

**International School of Medicine / Medicine (English)**

**2023 - 2024 Academic Year**

**From Cell to Human Body**

**Syllabus**

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
From Cell to Human Body	05. Committee	Spring Semester	67+22	0	7
<b>Prerequisites Courses</b>					
<b>Recommended Elective Courses</b>					
<b>Language of Instruction</b>	English				
<b>Course Level</b>	First Cycle (Bachelor's Degree)				
<b>Course Type</b>	Committee				
<b>Course Coordinator</b>	Assist.Prof. Ali Behram SALAR				
<b>Name of Lecturer(s)</b>	Assist.Prof. Ali Behram SALAR				
<b>Assistant(s)</b>					
<b>Aim</b>	The aim of this committee is to enable students to acquire cellular, molecular, biological and genetic, histological, anatomical and biochemical concepts that will form the basis of clinical studies, and to get to know the human body in the light of this information.				
<b>Course Content</b>	This course contains; <b>MEDICAL GENETICS:</b> Basic structure and functions of proteins, Genetic material of the cell: DNA, chromosomes and genome, DNA replication, repair and recombination, Transfer of genetic information from DNA to protein, Control mechanisms of gene expression, Epigenetics, <b>HISTOLOGY AND EMBRYOLOGY:</b> Introduction to histology and introduction to microscope, Microscopes and Microscopy techniques, Immunohistochemistry, Using Lab-Microscope and Observation of Cells, Cell Types and Cell Membrane, Golgi-ER-Lysosome, Mitochondria-Ribosome, Nucleus and Nucleolus, Introduction to Cell epithelium, connective-support, muscle and nerve tissue), Covering Epithelium, Glandular Epithelium, Lab-epithelial, Connective Tissue, Adipose Tissue, Lab-Connective Tissue-fatty tissue, Cartilage Tissue, lab-cartilage, Bone Tissue, Neurohistology, lab-bone ,striated muscle, smooth muscle, cardiac muscle, Lab-muscle, Introduction to General Embryology and Terminology, Oogenesis, Spermatogenesis, Fertilization, Implantation, 2nd Week of Embryonic Development, 3rd Week of Embryonic Development, Neurogenesis, Organogenesis, Extraembryonic Structures, <b>BIOCHEMISTRY:</b> Molecular meaning of life, Bioenergy: Carbohydrate metabolism, Energy storage: Glycogen production and destruction, Energy production: Glycolysis, Energy conversion I: Citric acid cycle, Energy conversion II: Pentose phosphate pathway, Glucose biosynthesis: Gluconeogenesis, Metabolic control of glucose, Lipids and Fatty acids, Oxidation of fatty acids, Ketogenesis, Lipoproteins, Sphingolipids, Steroids, Lipogenesis, Membranes and transport, Oxidative phosphorylation, Biological oxidation-antioxidants, Enzymes, Signal transmission, Hormones and their structure, The mechanism of action of hormones, the mechanism of action of hormones, Vita molecules (1), Inorganic molecules (2), Amino acids and properties, Amino acid synthesis and degradation, Biological amines, Urea synthesis, Structure of proteins, Classification of proteins, Globular proteins (Hemoglobin), Protein analysis methods, Nutritional biochemistry acids, Nucleic Buffer systems ,Body fluids ,Water metabolism, <b>ANATOMY:</b> Introduction to anatomy and general concepts, upper extremity bones and joints, lower extremity bones and joints, column vertebralis and joints, cranium bones and joints, mimic muscles.				
<b>Course Learning Outcomes</b>			<b>Teaching Methods</b>	<b>Assessment Methods</b>	
Evaluates proteins in terms of their structure and functions, explains the purpose of analysis methods.			10, 16, 9	A	
Explains the clinical meaning of protein denaturation, comprehends the events that occur in intracellular protein degradation.			10, 16, 9	A	
Comprehends buffer systems, acid-base balance, acidosis and alkalosis			10, 16, 9	A	
Explains the basic concepts and principles of heredity in medical genetics, comprehends genetic diseases and diagnostic methods.			16, 9	A	
Describes general first aid concepts.			16, 9	A	
Describes the first aid to be applied in traumas, environmental emergencies and poisonings.			9	D	
Describes patient and injured transport techniques.			10, 9		
Distinguishes structures in a healthy human body at the level of microscopic anatomy.			16, 6	D	
Compares morphology and function at molecular, cellular, tissue and organ level.			10, 9	A, D	
Explains the changes in basic organ structures and functions that occur at different stages of the embryonic process.			10	A	
Distinguishes the skull bones and the formations on them.			10, 16	A	
Distinguishes head, neck and trunk muscles.			16, 6	A	
Examines the reproductive cells under the microscope.			17, 6	D	
Gains the ability to transport the sick and injured.			10, 16, 6, 9		
Gains protein analysis skills.			17	A, D	
Shows head, neck and trunk muscles.			16, 6	D	
Discerns the skull bones and the formations on them.			16, 9	D	
Understands the importance of first aid in emergency situations.			10, 13, 16	A	
Acts responsibly and shows respect while working on human tissue samples such as bone cadavers.			10, 9	D	
<b>Teaching Methods</b>	10: Discussion Method, 13: Case Study Method, 16: Question - Answer Technique, 17: Experimental Technique, 6: Experiential Learning, 9: Lecture Method				
<b>Assessment Methods</b>	A: Traditional Written Exam, D: Oral Exam				
<b>Lecture Schedule</b>					
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
1	MEDICAL GENETICS: Basic structure and functions of proteins, Genetic material of the cell: DNA, chromosomes and genome, DNA replication, repair and recombination, Transfer of genetic information from DNA to protein, Control mechanisms of gene expression, Epigenetics				

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<b>Lecture Schedule</b>		
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>
2	HISTOLOGY AND EMBRYOLOGY: Introduction to histology and introduction to microscope, Microscopes and Microscopy techniques, Immunohistochemistry, Using Lab-Microscope and Observation of Cells, Cell Types and Cell Membrane, Golgi-ER-Lysosome, Mitochondria-Ribosome, Nucleus and Nucleolus, Introduction to Cell epithelium, connective-support, muscle and nerve tissue), Covering Epithelium, Glandular Epithelium, Lab-epithelial, Connective Tissue, Adipose Tissue, Lab-Connective Tissue-fatty tissue, Cartilage Tissue, lab-cartilage, Bone Tissue, Neurohistology, lab-bone ,striated muscle, smooth muscle, cardiac muscle, Lab-muscle, Introduction to General Embryology and Terminology, Oogenesis, Spermatogenesis, Fertilization, Implantation, 2nd Week of Embryonic Development, 3rd Week of Embryonic Development, Neurogenesis, Organogenesis, Extraembryonic Structures	
3	BIOCHEMISTRY: Molecular meaning of life, Bioenergy: Carbohydrate metabolism, Energy storage: Glycogen production and destruction, Energy production: Glycolysis, Energy conversion I: Citric acid cycle, Energy conversion II: Pentose phosphate pathway, Glucose biosynthesis: Gluconeogenesis, Metabolic control of glucose, Lipids and Fatty acids, Oxidation of fatty acids, Ketogenesis, Lipoproteins, Sphingolipids, Steroids, Lipogenesis, Membranes and transport, Oxidative phosphorylation, Biological oxidation-antioxidants, Enzymes, Signal transmission, Hormones and their structure, The mechanism of action of hormones, the mechanism of action of hormones, Vita molecules (1),Inorganic molecules (2),Amino acids and properties,Amino acid synthesis and degradation,Biological amines,Urea synthesis,Structure of proteins,Classification of proteins,Globular proteins (Hemoglobin),Protein analysis methods,Nutritional biochemistry acids,Nucleic Buffer systems ,Body fluids ,Water metabolism	
4	ANATOMY: Introduction to anatomy and general concepts, upper extremity bones and joints, lower extremity bones and joints, column vertebralis and joints, cranium bones and joints, mimic muscles	
<b>Evaluation Methods</b>		<b>Weight(%)</b>
Midterm Exam		60
General Exam		40

<b>Resources</b>
1. Bruce Alberts, Dennis Bray, Karen Hopkin, Alexander D Johnson, Julian Lewis, Martin Raff, Keith Roberts, Peter Walter "Essential Cell Biology" Fourth Edition, Garland Science Publishers, USA, 2013. 2. Kierzsenbaum A.L., Histology and Cell Biology, An Introduction to Pathology, Third ed. SAUNDERS. 3. Gartner L.P., Hiatt J.L.: Color Text Book of Histology. Second ed. SAUNDERS. 4. Moore K.M., Persaud T.V.N. Çev. Ed: Yıldırım M., Okar İ., Dalçık H. Klinik Yönleri ile İnsan Embriyolojisi. 6. Ed. NOBEL TIP 5. Sadler T.W: Langman's Medical Embryology, Eleventh Edition. Lippincott Williams & Wilkins, USA Schoenwolf G.C.: Larsen's Human Embryology. 4. Ed. CHURCHILL LIVINGSTONE ELSEVIER 6. Clinical Chemistry Pillincott Williams and Wilkins,Bishop,Fody, Schoeff, 2013 7.Henry's Clinical Diagnosis and Managemen by Laboratory Methods, McPherson and Pincus, Elsevier Saunders, 2011. 3.Basic and Appliend Biochemisty, Nesrin Emekli, Nobel Tip Kitapevleri Clinical Chemistry Pillincott Williams and Wilkins,Bishop,Fody, Schoeff, 2013 Henry's Clinical Diagnosis and Managemen by Laboratory Methods, McPherson and Pincus, Elsevier Saunders, 2011. 3.Basic and Appliend Biochemisty, Nesrin Emekli, Nobel Tip Kitapevleri1. Stevens A., Human Histology, Third Ed. Junqueira L.C., Carneiro J. Çev. Ed: Aytekin Y, Solakoğlu S.: Temel Histoloji. NOBEL TIP 2. Gartner L.P., Hiatt J.L.: Color Atlas of Histology, Fifth Edition. 3. Lippincott Williams & Wilkins, USA Welsch U. Çev. Ed.: Tekelioğlu M.: Sobotta Histoloji Atlası. BETA 4. Moore K.M., Persaud T.V.N. Çev. Ed: Yıldırım M., Okar İ., Dalçık H. Klinik Yönleri ile İnsan Embriyolojisi. 6. Ed. NOBEL TIP