

0704B101

Introductory Biology (With Lab)

Instructor: Ketian Chen

Time: June 15, 2020-July 17, 2020

Office Hours: By Appointment

Contact Hours: 60 (50 minutes each)

Credits: 4

Course Description

Biological Science is all around us and affects every aspect of our lives and every facet of life on Planet Earth. 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.

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, both in the classroom and in the laboratory, while striving to achieve a balanced view of the big picture ideas.

Required Textbook(s)

Biology Today and Tomorrow, With Physiology (2016), 5th Edition, by: Cecie Starr, Christine A. Evers, and Lisa Starr (ISBN-13: 978-1-305-11735-8).

Prerequisites

No prerequisites

Course Goals

- The scientific method
- Principles of evolution and the means by which evolution is studied.
- The structure of cells and explain the function of the cellular organelles
- The processes involved in cellular division
- Ecosystem structure and function
- Biological information
- Various animal and plant systems and how they function

Course Schedule

Please note that the schedule is meant to give an overview of the major concepts this course. Changes may occur in this calendar as needed to aid in the student's development.

Week 1

- Chapter 1: Invitation to Biology.
- Chapter 2: Molecules of Life.
- Chapter 3: Cell Structure.
- Chapter 4: Energy and Metabolism.
- Chapter 5: Capturing and Releasing Energy.
- **Lab Activities:** Membrane Channels Simulation and Application of the Scientific Method.

Week 2

- Chapter 6: DNA Structure and Function.

- Chapter 7: Gene Expression and Control.
- Chapter 8: How Cells Reproduce.
- Chapter 9: Patterns of Inheritance.
- Chapter 10: Biotechnology.
- **Lab Activities:** Gene expression simulation, cell structure and function activity.

Week 3

- Chapter 11: Evidence of Evolution.
- Chapter 12: Processes of Evolution.
- Chapter 13: Early Life Forms and the Viruses.
- Chapter 14: Plants and Fungi; Chapter 15: Animal Evolution
- **Mid-term Exam**
- **Lab Activities:** Natural selection simulation and exploration of mitosis and meiosis.

Week 4

- Chapter 16: Population Ecology; Chapter 17: Communities and Ecosystems.
- Chapter 18: The Biosphere and Human Effects.
- Chapter 19: Animal Tissues and Organs.
- Chapter 20: How Animals Move.
- Chapter 21: Circulation and Respiration.
- **Lab Activities:** Eating/Exercise simulation and Mendelian genetics activity.

Week 5

- Chapter 22: Immunity; Chapter 23: Digestion and Excretion.
- Chapter 24: Neural Control and the Senses; Chapter 25: Endocrine Control.
- Chapter 26: Reproduction and Development; Chapter 27: Plant Form and Function.
- Chapter 28: Plant Reproduction and Development.
- **Final Exam**

- **Lab Activities:** Neuron simulation and Animal/Plant diversity activity.

Course Requirements

Students are expected to do all the readings for the week in their entirety before class. 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, any and all forms of Social Network activities, and any other electronic communication, games, or internet devices in class hinders your learning, is disrespectful and is strictly prohibited.

Grading Policy

Your final grade is based on the following components:

Type	Percentage
Quizzes	20% of grade
Lab Activities	25% of grade
Midterm Exam	25% of grade
Final Exam	30% of grade

Grading Scale

The instructor will use the grading system as applied by JNU:

Definition	Letter Grade	Score
Excellent	A	90~100
Good	B	80~89
Satisfactory	C	70~79
Poor	D	60~69
Failed	E	Below 60

Academic Integrity

As members of the Jinan University academic community, students are expected to be honest in all of their academic coursework and activities. Academic dishonesty, includes (but is not limited to) cheating on assignments or examinations; plagiarizing, i.e., misrepresenting as one's own work any work done by another; submitting the same paper, or a substantially similar paper, to meet the requirements of more than one course without the approval and consent of the instructors concerned; or sabotaging other students' work within these general definitions. Instructors; however, determine what constitutes academic misconduct in the courses they teach. Students found guilty of academic misconduct in any portion of the academic work face penalties that range from the lowering of their course grade to awarding a grade of E for the entire course.