暨南大學
JINAN UNIVERSITY

0704B101

Introductory Biology (With Lab)

Instructor: TBA

Time: December 14, 2026 - January 15, 2027

Office Hours: By Appointment

Contact Hours: 50 (50 minutes each)

Credits: 4

E-mail: TBA

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.

Course Goals

- Apply the scientific method to investigate elementary biological problems.
- Diagram the atomic structure of biologically important elements.
- Compare and contrast the structure and functions of prokaryotic and eukaryotic cells.
- Analyze the structure of a virus and other acellular infectious agents.

- Describe cellular respiration, photosynthesis and the role of enzymes in these metabolic pathways.
- Distinguish between meiotic and mitotic forms of cell division.
- Explain the basic principles of inheritance.
- Summarize life information processes including DNA replication, transcription, and translation.
- Explain the theory of evolution, the mechanisms of evolution (especially natural selection), and the underlying scientific support for evolution.
- Analyze the impact of humans on our environment.

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 required.

Course Outline

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

Module 1: Cell Biology

- **Topic:** Covering the branch of science concerned with the chemical and physicochemical processes and substances that occur within living organisms at an introductory level.

  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.

- **Quizzes:** Chs. 1 – 5.
- **Laboratory Assignment:** Membrane channels simulation and application of the Scientific Method.

Module 2: Cellular Reproduction

- **Topic:** Covering the process by which cells divide and multiply, playing a crucial role in growth and development.

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.

- **Quizzes:** Chs. 6 – 10.
- **Laboratory Assignment:** Gene expression simulation, cell structure and function activity.
- **Mid-Term Exam:** Chs. 1 – 10.

Module 3: Evolutionary Biology

- **Topic:** Covering the scientific study of how and why species change over time, and having a focus on the processes that lead to biological diversity and adaptation.

Chapter 11: Evidence of Evolution.

Chapter 12: Processes of Evolution.

- **Quizzes:** Chs. 11 and 12.

Module 4: The Six Kingdoms of Life & Viruses

- **Topic:** Covering the six kingdoms of classified life on Earth: Archaea, Bacteria, Protista, Fungi, Plantae, and Animalia. We will include viruses. Then, we will cover communities, ecology, and the biosphere.

  Chapter 13: Early Life Forms and the Viruses.

  Chapter 14: Plants and Fungi.

  Chapter 16: Population Ecology.

  Chapter 17: Communities and Ecosystems.

  Chapter 18: The Biosphere and Human Effects.

- **Quizzes:** Chs. 13 – 18.
- **Laboratory Assignment:** Natural selection simulation, exploration of mitosis and meiosis, and eating/exercise simulation.

Module 5: Anatomy and Physiology Part 1

- **Topic:** Covering the study of animal physical structures, while physiology refers to how those structures function and work together.

  Chapter 19: Animal Tissues and Organs.

  Chapter 20: How Animals Move.

  Chapter 21: Circulation and Respiration.

- **Quizzes:** Chs. 19 – 21.

Module 6: Physiology Part 2

- **Topic:** Covering the continuation of more physiologic functions.

  Chapter 22: Immunity.

  Chapter 23: Digestion and Excretion.

- **Quizzes:** Chs. 22 and 23.

Module 7: Physiology Part 3

- **Topic:** Covering the continuation of more physiologic functions.

  Chapter 24: Neural Control and the Senses.

  Chapter 25: Endocrine Control.

  Chapter 26: Reproduction and Development.

- **Quizzes:** Chs. 24 – 26.
- **Laboratory Assignment:** Mendelian genetics activity, neuron simulation, and Monocots and Dicots Activity.

Module 8: Plant Biology

- **Topic:** Covering the study of plants, including structure and physiology.

  Chapter 27: Plant Form and Function.

  Chapter 28: Plant Reproduction and Development.

- **Quizzes:** Chs. 27 and 28.
- **Final Cumulative Exam:** All chapters discussed.

Grading Policy

Your final grade is based on the following components:

Type	Percentage
Quizzes	20% of grade
Laboratory 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.