



Homestead Campus

**BSC 1005 – General Education Biology Lecture (3 credits)
Spring 2007-2 Term (January – May 2008)
Reference #440314**

- Day/Time:** Lecture: Mondays, Wednesdays and Fridays, 8:00-8:50 AM
- Classroom:** Room G-304, Building G, MDC-Homestead Campus
- Instructor:** Professor Mark Chiappone
On Campus: (305) 237-5073
Mobile Phone: (305) 898-5390
E-mail: mchiappo@mdc.edu
- Office Hours:** Building B, Room B-119
Mondays: 10:00 AM to 5:30 PM
Wednesdays: 12:00 AM to 2:00 PM
- Learning Support Lab, Room D-203
Tuesdays and Thursdays: 12:40-2:00 PM
Wednesdays: 2:00 PM to 5:30 PM
Fridays: 10:00 AM to 12:00 PM
- Course Description:** This general education biology course covers basic biological concepts, concentrating on selected principles that help explain molecular biology, evolution, genetics, growth, disease, and the problems of humans in the environment. It is designed to stimulate interest in the variety of life that exists on our planet, help students recognize the factors that provide order in this variety, and involve students in the processes of inquiry, observation, and analysis of biological organization in order to give them a foundation for intelligently interpreting and evaluating biological topics. (3 contact hr. lecture).
- General Education Outcomes:** (1) Communicate effectively using listening, speaking, reading, and writing skills.
(2) Use quantitative analytical skills to evaluate and process numerical data.
(3) Solve problems using critical and creative thinking and scientific reasoning.
(4) Formulate strategies to locate, evaluate, and apply information.
(7) Demonstrate knowledge of ethical thinking and its application to issues in society.
(8) Use computer and emerging technologies effectively.
(10) Describe how natural systems function and recognize the impact of humans on the environment.

Resources

- Textbook:** Essential Biology, 3rd edition by Campbell, Reece and Simon (2007) with access code for registering in Course Compass
- Course Web Site:** Your professor's web site is available at <http://faculty.mdc.edu/mchiappo> and provides links to the course syllabus, PowerPoint lectures, homework question hints, and the practice tests for the chapters to be covered during the course.
- Learning Support:** Computer support and tutoring is available in the Learning Support Lab and Computer Courtyard located in the Information Technology Center (2nd floor above library).
- Course Compass ID** **chiappone59645** (used to establish access to course web site at www.coursecompass.com) provides online quizzes and supplementary instructional materials that go along with your textbook.

Class Procedures

- Attendance:** There will be a sign-in sheet for every class to verify attendance. If you cannot attend class, please notify the instructor via email or telephone. Class participation counts as 5% of your grade; therefore, poor attendance will be reflected in the final grade. Poor attendance may result in a student being dropped from the course after three absences.
- PERSONAL COMMUNICATION DEVICES:** Pagers and cellular phones are NOT conducive to the educational process in this class. I will assume that any interruption in class will be justifiable based on a real emergency and that the student being summoned will need to leave immediately to deliver a baby, attend to the dying, retrieve an injured child from daycare, or otherwise take immediate action which necessitates leaving.
- Supplementary Materials:** An access code with every new textbook allows students to access course compass at www.coursecompass.com. This web site contains mandatory online quizzes for each chapter, as well as supplementary instructional materials such as vocabulary lists, videos, and animations. The textbook web site at www.campbellbiology.com for *Essential Biology, 3rd edition*, is an assessment-driven web site system that accompanies the main textbook by providing chapter guides, eTutors, MP3 Tutors, and Discovery Channel video clips.
- Review Sessions:** The lecture notes in PowerPoint and the practice tests are available online on your professor's faculty web page at <http://faculty.mdc.edu/mchiappo>. Exam questions will be drawn from questions on the practice tests.
- Learning Support Lab:** You are encouraged to visit the Learning Support Lab or Computer Courtyard if you do not have access to a computer with internet connection off campus. You will need a computer with internet connection to access Course Compass to take the online quizzes.

Grading Procedure

Components:

60% Exams: seven exams usually covering two chapters in multiple-choice format. Exams will be 60-65 questions and will be drawn from the practice tests available on the course web site. Each exam will count towards 8.57% of your final grade. Exams will be returned the following class and will not be graded on a curve. Except for unusual circumstances, no make-up exams will be provided. Therefore, if you miss an exam, a zero will be recorded for that particular exam. If you anticipate missing an exam, make arrangements with the professor to take the exam early.

20% Online Quizzes: There are 15 online quizzes available at www.coursecompass.com that must be taken by the due dates specified on the web site. Quizzes are 20-25 multiple-choice questions for each chapter and are similar to the actual exam questions.

15% Writing Assignments: You will complete 1-page summaries of three separate papers (each 5% of the total grade) dealing with various aspects of biology covered during the course. The reading assignments and template for completing these assignments will be available on your instructor's web site (<http://faculty.mdc.edu/mchiappo>). Late work will not be graded and must follow the format specified on the course web site to receive credit. Writing assignments must be typed, grammatically correct, and emailed to your professor by the due dates specified.

5% Participation: a sign-in sheet will be available at the beginning of class to verify attendance. Each class counts for approximately 0.111% points towards your final grade (total of 45 classes). You are expected to have read the material that will be covered before lecture and to participate in class discussions.

Grading Scale:

A = 90-100, B = 80-89, C = 70-79, D = 60-69, F = 0-59

No pluses or minuses will be given. In order to receive an incomplete, the student must be passing the course with a "C" or better and must have attended at least two-thirds of the classes. It is the responsibility of the student to withdraw from the course by the appropriate deadline if the student wishes to receive a grade of W.

Important Dates for the Spring 2007-2 Semester (January-April 2008)

- Monday, January 14:** Last Day to Change Courses without Penalty; Withdraw from classes with 100% refund; Register, add, drop, or change sections of credit courses without signature of instructor
- Tuesday, March 18:** Last Day to Withdraw with a Grade of W
- Friday, April 25:** Last Day of Classes
- Friday, May 2:** Last Day of Final Exams

BSC 1005 – General Education Biology Lecture
Spring 2007-2 Tentative Course Schedule

Class #	Date	Activity	Class #	Date	Activity
1	W 1/09	Introduction	24	W 3/05	Exam #3 – Ch. 6-7
2	F 1/11	Chapter 1	25	F 3/07	Chapter 8
3	M 1/14	Chapter 1	26	M 3/10	Chapter 8
4	W 1/16	Chapter 2	27	W 3/12	Chapter 8
5	F 1/18	Chapter 2	28	F 3/14	Chapter 9
	M 1/21	No class-MLK Holiday	29	M 3/17	Chapter 9
6	W 1/23	Chapter 2	30	W 3/19	Chapter 9 Article 3 Due
7	F 1/25	Chapter 2		F 3/21	No class-Spring recess
8	M 1/28	Chapter 3	31	M 3/24	Exam #4 – Ch. 8-9
9	W 1/30	Chapter 3	32	W 3/26	Chapter 10
10	F 2/01	Chapter 3	33	F 3/28	Chapter 10
11	M 2/04	Exam #1 – Ch. 1-3	34	M 3/31	Chapter 10
12	W 2/06	Chapter 4	35	W 4/02	Chapter 12
13	F 2/08	Chapter 4	36	F 4/04	Chapter 12
14	M 2/11	Chapter 5 Article 1 Due	37	M 4/07	Exam #5 – Ch. 10, 12
15	W 2/13	Chapter 5	38	W 4/09	Chapter 13
16	F 2/15	Chapter 5	39	F 4/11	Chapter 13
17	M 2/18	Exam #2 – Ch. 4-5	40	M 4/14	Chapter 13
18	W 2/20	Chapter 6	41	W 4/16	Chapter 14
19	F 2/22	Chapter 6	42	F 4/18	Chapter 14
20	M 2/25	Chapter 6	43	M 4/21	Chapter 14
21	W 2/27	Chapter 7	44	W 4/23	Chapter 14
22	F 2/29	Chapter 7 Article 2 Due	45	F 4/25	Exam #6 – Ch. 13-14
23	M 3/03	Chapter 7			

Chapter Reading Assignments – BSC 1005
Campbell et al. (2007) *Essential Biology*, 3rd edition

Exam #1 Material

Introduction

Chapter 1: Biology Today

Unit 1: Cells

Chapter 2: Essential Chemistry for Biology

Chapter 3: The Molecules of Life

Exam #2 Material

Unit 1: Cells

Chapter 4: A Tour of the Cell

Chapter 5: The Working Cell

Exam #3 Material

Unit 1: Cells

Chapter 6: Cellular Respiration: Obtaining Energy from Food

Chapter 7: Photosynthesis: Using Light to Make Food

Exam #4 Material

Unit 2: Genetics

Chapter 8: Cellular Reproduction: Cells from Cells

Chapter 9: Patterns of Inheritance

Exam #5 Material

Unit 2: Genetics

Chapter 10: The Structure and Function of DNA

Chapter 12: DNA Technology

Exam #6 Material

Unit 3: Evolution and Diversity

Chapter 13: How Populations Evolve

Chapter 14: How Biological Diversity Evolves

Unit 4: Ecology

Chapter 18: The Ecology of Organisms and Populations

Chapter 19: Communities and Ecosystems

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Course Competencies

Competency 1: The student will understand the nature of the scientific method and the field of biology. The student will be able to:

- 1.1 describe and/or illustrate the scientific method as presented in the literature;
- 1.2 differentiate between science and biology; and
- 1.3 compare the characteristics of life common to a simple cell and multi-cellular organisms.

Competency 2: Introductory chemistry. The student will be able to:

- 2.1 define energy and matter, and their laws, and explain how they are used in biological systems;
- 2.2 explain the basic structure of atoms and molecules and recognize examples of covalent, hydrogen, and ionic bonding;
- 2.3 explain the importance of water to life and the concept of acidity, as well as its expression as pH. Identify the four major groups of organic compounds (carbohydrates, lipids, proteins and nucleic acids) and understand their functions in living systems;
- 2.4 describe the roles of enzymes in the synthesis and decomposition of biological compounds; and
- 2.5 describe the processes of photosynthesis and cellular respiration

Competency 3: The student will become familiar with cell structure and function and their interrelationship. The student will be able to:

- 3.1 describe the structure of a typical cell and explain the function of the sub-cellular organelles;
- 3.2 differentiate between plant and animal cells with respect to structure and function; and
- 3.3 identify and explain methods of cell transport such as diffusion, osmosis, and active transport.

Competency 4: The student will understand how life perpetuates itself. The student will be able to:

- 4.1 explain the function and significance of cell division and organismic reproduction;
- 4.2 compare and contrast mitosis and meiosis and describe the significant events that occur in each stage of these processes;
- 4.3 understand the principles of heredity, as illustrated by the work of Gregor Mendel, and their application to humans;
- 4.4 describe the structure of DNA and understand how it functions to control a cell's activity and acts as the molecule of heredity; and
- 4.5 explain the processes of DNA replication, transcription, and translation.

Competency 5: The student will understand and appreciate the nature of evolutionary theory. The student will be able to:

- 5.1 explain the theory of evolution of life on Earth favored by modern scientists;
- 5.2 describe and explain Darwin's basic concept of natural selection and how it relates to the theory of evolution;
- 5.3 list and explain the several categories of evidence that support the theory of evolution; and
- 5.4 describe how scientists group living organisms into hierarchical groups based on their shared characteristics, and name and characterize the major systematic taxa.

Competency 6: Ecology, evolution and diversity. The student will be able to:

- 6.1 identify and explain the ways in which the abiotic environment affects living systems;
- 6.2 describe the factors that control population growth and the mechanisms involved;
- 6.3 discuss the various relationships existing among individuals and populations in communities;
- 6.4 explain the nature of ecosystems with particular reference to their sustainability;
- 6.5 list and describe the major biomes of the world; and
- 6.6 discuss the major impact humans have on their environment with the ability to understand the dependability of species upon one another.