



AMERICAN UNIVERSITY OF BEIRUT
Faculty of Arts & Sciences
Department of Biology

Course: Diversity of Life
Semester: Spring 2010-2011
Time: Tuesday & Thursday 11:00-12:15 Phys 215
Instructor: Dr. Hind Rizkallah
Office: Room 106A, Biology bldg.
Office Hours: M,F 11-12 a.m.

COURSE DESCRIPTION:

BIOL 200 Diversity of Life 3.3; 4 cr.

A course that deals with the basic aspects of cell structure and function, heredity, diversity, classification, evolution and interrelationships of living things, and briefly covers organs and systems in animals and plants. Laboratory activity reflects the contents of the course. Not open to biology majors. *Sophomore standing is required. Each semester.*

RESOURCES AVAILABLE:

Textbook: Enger E.D., Ross F.C. & Bailey D.B., 2005. Concepts in Biology, 13th edition. McGraw-Hill

MOODLE: The course is available on MOODLE

LEARNING OUTCOMES

By the end of the course, students should be able to:

1. Describe the scientific method and explain how it would be applied to a novel problem
2. Recognize the components of biological molecules
3. Apply chemical concepts to living systems
4. Understand the importance of energy flow by analyzing the interrelated processes of cellular respiration and photosynthesis
5. Identify the stages of mitosis and meiosis, as well as the cell cycle, and explain the significance of each process
6. Compare and contrast mitosis and meiosis with particular attention to chromosome movements and definitions of haploid and diploid
7. Describe the structure of DNA and RNA, their "subunits" and how they differ
8. Explain how the fossil record, biogeography, comparative anatomy and embryology support evolution.
9. Interrelationship among organisms.

COURSE POLICY:

In order to do well in this course, it is imperative that you keep up with reading the chapters and attend lectures.

1. Class attendance

Class attendance is highly recommended. Attendance will be taken during the lecture. Absence of a student does not excuse him/her from the responsibility for the work done, or for any announcements made during his/her absence. Students who miss classes excessively are subject to be dropped from the course (**AUB Catalogue, 2010-2011, page 133**).

2. Class rules

The first rule is **TURN OFF YOUR MOBILE PHONES** before getting into the classroom. Second, I expect students to attend classes and be **PUNCTUAL** (Punctuality is a measure of civility). I expect students to be respectful.

3. Exam rules and regulations

You are required to take all the exams on the scheduled day and time. **Failure to sit for an exam will result in a grade of '0' (ZERO) for that exam. NO MAKE UP EXAMS** will be given. An alternative arrangement could be made; however, the nature for such arrangement is at the discretion of the instructor. A written explanation/reason must be provided within **one week** of the scheduled exam to allow for such an arrangement.

Mobile phones should be turned off during the exam. They are not to be seen in front of you (you can keep them in your bags or pockets) and cannot be used as calculators.

4. Academic integrity

I will not tolerate any kind of dishonesty during exams (honesty in your academic work will develop into professional integrity). For more information on the Student Code of Conduct refer to the following AUB website (<http://pnp.aub.edu.lb/university/handbook/158010044.html>).

COURSE CONTENTS

Chapter 1: What is Biology?

The significance of Biology in your life; Science and the scientific method;
Pseudoscience

Chapter 3: Organic Molecules – the Molecules of Life

Carbohydrates; Proteins; Nucleic Acids; Lipids

Chapter 4: Cell Structure and Function

Cell membranes; Cell size; Organelles; Nuclear components; Major cell types

Chapter 5: Enzymes, Coenzymes, and Energy

How cells use enzymes; How enzymes speed chemical reaction rates; How the environment affects enzyme action; Cellular-controlling processes and enzymes

Chapter 6: Biochemical Pathways – Cellular respiration

Energy and organisms; aerobic and anaerobic cellular respiration

Chapter 7: Biochemical Pathways – Photosynthesis

Photosynthesis and Life; Metabolic pathway of Photosynthesis

Chapter 8: DNA and RNA: The Molecular Basis of Heredity

DNA and RNA structure and function; Protein synthesis; Controlling gene expression; Mutations

Midterm exam

Chapter 9: Cell Division

Importance; The cell cycle and Mitosis; Genetic diversity

Chapter 10: Patterns of Inheritance

Meiosis, Genes and Alleles; the fundamentals of Genetics; Modified Mendelian Patterns; Linkage

Chapter 24: Materials Exchange in the Body

Basic principles; Circulation; Gas exchange; Obtaining Nutrients; Waste disposal

Chapter 19: The Origin of Life and Evolution of Cells

Big Bang; chemical evolution of life; early cellular life

Chapter 31: Plant form and Function

The plant body organs, modifications, tissue body parts (Biology: Concepts & Connections sixth edition)

Chapter 15: Ecosystem Dynamics

Ecology; Trophic levels; Energy flow; Biochemical cycles; Human use of ecosystem

Chapter 16: Community Interactions

Kinds of organism Interaction; Types of communities; succession. Impact of Human action on communities.

Final exam

GRADING

Biol 200	
Midterm Exam April 19	= 30%
Final Exam	= 35%
Participation (quizzes)	= 5%
Attendance	= 5%
Lab	= 25%