DERS TANITIM ve UYGULAMA BİLGİLERİ

Dersin Adı	Kodu	Yarıyıl	T+U+L (saat/hafta)	Türü (Z / S)	Yerel Kredi	AKTS
Biyoloji I	BGE 106	Bahar	03+00+00	Zorunlu	3	6

Akademik Birim:	Bioinformatics and Genetics
Öğrenim Türü:	Örgün Eğitim
Ön Koşullar	none
Öğrenim Dili:	İngilizce
Dersin Düzeyi:	Lisans
Dersin Koordinatörü:	Ebru BİLGET GÜVEN
Dersin Amacı:	To teach the basic concepts of biology, asking scientific questions, the scientific method, the general experimental design and scientific reporting. To make the students perceive life, fundamental features of organisms and basic biological mechanisms. To teach the basic molecular aspects of biology, which are critical to understand cell biology, bioinformatics and genetics.
Dersin İçeriği:	A general introduction to biology, biological experimenting, reporting, molecules of life, organization of the cell, cell membrane, enzymes, ATP production.
Dersin Öğrenme Çıktıları (ÖÇ):	• **1-** Introduction: Themes in the Study of Life: The introduction to the study of biology highlights seven book -wide themes, with special emphasis on the core theme of evolution. How scientists use inductive reasoning to draw general conclusions and deductive reasoning to test hypotheses is emphasized. • **2-** The Chemical Context of Life: Information is given to establish a foundation for later discussion and elaboration of molecular-level events and processes in biological systems. Ensuring that students possess the technical vocabulary (terms and definitions) to understand descriptions in later chapters is a major focus. • **3-** Water and the Fitness of the Environment: As far as we know, life depends on water. Chemical and physical properties of water determine many of the features and processes that are fundamental to life. This part describes the structure of the water molecule and explores the many ways that polar covalent bonds and hydrogen bonds among water molecules affect organisms and their interactions with their environments. In addition, this part discusses topics including concentrations of solutions, hydrogen ion concentration (pH), and buffer solutions. • **4-** Carbon and the Molecular Diversity of Life: All organisms are composed mostly of chemical structures based on the element carbon. This part builds upon information and concepts introduced previously and extends the descriptions and analysis to more detailed consideration of the carbon atom. Of all the elements, carbon is unparalleled in its ability to form molecules that are large, complex, and diverse. Student understanding of this complexity and diversity is aided by naming and describing typical groups of atoms (functional groups) that are mixed and matched to construct larger carbon-based molecules. • **5-** The Structure and Function of Large Biological Molecules: This part is based on the concept of macromolecules as polymers. Information given let the student to recognize the structure, formation, properties, and function of carbohydrates, lipids, proteins, and nucleic acids. • **6-** A Tour of the Cell: This part let the student understand the biological organization of a cell. • **7-** Membrane Structure and Function: In this part information is given to let the student be able to understand the structure and function of the membrane by describing diffusion, osmosis, and active transport. • **8-** An Introduction to Metabolism: The work of a cell requires energy and this part discusses how a cell works. The student should be able to distinguish kinetic and potential energy, state the first and second laws of thermodynamics and understand entropy. • **9-** Cellular Respiration: This part explores the glycolysis, citric acid cycle and oxidative phosphorylation. The student should be able to explain both cellular respiration and fermentation, the aerobic and anaerobic harvesting of energy respectively, to describe how cells harvest energy.
Dersin Öğrenme Yöntem ve Teknikleri	PowerPoint presentations including important images and daily examples about the subject, which are also shared with the students through the BlackBoard platform. Explaining the concepts on the board. (students are allowed to take photos). Conversation with the students during the lecture. Watching mechanistic/explanatory videos during lectures and discussing with students. Suggesting videos to watch later.

HAFTALIK PROGRAM

Hafta	Konular	Ön Hazırlık	ÖÇ
1	INTRODUCTION TO THE COURSE	Presentation	1
2	Chapter 1: Biology: Exploring Life	Presentation	2
3	Chapter 1: Biology: Exploring Life	Presentation, Quiz	3
4	Chapter 2: The Chemical Basis of Life	Presentation	4
5	Chapter 2: The Chemical Basis of Life	Presentation	5
6	Chapter 3: The Molecules of Cells	Presentation, Assignment	6
7	Chapter 3: The Molecules of Cells	Presentation, Midterm	6
8	Chapter 4: A Tour of the Cell	Presentation	7
9	Chapter 4: A Tour of the Cell	Presentation	7
10	Chapter 5: The Working Cell	Presentation, Quiz	8
11	Chapter 5: The Working Cell	Presentation	9
12	Chapter 6: How Cells Harvest Chemical Energy	Presentation, Assignment	9
13	Chapter 6: How Cells Harvest Chemical Energy	Presentation, Quiz	10
14	Chapter 6: How Cells Harvest Chemical Energy	Presentation, Quiz	10

Kadir Has Üniversitesi'nde bir dönem 14 haftadır, 15. ve 16. hafta sınav haftalarıdır.

ZORUNLU ve ÖNERİLEN OKUMALAR

Required Textbook
Year/Edition: International Edition (7th Edition)
Title: Campbell Biology: Concepts and Connections Author(s): Campbell, Reece, Taylor, Simon, Dickey Publisher: Pearson

DİĞER KAYNAKLAR

DEĞERLENDİRME SİSTEMİ

Yarıyıl İçi Çalışmaları	Sayı	Katkı Payı (%)
Katılım	14	-
Ödev	1	15

Final Sınavı	1	40
Ara Sınavlar	1	25
Kısa Sınavlar	2	20
Total:	**19**	**100**

İŞ YÜKÜ HESAPLAMASI

Etkinlikler	Sayısı	Süresi (saat)	Toplam İş Yükü (saat)
Ders Saati	14	3	42
Ödev	1	12	12
Final Sınavı	1	30	30
Ara Sınavlar	1	25	25
Kısa Sınavlar	2	8	16
Toplam İş Yükü (saat):			**125**

1 AKTS = 25 saatlik iş yükü

PROGRAM YETERLİLİKLERİ (PY) ve ÖĞRENME ÇIKTILARI (ÖÇ) İLİŞKİSİ

#	PY1	PY2	PY3	PY4	PY5	PY6	PY7	PY8
OC1								
OC2								
OC3								
OC4								
OC5								
OC6								
OC7								
OC8								
OC9								

Katkı Düzeyi: 1 Düşük, 2 Orta, 3 Yüksek