



FENG CHIA UNIVERSITY

Introductory Biology (With Lab)

EES105, Summer 2019 (May 13 - Jun 14)

Lecturer: Dr. Edward L. D'Antonio

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Credits: 4

Contact hours: 60 hours (50 minutes each)

Office hours: by appointment

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 Text:

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).

Assessment:

Your final grade is based on the following components:

Quizzes	20%
Lab Activities	25%

Midterm Exam	25%
Final Exam	30%
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Total	100%

Grading System of Feng Chia University:

Letter Grade	Score
A	80-100
B	70-79
C	60-69
D	50-59
E	Below 50

Quizzes/Homework:

Multiple self-assessment quizzes and homework assignments will be offered for students to practice their concept understanding and to prepare for the lectures. These quizzes will be posted online on a weekly basis.

Lab Activities:

At the end of each week (on Fridays) students will have the chance to practice their understanding of the concepts discussed in class. They will work in small groups on practical exercises using the interactive simulations developed by the PhET program (<http://phet.colorado.edu>).

Academic Honesty:

Feng Chia University defines academic misconduct as any act by a student that misrepresents the student's own academic work or that compromises the academic work of another. Academic misconduct 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 substantially similar papers, to meet the requirements of more than one course without the approval and consent of the instructors concerned; sabotaging another's work within these general definitions. However, instructors 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 ranging from lowering of their course grade to

awarding a grade of E for the entire course.

Schedule of Lecture and Laboratory Activities with Video Numbers:

Week 1

Chapter 1: Invitation to Biology. [V01, V02]

Chapter 2: Molecules of Life. [V03, V04, V05]

Chapter 3: Cell Structure. [V06, V07]

Chapter 4: Energy and Metabolism. [V08, V09]

Chapter 5: Capturing and Releasing Energy. [V10, V11]

Lab Activities: Membrane Channels Simulation and Application of the Scientific Method.

Week 2

Chapter 6: DNA Structure and Function. [V12, V13]

Chapter 7: Gene Expression and Control. [V14, V15]

Chapter 8: How Cells Reproduce. [V16, V17]

Chapter 9: Patterns of Inheritance. [V18, V19]

Chapter 10: Biotechnology. [V20, V21]

Lab Activities: Gene expression simulation, cell structure and function activity.

Week 3

Chapter 11: Evidence of Evolution. [V22, V23]

Chapter 12: Processes of Evolution. [V24, V25]

Chapter 13: Early Life Forms and the Viruses. [V26, V27, V28]

Chapter 14: Plants and Fungi. [V29, V30]

Chapter 16: Population Ecology. [V31, V32]

Lab Activities: Natural selection simulation and exploration of mitosis and meiosis.

Schedule of Lecture and Laboratory Activities with Video Numbers (continued)

Week 4

Chapter 17: Communities and Ecosystems. [V33, V34]

Chapter 18: The Biosphere and Human Effects. [V35, V36, V37]

Chapter 19: Animal Tissues and Organs. [V38, V39]

Chapter 20: How Animals Move. [V40, V41]

Chapter 21: Circulation and Respiration. [V42, V43, V44, V45]

Lab Activities: Eating/Exercise simulation and Mendelian genetics activity.

Week 5

Chapter 22: Immunity. [V46, V47]

Chapter 23: Digestion and Excretion. [V48, V49]

Chapter 24: Neural Control and the Senses. [V50, V51, V52]

Chapter 25: Endocrine Control. [V53, V54]

Chapter 26: Reproduction and Development. [V55, V56]

Chapter 27: Plant Form and Function. [V57, V58]

Chapter 28: Plant Reproduction and Development. [V59, V60]

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