National Taiwan University of Science and Technology

2020 Summer Program

BIOL 101 Introduction to Biology with Lab

Course Outline

Term: July 06-August 07,2020

Class Hours: 8:00-9:50 (Monday through Friday)

Course Code: BIOL 101

Instructor: Dr. Rodriguez

Home Institution: American University

Office Hours: 1:00PM to 1:30PM (Monday through Friday) and by appointment

Email: srodrigu@american.edu

Credit: 4

Class Hours: According to the regulations of Minister of Education, R.O.C, 18 class hours could be counted as 1 academic credit in all universities in Taiwan. This course will have 72 class hours, including 40 lecture hours, professor 10 office hours, 10-hour TA discussion sessions, 2-hour review sessions, 10 laboratory hours.

Course Description:

Introduction to Biology will provide students with an overview of the current trends and body of knowledge in Biology, including basics of the scientific method and of the analysis of scientific data.

Course Objectives:

The main course goal is to allow students to reach a comprehensive understanding of the issues and methods in Biology, in order to decide whether to pursue studies in the field. In the process of reaching this goal, our

objectives are that each student will:

Become familiar with current scientific theories and research in the major topic areas of Biology; Discover the personal relevance of course material in their everyday and professional lives, in order to make fully informed decisions;

Develop the skills necessary to evaluate and think critically about information concerning biological phenomena obtained from research, the general public, and the media;Be well prepared for advanced courses in Biology.

Required Textbooks

Biology Today and Tomorrow, With Physiology, 3rd Edition or 4th, by Starr, Evers, and Starr (published in 2010 by Cengage).

ISBN-10: 0495561576 ISBN-13: 9780495561576

Several readings will be required throughout the course, either to prepare for class or to complete an assignment. All materials will be posted online to provide a free and easy access to everyone.

Grading & Evaluation:

Criteria	Points
Homework	20%
Midterm	20%
Lab	25%
Final Exam	35%
TOTAL	**100%**

Intermediary assignments will be posted throughout the course, to help students assess their needs and to ensure that all the important topics are well understood. Assignments and labs are also an opportunity for students to ask questions concerning unclear notions, as the main objective is not to grade but to help everyone reach an optimal level of comprehension.

Midterm and final exams will target all topics previously covered in class. Lecture notes, labs and assignments are important to succeed in the midterm and final exams, yet some questions will be specifically intended to stimulate students' critical thinking.

Attendance is extremely important for success in this class. It is expected that each student will commit fully to the assignments and readings required. Exams will cover the required texts as well as material presented or discussed in class.

Course Schedule:

	Date	Topic
Week 1	Lecture 1	Course Introduction / Invitation to Biology/ Molecules of Life
	Lecture 2	Cell Structure / Cellular respiration / Photosynthesis
	Lab	*Comparison of cell structure in various Prokaryotes and Eukaryotes*
Week 2	Lecture 3	How Cells Reproduce (Mitosis and Meiosis)
	Lecture 4	Capturing and Releasing Energy.
	Lecture 5	DNA Structure and Function.
	Lab	*Microscopic study of cells at various stages of mitosis and meiosis.*
Week 3	Lecture 6	Gene Expression and Control / Patterns of Inheritance
	Lecture 7	Practice Problems
	Lecture 8	Midterm
	Lab	*Use of taxonomic methods to compare various alternative means of categorizing various life forms.*
Week 4	Lecture 9	Evidence of Evolution.
	Lecture 10	Processes of Evolution.
	Lecture 11	Early Life Forms and the Viruses.
	Lab	*Biotechnology: Class presentation*
Week 5	Lecture 12	Plants and Fungi
	Lecture 13	General Review
	Lecture 14	Final Exam
	Lab	*Writing Scientific Report*