Course Name	Code	Semester	Theory (hrs/week)	Application (hrs/week)	Laboratory (hrs/week)	ECTS
Introduction to Cellular Communications	BIK513	Fall	1	0	0	3
Prerequisites	No					
Course language	Turkish					
Course Type	Optional					
Learning and teaching techniques of the course	Lecture, interactive					
Course instructor(s)	Prof. Dr. Mustafa YILDIRIM					
Course objectives	Intracellular signal transduction mechanisms, involved in intracellular signaling; Different types of receptors and signaling pathways such as G proteins, ion channels, intracellular calcium, phospholipases, protein kinases, protein phosphorylation, mechanisms that enable the formation of target cell responses, physiological importance of intracellular signal transduction, apoptosis, cell cycle, gene expression and clinical significance (cancer, immune response, cardiovascular diseases)					
Learning outcomes of the course	Describes signal transduction in the cell, signal types and molecular properties of different signaling molecules. Discusses different signaling pathways in detail and knows the diseases caused by deviations in these pathways Learn the relationships between different signaling pathways and different diseases					
Resources	Wictor W. Rodwell, David A. Bender, Kathleen M. Botham, Peter J. Kennelly, P. Anthony Weil (2019). Harper's Illustrated Biochemistry. 31st Edition. Ankara: Güneş Medical Bookstores. Lehninger, Nelson, DL. & Cox, MM. (2022). Principles of Biochemistry. 8. Baskı Harvey, Ferrier, (2019) Lippincott Biochemistry: Workbooks with Visual Narratives, Nobel Medical Bookstore					

Weekly Course Topics:

WEEKS	TOPICS TO BE DISCUSSED
1. Week	Fine structure of cell membrane and membrane proteins
2. Week	Types of cellular communication
3. Week	Autocrine and paracrine signal transduction
4. Week	Synaptic and endocrine signal transduction
5. Week	Types of receptors and ligand molecules
6. Week	Intracellular signaling pathways
7. Week	Mechanisms mediating the regulation of target cell responses
8. Week	**Mid-term exam**
9. Week	Signaling pathways that control cell proliferation
10. Week	Signaling pathways that control protein synthesis
11. Week	Physiological functions and clinical significance of signal transduction
12. Week	Control of cell division and apoptosis
13. Week	Cancer signal transduction
14. Week	Clinical significance of signal transduction in immune response, memory and cardiovascular disease

15. Week	**Final exam**

Student Workload Table

Events	Number	Time	Total Workload
Lesson	13	1	13
Laboratory			
Application			
Fieldwork			
Out-of-Class Study Time (Freelancing/Group Work/Pre-Study)	5	5	25
Presentation (Shooting videos/Preparing posters/Making Oral Presentations/Focus Group Interviews/Conducting Surveys/Observation and Report Writing)	3	11	33
Seminar Preparation			
Project			
Case Study			
Role Playing, Dramatizing			
Writing an article-Criticizing			
Mid-term exams	1	2	2
Final exams	1	2	2
Total workload (hours) / 25(s)	75 seconds / 25 seconds = 3		
Ders ACT	**3**		

Evaluation System

Semester Studies	**Number**	**Contribution**
Midterm Exam	1	%50
Quiz		
Laboratory		
Application		
Fieldwork		
Course-Specific Internship (If Available)		
Assignments		
Presentation and Seminar		
Projects		
Other		
Total of Semester Studies		%50
Final Work		
Finale	1	%50
Homework		
Application		
Laboratory		
Total of Final Studies		%50
The Contribution of Semester Studies to the Success Grade		%50
The Contribution of the Final Exam to the Success Grade		%50
Sum of Success Grade		**100**

THE RELATIONSHIP BETWEEN COURSE LEARNING OUTCOMES AND PROGRAM COMPETENCIES

No	**PROGRAM QUALIFICATIONS**	**Learning Outcomes**			
		ÖÇ1	**ÖÇ2**	**ÖÇ3**	**ÖÇ4**
1	Have up-to-date knowledge at the level of expertise in the field of medical biochemistry based on undergraduate level competencies, develop and deepen them.	5	5	5	5
2	Has knowledge about information technologies, technical equipment and devices and instruments specific to the field at the level required by the field of Medical Biochemistry	3	3	3	3
3	Integrates the knowledge in the field of Medical Biochemistry with information from different disciplines, interprets it to create new information, analyzes and synthesizes using different research methods and proposes solutions.	5	5	5	5
4	He writes the report of his research.	3	3	3	3
5	Plans and conducts experimental research.	3	3	3	3
6	Constructs issues that require expertise in the field of Medical Biochemistry, proposes solutions, solves problems, evaluates the results obtained and applies them when necessary.	5	5	5	5
7	Conducts scientific, clinical and/or descriptive research/presentation/publication on priority issues related to the field of Medical Biochemistry and public health.	4	4	5	5
8	Critically evaluates the information related to the field of Medical Biochemistry and directs his/her learning.	5	5	5	5
9	Applies the principles of professional development and lifelong learning related to the field of Medical Biochemistry in the studies it performs.	5	5	5	5
10	Discuss and share his/her knowledge, current developments and his/her own studies in the field of Medical Biochemistry in a systematic way in written, oral and visual forms with groups in or outside the same field.	5	5	5	5
11	Critically examines the social relations in the professional and professional environment and the norms that guide these relations and does what is necessary to improve them.	5	5	5	5
12	Observes social, scientific and ethical values in the stages of collecting, recording, interpreting and announcing data related to the field of Medical Biochemistry and teaches these values.	4	4	5	5
13	Evaluates current developments in the field of Medical Biochemistry in line with national values and country realities, including the child and family, which are the basic units of society.	4	4	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 on issues related to the field of Medical Biochemistry and	5	5	5	5

	evaluates the results obtained within the framework of quality processes.				
Qualification level: 1: Low, 2: Low/Medium, 3: Medium, 4: High, 5: Excellent					