University Of Jordan
Faculty Of Science

Department of Biological Sciences

GENERAL BIOLOGY I (349101) Syllabus

First Semester 2025/2026

Week	Lecture	Topic	Resources
1	1.1	Introduction	
	1.2	**Chapter 3: The Chemistry of Water** 3.1. Polar covalent bonds in water molecules result in hydrogen bonding	Chapter 3 pp 92-98
	1.3	3.2. Four emergent properties of water contribute to Earth's suitability for life ***Assignment:*** *Acidification: A threat to water quality*	Assignment P 101
2	2.1	**Chapter 5**: **Biological Macromolecules and Lipids** 5.1. Macromolecules are polymers, built from monomers	Chapter 5 P 114 - 134
	2.2	5.2. Carbohydrates serve as fuel and building material	
	2.3	5.3. Lipids are a diverse group of hydrophobic molecules	
3	3.1	5.4. Proteins include a diversity of structures, resulting in a wide range of functions	
	3.2	5.4. Proteins include a diversity of structures, resulting in a wide range of functions	
	3.3	5.5. Nucleic acids store, transmit, and help express hereditary information	
4	4.1	**Chapter 7: Cell Structure and Function** 7.1. Biologists use microscopes and biochemistry to study cells ***Assignment****: Microscopes (focus on types and function) and cell fractionation)* 7.2. Eukaryotic cells have internal membranes that compartmentalize their functions	Chapter 7 P 163-191
	4.2	7.3. The eukaryotic cell's genetic instructions are housed in the nucleus and carried out by the ribosomes.	
	4.3	7.4. The endomembrane system regulates protein traffic and performs metabolic functions	
5	5.1	7.5. Mitochondria and chloroplasts change energy from one form to another	
	5.2	7.6. The cytoskeleton is a network of fibers that organizes structures and activities in the cell (only Table 7.1, page 183)	
	5.3	7.7. Extracellular components and connections between cells help coordinate cellular activities 7.8 A cell is greater than the sum of its parts	
6	6.1	**Chapter 8: Cell Membranes** 8.1. Cellular membranes are fluid mosaics of lipids and proteins.	Chapter 8 P 196-211
	6.2	8.2. Membrane structure results in selective permeability	
	6.3	8.3. Passive transport is diffusion of a substance across a membrane with no energy investment	
7	7.1	8.4. Active transport uses energy to move solutes against their gradients	
	7.2	8.5. Bulk transport across the plasma membrane occurs by exocytosis and endocytosis	
	7.3	**Chapter 6: Energy and Life** 6.2. The free-energy change of a reaction tells us whether or not the reaction occurs spontaneously.	Chapter 6 pp 145-159
8	8.1	6.3. ATP powers cellular work by coupling exergonic reactions to endergonic reactions	
	8.2	6.4. Enzymes speed up metabolic reactions by lowering energy barriers	
	8.3	6.5. Regulation of enzyme activity helps control metabolism	

Week	Lecture	Topic	Resources
9	9.1	**Chapter 10: Cell Respiration** 10.1. Catabolic pathways yield energy by oxidizing organic fuels	Chapter 10 P 236-256
	9.2	10.2. Glycolysis harvests chemical energy by oxidizing glucose to pyruvate	
	9.3	10.3. After pyruvate is oxidized, the citric acid cycle completes the energy-yielding oxidation of organic molecules	
10	10.1	10.4. During oxidative phosphorylation, chemiosmosis couples electron transport to ATP synthesis	
	10.2	10.5. Fermentation and anaerobic respiration enable cells to produce ATP without the use of Oxygen	
	10.3	10.6. Glycolysis and the citric acid cycle connect to many other metabolic pathways	
11	11.1	**Chapter 11: Photosynthetic Processes** 11.1. Photosynthesis feeds the biosphere 11.2. Photosynthesis converts light energy to the chemical energy of food	Chapter 11 P 259-274
	11.2	11.3. The light reactions convert solar energy to the chemical energy of ATP and NADPH	
	11.3	11.4. The Calvin cycle uses the chemical energy of ATP and NADPH to reduce CO2 to sugar	
12	12.1	**Chapter 12: Mitosis** 12.1. Most cell division results in genetically identical daughter cells. 12.2. The mitotic phase alternates with interphase in the cell cycle. (The evolution of mitosis is not included)	Chapter 12 284-294
	12.2	**Chapter 13: Sexual Life cycles and Meiosis** 13.1 Offspring acquire genes from parents by inheriting chromosomes.	Chapter 13 304-314
	12.3	13.2. Fertilization and meiosis alternate in sexual life cycles. (The variety of sexual life cycles is not included) 13.3. Meiosis reduces the number of chromosomes sets from diploid to haploid.	
13	13.1	**Chapter 16: Nucleic Acids and Inheritance** 16.1. DNA is the genetic material	Chapter 16 364-382
	13.2	16.2. Many proteins work together in DNA replication and repair *(Evolutionary significance of altered DNA nucleotides and replicating the ends of DNA molecules are not included).*	
	13.3	16.3 A chromosome consists of a DNA molecule packed together with proteins	
14	14.1	**Chapter 17: Expression of Genes** 17.1. Genes specify proteins via transcription and translation ***Assignment**: Nutritional mutations in Neurospora: Scientific Inquiry*	Chapter 17 P 385-412
	14.2	17.2. Transcription is the DNA-directed synthesis of RNA: a closer look	
	14.3	17.3. Eukaryotic cells modify RNA after transcription (The functional and evolutionary importance of introns is not included)	
15	15.1	17.4. Translation is the RNA-directed synthesis of a polypeptide: a closer look	
	15.2	17.5. Mutations of one or a few nucleotides can affect protein structure and function	
	15.3	**Chapter 26: Introduction to Viruses** 26.1. A virus consists of a nucleic acid surrounded by a protein coat *(Table 26.1 is not included)* 26.2. Viruses replicate only in host cells *(Evolution of viruses is not included)*	Chapter 26 P 610-620

Course textbook(s):
Biology: A Global Approach, 12th Ed. (2021) (Global Edition). Neil A. Campbell; Lisa A. Urry; Michael L. Cain; Steven A. Wasserman; Peter V. Minorsky; Rebecca B. Orr. Publisher: Pearson.

Evaluation Methods:

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
First Exam	20	Chapter 3, 5, and 7	To be announced later	on Campus, Computerized
Second Exam (Midterm Exam)	30	Chapters 8.6,10, and 11	To be announced later	on Campus, Computerized
Final Exam	50	All the material	To be announced later	on Campus, Computerized

Attendance policies:
Absence from lectures should not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course.
Absences from exams and submitting assignments on time: You should contact **your instructor** as soon as possible if you miss an exam. All such cases will be dealt with according to the rules outlined in your student handbook.
Honesty policy regarding cheating, plagiarism, misbehavior: All violations pertaining to cheating, plagiarism, misbehavior will be dealt with in accordance with the rules outlined in your student handbook.

HOW TO BE SUCCESSFUL IN THIS CLASS
1. Attend the classes. 2. Read your text before you come to lecture. 3. Take good, concise class notes. 4. Learn your vocabularies. 5. Use the textbook and highlight your text. 6. Review and rewrite your class notes within 24 hours of class. 7. Schedule your studying time and stick to it. You should spend at least 2 hours outside class for every hour you are in class. 8. If you are absent, it is your responsibility to get the notes and handouts from a classmate because you will still be held accountable for the material covered in class. 9. Always check the syllabus. It contains chapters, sections and assignments with their corresponding pages. These are the materials that you will be asked about in the class and you will be examined in.