

Course Title	Code	Semester	Theoretical (hours/week)	Practice (hours/week)	Laboratory (hours/week)	ECTS
BIOENERGETIC	BBM 531	1th/2nd Semester	3	0	0	5
Prerequisites	None					
Course Language	Turkish					
Course Type	Elective					
Teaching Methods	Lecturing, dissection of visual examples, problem-solving					
Instructor(s)						
Course Objective	Introduction to the devices used in biochemical research					
Course Learning Outcomes	1- Defines biochemistry. 2- Describes enzymes and membranes 3- Defines chemistry of different reactions and concepts of bioenergetics.					
References	1- Henry's Clinical Diagnosis and Management by Laboratory Methods. Elsevier Saunders, 2011 2- Recep Sütçü; Moleküler tanı teknikleri içinde: Klinik Biyokimya, İstanbul Medipol Üniversitesi Yayınları, s.73-85 3- Nihal Büyüksulu: Biyokimyada ileri araştırma teknikleri: İçinde; Klinik Biyokimya İst.Medipol Univ. Yayınları 2015					

WEEKLY COURSE TOPICS

Weeks	DISCUSSION TOPICS TO BE PROCESSED
1.	Biochemistry: Definition, Macromolecules
2.	Enzymes: Classifications, Kinetic properties of enzyme reactions
3.	Enzymes: Classifications, Kinetic properties of enzyme reactions
4.	Membranes: Membrane Transport
5.	Membranes: Membrane Transport
6.	Oxidation- reduction reactions, Group-transfer reactions, Hydrolysis reactions
7.	Oxidation- reduction reactions, Group-transfer reactions, Hydrolysis reactions
8.	Midterm exam
9.	Isomeriation and rearrangement Rreactions, Bond formation reactions using energy from ATP.
10.	Thermodynamic
11.	Concepts of Bioenergetics: Standard free energy change.
12.	Cell and Energy
13.	ATP and phosphoanhydride bonds, Other reactive biomolecules for energy transfer.
14.	Energy entegration in Metabolism / Sport Biochemistry.
15.	Final Exam

ECTS / WORK LOAD TABLE

Activities	Number	Duration	Total Work Load
Course	14	3	42
Laboratory			
Practice			
Field Study			
Outclass course work hours (Self working / Teamwork / Preliminary work)	16	3	48
Presentations (Video preparation / Poster preparation / Oral presentation / Focus group discussion / Applying questionnaire/ Observation and report writing)			
Seminars	1	8	8
Project			
Case study			
Role playing, dramatization			
Preparing and criticizing article			
Semester midterm exams	2	10	20
Semester final exams	1	7	7
Total Work Load (hour) / 25(s)	125/25=5		
ECTS	5		

EVALUATION SYSTEM

Midterm Studies	Number	Contribution
Midterm exam	1	%25
Quiz		
Laboratory		
Practice		
Field Study		
Specific practical training (If exists)		
Homework assignment		
Presentation and seminar	1	%25
Projects		
Other evaluation methods		
Total of Midterm Studies		%50
Final Studies		
Final	1	%50
Homework assignment		
Practice		
Laboratory		
Total of Final Studies		%50
Contribution of midterm studies to course grade		%50
Contribution of final studies to course grade		%50
Total Grade		100

RELATIONSHIPS BETWEEN COURSE LEARNING OUTCOMES AND PROGRAM QUALIFICATIONS

	Program Qualifications	Learning Outcomes		
		LO1	LO2	LO3
1.	Based on undergraduate level qualifications, it has up-to-date knowledge in the field of Biological and Biomedical Sciences and develops and deepens them.	4	4	4
2.	Have knowledge about information technologies, technical equipment and the devices and instruments that are specific to the field in the field of Biomedical Sciences.	4	4	4
3.	To integrate the information in the field of Biological and Biomedical Sciences with information from different disciplines and to create new information, interpret and analyze by using different research methods and propose solutions.	4	4	4
4.	He writes the report of his research.	5	5	5
5.	Can plan and apply an experimental research	4	4	4
6.	In the field of Biological and Biomedical Sciences, can offers solutions, solves the problems, evaluates the results obtained and applies when necessary.	4	4	4
7.	Makes scientific clinical and / or descriptive research / presentation / publication on priority topics related to Biological and Biomedical Sciences and public health.	4	4	4
8.	Evaluates the knowledge related to Biological and Biomedical Sciences with a critical approach.	4	4	4
9.	Applies the principles of professional development and lifelong learning in the field of Biological and Biomedical Sciences.	4	4	4
10.	Students will be able to discuss and share their knowledge in the field of Biological and Biomedical Sciences in their written, oral and visual form in a systematic manner with current and other groups.	4	4	4
11.	Examines the social relations in the professional environment and the norms that direct these relations from a critical point of view and makes necessary to develop them.	4	4	4
12.	Observes and teaches the social, scientific and ethical values in the stages of data collection, recording, interpretation and announcement in the field of Biological and Biomedical Sciences.	4	4	4

13.	Evaluates the current developments in the field of Biological and Biomedical Sciences in line with national values and realities of the country, including children and families, which are the basic unit of society.	4	4	4
14.	Knows the importance of ethical principles and rules for the individual and society, behaves ethically.	4	4	4
15.	Develops strategy, policy and implementation plans in the field of Biological and Biomedical Sciences and evaluates the obtained results within the framework of quality processes.	4	4	4

Contribution to the level of proficiency: 1: Low 2: Low/Moderate 3: Moderate 4: High 5: Excellent