

# 0704B101

## Introductory Biology (With Lab)

**Instructor:** TBA

**Time:** Monday through Friday (June 26, 2023-July 28, 2023)

**Office Hours:** 2 hours (according to the teaching schedule)

**Contact Hours:** 60 (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.

### Required Textbook(s)

*Biology Today and Tomorrow, With Physiology*, 3<sup>rd</sup> Edition or 4<sup>th</sup>, by Starr, Evers, and Starr (published in 2010 by Cengage). ISBN-10:0495561576

ISBN-13:9780495561576

## **Prerequisites**

No prerequisites

## **Course Hours**

The course has 20 lecture sessions and 5 lab sessions in total. Each session is 120 minutes in length. Lecture session meets from Monday to Thursday. Lab session meets on each Friday.

## **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 ONE***

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

LAB EXPERIMENTS: Testing the presence of organic molecules by using different chemicals.

Cell structure and Function-Elodea and cheek cells.

### ***WEEK TWO***

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

LAB EXPERIMENTS: DNA extraction from kiwi, strawberry. Mitosis and meiosis--onion root and whitefish. Propagating rose cuttings, African violet leaves and carnation stems, while investigating the importance of sterile conditions.

***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 EXPERIMENTS: BLAST comparison of DNA code using sickle cell anemia. Video viewing on Natural Selection and the Evolution of skin color and UV radiation prior to answering questions with real data.

***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 EXPERIMENTS: Colony Collapse Disorder: An analysis of honey bee colony numbers. Simulation of factors responsible for antibiotic resistance.

***WEEK FIVE***

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

28.Plant Reproduction and Development.

### **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**

Grades will be determined as follows: 10 percent for laboratory work, 45 percent for the midterm exam, which will be held on Thursday of the third week; and 45 percent for the final exam, which will be held on Friday of the final week. Professor 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**

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

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

## **Attendance**

Attendance is mandatory in the class. It would be recorded each class and forms part of students' participation record. Students should inform the instructor at the earliest opportunity if they need to ask for a leave. All absences may have negative effect on students' final grades. Any students with more than three unexcused absences will automatically fail the course.

## **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.