BIOL 1107 Principles of Biology I (4 credits) Lecture/Lab S and T Syllabus

Instructor: Dr. Catherine M. Bush Office: Bailey Science 1108

Office hours: Tuesday and Thursday 11-12 pm; or by appointment

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Lecture (BSC 1023): Tuesday and Thursday 2.00 – 3.15 pm Lab (BSC 2071): Section S – Monday 8.30 – 11.20 am

Section N – Monday 12.00 – 2.50 pm

Prerequisite: None **Co-requisite:** BIOL 110

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.

Course goals and objectives: The primary goal of this course is to introduce you to the underlying principles of biology. Because this is an introductory course, no one topic will be studied in great detail. However, you should have sufficient background at the end of the quarter to pursue interesting topics in higher level courses. You should also gain the background necessary to understand the biology behind many of the problems and issues facing this country. It is also hoped that you will gain an understanding of how biologists and other scientists approach problems.

The biology program also seeks to develop your general college skills so that you will be competitive when you apply for professional schools (e.g., medical school) or for jobs in the sciences. In this course we focus on your communication skills, your information processing skills, and your ability to think. Your communication skills will be exercised primarily through library assignments and written and/or oral reports of lab activities. Your information processing skills will be developed because of the nature of biology. You will be supplied with a large quantity of information in a very short time, which you must learn in some detail or you will not do well in this course. This will not be wasted effort, however. The ability to digest and incorporate large amounts of information quickly is a valuable skill in most fields of endeavor. Your ability to think will be involved in the analysis of lab exercises, class assignments, and test questions.

Learning goals include:

By the end of this course, students will be able to 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);
- perform a variety of standard lab techniques used in biological research (GEO 5)

- use critical thinking skills and written communication skills to analyze and evaluate the content quality of written and visual media relating biological knowledge (GEO 4 & 7)
- demonstrating 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
- present the results and conclusions of data collected in the lab in standard scientific writing format (GEO 4 & 7; BEO 1)
- conduct a literature review at VSU's Odum Library (GEO 3)

Textbook: Life: The Science of Biology, 9th edition. Sadava *et al.* Sinauer Associates, Inc. **Lab Book:** Goddard, R. H. 2010. Methods and Investigations in Basic Biology. 4th edition. Hayden-McNeil Publishing, Plymouth, Michigan.

Attendance: Attendance in lecture is expected by all students. Attendance in laboratory is mandatory; see lab policy below.

Access to Slides/Information: Lecture slides will be made available on BlazeView by 5:00pm the day before lecture. These slides will not have all the information on them; it is the student's responsibility to come to class and take notes. Students are responsible for getting the notes from other students if they miss a lecture. The professor will NOT email notes that are missed.

Lecture Conduct:

- Arrive on time.
- Turn off/silence cell phones during class 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.

Withdrawing from the course: The last day to withdraw without penalty is October 6, 2011. If you don't officially withdraw, and instead just stop coming to class, you will receive an F for the course.

Academic conduct: Cheating and plagiarism will not be tolerated and may result in a failing grade for the assignment, exam or the class. The Department of Biology has a plagiarism policy, which will be handed out during the first lab period.

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).

Quizzes: Pop quizzes will be given periodically throughout the semester in lecture. The quizzes will cover material from the previous lecture and will be given during the first 10 minutes of class. If you arrive late, you will still have to turn in your quiz at the end of the 10 minutes. Each quiz will be worth 10 pts. (the two lowest quiz grades will be dropped). **There are no make-up quizzes.**

Exams: The dates for the exams are included in the Tentative Class Schedule. Note, that these are TENTATIVE, therefore the professor reserves the right to adjust the dates of the exams. YOU MUST BRING A PENCIL WITH YOU. All cell phones must be turned off during exams. All bookbags, books, purses etc. must be placed on the stage at the start of the exam; NO EXCEPTIONS. If you do not feel comfortable putting your purse, bag, books, etc. on the stage don't bring them with you to class. Hats cannot be worn during exams.

Review sheets with topics on which the students will be tested will be handed out prior to the exam. These review sheets will contain a list of topics that the student is expected to understand; the review sheets do NOT contain the details that may appear on the exam. While the professor makes a reasonable effort to make these sheets all inclusive, it is entirely possible that a topic will be inadvertently left off that will show up on the exam.

There will be four exams (excluding the final) given throughout the semester. Each exam is worth 100 points and will consist of a variety of types of questions that will include matching/multiple choice/labeling/fill in the blank **and** short answer. The lowest exam grade will be dropped. **There will be NO make-up exams**. Only students with a University related excuse may take an exam early. Your best policy: **DO NOT MISS EXAMS!**

Final: The final will be cumulative and will have a format similar to the other exams. The date of the final is Wednesday, December 7 (2:45pm-4:45pm). **NO EARLY EXAMS WILL BE GIVEN!**

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%

To Calculate your Final Grade:

Final grades will be based on both the lecture and laboratory components of the course.

Lecture is worth 75% of your final grade, and lab is worth 25% of the final grade.

Lecture component (total 600 points):

4 lecture exams (each worth 100 points; one dropped; total 300 points)

Quizzes (100 points total)

Cumulative final (worth 200 points)

Lab component:

Homework/Active Participation (variable points)

One lab report (100 pts.)

Quizzes (100 pts.)

To calculate your final grade:

- Lecture component: Add points earned from each of the quizzes, exams and final and divide by 600 (remember your lowest exam and two lowest quiz grades will be dropped). Multiply this number by 0.75.
- Laboratory component: Add points earned from the quizzes, homework and lab report and divide by total points possible. Multiply this number by 0.25
- Finally, do the following: Take the lecture component and laboratory component numbers you just calculated and add them together. Multiply this number by 100. This will give you your final percentage you earned.

FALL 2011 TENTATIVE LECTURE SCHEDULE

August

16 Chapter 1: Studying Life

18 Chapter 2: Chemistry of Life

23 Chapter 2 cont: Chemistry of Life

25 Ch. 3: Proteins, etc.

30 Ch. 3 cont: Proteins, etc.

September

1 Ch. 4: Nucleic Acids

6 **EXAM 1**

8 Ch. 5: Cells

13 Ch. 5 cont.: Cells

15 Ch. 6: Cell membranes

20 Ch. 7: Cell Signaling

22 Ch. 8: Energy

27 Ch. 8 cont.: Energy

29 **EXAM 2**

October

4 Ch. 9: Harvesting chemical energy

6 MIDTERM Ch. 9 cont.: Harvesting chemical energy

11 Ch. 10: Photosynthesis

13 Ch. 10 cont: Photosynthesis

18 Ch. 11: Cell cycle

20 Ch. 11 cont.: Cell cycle

25 NO CLASS FALL BREAK

27 Ch. 12: Inheritance

November

1 **EXAM 3**

3 Ch. 13: DNA

8 Ch. 13 cont.: DNA

10 Ch. 14: DNA expression

15 Ch. 14: DNA expression

17 Ch. 15: Mutations

22 Ch. 16: Gene Regulation

24 NO CLASS THANKSGIVING

29 **EXAM 4**

December

1 Final Review

6 No class; Exam Prep Day

7 FINAL EXAM, 2.45 - 4.45 pm

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Lab Conduct

- Arrive on time. If you are late and the quiz has started, you will be given no additional time to complete it.
- It is strongly advised to maintain a laboratory notebook with drawings, descriptions, data etc. of the laboratory exercises. The notebook will help you study for the quizzes.
- No eating or drinking during the lab.
- Students must take care of lab equipment. Notify the professor if something is not working properly or if something breaks during the course of the lab.
- Students will be assigned a microscope. It is the student's responsibility to properly use the microscope. After lab the professor will check each scope to make sure that it was put away properly. Failure to do so will result in one (1) point being subtracted from the student's total lab points (not the final percentage) each week it is not put away properly. Notify the professor if your microscope is not functioning properly.
- Cell phones are not to be used in lab with the exception of using them as timers when necessary. Do NOT text during labs!

Lab Attendance

Students are expected to attend all labs and are responsible for all material and any work missed. Students will be given a grade of 0 for any laboratory assignment or quiz missed unless there is a legitimate reason for the absence. Legitimate absences *require written documentation* from a doctor (or from student health) for the specific date a class is missed, and must be given to the instructor no more than 24 hours after the missed lab. If appropriate written documentation is accepted, all assignments must be turned in by the next lab meeting. If a student misses three labs *for any reason* the student cannot earn higher than a D for his/her final class grade.

Lab Grading

Quizzes: There will be a 15-minute quiz (\sim 10 questions) at the beginning of each lab which will cover the methods, results and main points from the previous lab **and** a few questions will come from the lab done that day, to make sure you are reading ahead. The quiz will end promptly 15 minutes after a scheduled lab has begun. You will NOT be allowed any additional time if you are late. Quizzes are worth 10 pts. each; the lowest 1-2 quiz grades will be dropped. Total points – 100.

Lab Report: In week five, you will perform a group microscopy project. For this exercise, you will turn in a proposal discussion before you do the experiment as well as a brief but complete scientific report of your ultimate findings. Total points – 100.

Homework/Active Participation: Homework assignments typically involve synthesizing the results of a lab and are due at the beginning of the following lab. Sometimes before leaving a lab, the instructor will ask to see your lab notebook and confirm that questions were

answered, tables filled in, etc. (active participation). Total points for these assignments – 100-150.

Plagiarism

Although you will work in a group for your microscopy project, the lab reports will be done **independently**. Please be sure not to copy your fellow students' work. Information on plagiarism is included on the Biology Department webpage as well as on VSU's main page under "Academic Honesty – Policies and Procedures". If you copied someone else's work, you will receive a grade of a 0 for that assignment. Multiple violations could result in failing the entire course or even expulsion from school.

Honor Statement

In the performance of all work in this course each student is expected to adhere to the high standards of ethical behavior set forth by Valdosta State University. Specifically, it is expected:

- 1. that you neither give nor receive assistance on tests or quizzes;
- 2. that all work you present for evaluation is your own work;
- 3. that proper credit is given to all references used in paper preparation (i.e., avoid plagiarism);
- 4. that you deal forthrightly and honestly with your instructors in consultations to determine the legitimacy of an absence; and
- 5. that you conduct yourself in the classroom and lab in a manner that is conducive to a learning environment.

ONE LAST WARNING:

CELL PHONES ARE NOT WELCOME IN THIS LAB! SILENCE THEM AND KEEP THEM OUT OF VIEW OR YOU MAY BE ASKED TO LEAVE LAB!