

Course Title	Code	Semester	Theoretical (hours/week)	Practice (hours/week)	Laboratory (hours/week)	ECTS
Bioenergetics and Lipid Metabolism	BİK 504	Spring	2	0	0	3
Prerequisites	None					
Course Language	Turkish					
Course Type	Request					
Teaching Methods	Lecture, interactive, brainstorming					
Instructor(s)						
Course Objective	Aim of the course, investigation of thermodynamic rules, fundamentals of cellular energy metabolism, lipid digestion, synthesis, degradation, lipoprotein metabolism and pathologies of lipid metabolism					
Course Learning Outcomes	<ol style="list-style-type: none"> Counts the rules of thermodynamics, explains the reversible and irreversible reactions. Explains lipid digestion and absorption, explains the clinical picture of lipid digestion disorders Explains lipid synthesis and degradation, lipoprotein metabolism Counts lipid metabolism disorders, hyperlipidemias and hypolipidemias 					
References	<ol style="list-style-type: none"> Nelson DL, Cox MM. Lehninger Principles of Biochemistry, W.H. Freeman; 7th Ed., 2017 Berg JM, Tymocko JL, Gatto GJ jr, Stryer L. Biochemistry, W.H. Freeman; 9th ed, 2019. Gürdöl F, Ademoğlu E. Biyokimya. Nobel Tıp Kitabevleri, 2013 Bhagavan NV. Ha CH. Essentials of Medical Biochemistry With Clinical Cases, Academic Press, 2nd Ed., 2015. Rodwell VW, Bender DA, Botham KM, kennelly PJ, Weil PA. Harper's Illustrated Biochemistry, McGraw-Hill Education, 31th Ed. 2018 					

WEEKLY COURSE TOPICS

Weeks	DISCUSSION TOPICS TO BE PROCESSED
1.	Bioenergetics, rules of thermodynamics
2.	High energy phosphate compounds, phosphate transfer potential, electron transport potential
3.	Lipid digestion and absorption, the role of bile salts
4.	Fatty acid synthesis
5.	Fatty acid breakdown
6.	Ketogenesis and alcohol metabolism
7.	Midterm exam
8.	Synthesis of eicosanoids
9.	Synthesis and degradation of glycerophospholipid and sphingolipid
10.	Presentation of seminar
11.	Cholesterol synthesis
12.	Bile salt synthesis

13.	Lipoprotein metabolism
14.	Atherosclerosis
15.	Final Exam

ECTS / WORKLOAD TABLE

Activities	Number	Duration	Total Workload
Course	13	2	26
Laboratory			
Practice			
Field Study			
Outclass course work hours (Self working / Teamwork / Preliminary work)	12	3	36
Presentations (Video preparation / Poster preparation / Oral presentation / Focus group discussion / Applying questionnaire/ Observation and report writing)	1	1	2
Seminars	1	1	2
Project			
Case study	1	5	5
Role playing, dramatization			
Preparing and criticizing article			
Semester midterm exams	1	2	2
Semester final exams	1	2	2
Total Work Load (hour) / 25(s)	75 saat /25 saat =3		
ECTS	3		

EVALUATION SYSTEM

Midterm Studies	Number	Contribution
Midterm exam	1	% 100
Quiz		
Laboratory		
Practice		
Field Study		
Specific practical training (If exists)		
Homework assignment		
Presentation and seminar		
Projects		
Other evaluation methods		

Total of Midterm Studies	1	100
Final Studies		
Final	1	%70
Homework assignment	1	%30
Practice		
Laboratory		
Total of Final Studies	2	100
Contribution of midterm studies to course grade		%30
Contribution of final studies to course grade		%70
Total Grade		100

RELATIONSHIPS BETWEEN COURSE LEARNING OUTCOMES AND PROGRAM QUALIFICATIONS

	Program Qualifications	Learning Outcomes			
		LO1	LO2	LO3	LO4
1.	Has up-to-date knowledge in proficiency level in the field of Molecular Medicine based on qualifications at the undergraduate level, develops and deepens them.	5	5	5	5
2.	Has knowledge about the information technologies, technical equipment, devices and tools at the level required by the field of Molecular Medicine.	2	2	3	3
3.	Interprets new informations by integrating with information from different disciplines and Molecular Medicine. Analyzes and synthesizes by using different research methods and brings solution proposals.	4	4	4	4
4.	Writes the report of own research.	3	3	3	3
5.	Plans experimental research and practises.	4	4	4	4
6.	Fictionalizes about the subjects that need proficiency in the field of Molecular Medicine, brings solution proposals, solves problems, evaluates the results obtained and applies them when necessary.	4	4	5	5
7.	Make scientific clinical and / or descriptive research / presentation / publication associated with primary topics in Molecular Medicine and community health	5	5	5	5
8.	Evaluates the knowledge in the field of Molecular Medicine critically and directs the learning.	5	5	5	5
9.	Applies the principles of professional development and lifelong learning related to the field of Molecular Medicine to the studies that carry out.	5	5	5	5
10.	Systematically discusses and shares the informations about current developments and own works in the field of Molecular Medicine, in written, oral and visual manner with same or different working areas.	5	5	5	5
11.	Collects, registers, interprets, announces data related to the field of Molecular Medicine, observes social, scientific and ethical values and teaches these values.	5	5	5	5
12.	Collects data related to the field of Molecular Medicine, towards restriction, interpretation, announcing social, scientific, and ethic values in oversees and teaches these values.	5	5	5	5
13.	Evaluates current developments in the field of Molecular Medicine that cover both the basic unit related to the society, child and family, in the direction of national values and country facts.	5	5	5	5
14.	Knows the importance of ethical principles and ethical committees for the individual and society and behaves ethically.	4	4	4	4

15.	Develops strategies, policies and implementation plans in the field of Molecular Medicine and evaluates the results obtained within the framework of quality processes.	5	5	5	5
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Contribution to the level of proficiency: 1: Low 2: Low/Moderate 3: Moderate 4: High 5: Excellent