



Biological Science (GEBIOL 116) Spring 2004

INSTRUCTOR: Dr. Ali Mohamed
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TEXTBOOK: Essential Biology, with Physiology by Campbell, Reece, and Simon (required)

WEB ACCESS: <http://www.vsu.edu>

SEMESTER: Spring 2004

CLASS SCHEDULE: See attached table for schedule, Office Hours and locations

Course Credit: 3 semester hours

Course Pre-requisite: Successful completion of High School Biology.

Materials: Writing instruments and paper, Scantron Grating Paper and textbooks. You will need no more than 4 Scantrons (~ \$1) and one number 2 pencil for the semester. It is your responsibility to bring these materials for quizzes and exams. You may also visit the publisher web site. In addition to the study guide, it is important to use the CD provided with textbook.

Office Hours: See attached table for schedule, Office Hours and locations

University Mission:

To promote and sustain academic programs that integrate instruction, research, and extension of public service in a design most responsible to the needs and endeavors of individuals and groups within its scope of influence. The University is dedicated to providing for its students and education which challenges their intellect and prepares them to become knowledgeable, perceptive and equipped for personal fulfillment sensitive to the needs and aspirations of others, and committed to assuring productive roles in an ever-changing global society.

Department of Biology Mission:

The mission of the Department of Biology is to provide the professional assistance needed to develop insight into biological research and preparation for medical or graduate study.

COURSE OBJECTIVES AND DESCRIPTION:

The science of biology concerns itself with the study of living organisms and their activities. Biology is an inclusive field, which overlaps many other aspects of medical and paramedical

sciences. Mastery of the use of the microscope, and different scientific instrumentations is essential. The student who is diligent and imaginative will find this subject both profitable and enjoyable.

This course is designed to familiarize the students with the basic biological concepts, and the knowledge aimed at an understanding the life processes held in common by organisms. The course will stress on the following topics: reproduction, development, genetics, evolution and adaptation, taxonomy, ecology, the cell, chemistry of living organism.

Upon completion of this course, students should be able to:

1. Understanding the basic principles involved in experimentation design, and interpretation of life phenomena.
2. Gain general knowledge of biology and understanding of life and environmental Interaction and appreciate the internal organization of the "basic unit of life".
3. Understand the morphological and biochemical characteristics of various types of life forms/organisms and to easily follow certain cellular activities including division and metabolism. At the end of the course, student will be able to relate the significance of specific organic molecules to living organisms.
4. Recognize the evolutionary influence on the diversity of living organisms.
5. Understand basic genetic principles and how they influence heredity.
6. Gain an appreciation of the biological sciences.
7. Understand the ecology and environmental and their interaction with human activities.

Course Activities:

Lecture notes can be down loaded, discussion through chat-room when set up, e-mail, report writing, distance learning. *Information on such activities will be provided to students at the appropriate time.* Slides and Color transparencies will be used. To successfully complete the course, *students must take lecture's notes and participate in the discussion during the class.* Students who participate in the discussion and answer questions will be rewarded through extra points. These points will be extremely important when students need a few points to improve their final grades. **Please download lecture notes and read the lecture prior coming to the classroom. That will help you to participate in the discussions.**

I would like to point out that you will be exposed to new scientific terminology and vocabulary which will sound as a foreign language to you. Reading prior attending the class will help you to overcome such problem. **Again, the class participation will be reward with extra point which will help you in the case of having lower score in a test or a quiz.**

CRITICAL THINKING:

Data show that college graduates and the general population are increasingly ignorant of science and are ill equipped to make intelligent decisions about issues such as biological systems and their interaction with environments. The lack of training in critical thinking is a major reason for this paucity of problem-solving skills. Critical thinking is broadly defined as the use of any cognitive skills higher than recall, or more narrowly as the process of evaluating a body of evidence, separating assumptions from observations, and reaching some conclusion based on the

evidence. Therefore, a major goal of this course is to improve students' learning and understanding of biology by implementing student critical thinking in the classroom. This will be accomplished by:

1. Teaching science as science is done-namely, as a process of learning with emphasis on observation and hands-on, discovery-based activities that lead to formulating and testing hypotheses;
2. Starting lessons with explanations of why the topic is interesting and important and using everyday language coupled with scientific terminology;
3. Presenting information as a constant state of flux rather than dogmatic "facts"; and
4. Testing for and rewarding critical thinking rather than memorization.

Attendance Policy and Honor Code:

Students are expected to attend all lecture classes unless prevented from doing so by severe illness or extreme adverse weather conditions. Student must understand that better the attendance, the better student's performance in a course. Student is responsible for knowing lecture materials whether he/she attend the class or not.

Attendance will be recorded once prior to each lecture. Arrivals after roll has been taken will be marked tardy. Two tardies equal one day of absence. The maximum number of absences for lecture is three (3) per semester. If absences are more than one, it will result in a one letter grade reduction for freshmen until four absences have been accrued and then the grade will be an "F" if the student does not withdraw from the course.

The Honor Code (in the VSU's student manual), will be respected at all times with all individual assignments pledged before being turned in for evaluation. Cheating and plagiarizing, (copying one's work to be handed in as you own), will not be tolerated and if such an incident occurs, proper actions according to the VSU handbook will be followed.

Classroom Conduct Class Preparation:

Expectations: Students are assumed to have good reading, writing, and math skills, therefore you are expected to read the lecture material before coming to class. Therefore, the acquisition of basic knowledge and comprehension is up to you. Being prepared and enthusiastic is also a plus. Again, It is your responsibility to read the syllabus and prepare in advance for course materials.

The syllabus is the best "guess" for the outline of the course. You will be responsible for textbook readings before the topics are discussed. To better understand the material, I recommend rereading the material following lecture discussion. Again, I would like to stress that students will be exposed to many new terminologies and I will be difficult to understand them if they don't read them first.

Class environment s will be maintained in a manner that facilitates effective teaching and learning. The class environments should be such that it prepares students for behavior that is expected in the professional and corporate environments for which they are preparing to live and work.

If the syllabus is revised at any time during the semester, the revisions will be announced in class. You will be responsible for the revisions, even if you are absent at the time revisions are announced, or if you fail to note the revisions when they are announced.

Study groups with two to three other students can be beneficial in learning course material. A study group helps to build study skills and knowledge of the subject. I will be available to tutor any group of students who are looking for better grade.

Please Note: All assignments are due at the beginning of class on the due date. Late work will not be accepted and will receive no credit. If you anticipate being late to class, turn in your assignment early to my office in Room 201, Lockett Hall or to the Division Office. If you are submitting your home work through e-mail, I should receive your e-mail on time. You should also receive a confirmation from me indicating your e-mail is received. If you did not receive the confirmation within three days, please contact me.

Classroom Behavior:

Please arrive in class on time as a courtesy to others and in order not to disrupt the class. Therefore, when the instructor enters the class, *the door will be closed 10 minutes after and no entry will be allowed once the door is closed.* Being tardy to class is a disruption to the instructor as well as your fellow classmates. This absence will be incorporated into the one (1) allowable absence.

All cell phones, beepers and electronic devices should be turned off before entering the classroom. If a cell phone, beeper, or electronic device alarms, you will be asked to leave class for the day and you will receive an absence which will be incorporated into the one (1) allowable absence.

Ask questions and make suggestions or comments only at appropriate times. Stopping lecture to ask a question such as, "Did you return the quizzes?" is not considered the appropriate time. Please try to remember that you are now a productive college student and act accordingly.

Disruptive and disrespectful behavior on the part of any student will not be tolerated by the instructor. The instructor will always be in charge and has the right to determine appropriate standards of behavior in the classroom as long as the requirement does not infringe upon the individual's rights.

HOMEWORK, QUIZZES, TESTS AND EXAMS:

Any assignments for homework are expected to be turned in at the beginning of the class on the due date. No late work will be accepted.

To prepare you for the exam, there will be a quiz before it. There will be no make-up quizzes. A quiz or a test can only be made up in the case of extreme circumstances for which a note will need to be given to the instructor and the quiz will need to be made up no more than a week later. However, because of the new technology, student may have a chance to make the quiz through <http://www.vsu.edu/blackboard>. Students will be informed if changes are made in syllabus, exam., or quiz. The instructor will help you to understand how to use the blackboard system.

There will be three (3) scheduled test and one (1) final exam given. The test or exam can be in any format deemed appropriate by the instructor. Students will be made aware of the test format in ample time before the test or exam is given. The final exam will be given at the time specified by the university. Two of the exams (Midterm and final) will be taken in the classroom using scantron). The remaining will be taken through www.coursecompass.com.

Everyone is expected to be present for tests, quizzes and the final exam at the time they are given. If there is an extreme circumstance, call me before the scheduled test, quiz or exam. If no advance arrangements are made, there will be an automatic ten points, (10 points) reduction of the test score. If the test or quiz is not made up within a week, the score will be a zero (0). There will be no times to reschedule the final exam.

Students will be evaluated according to the following plan:

1. Attendance (5% of total point you earned): Class attendance and participation are essential to learning. In addition to test scores, class attendance and participation will be used for evaluation in this class. Attendance is required of all students to obtain a passing grade in the course. Again, you must remember that you are allowed only 3 unexcused absentees. Participation in discussion and answering questions will be rewarded with points.
2. Quizzes (4): There will be four quizzes, one before each exam. The quizzes will be in any format that is appropriate, (i.e. multiple choice, fill the blank, multiple answers, short answer, and true/false). Each quiz will be 25 Pts. for a total of 100.
3. Hourly Examinations (4, 100 Pts. each, for a total of 400 Pts).
4. Other Assignments: To improve their grades, students will have other assignments. The nature of these assignments will be determined by the instructor and will be announced in the class. (Point will be determined based on the nature of assignment).

STUDENT STUDY AIDS:

Audio-visual aids are available on specific topics. Instructor's notes materials will be provided through the internet or via e-mail. Therefore, please *visit the website and print off lecture notes weekly*. You may also visit the publisher web site <http://www.coursecompass.com>. In addition to the study guide, it is important to use the CD provided with textbook.

FINAL GRADE:

A	90 -100
B	80 - 89
C	70-79
D	60 - 69
F	59 and below

EXAMINATION POLICY:

In order to evaluate each student fairly, it is imperative that all students take all examinations (quizzes, tests, and final-exam.) at specified times. Therefore, no exam will be given at earlier or later times. No make-up exam(s) will be given unless justifiable excuse with written document is

given. Excuses are limited to extreme emergencies such as being sick or hospitalized (with proofs from physician and/or hospital. (Note: not just excuse sheet from the Dormitory Counselor). Arrangement for make-up examination needs to be made within one week of the scheduled exam. The final examination, the best three out of the four hourly test scores, and the best three of the four quizzes will be used for computing the final grade. Finally, an F score will be assigned to any student who cheats during any of the examination.

Examination Dates:

Please see attached table for class schedule, Exams and quizzes. The midterm and final Exam will not be provided to students without scantron or a pencil. Reading requirement for each exam will be provided at the class. Quizzes will be determined at Class time

GOOD LUCK TO YOU! I hope that this semester will be a rewarding experience for all and the course will adequately prepare you for more advanced classes in your specific curriculum.

Virginia State University
School of Engineering, Science and Technology
Department of Biology

Biological Sciences [GEBI116]
Spring 2004 Course Syllabus

DATE	LECTURE TOPIC	LAB TOPIC
Jan. 12-16	Chapter 1 – Introduction: Biology Today All Sections	Scientific Method <u>Monday Professors Only</u> – Include Week two Lab Topic
Jan. 19 MON.	Martin Luther King Jr. Day- University Closed	No Monday Labs
Jan. 20-23 Tues.- Fri.	Chapter 2 – Essential Chemistry for Biology All Sections	Metric System & Microscopy
Jan. 26-30	Chapter 3 – The Molecules of Life All Section	Chemical Composition of Cells
Feb. 2-6	Chapter 4 – A Tour of the Cell All Sections	Cell Structure and Function
Feb. 9-13	Chapter 5 – The Working Cell All Section	Enzymes
Feb. 16-20	Chapter 6 – Cellular Respiration Sections: Cellular Respiration: Aerobic Harvest of Food Energy, Fermentation: Anaerobic Harvest of Food Energy Chapter 7 – Photosynthesis: Converting Light Energy to Chemical Energy Sections: The basics of Photosynthesis, The Environmental Impact of Photosynthesis	Photosynthesis
Feb. 23-27	Chapter 8 – The Cellular Basis of Reproduction All Sections	Mitosis & Meiosis
Mar. 1-5	Chapter 9 – Patterns of Inheritance All Section	<u>LAB MIDTERM EXAM</u>
Mar. 8-12	Spring Break – No Classes	No Labs
Mar. 15-19	Chapter 10 – Molecular Biology of The Gene Sections: The Structure & Replication of DNA, The Flow of Genetic Information from DNA to RNA to Protein	Mendelian Genetics
Mar. 22-26	Chapter 11 – Gene Regulation Sections – The Genetic Basis of Cancer	Human Genetics
Mar. 29-Apr. 2	Chapter 12 – DNA Technology Sections: Recombinant DNA Technology, DNA Fingerprinting and Forensic Science, Human Gene Therapy	Onion DNA Extraction

Apr. 5-9	Chapter 13 – How Populations Evolve Sections: Charles Darwin & <i>The Origin of Species</i> , Evidence of Evolution, Mechanisms of Microevolution	Evidences of Evolution (Handout)
Apr. 12-16	Chapter 22 – Nutrition and Digestion Sections: Overview of Animal Nutrition, Human Nutritional Requirements, Nutritional Disorders	Frog Dissection
Apr. 19-23	Chapter 26 – Reproduction & Development All Sections	<u>LAB FINAL EXAM</u>
Apr. 26 Mon.	Last Day of Classes Continue Chapter 26	
Apr. 27 Tues.	Reading Day	
Apr. 29-May 3	Final Exam Week	

The total number of exams is 4. A one hundred points are assigned to each Exam for a total of 400 points. A total number of quizzes are 4 at 25 points each for a total of 100 points. The total final scores will be 500. The time for quizzes will be determined by each Instructor.

Knowledge, Skill and Ability for
For
Biological Sciences
GEBI-116

Knowledge:

1. Student will describe the assumption and limitation of science.
2. Student will differentiate between science, scientist and scientific methods.
3. Student states the differences between inductive and deductive reasoning.
4. Student will identify Biology as a science.
5. Student will memorize the appropriate kingdom names and hierarchy of classification.
6. Student will recognize the chemical and cellular basis of Life.
7. Student will know the processes by which molecules move through the biological membranes.
8. Student will understand and know the processes by which energy transformation takes place in living organisms.
9. Students will recognize asexual and sexual reproduction and developmental processes in plants and animals including humans.
10. Student will know the major concepts of Ecology.
11. Student will understand the concept of genetics and inheritance of genetic diseases.
12. Student will know recent information in biology in relation to stem cell, cloning, and biotechnology.

SKILLS:

1. Student will demonstrate the use of compound microscope.
2. Student will differentiate between different types of cells.
3. Student will identify different kinds of organic molecules by chemical reagents.
4. Student will estimate the proportions of genotype and phenotype and will be able to predict transmission of hereditary material through generation.
5. Student will identify the behavior of chromosomes and other associated organelles.
6. Student will express differences; different types of ecosystems and flow of energy.
7. Student will locate scientific information by using the library as a resource center.
8. Student will demonstrate writing ability in science.
10. Student will express results qualitatively as well as quantitatively.

ABILITIES:

1. Student will be able to reject misconceptions in science.
2. Student will be able to read scientific materials in biology and be able comprehend the biological information.
3. Student will know the importance of biology as science to be used in public policy for all organisms.
4. Student will be able to make sensible decisions and voting based on biological facts.
5. Student will be able to carry out better scientific communicate in biological.

I understand the syllabus for GEB116 as presented above, and agree to follow its rules and all other instructions given by the instructor

Name

Date

Class and Time

Dr. Mohamed, Ali
Class Schedule and Office Hours
 Semester: Spring Year: 2004

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
8:00		BIOL. SCI. GEBI-116-06 8:00-9:20 RM 204		BIOL. SCI. GEBI-116-06 8:00-9:20 RM 204			
9:00			Office Hours 9:00 - 12:00		Office Hours 9:00 - 12:00		
10:00							
11:00							
12:00	BIOL. SCI. GEBI-116-03 12:00-12:50 RM 204		BIOL. SCI. GEBI-116-03 12:00-12:50 RM 204		BIOL. SCI. GEBI-116-03 12:00-12:50 RM 204	Cytology BIOL-520-01 12:00-2:50 (RM 208)	
1:00	Office Hours 1:00 - 4:00		Investigations and Research BIOL-446-05 1:00-1:50 (RM 112)		Investigations and Research BIOL-446-05 1:00-1:50 (RM 112)		
2:00			Office Hours 2:00 - 4:00		Office Hours 2:00 - 4:00 by Appointment		
3:00							
4:00							
5:00			MICROBIAL BIOCHEMISTRY BIOL-542-01 5:00- 7:50 RM 110				
6:00- 7:50							