**AMERICAN UNIVERSITY OF BEIRUT**

**Faculty of Arts & Sciences**

**Department of Biology**

**Course:** Diversity of Life

**Semester:** Spring 2014-2015

**Time:** TR 11:00-12:15

**Instructor:** Dr. Hind Rizkallah

**Office:** Room 106A, Biology bldg.

**Office Hours:** TR 12:30-1:00 p.m & Mon 10-12.

**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., 2012. Concepts in Biology, 14th 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*](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

**Exam I**

**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

**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

**Exam II**

**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**

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| **Biol 200** |
| Exam I = 20%  Exam II =20%  Final Exam = 30%  Attendance = 5%  Lab = 25% |