



**University of International Business and Economics
International Summer School**

BIO 110 Introduction to Biology (With Lab)

Term: May 29 – June 29, 2017

Instructor: Professor John C. Kunich

Home Institution: University of North Carolina

Email: JohnCKunich@aol.com

Class Hours: Monday through Thursday, 120 minutes each day (2,400 minutes in total)

Office Hours: TBD

Teaching Assistant: TBD

Email: TBD

Discussion session: 2 hours each week

Total Contact Hours: 64 contact hours (45 minutes each, 48 hours in total)

Credit: 4 units

Course Description

Biological Science is all around us, and affects every aspect of our lives and every facet of life on Planet Earth. This is a vast and highly diverse subject, and thus will require an overview approach in a short course such as this one. We will cover the most important areas in some detail, while striving to achieve a balanced view of the big picture ideas.

Course Goals

The goal of this course is to furnish students with the basic foundation, information, and analytical tools necessary to grasp the fundamental concepts central to the study of biology.

Required Text

There is one required textbook for the course, which may be supplemented from time to time with additional materials from Professor Kunich. The textbook is:

Biology Today and Tomorrow, With Physiology, 3rd Edition, by Starr, Evers, and Starr (published in 2010 by Cengage).

ISBN-10: 0495561576

ISBN-13: 9780495561576

Attendance

Attendance and full attention at all classroom and laboratory session is required. All absences must be supported by official medical documentation proving a serious medical reason justifying the absence.

Grading Policy

Grades will be determined as follows: **25 percent for the midterm exam**, which will be held on Thursday of the third week; and **75 percent for the final exam**, which will be held on Friday of the final week. Professor Kunich also reserves the right to incorporate **classroom attendance** and **quality of participation** into determination of each student's grade in the course. Our classroom sessions are designed to be **highly interactive**, with a large component of direct participation and active discussion from every student.

Grading Scale

Grades will be in conformity with the standard scale used in all UIBE courses. Professor Kunich has discretion to make adjustments as needed.

Class Rules

Students are expected to do all the readings for the week in their entirety before class meets on each Wednesday. In addition to reading the assigned material, you are required to think about the material and analyze it in comparison to other subjects under consideration. This will greatly enhance the value and quality of our classroom sessions. Use of cell phones, iPhones, Twitter, Facebook, and any other electronic communication, games, or internet devices in class is strictly prohibited.

Any academic misconduct of any type, including plagiarism or cheating on an exam, will automatically trigger: (1) expulsion from the course; (2) the issuance of a failing grade for the course, (3) the issuance of a formal report about the student's misconduct to the student's home university, and (4) any other disciplinary or administrative action deemed appropriate by Professor Kunich and the leaders of UIBE.

Course Hours

The course has 20 class sessions in total. Each class session is 120 minutes in length for a total of 2,400 minutes of class time. The course meets from Monday to Thursday.

Course Schedule

NOTE: Our actual pace may be faster or slower than indicated on this schedule. We will spend more time on some chapters and subjects than on others. **KEEP UP WITH OUR CLASSROOM DISCUSSIONS AND READ AHEAD ACCORDINGLY. IT IS BETTER TO READ AHEAD AND BE READY THAN TO FALL BEHIND AND BE UNPREPARED FOR OUR CLASSROOM DISCUSSIONS!**

WEEK ONE:

1. Invitation to Biology.
2. Molecules of Life.
3. Cell Structure.
4. Energy and Metabolism.
5. Capturing and Releasing Energy.

LAB TOPIC: Examination and comparison of cellular structure and function, including microscopic analysis of organelles. Comparison of cell structure in various Prokaryotes and Eukaryotes.

WEEK TWO:

6. DNA Structure and Function.
7. Gene Expression and Control.
8. How Cells Reproduce.
9. Patterns of Inheritance.
10. Biotechnology.

LAB TOPIC: Genetics experiment using computer simulations to study, analyze, and make verifiable predictions involving patterns of inheritance, dominance, co-dominance, and related aspects of genetics. Use of manipulable models to study how the structure and function of DNA molecules produces these inheritance patterns. Microscopic study of cells at various stages of mitosis and meiosis.

WEEK THREE:

11. Evidence of Evolution.
12. Processes of Evolution.
13. Early Life Forms and the Viruses.
14. Plants and Fungi.
15. Animal Evolution.

LAB TOPIC: Exercises in developing and analyzing phylogenetic relationships. Use of taxonomic methods to compare various alternative means of categorizing various life forms. Study of evidence from succession in multiple communities as a window into adaptive radiation and evolution.

WEEK FOUR:

16. Population Ecology.
17. Communities and Ecosystems.
18. The Biosphere and Human Effects.
19. Animal Tissues and Organs.
20. How Animals Move.
21. Circulation and Respiration.
22. Immunity.

LAB TOPIC: Field trip to local areas of environmental concern as well as facilities involved in water treatment and reduction of air pollution. Comparison of environmental quality challenges, methods, and areas of emphasis in industrial, residential, and rural regions.

WEEK FIVE:

23. Digestion and Excretion.
24. Neural Control and the Senses.
25. Endocrine Control.
26. Reproduction and Development.
27. Plant Form and Function.
28. Plant Reproduction and Development.