

International School of Medicine / Medicine (English)

2023 - 2024 Academic Year

BIOPHYSICS

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
BIOPHYSICS	ISM1011234	Yearly	26+0	0	1
Prerequisites Courses					
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Committee Course				
Course Coordinator	Assist.Prof. Nazlı EZER ÖZER				
Name of Lecturer(s)	Assist.Prof. Nazlı EZER ÖZER				
Assistant(s)					
Aim	The main objective of this course is to provide students with the basic contents and methods of biophysics clear and understandable manner.				
Course Content	This course contains; Physics and its sub-branches, physical size , SI Unit System and the general physical equations, Introduction to biophysics, definition of it, differences between biophysics and physics, Introduction to Thermodynamics, laws of thermodynamics, Heat and life , methods of heat dissipation, Cell membrane structure, tasks, significance and cell membrane permeability, Diffusion, flux and its vital importance to human beings, The ions in the body, ion channels, their structure, types and tasks, Action potential and its importance for life, Electrophysiological techniques : introduction to EEG,EMG, EKG, ERG.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
1. Understand the physical units, SI unit system and the importance of standardization at science.			10, 14, 16, 9	A	
2. Learn to accept human body as a machine developed and explain the movement of the human body, taking account the physical rules and equations.			10, 14, 16, 9	A	
3. Learn the definition of Biophysics and establishes the relationship between physics and biophysics.			10, 14, 16, 9	A	
4. Recognizes the structure of the cell, cell membrane and its permeability.4.1. Learns ions in the body and will understand the importance of the ionic transmission through cell membrane.4.2. Learns action potential and its formation process.			10, 14, 16, 9	A	
Teaching Methods	10: Discussion Method, 14: Self Study Method, 16: Question - Answer Technique, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Physics and its sub-branches, physical size , SI Unit System and the general physical equations				
2	Introduction to biophysics, definition of it, differences between biophysics and physics				
3	Introduction to Thermodynamics, laws of thermodynamics				
4	Heat and life , methods of heat dissipation				
5	Cell membrane structure, tasks, significance and cell membrane permeability				
6	Diffusion, flux and its vital importance to human beings				
7	The ions in the body, ion channels, their structure, types and tasks				
8	Action potential and its importance for life				
9	Electrophysiological techniques : introduction to EEG,EMG, EKG, ERG				
Evaluation Methods		Weight(%)			
Midterm Exam		40			
General Exam		60			

Resources
Handouts will be given in the end of each lecture.Biophysics, Roland Glaser