

Course Unit Title	Biochemistry	
Course Unit Code	BME102	
Type of Course Unit	Compulsory	
Level of Course Unit	1 st year BSc program	
National Credits	4	
Number of ECTS Credits Allocated	6	
Theoretical (hour/week)	4	
Practice (hour/week)	-	
Laboratory (hour/week)	-	
Year of Study	1	
Semester when the course unit is delivered	2	
Course Coordinator	Assoc. Prof. Dr. Terin Adalı	
Name of Lecturer (s)	Assoc. Prof. Dr. Terin Adalı	
Name of Assistant (s)	Fatma Zor	
Mode of Delivery	Face to Face.	
Language of Instruction	English	
Prerequisites	CHEM104(Chemistry For Biological Sciences And Engineering)	
Recommended Optional Programme Components		
Course description:		
This course is designed for engineering students. Emphasis is placed on the relationship between molecular architecture and the functional properties of biomolecules, and the thermodynamic, unceasing, and self-regulating nature of living processes. Students are also provided with overviews of the major physical and chemical techniques that engineers have used to explore life at the molecular level.		
Objectives of the Course:		
<ul style="list-style-type: none"> • Be able to know the basic laws of thermodynamics. • To apply those laws for solving problems. • To be able to use his/her knowledge in the fields of other sciences and/or engineering. • Understanding how biochemistry approach and solve problems in life sciences. 		
Learning Outcomes		
At the end of the course the student should be able to		Assessment
1	Develop a thorough understanding on life, amino acids, nucleic acids, gene expression, proteins, biomolecules, and mechanism of enzyme action.	1,2
2	Develop a thorough understanding ability to metabolism such as glycolysis, signal transduction, citric acid cycle, lipid metabolism and nucleotide metabolism	1, 2
3		
4		
Assessment Methods: 1. Written Exam, 2. Assignment, 3. Project/Report, 4. Presentation, 5. Lab. Work		
Course's Contribution to Program		
		CL
1	Apply knowledge of mathematics, natural science with relevant to life science and multidisciplinary context of engineering science.	5

2	Analyse, design and conduct experiments, as well as to analyse and interpret data.	5
3	Design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability.	4
4	Function on multidisciplinary teams.	4
5	Control in design work, by using simulation, modelling and tests and integration in a problem solving oriented way.	4
6	Display an understanding of professional and ethical responsibility.	4
7	Communicate effectively aware of the non-technical effects of engineering.	1
8	Search technical literature and other information sources.	2
9	Recognize of the need for, and an ability to engage in life-long learning.	3
10	Exhibit a knowledge of contemporary issues.	2
11	Use the techniques, skills and modern engineering tools necessary for engineering practice to develop marketable products for the global market.	2

CL: Contribution Level (1: Very Low, 2: Low, 3: Moderate, 4: High, 5: Very High)

Course Contents

Week	Chapter	Topics	Assessment
1		Introduction (Life)	Assignment 1
2		Thermodynamic Principles	Assignment 2
3		Biomolecules (Amino acids, Nucleic acids)	Assignment 3
4		Gene expression and Recombinant DNA Technology	Assignment 4
5		Covalent structures of Proteins and Nucleic Acids	Assignment 5
6		Hemoglobin	Assignment 6
7		Sugars and Polysaccharides Revision	
8			Midterm Exam
9		Lipids and Membranes	
10		Mechanisms of Enzyme action	Assignment 7
11		Metabolism(Glycolysis, Glycogen Metabolism)	
12		Signal Transduction, Citric Acid Cycle	Assignment 8
13		Other pathways of Carbohydrate metabolism	Assignment 9
14		Lipid Metabolism, Amino acid metabolism	Assignment 10
15		Energy and nucleotide metabolism & Revision	Assignment 11
16		FINAL	Final Exam.

Recommended Sources

Textbook:

Donald Voet/Judith G. Voet, Charlotte W. Pratt, Principles of Biochemistry, Third Edition, ISBN 13: 978-0470-23396-2, 2008, Wiley Publication

Lab Manual

Supplementary Course Material

- Lecture notes

Assessment

Attendance	5%	Less than 25% class attendance results in NA grade
Assignment	5%	
Midterm Exam	30%	Written Exam
Quiz	15%	Written Exam
Final Exam	45%	Written Exam
Total	100%	

Assessment Criteria

Final grades are determined according to the Near East University Academic Regulations for Undergraduate Studies

Course Policies

1. Attendance to the course is mandatory.
2. Late assignments will not be accepted unless an agreement is reached with the lecturer.
3. Students may use calculators during the exam.
4. Cheating and plagiarism will not be tolerated. Cheating will be penalized according to the Near East University General Student Discipline Regulations

ECTS allocated based on Student Workload

Activities	Number	Duration (hour)	Total Workload(hour)
Course duration in class (including Exam weeks)	16	4	64
Labs and Tutorials	20	1	20
Assignment	2	4	8
Project/Presentation/Report	-	-	-
E-learning activities	-	-	-
Quizzes	-	-	-
Midterm Examination	1	2	2
Final Examination	1	2	2
Self-Study	15	4	60
Total Workload			162
Total Workload/30(h)			5.48
ECTS Credit of the Course			6