instructor's office hours (BC 2090).

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Students with Disabilities: Students requesting classroom accommodations or modifications due to a documented disability must contact the Access Office for Students with Disabilities located in Farber Hall. The phone numbers are 245-2498 (V/VP) and 219-1348 (TTY). <http://www.valdosta.edu/access/>.

TENTATIVE COURSE LECTURE MATERIAL OUTLINE:

Lecture #	Date:	Topics:	Text Readings (pgs):
1	14 Aug.	Introduction, What is science? What is Biology?	1-19
		<i>Additional Reading: Genomes: 365-366; Evolution: 440-444, 445; Phylogeny: 465, 470-471; Species concept: 482-487; Biological Nomenclature: 476-477, 478.</i>	
2	16 Aug.	What is Biology: Unifying principles of life	
3	21 Aug.	Characterization of Life, Evolution and Diversity	
		<i>Additional Reading: Earth history: 519-534 (skim); Domain structure: 536-539; Endosymbiosis: 561-566; Ecology: 1141-1142</i>	
4	23 Aug.	Origin of life	65-73
5	28 Aug.	Chemistry of Life; Organic molecules, Macromolecules and the origin of life	20-36; 38-67
6	30 Aug.		

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LABORATORY EXERCISES

Date:	Topic:
Aug. 15	Laboratory Safety: Exercise 1: "The Black Box" - Scientific Method;
Aug. 22	Exercise 2: Basic Light Microscope Operation and Microscope checkout: Use of the Light Microscope
Aug. 29	Exercise 3: Observation of living cells with Light Microscopy; Basic cellular organization; Independent microscopy lab proposals discussed.
Sept. 5	Exercise 4: Independent Microscopy Projects; Project proposal lab; how to collect useful data
Sept. 12	Exercise 4: Independent Microscopy Projects: Distribution of microscopic flora and fauna; Data collection lab
Sept. 19	Exercise 5: Cellular Water Relations
Sept. 26	Exercise 6: Protein extraction from biological tissues and determination of total protein, Spectrophotometry and Standard Curves
Oct. 3	Exercise 7: Enzymology Lab: basics of α -amylase activity;
Oct. 10	Exercise 8: Enzyme Regulation: "Investigation of the effects of temperature and pH on enzyme activity"
Oct. 17	Exercise 9: Photosynthesis
Oct. 24	Exercise 10: Mitosis / cell division
Oct. 31	Exercise 11: Start: Isolation of plasmid DNA from <i>E.coli</i> and restriction with MspA1I and Start: Exercise 12: PCR-based VNTR Human DNA typing
Nov. 7	Run and analyze gels for exercise 11 and 12, Start Exercise 14: Transformation of the pGLO plasmid into bacteria.
Nov. 14	Analyze transformation experiment. Last quiz
Nov. 21	Thanksgiving Holiday
Nov. 28	No lab; help available for exam tomorrow and for final during class times.

VSU administration has required that certain elements be included in all class syllabi. One of these requirements is that

Biology Department Educational Outcomes (as outlined in the Undergraduate catalog;
<http://www.valdosta.edu/catalog/1011/ugrad/documents/ug116-131.pdf>.

The program of study in the Department of Biology has numerous desired outcomes. Examples of these outcomes include the following:

1. Develop and test hypotheses, analyze data, and present the results and conclusions in both written and oral formats corresponding to those used in peer-reviewed journals and at scientific meetings.
2. Describe the evolutionary processes responsible for biological diversity, explain the phylogenetic relationships between the major 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, functioning and reproduction of living organisms.
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.