



YÜKSEK İHTİSAS UNIVERSTY
SCHOOL OF MEDICINE
ENGLISH PROGRAM
PHASE – II
2025 – 2026 EDUCATION
TRAINING GUIDE

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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PREGRADUATE MEDICAL EDUCATION COORDINATION	
CHIEF COORDINATION OFFICE	
Chief Coordinator (Phase 1-2-3)	Prof. Dr. Ayla Kürkçüoğlu
Chief Coordinator (Phase 4-5-6)	Prof. Dr. Mutlu ACAR
Vice Chief Coordinator	Dr. Öğr. Üyesi Ülker ÇUHACI
PHASE I COORDINATORSHIP	
Coordinator (Turkish)	Dr. Öğr. Üyesi Müge ÖÇAL DEMİRTAŞ
Coordinator (English)	Dr. Öğr. Üyesi Pınar ŞAHİN
Vice Coordinator (Turkish)	Arş. Gör. Mehmet Can EBİNÇLİ
Vice Coordinator (English)	Arş. Gör. Pınar TARIKAHYA
PHASE II COORDINATORSHIP	
Coordinator (Turkish)	Dr. Öğr. Üyesi Aslıhan Esra BİÇER
Coordinator (English)	Doç. Dr. Çiğdem ÇİÇEK
Vice Coordinator (Turkish)	Arş. Gör. Özgenur KOÇAK
Vice Coordinator (English)	Arş. Gör. İlayda NUMANOĞLU
PHASE III COORDINATORSHIP	
Coordinator (Turkish)	Doç. Dr. Gamze ÖZBEK GÜVEN
Coordinator (English)	Dr. Öğr. Üyesi Burcu BABA
Vice Coordinator (Turkish)	Arş. Gör. Katre Cemre ÖZDEMİR
Vice Coordinator (English)	Arş. Gör. Rabia Şeyma Nur TAŞDEMİR
PHASE IV COORDINATORSHIP	
Coordinator	Doç. Dr. Fatih YIĞMAN
PHASE V COORDINATORSHIP	
Coordinator	Doç. Dr. Mustafa AKKAYA
PHASE VI COORDINATORSHIP	
Coordinator	Prof. Dr. Fatma Nurhayat SAYDAM

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FACULTY OF MEDICINE ENGLISH PROGRAM

PHASE II COURSES AND ECTS

CODE	COMPULSORY COURSES	T	U	L	ECTS
MED 2000	MED 2010 NERVOUS AND SENSORY SYSTEMS	112	20	0	12
	MED 2020 BLOOD AND IMMUNE SYSTEMS	55	6	0	6
	MED 2030 CIRCULATORY AND RESPIRATORY SYSTEMS	80	12	0	10
	MED 2040 DIGESTIVE AND METABOLIC SYSTEMS	110	11	0	9
	MED 2050 EXCRETORY, ENDOCRINE, AND REPRODUCTIVE SYSTEMS	94	8	0	9
	MED 2060 DISEASE DEVELOPMENT AND THE BASICS OF PHARMACOLOGY	59	0	0	6
TOTAL ECTS TO BE TAKEN AS A COMPULSORY COURSE					52
CODE	COMMON COMPULSORY COURSES	T	U	L	ECTS
MED ENG 201	ENGLISH-3	28	0	0	2
MED ENG 202	ENGLISH-4	28	0	0	2
TOTAL ECTS TO BE TAKEN AS A COMMON COMPULSORY COURSE					4
CODE	ELECTIVE COURSES	T	U	L	ECTS
MEDELEC 101-2	STEM CELL BIOLOGY	28	0	0	2
MEDELEC 103-2	CHEMICAL MECHANISMS OF CANCER	28	0	0	2
MEDELEC 105-2	VIRAL VACCINE TECHNOLOGIES	28	0	0	2
MEDELEC 107	ADVANCED MEDICAL LAW	28	0	0	2
MEDELEC 110-2	SENSOR TECHNOLOGIES IN MEDICINE	28	0	0	2
MEDELEC 2601	SPEAKING FOR MEDICAL STUDENTS	28	0	0	2
MEDELEC 2602	HEALTH PHYSICS	28	0	0	2
TOTAL ECTS TO BE TAKEN AS AN ELECTIVE COURSE					2
TOTAL ECTS TO BE TAKEN IN YEAR II					58

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PHASE II LEARNING AIM AND OBJECTIVES

Aim:

The aim of the Phase 2 curriculum is to provide students with an integrated understanding of the structure, function, and interrelationships of the major organ systems of the human body, including the nervous, sensory, circulatory, respiratory, digestive, metabolic, excretory, endocrine, reproductive, blood, and immune systems. Through the coordinated study of anatomy, histology, embryology, physiology, biochemistry, pathology, and pharmacology, students are expected to comprehend the fundamental principles underlying normal biological functions and disease mechanisms. This integration of basic sciences with clinical relevance aims to build a foundation for the understanding, interpretation, and management of health and disease in medical practice.

Learning Objectives:

By the end of Phase 2, students are expected to:

Explain the normal macroscopic and microscopic structures, development, and physiological functions of major organ systems.

Comprehend the embryological origins and potential developmental anomalies of related tissues and organs.

Interpret biochemical and biophysical mechanisms underlying organ system functions and their regulation.

Identify and describe pathological alterations and the molecular, cellular, and environmental factors contributing to disease development.

Understand the principles of pharmacology, including mechanisms of drug action and their therapeutic and toxicological implications.

Integrate basic science knowledge to interpret clinical findings and relate them to physiological and pathological processes.

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Develop scientific reasoning, analytical thinking, and foundational skills required for future clinical education and research in medicine.

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NERVOUS AND SENSORY SYSTEM COMMITTEE
PHASE II- COURSE I
COURSE CODE: MED 2010

LECTURE CODE	LECTURE NAME		THEORETICAL LECTURE HOUR	PRACTICAL LECTURE HOUR	TOTAL LECTURE HOUR
	Coordinatorship Lectures	Quiz& Discussion Hour	1	0	1
		Introduction to the Course Committee	1	0	1
	Anatomy		52	10	62
	Biophysics		5	0	5
	Histology and Embryology		12	2	14
	Medical Biochemistry		2	0	2
	Physiology		41	8	49
	TOPLAM		112	20	132

Aim:

At the end of the course, students are expected to be able to explain the normal macroscopic and microscopic features, development, locations, and relations of the nervous system and sensory organs; to understand the embryological development, developmental abnormalities, and malformations of the structures included in the system; to explain the anatomical, histological, and physiological structure and functioning of these structures; to comprehend the basic physical principles underlying the functions of the nervous system and the special senses; and to explain the clinical connections pertaining to the nervous system and sensory organs.

Learning Objectives:

Using a biophysical approach, explains the behaviour of electromagnetic waves as stimuli and the visual system as transducers (sensors)

Using a biophysical approach, explains the behaviour of sound waves as stimuli and the ear as transducers (sensors)

Explains the biophysical basis of the electrical signals (EEG) produced by brain cells and knows that brain functions can be monitored using this method

- Explains the development and anomalies of the nervous system.

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- Identifies the histological layers and cells of tissues and organs belonging to the central and peripheral nervous systems.
- Explains the development, developmental anomalies, and histological structure of the eye.
- Explains the development, developmental anomalies, and histological structure of the ear.
- Explains the development, developmental anomalies, glands, and histological structure of the skin.

Skill Objectives:

- Distinguishes the histological layers and cells of tissues and organs belonging to the central and peripheral nervous systems by using a light microscope.
 - Distinguishes the sensory organs by using a light microscope.
 - Explains the biochemical components of the brain and nervous tissue.
 - Explains the biochemical processes involved in synaptic communication.
 - Explains the synthesis, release, and degradation pathways of neurotransmitters.
- 1. Knowledge Level Objectives**
 - Defines the basic organization and functional divisions of the nervous system.
 - Explains the structure of the neuron, synaptic transmission mechanisms, and the physiology of the action potential.
 - Summarizes the physiological functioning of the central and peripheral nervous systems.
 - Explains the basic physiological mechanisms of the sensory systems (vision, hearing, smell, taste, somatic sensation).
 - Understands the physiological basis of the motor system (upper motor neuron, lower motor neuron, reflex pathways, etc.).
 - Defines the structure and functions of the autonomic nervous system (sympathetic and parasympathetic).
 - Explains the physiology of pain and pain pathways.
 - Recognizes the basic physiology of sleep and consciousness mechanisms.
 - Explains the physiological basis of higher cortical functions such as memory, learning, and emotional control.
 - 2. Skill Level Objectives**
 - Can draw and explain simple reflex pathways.
 - Analyzes experimental results related to neural transmission and synapse physiology.
 - Evaluates laboratory data related to the sensory and motor systems.
 - Can interpret basic tests related to the nervous system, such as EEG and EMG, at a basic level.
 - Can make observations in physiological experiments and derive experimental results.
 - 3. Attitude Level Objectives**
 - Demonstrates scientific curiosity and willingness to learn about the physiology of the nervous system.
 - Develops clinical reasoning habits based on physiological knowledge.
 - Acts carefully, ethically, and in a disciplined manner during laboratory studies.

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- Displays a cooperative, respectful, and sharing attitude in group work.
- Respects neurophysiological processes and recognizes the impact of physiological knowledge on human health.

TOPICS:

ANATOMY			
TOPIC	TYPE	HOUR	FACULTY MEMBER
General Morphology of the Nervous System	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
External and Internal Structure of the Spinal Cord	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Meninges and Blood Vessels of the Spinal Cord	Theoretical	1	Dr. Derya Şahin ÖZTÜRKCAN
Bulbus, Pons, Rhomboid Fossa	Theoretical	4	Dr. Derya Şahin ÖZTÜRKCAN
Cerebellum	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Mesencephalon	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Diencephalon	Theoretical	3	Dr. Derya Şahin ÖZTÜRKCAN
Telencephalon and Basal Ganglia	Theoretical	3	Dr. Derya Şahin ÖZTÜRKCAN
Meninges of the Brain and Venous Sinuses	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Ventricular System of the Brain and CSF	Theoretical	1	Dr. Derya Şahin ÖZTÜRKCAN
Taste and Smell Pathways	Theoretical	1	Dr. Derya Şahin ÖZTÜRKCAN
Limbic System	Theoretical	1	Dr. Derya Şahin ÖZTÜRKCAN
Brain Vasculature	Theoretical	3	Dr. Derya Şahin ÖZTÜRKCAN
Ascending Pathways of the Spinal Cord	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Descending Pathways of the Spinal Cord	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Cranial Nerves (I–VI)	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Cranial Nerves (VII–XII)	Theoretical	3	Dr. Derya Şahin ÖZTÜRKCAN
Clinical Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Autonomic Nervous System (Parasympathetic)	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Autonomic Nervous System (Sympathetic)	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Eye Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Eye Anatomy and Visual Pathway	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Ear Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Ear Anatomy and Auditory Pathway	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Clinical Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Lab 1: Spinal Cord, Bulbus, Pons, Rhomboid Fossa, Mesencephalon and Cerebellum	Practical	1	Faculty Members
Lab 2: Diencephalon, Telencephalon, Basal Ganglia	Practical	1	Faculty Members
Lab 3: Meninges, Venous Sinuses, Ventricular System and CSF	Practical	1	Faculty Members

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Lab 4: Brain Vasculature, Spinal Cord Vessels and Meninges, Limbic System	Practical	1	Faculty Members
Lab 5: Cranial Nerves (I–VI)	Practical	1	Faculty Members
Lab 6: Cranial Nerves (VII–XII)	Practical	1	Faculty Members
Lab 7: Autonomic Nervous System	Practical	1	Faculty Members
Lab 8: Eye Anatomy	Practical	1	Faculty Members
Lab 9: Ear Anatomy	Practical	1	Faculty Members
Lab 10: Review of CNS, Autonomic NS, Eye and Ear Anatomy Models	Practical	1	Faculty Members

BIOPHYSICS

TOPIC	TYPE	HOUR	FACULTY MEMBER
Visual Biophysics	Theoretical	2	Dr. Şerife CANKURTARAN SAYAR
Auditory Biophysics	Theoretical	2	Dr. Şerife CANKURTARAN SAYAR
Electrical Activity of the Brain: Biophysical Basis of Electroencephalography (EEG)	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR

HISTOLOGY AND EMBRYOLOGY

TOPIC	TYPE	HOUR	FACULTY MEMBER
Nervous System Histology I	Theoretical	2	Dr. Gizem İlater AKTAŞ
Nervous System Histology II	Theoretical	2	Dr. Gizem İlater AKTAŞ
Development and Anomalies of the Nervous System	Theoretical	2	Dr. Gizem İlater AKTAŞ
Development, Anomalies and Histology of the Eye	Theoretical	2	Dr. Çağla Zübeyde KÖPRÜ
Development, Anomalies and Histology of the Ear	Theoretical	2	Dr. Çağla Zübeyde KÖPRÜ
Skin and Appendages	Theoretical	2	Dr. Çağla Zübeyde KÖPRÜ
Lab I: Histology of the Nervous System	Practical	1	Faculty Members
Lab II: Sensory Organs	Practical	1	Faculty Members

MEDICAL BIOCHEMISTRY

TOPIC	TYPE	HOUR	FACULTY MEMBER
Brain and Nerve Tissue Biochemistry, Neurotransmitters	Theoretical	2	Dr. Ayşegül AKBAY

PHYSIOLOGY

TOPIC	TYPE	HOUR	FACULTY MEMBER
General Organization of the Central Nervous System	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU

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Control of Motor Functions at the Spinal Cord Level	Theoretical	3	Dr. Sümeyye RAMAZANOĞLU
Control of Motor Functions at the Brainstem Level	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Control of Motor Functions at the Brainstem Level	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Autonomic Nervous System – Sympathetic and Parasympathetic Nervous Systems	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Motor Cortex and Cortical Motor Areas	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Role of Basal Ganglia in Motor Functions	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Descending Pathways Related to Motor Control	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Cerebral Blood Flow and CSF	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Hypothalamus, Limbic System and Monoaminergic System	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Basic Principles of Sensory Physiology	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Physiology of Cutaneous Sensation	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Sensory Pathways, Thalamic Functions and Sensory Cortex	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Pain Physiology	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Visual Physiology	Theoretical	3	Dr. Sümeyye RAMAZANOĞLU
Auditory Physiology	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Vestibular System and Balance	Theoretical	2	Dr. Burcu AYDOĞAN
Physiology of Taste and Smell	Theoretical	2	Dr. Burcu AYDOĞAN
EEG	Theoretical	2	Dr. Burcu AYDOĞAN
Sleep Physiology	Theoretical	2	Dr. Burcu AYDOĞAN
Learning and Memory Physiology	Theoretical	2	Dr. Burcu AYDOĞAN
Cerebral Cortex and Higher Functions of the Nervous System	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Lab I: Reflexes in Frogs	Practical	2	Faculty Members
Lab II: Human Reflexes	Practical	2	Faculty Members
Lab III: Special Senses	Practical	2	Faculty Members
Lab IV: EEG	Practical	2	Faculty Members

BLOOD AND IMMUNE SYSTEMS COMMITTEE
PHASE II- COURSE II
COURSE CODE: MED 2020

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LECTURE CODE	LECTURE NAME		THEORETICAL LECTURE HOUR	PRACTICAL LECTURE HOUR	TOTAL LECTURE HOUR
	Coordinatorship Lectures	Quiz& Discussion Hour	1	0	1
		Introduction to the Course Committee	1	0	1
	Anatomy		2	0	2
	Biophysics		4	0	4
	Histology and Embryology		7	1	8
	Medical Biochemistry		6	0	6
	Medical Microbiology		21	1	22
	Physiology		15	4	19
	TOPLAM		55	6	61

Aim:

At the end of this course, students are expected to be able to explain the embryological development, histological and anatomical structures, and physiological properties of the cells, tissues, and organs that constitute the lymphatic system, together with their functions; to comprehend the interrelationships among lymphatic system structures and their responses under abnormal conditions; to explain the biochemical concepts related to the blood and immune systems; to understand the functions of the cells forming the immune system; and to attain the knowledge and skills required to comprehend the clinical courses related to these systems.

Learning Objectives:**Knowledge Objectives:**

Knows the physical properties of blood, distinguishes between Newtonian and non-Newtonian fluids, explains the behaviour of incompressible fluids

Explains the parameters affecting viscosity and the relationship between vessel radius and viscosity

Explains the factors affecting blood flow and provides a biophysical explanation of the conditions for laminar flow, turbulent flow, or transitional flow

Explains the behaviour of stationary blood using physical law

Learning Objectives:

- Explains the histological structure of the bone marrow and hematopoiesis in the prenatal and postnatal periods.

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- Describes the types of immunity and the cells involved in the immune response.
- Describes the development, histological organization, and differences of primary and secondary lymphoid organs.

Skill Objectives:

- Distinguishes the regions and cells of primary and secondary lymphoid organs by using a light microscope.

Explains the biochemistry of erythrocytes, the structure and functions of hemoglobin.

Explains free radicals, antioxidant defense systems, and the biological effects of oxidative stress.

Explains the biochemistry of coagulation and the basic clotting factors.

Explains the structural properties of porphyrins and their biochemical roles.

Knowledge Objectives

- Identify the main blood-borne pathogens (HIV, HBV, HCV, Plasmodium spp. etc.).
- Define septicemia, bacteremia, fungemia, and parasitemia.
- Recognize infection susceptibility in immunodeficiency states.
- Summarize the microbiological aspects of hypersensitivity reactions and immune disorders.

Skill Objectives

- Relate blood and immune system infections with their microbial agents through clinical cases.
- Recognize the microbiological significance of sterile body fluids.
- Identify common opportunistic infections in immunocompromised individuals.

Attitude Objectives

- Adopt the importance of preventing blood-borne infections.
- Appreciate the clinical significance of the interaction between immunity and pathogens.
- Internalize adherence to biosafety rules for patient and healthcare safety.

Knowledge Level Objectives

- Explains the composition of blood (plasma and formed elements) and their physiological roles.
- Defines the process of erythropoiesis, the structure, lifespan, and functions of erythrocytes.
- Explains the structure and function of hemoglobin and its role in oxygen-carbon dioxide transport.
- Defines the types and functions of leukocytes and their roles in defense mechanisms.

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- Explains the process of hemostasis, including vasoconstriction, platelet plug formation, and the coagulation cascade.
- Explains blood groups and the principle of crossmatching.
- Defines the physiological functions and cellular–molecular components of the immune system (innate and adaptive immunity).
- Summarizes the functions of antigens, antibodies, the complement system, cytokines, and MHC molecules.
- Explains the physiological process of inflammation and its major stages.
- Defines the regulation of immune responses and the concept of tolerance.

Skill Level Objectives

- Interprets basic hematological parameters (hematocrit, hemoglobin concentration, erythrocyte count, etc.).
- Analyzes experimental results regarding the physiological functions of blood cells.
- Explains case examples related to disturbances in the hemostatic process at the physiological level.
- Draws and explains basic immune response diagrams (e.g., antigen presentation, lymphocyte activation).
- Discusses the effectiveness of the immune system based on physiological data.

Attitude Level Objectives

- Develops scientific curiosity regarding the physiological processes of the blood and immune system.
- Attempts to integrate acquired physiological knowledge with clinical reasoning.
- Acts carefully, responsibly, and ethically in experimental and laboratory studies.
- Recognizes the importance of the blood and immune system in maintaining homeostasis, as well as their impact on individual and public health.
- Cooperates in group work and approaches scientific discussions with respect.

TOPICS:

ANATOMY			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Introduction to Lymphatic System Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
BIOPHYSICS			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Physical Properties of Blood	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
Viscosity and Types, Fahraeus-Lindqvist Effect	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR

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Relationship Between Vessel Diameter, Blood Flow Velocity and Volume, Types of Blood Flow	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
Sedimentation and Stokes' Law	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
HISTOLOGY AND EMBRYOLOGY			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Hematopoiesis and Bone Marrow Histology	Theoretical	2	Dr. Çağla Zübeyde KÖPRÜ
Development of Lymphatic Organs and Immune Response Cells	Theoretical	3	Dr. Pınar ŞAHİN
Histology of Lymphatic Organs	Theoretical	2	Dr. Pınar ŞAHİN
Lab I: Histology of Lymphatic Organs	Practical	4	Faculty Members
MEDICAL BIOCHEMISTRY			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Erythrocyte Biochemistry	Theoretical	1	Dr. Simin ROTA
Free Radicals, Antioxidants, and Oxidative Stress	Theoretical	1	Dr. Ayşegül AKBAY
Coagulation Biochemistry	Theoretical	1	Dr. Simin ROTA
Structure and Properties of Hemoglobin	Theoretical	2	Dr. Simin ROTA
Structural Properties of Porphyrins	Theoretical	1	Dr. Simin ROTA
MEDICAL MICROBIOLOGY			
Introduction to the Immune System	Theoretical	1	Dr. Seyyal ROTA
Innate Immunity	Theoretical	2	Dr. Seyyal ROTA
Mechanisms of Innate Immunity	Theoretical	1	Dr. Seyyal ROTA
Antigen, Antigen Presentation, Histocompatibility Antigens	Theoretical	2	Dr. Seyyal ROTA
Cellular Immunity	Theoretical	2	Dr. Seyyal ROTA
Mechanisms of Cellular Immunity	Theoretical	2	Dr. Seyyal ROTA
Humoral Immunity	Theoretical	2	Dr. Seyyal ROTA
Mechanisms of Humoral Immunity	Theoretical	2	Dr. Seyyal ROTA
Immunological Tolerance and Autoimmunity	Theoretical	1	Dr. Seyyal ROTA
Immunity in Tumors and Transplantation	Theoretical	1	Dr. Seyyal ROTA
Hypersensitivity Reactions	Theoretical	2	Dr. Seyyal ROTA
Vaccines and Types of Immunization	Theoretical	1	Dr. Seyyal ROTA
Serological Tests	Theoretical	2	Dr. Seyyal ROTA
Serological Tests	Practical	1	Faculty Members
PHYSIOLOGY			
TOPIC	TYPE	HOUR	FACULTY MEMBER

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Functions, Physical and Chemical Properties of Blood	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Blood Formation and Regulation	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Functions of Erythrocytes	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Erythrocyte Destruction, Anemia, Polycythemia	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Functions of Leukocytes	Theoretical	3	Dr. Sümeyye RAMAZANOĞLU
Blood Groups and Transfusion	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Functions of Platelets	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Coagulation Mechanism	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Anticoagulant Mechanisms and Fibrinolysis	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Lab I: Blood Experiments I (2 hours each, 4 groups)	Practical	8	Dr. Sümeyye RAMAZANOĞLU
Lab II: Blood Experiments II (2 hours each, 4 groups)	Practical	8	Dr. Sümeyye RAMAZANOĞLU

CIRCULATORY AND RESPIRATORY SYSTEMS COMMITTEE
PHASE II- COURSE III
COURSE CODE: MED 2030

LECTURE CODE	LECTURE NAME		THEORETICAL LECTURE HOUR	PRACTICAL LECTURE HOUR	TOTAL LECTURE HOUR
	Coordinatorship Lectures	Quiz& Discussion Hour	1	0	1
		Introduction to the Course Committee	1	0	1
	Anatomy		22	4	26
	Biophysics		14	0	14
	Histology and Embryology		9	2	11
	Physiology		35	6	41
	TOPLAM		80	12	92

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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İnternet Adresi :
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Sayfa 15 / 35

Aim:

At the end of this course, students are expected to comprehend the anatomical features, topographic relations, morphological and histological characteristics, and developmental processes of the structures belonging to the heart, circulatory, and respiratory systems; to explain the physiological functions of the cardiovascular and respiratory systems in relation to biophysical principles; to describe the hemodynamic organization and mechanisms of functioning of blood vessels, as well as the regulatory mechanisms of blood pressure, blood flow, and respiration and their clinical implications; and to acquire the knowledge and skills required to comprehend the clinical courses related to these systems.

Learning Objectives:**Knowledge Objectives**

- Explains the circulatory system as a closed and pulsatile system and the dynamic properties of its components (blood, heart, and vessels)
- Explains the relationship between vascular resistance, flow rate, and blood pressure; the change in total resistance to blood flow in series and parallel connected vascular systems; using Ohm's law
- Explains the relationship between energy and pressure during blood flow using Bernoulli's principle, separately for a single vessel and for the circulatory system. Determines the velocity of the fluid whose pressure is measured
- Easily expresses the pressure changes occurring in arteries and veins in the circulatory system using physical definitions and units
- In internal friction flow, expresses the relationship between pressure, velocity and flow rate, and the effect of changes in vessel radius on velocity and pressure using Poiseuille's law
- Expresses the changes that can be observed in the circulatory system (pressure, flow rate and kinetic energy factor) in exercising individuals by comparing them with the resting state and using the laws of physics
- Explains the biophysical basis of cardiac efficiency and power
- Understands the fundamentals of electrocardiogram (ECG) recording, the concept of cardiac dipole, and the properties of the Einthoven triangle
- Knows standard and limb derivations in ECG, finds the direction of the cardiac vector using the ECG recording
- Knows the gas laws related to respiration, physical concepts such as volume and pressure changes during respiration, surface tension and alveolar mechanics
- Knows the biophysical mechanism of gas exchange between the alveoli and blood
- It expresses the relationship between gas pressure and wall tension in the alveoli and the conditions for the formation of resistance to air flow in the airways, using Laplace's and Poiseuille's laws.

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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Learning Objectives:

- Explains the development and developmental anomalies of the cardiovascular system.
- Explains the histological structure and layers of the vessels and heart.
- Describes the development, histological organization, and differences of the respiratory system organs.

Skill Objectives:

- Distinguishes the microscopic structure of the heart and vessels by using a light microscope.
- Distinguishes the parts and cells of the respiratory system organs by using a light microscope.

Knowledge Level Objectives**Circulatory System**

- Defines the structure of the heart and its conduction system from a physiological perspective.
- Explains the phases of the cardiac cycle (contraction–relaxation).
- Explains the electrical activity of the heart and the basic principles of the ECG.
- Defines the concepts of cardiac output, inotropy, preload, and afterload.
- Explains the physiological control mechanisms of blood pressure (e.g., baroreceptors, renin–angiotensin system).
- Summarizes the physiological properties of the arterial, venous, and capillary systems.
- Defines the factors affecting blood flow (resistance, viscosity, vessel diameter, etc.).
- Understands the physiological functions of microcirculation and lymphatic circulation.

Respiratory System

- Explains the basic functions of the respiratory system (gas exchange, pH balance, defense, etc.).
- Defines the functions of the respiratory muscles and the mechanics of respiration (inspiration, expiration, ventilation volumes).
- Explains concepts such as alveolar ventilation, dead space, and tidal volume.
- Explains partial gas pressures and the principles of gas diffusion.
- Explains the mechanisms of oxygen and carbon dioxide transport (transport via Hb, bicarbonate buffer system, etc.).
- Explains the neural and chemical control mechanisms of respiration (chemoreceptors, medullary centers).
- Defines acid–base balance and the role of the respiratory system in maintaining this balance.

Skill Level Objectives

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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- Identifies the basic components of the ECG (P, QRS, T waves) and relates them to the cardiac cycle.
- Performs simple hemodynamic calculations (e.g., cardiac output = stroke volume × heart rate).
- Analyzes spirometric data related to respiratory volumes.
- Evaluates blood gas results at a basic level.
- Analyzes gas exchange processes using oxygen and carbon dioxide partial pressures.
- Interprets circulatory parameters such as blood pressure and pulse.

Attitude Level Objectives

- Recognizes the critical roles of the circulatory and respiratory systems in maintaining homeostasis.
- Demonstrates a tendency to relate fundamental knowledge of cardiovascular and respiratory physiology to clinical conditions (e.g., shock, COPD, hypertension).
- Acts carefully, diligently, and ethically in both theoretical and practical studies.
- Shows openness to cooperation and sharing in group work.
- Understands how disorders of the circulatory and respiratory systems can affect a person's daily life and overall well-being.
- Acknowledges the importance of the integrated functioning of the circulatory and respiratory systems for sustaining life.

TOPICS:

ANATOMY			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Mediastinum	Theoretical	1	Dr. Derya Şahin ÖZTÜRKCAN
Thoracic Wall and Heart Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Heart Anatomy	Theoretical	3	Dr. Derya Şahin ÖZTÜRKCAN
Foetal Circulation	Theoretical	1	Dr. Derya Şahin ÖZTÜRKCAN
Head and Neck Vessels	Theoretical	3	Dr. Derya Şahin ÖZTÜRKCAN
Lymphatic System Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Nose Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Larynx	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Trachea, Lungs and Diaphragm	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Clinical Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Clinical Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Lab 1: Thoracic Wall, Mediastinum, Heart Anatomy	Practical	1	Faculty Members
Lab 2: Heart Anatomy, Heart Valves and Vessels, Vessels Entering and Leaving the Heart, Arcus Aortae	Practical	1	Faculty Members

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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Lab 3: Head and Neck Vessels	Practical	1	Faculty Members
Lab 4: Nose, Larynx, Trachea, Lungs, Diaphragm	Practical	1	Faculty Members

BIOPHYSICS

TOPIC	TYPE	HOUR	FACULTY MEMBER
Circulatory system and its dynamic properties	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
Series and parallel connected vessel systems in the circulatory system	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
Bernoulli's principle, Pitot tubes	Theoretical	2	Dr. Şerife CANKURTARAN SAYAR
Pressure changes in fluids	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
Poiseuille's law	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
Physical effects of exercise on the circulatory system	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
Efficiency and power of the heart	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
The electrical basis of electrocardiography (ECG), the cardiac dipole, and the Einthoven triangle	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
Derivations and determination of the cardiac vector angle	Theoretical	2	Dr. Şerife CANKURTARAN SAYAR
The biophysical basis of respiration, surface tension, and alveolar mechanics	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
Lung and chest compliance	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR
Laplace and Poiseuille's laws in respiration	Theoretical	1	Dr. Şerife CANKURTARAN SAYAR

HISTOLOGY AND EMBRYOLOGY

TOPIC	TYPE	HOUR	FACULTY MEMBER
Circulatory System Development and Anomalies	Theoretical	3	Dr. Çağla Zübeyde KÖPRÜ
Circulatory System Histology	Theoretical	2	Dr. Çağla Zübeyde KÖPRÜ
Respiratory System Histology	Theoretical	2	Dr. Pınar ŞAHİN
Respiratory System Development and Anomalies	Theoretical	2	Dr. Pınar ŞAHİN
Lab I-Circulatory System Histology	Practical	1	Faculty Members

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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Lab II-Respiratory System Histology	Practical	1	Faculty Members
PHYSIOLOGY			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Physiological characteristics of the heart muscle	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Electrical and mechanical functions of the heart	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Cardiac cycle	Theoretical	2	Dr. Burcu AYDOĞAN
Regulation of the heart's pumping function	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Electrocardiogram (ECG)	Theoretical	2	Dr. Burcu AYDOĞAN
Principles of haemodynamics	Theoretical	3	Dr. Sümeyye RAMAZANOĞLU
Functions of the vascular system	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Local and humoral control of blood flow	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Neural regulation of circulation	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Control of arterial pressure	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Circulatory patterns and shock in health and disease	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Functions of the respiratory system	Theoretical	1	Dr. Burcu AYDOĞAN
Mechanics of the respiratory system	Theoretical	1	Dr. Burcu AYDOĞAN
Gas exchange in the alveoli of the lungs	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Transport of O ₂ and CO ₂ in the blood	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Ventilation-perfusion relationship	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Respiratory function tests	Theoretical	1	Dr. Burcu AYDOĞAN
Regulation of respiration	Theoretical	2	Dr. Burcu AYDOĞAN
Human physiology under extreme conditions	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Exercise physiology	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Respiratory system pathophysiology	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
LAB: ECG, blood pressure and heart sounds	Practical	2	Faculty Members
LAB: In-situ examination of the heart in frogs	Practical	2	Faculty Members
LAB: Respiratory function tests	Practical	2	Faculty Members

DIGESTIVE AND METABOLIC SYSTEMS COMMITTEE
PHASE II- COURSE IV
COURSE CODE: MED 2040

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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LECTURE CODE	LECTURE NAME	THEORETICAL LECTURE HOUR	PRACTICAL LECTURE HOUR	TOTAL LECTURE HOUR
	Coordinatorship Lectures			
	Quiz& Discussion Hour	1	0	1
	Introduction to the Course Committee	1	0	1
	Anatomy	32	6	38
	Biophysics	2	0	2
	Histology and Embryology	10	3	13
	Medical Biochemistry	44	0	44
	Physiology	22	2	24
	TOPLAM	110	11	121

Aim:

At the end of this course, students are expected to comprehend the structural and functional characteristics of the organs involved in the digestive and metabolic systems; to interpret possible anomalies by understanding the interrelations among these systems; to explain the development of the digestive system and identify developmental disorders; to grasp the connections and basic functional principles of the structures included in these systems; to explain the biochemical reactions occurring during digestion and absorption; and to attain the knowledge and skills required to comprehend the clinical courses related to these systems.

Learning Objectives:

Knowledge Objectives:

- Explains the mechanisms of heat transfer that play a role in regulating energy requirements and body temperature in humans.

Learning Objectives:

- Explains the development and anomalies of the digestive system.
- Identifies the histological components, layers, and cells of tissues and organs belonging to the digestive system.

Skill Objectives:

- Distinguishes the histological components, layers, and cells of tissues and organs belonging to the digestive system by using a light microscope.

Explains carbohydrate digestion, glycolysis, the TCA cycle, and the pentose phosphate pathway.

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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Explains glycogen metabolism and its regulatory mechanisms.

Explains the metabolism of fatty acids, ketone bodies, triglycerides, and phospholipids.

Explains amino acid metabolism and the urea cycle,

Explains nucleotide biosynthesis and catabolism..

Explains the electron transport chain and oxidative phosphorylation processes.

Explains exercise biochemistry and metabolic adaptations.

Knowledge Level Objectives

- Explains the general organization of the gastrointestinal system and the regulation of motility.
- Defines the neural (enteric nervous system) and hormonal control mechanisms within the digestive tract.
- Lists and explains the motor functions of digestive tract structures from the mouth to the rectum (chewing, swallowing, peristalsis, segmentation, etc.).
- Defines the composition and physiological functions of secretions from the salivary glands, stomach, pancreas, bile, and intestines.
- Explains the functions of digestive enzymes and the processes of nutrient absorption (carbohydrates, proteins, lipids).
- Defines the metabolic, storage, and detoxification functions of the liver.
- Understands the effects of gastric acidity, bile production, and absorption on pH and enzyme activity.
- Explains energy metabolism at a basic level (basal metabolism, metabolism of nutrients).
- Explains hormonal (insulin, glucagon, etc.) and metabolic changes in fasting and fed states.
- Defines the physiological mechanisms of body temperature regulation (sweating, shivering, hypothalamic centers, etc.).

Skill Level Objectives

- Can draw the neural and hormonal pathways regulating gastrointestinal motility and secretory functions.
- Interprets the fasting–fed cycle using acquired physiological knowledge.
- Evaluates physiological data related to liver functions and bile production.
- Performs basic calculations related to basal metabolism and energy balance.
- Analyzes pH changes within the digestive tract and their effects on enzyme activity.

Attitude Level Objectives

- Recognizes the importance of the digestive and metabolic systems in maintaining homeostasis and questions the consequences of their disruption.
- Develops scientific thinking and analytical skills with respect to physiological processes.

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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- Demonstrates critical thinking when interpreting physiological data related to the digestive system.
- Acts carefully, meticulously, and ethically in laboratory and theoretical studies.
- Shows interest in the clinical implications of nutrition, digestion, and metabolism physiology (e.g., obesity, malnutrition, diabetes) and develops scientific awareness of these conditions.
- Contributes to creating a collaborative, sharing, and respectful learning environment.

TOPICS:

ANATOMY			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Anterior Abdominal Wall and Abdominal Cavity Topography	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Inguinal Canal	Theoretical	1	Dr. Derya Şahin ÖZTÜRKCAN
Oral Anatomy	Theoretical	4	Dr. Derya Şahin ÖZTÜRKCAN
Pharynx	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Oesophagus	Theoretical	1	Dr. Derya Şahin ÖZTÜRKCAN
Stomach	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Small Intestine	Theoretical	1	Dr. Derya Şahin ÖZTÜRKCAN
Large Intestine	Theoretical	3	Dr. Derya Şahin ÖZTÜRKCAN
Portal Vein of the Liver	Theoretical	1	Dr. Derya Şahin ÖZTÜRKCAN
Clinical Anatomy	Theoretical	3	Dr. Derya Şahin ÖZTÜRKCAN
Liver and Bile Ducts	Theoretical	3	Dr. Derya Şahin ÖZTÜRKCAN
Peritoneum	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Spleen and Pancreas	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Posterior Abdominal Wall, Abdominal Aorta, and Inferior Vena Cava	Theoretical	3	Dr. Derya Şahin ÖZTÜRKCAN
Clinical Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Lab 1: Oral Anatomy, Pharynx	Practical	1	Faculty Members
Lab 2: Anterior Abdominal Wall, Abdominal Cavity Topography, C. Inguinalis, Oesophagus, Stomach, Small Intestine	Practical	1	Faculty Members
Lab 3: Liver and Bile Ducts	Practical	1	Faculty Members
Lab 4: Posterior Abdominal Wall	Practical	1	Faculty Members
Lab 5: Peritoneum, Large Intestine, Pancreas and Spleen	Practical	1	Faculty Members
Lab 6: Digestive System Organs	Practical	1	Faculty Members
BIOPHYSICS			
TOPIC	TYPE	HOUR	FACULTY MEMBER

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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Energy requirements, heat regulation and transfer mechanisms in humans	Theoretical	2	Dr. Şerife CANKURTARAN SAYAR
HISTOLOGY AND EMBRYOLOGY			
TOPIC	TYPE	HOOR	FACULTY MEMBER
Digestive System Histology I (Upper Digestive Tract)	Theoretical	3	Dr. Gizem İler AKTAŞ
Digestive System Histology II (Lower Digestive Tract)	Theoretical	2	Dr. Gizem İler AKTAŞ
Digestive System Histology III (Digestive Glands)	Theoretical	2	Dr. Gizem İler AKTAŞ
Development and Anomalies of the Digestive System	Theoretical	3	Dr. Gizem İler AKTAŞ
LAB I: Digestive System Histology I	Practical	1	Faculty Members
LAB II: Digestive System Histology II	Practical	1	Faculty Members
LAB III: Digestive System Histology III	Practical	1	Faculty Members
MEDICAL BIOCHEMISTRY			
Intracellular Signal Transduction	Theoretical	1	Dr. Çiğdem ÇİÇEK
Carbohydrate Digestion and Glycolysis	Theoretical	2	Dr. Çiğdem ÇİÇEK
TCA Cycle, Conversion of Glucose to Fatty Acids and Fat	Theoretical	1	Dr. Çiğdem ÇİÇEK
Pentose Phosphate Pathway	Theoretical	1	Dr. Çiğdem ÇİÇEK
Glycogenesis, Glycogenolysis	Theoretical	1	Dr. Çiğdem ÇİÇEK
Gluconeogenesis, Cori Cycle, Glucose-Alanine Cycle	Theoretical	1	Dr. Çiğdem ÇİÇEK
Metabolism of Other Monosaccharides (Fructose, Galactose, Mannose)	Theoretical	1	Dr. Çiğdem ÇİÇEK
Electron Transport Chain and Oxidative Phosphorylation	Theoretical	2	Dr. Çiğdem ÇİÇEK
Biosynthesis and Regulation of Fatty Acids	Theoretical	2	Dr. Çiğdem ÇİÇEK
Beta Oxidation of Fatty Acids	Theoretical	2	Dr. Çiğdem ÇİÇEK
Biosynthesis and Degradation of Ketone Bodies	Theoretical	1	Dr. Çiğdem ÇİÇEK
Alcohol (Ethanol) Metabolism	Theoretical	1	Dr. Çiğdem ÇİÇEK
Biosynthesis of Triglycerides	Theoretical	1	Dr. Çiğdem ÇİÇEK
Lipolysis (Mobilisation of Storage Lipids)	Theoretical	1	Dr. Çiğdem ÇİÇEK
Biosynthesis of Membrane Phospholipids	Theoretical	1	Dr. Çiğdem ÇİÇEK
Biosynthesis of Sphingolipids and Gangliosides	Theoretical	1	Dr. Çiğdem ÇİÇEK
Biosynthesis of Eicosanoids and Leukotrienes	Theoretical	1	Dr. Çiğdem ÇİÇEK

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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Cholesterol Biosynthesis and Regulation	Theoretical	1	Dr. Çiğdem ÇİÇEK
Bilirubin Metabolism	Theoretical	1	Dr. Simin ROTA
Bile Acid Biosynthesis and Excretion	Theoretical	1	Dr. Simin ROTA
Detoxification Mechanisms	Theoretical	1	Dr. Simin ROTA
Steroid Hormone Biosynthesis	Theoretical	1	Dr. Simin ROTA
Lipoprotein Metabolism	Theoretical	2	Dr. Simin ROTA
Adipose Tissue Biochemistry	Theoretical	1	Dr. Simin ROTA
Protein Digestion (Enzymes and Hormones Involved in the Stomach and Intestines)	Theoretical	1	Dr. Simin ROTA
Amino Acid Synthesis	Theoretical	2	Dr. Simin ROTA
Transamination and Oxidative Deamination Reactions	Theoretical	1	Dr. Simin ROTA
Nitrogen Separation from Amino Acids and the Urea Cycle	Theoretical	2	Dr. Simin ROTA
Catabolism of Amino Acid Carbon Skeletons	Theoretical	2	Dr. Simin ROTA
Protein Biosynthesis and Regulation	Theoretical	2	Dr. Simin ROTA
Purine Nucleotide Biosynthesis and Catabolism	Theoretical	2	Dr. Simin ROTA
Pyrimidine Nucleotide Biosynthesis and Catabolism	Theoretical	2	Dr. Simin ROTA
Exercise Biochemistry	Theoretical	1	Dr. Simin ROTA

PHYSIOLOGY

TOPIC	TYPE	HOUR	FACULTY MEMBER
Functional Structure of the Gastrointestinal Tract	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Digestive System Secretions	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Digestion and Swallowing in the Mouth	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Digestion in the Stomach, Mechanical and Chemical Processes	Theoretical	3	Dr. Sümeyye RAMAZANOĞLU
Liver functions	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
The role of bile in digestion	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Exocrine functions of the pancreas	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Mechanical and chemical processes and absorption in the small intestine	Theoretical	3	Dr. Sümeyye RAMAZANOĞLU
Functions of the large intestine	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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Regulation of body temperature, fever	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Energy pathways in muscles during exercise	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Regulation of nutrition, hunger-satiety	Theoretical	2	Dr. Burcu AYDOĞAN
LAB: Measurement of metabolic rate, BMI	Practical	2	Faculty Members

**EXCRETORY, ENDOCRINE, AND REPRODUCTIVE SYSTEMS
COMMITTEE
PHASE II- COURSE V
COURSE CODE: MED 2050**

LECTURE CODE	LECTURE NAME	THEORETICAL LECTURE HOUR	PRACTICAL LECTURE HOUR	TOTAL LECTURE HOUR
	Coordinatorship Lectures			
	Quiz& Discussion Hour	1	0	1
	Introduction to the Course Committee	1	0	1
	Anatomy	18	2	20
	Histology and Embryology	17	4	21
	Medical Biochemistry	17	0	17
	Physiology	42	2	44
	TOPLAM	94	8	102

Aim:

At the end of this course, students are expected to comprehend the structural and functional characteristics of the organs belonging to the excretory, endocrine, and reproductive systems; to interpret the interrelations among these systems; to describe the embryological development of the related structures and identify possible developmental anomalies; to understand the functions of the urinary and genital systems at the cellular and molecular levels; to explain the mechanisms of action of hormones, the physiological and biochemical processes in which they are involved, their regulatory mechanisms, and their relations to diseases; and to attain the knowledge and skills required to comprehend the clinical courses related to these systems.

Learning Objectives:

Learning Objectives:

Hazırlayan TIP Fakültesi Birim Kalite Komisyonu	Kontrol Eden Fakülte Sekreteri (Dr. Öğretim Üyesi Görkem CENGİZ)	Onaylayan Kalite Koordinatörlüğü
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- Explains the development, developmental anomalies, cells, hormones, and functions of endocrine organs.
- Explains the development and anomalies of the urinary system.
- Identifies the histological components, layers, and cells of tissues and organs belonging to the urinary system.
- Defines the development, parts, and cells of the female and male genital system organs.
- Defines the development and histological organization of the mammary glands.

Skill Objectives:

- Distinguishes the microscopic structure of endocrine organs by using a light microscope.
- Distinguishes the histological components, layers, and cells of tissues and organs belonging to the urinary system by using a light microscope.
- Distinguishes the parts and cells of the female genital system organs by using a light microscope.
- Distinguishes the parts and cells of the male genital system organs by using a light microscope.

Explains the mechanisms of hormone action.

Identifies hypothalamic-pituitary hormones and their functions.

Explains the biochemistry of thyroid, pancreas, adrenal medulla, and adrenal cortex hormones.

Explains hormones regulating calcium and phosphate metabolism.

Describes the biochemical properties and functions of gonadal, adipose tissue, renal, and cardiovascular system hormones.

Knowledge Level Objectives**Excretory System**

- Defines the structural and functional unit of the kidney, the nephron, and its components.
- Explains the processes of glomerular filtration, tubular reabsorption, and secretion.
- Defines the regulatory mechanisms of glomerular filtration rate (GFR).
- Explains the regulatory effects of the kidneys on water, electrolyte, and acid–base balance.
- Explains the effects of ADH and aldosterone on renal functions.
- Explains the mechanisms of urine concentration and dilution.

Endocrine System

- Explains the general characteristics, classification, and mechanisms of action of hormones.

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- Defines the hypothalamic–pituitary–endocrine organ axes (HPA, HPT, HPG) and feedback mechanisms.
- Explains the regulation of secretion and target organ effects of thyroid, adrenal, pancreatic, and parathyroid hormones.
- Defines hormones involved in growth, metabolism, stress response, calcium balance, and glucose regulation.
- Understands the role of the endocrine system in maintaining homeostasis.

Urogenital System

- Explains the hormonal control of the female and male reproductive systems.
- Explains the phases of the menstrual cycle and the associated hormonal changes.
- Explains the hormonal regulation of ovulation.
- Defines the production, regulation, and physiological effects of testosterone.
- Explains hormonal changes during pregnancy and lactation.

Skill Level Objectives

- Analyzes fluid–electrolyte disorders (e.g., hyponatremia, hypokalemia) based on laboratory data.
- Interprets data related to glomerular filtration rate and urine formation.
- Evaluates the functioning of endocrine axes based on hormone levels.
- Analyzes hormonal profiles corresponding to different phases of the menstrual cycle.
- Interprets basic physiological data related to endocrine disorders (e.g., blood glucose, TSH, cortisol).
- Analyzes hormonal and functional processes of reproductive physiology using graphs and tables.

Analyzes the relationship between glucose, insulin, and glucagon in fasting and fed states.

- Attitude Level Objectives
- Develops habits of reasoning based on physiological knowledge and tends to apply this knowledge to clinical scenarios.
- Acts carefully, ethically, and responsibly in experimental and theoretical studies.
- Demonstrates scientific curiosity toward the physiological functioning of the renal, endocrine, and reproductive systems.
- Recognizes the importance of hormonal balance, fluid–electrolyte balance, and reproductive health for human well-being.
- Understands that minor disruptions in physiological processes can have systemic effects and develops a holistic approach accordingly.
- Displays a cooperative, sharing, and respectful attitude during the learning process and in teamwork.

TOPICS:

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ANATOMY			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Kidneys and Ureters	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Urinary Bladder, Urethra	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Internal Iliac Artery, Pudendal Plexus	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Clinical Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Endocrine Glands	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Pelvis and Perineum	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Female Genital Organs	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Male Genital Organs	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Clinical Anatomy	Theoretical	2	Dr. Derya Şahin ÖZTÜRKCAN
Lab 1: Kidneys, Ureters, Urinary Bladder, and Urethra, Internal Iliac Artery, Sacral Plexus	Practical	1	Faculty Members
Lab 2: Pelvis and Perineum, Female and Male Genital Organs	Practical	1	Faculty Members
HISTOLOGY AND EMBRYOLOGY			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Urinary System Histology	Theoretical	3	Dr. Gizem İlater AKTAŞ
Urinary System Development and Anomalies	Theoretical	2	Dr. Gizem İlater AKTAŞ
Endocrine System Development and Histology I	Theoretical	2	Dr. Çağla Zübeyde KÖPRÜ
Endocrine System Development and Histology II	Theoretical	3	Dr. Çağla Zübeyde KÖPRÜ
Histology of Male Reproductive Organs	Theoretical	2	Dr. Pınar ŞAHİN
Histology of Female Reproductive Organs	Theoretical	2	Dr. Pınar ŞAHİN
Development of Female and Male Reproductive Organs	Theoretical	2	Dr. Pınar ŞAHİN
Development and Anomalies of Mammalian Glands	Theoretical	1	Dr. Pınar ŞAHİN
LAB I: Histology of Endocrine Organs	Practical	1	Faculty Members
LAB II: Histology of the Urinary System	Practical	1	Faculty Members
LAB III: Histology of Male Reproductive Organs	Practical	1	Faculty Members
LAB IV: Histology of Female Reproductive Organs	Practical	1	Faculty Members
MEDICAL BIOCHEMISTRY			
Mechanisms of Action of Hormones	Theoretical	2	Dr. Simin ROTA
Hypothalamic-Pituitary Hormones	Theoretical	2	Dr. Simin ROTA

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Biochemistry of Thyroid Hormones	Theoretical	2	Dr. Simin ROTA
Biochemistry of Pancreatic Hormones	Theoretical	2	Dr. Simin ROTA
Biochemistry of Hormones Regulating Calcium and Phosphate Metabolism	Theoretical	2	Dr. Simin ROTA
Biochemistry of Adrenal Medulla Hormones	Theoretical	1	Dr. Simin ROTA
Biochemistry of Adrenal Cortex Hormones	Theoretical	2	Dr. Simin ROTA
Biochemistry of Gonadal Hormones	Theoretical	1	Dr. Simin ROTA
Adipose Tissue Hormones	Theoretical	1	Dr. Simin ROTA
Renal Hormones	Theoretical	1	Dr. Simin ROTA
Cardiovascular System Hormones	Theoretical	1	Dr. Simin ROTA

PHYSIOLOGY

TOPIC	TYPE	HOUR	FACULTY MEMBER
Introduction to kidney physiology, functional structure and functions of the kidney	Theoretical	2	Dr. Burcu AYDOĞAN
Glomerular filtration and regulation	Theoretical	2	Dr. Burcu AYDOĞAN
Function of tubules, reabsorption and secretion processes	Theoretical	2	Dr. Burcu AYDOĞAN
Concentration and dilution of urine	Theoretical	1	Dr. Burcu AYDOĞAN
Fluid-electrolyte balance and regulation	Theoretical	2	Dr. Burcu AYDOĞAN
Acid-base balance and regulation	Theoretical	2	Dr. Burcu AYDOĞAN
Concept of clearance, kidney function tests	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
The micturition process	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Diuretics and their effects on the kidney	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Kidney dysfunction and diseases	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Characteristics of hormones, their receptors, and mechanisms of action	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Hypothalamic hormones and the hypothalamic-pituitary relationship	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Adenohypophysis hormones	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Neurohypophysis hormones	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU

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Pineal gland physiology	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Physiology of thyroid hormones	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Hormones regulating calcium and phosphate metabolism	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Endocrine function of the pancreas	Theoretical	2	Dr. Sümeyye RAMAZANOĞLU
Physiology of adipose tissue hormones	Theoretical	1	Dr. Sümeyye RAMAZANOĞLU
Physiology of adrenal gland hormones	Theoretical	3	Dr. Sümeyye RAMAZANOĞLU
Gonadotropic hormone and puberty physiology	Theoretical	1	Dr. Yetkin KARASU
Physiology of the male reproductive system	Theoretical	2	Dr. Yetkin KARASU
Physiology of the female reproductive system	Theoretical	3	Dr. Yetkin KARASU
Physiological changes during pregnancy	Theoretical	2	Dr. Yetkin KARASU
Newborn physiology	Theoretical	1	Dr. Yetkin KARASU
LAB I: Simulation experiments	Practical	2	Faculty Members

**DISEASE DEVELOPMENT AND THE BASICS OF PHARMACOLOGY
COMMITTEE
PHASE II- COURSE VI
COURSE CODE: MED 2060**

LECTURE CODE	LECTURE NAME		THEORETICAL LECTURE HOUR	PRACTICAL LECTURE HOUR	TOTAL LECTURE HOUR
	Coordinatorship Lectures	Quiz& Discussion Hour	1	0	1
		Introduction to the Course Commitee	1	0	1
	Medical Biochemistry		5	0	5
	Medical Genetics		15	0	15
	Medical Pathology		19	0	19
	Medical Pharmacology		20	0	20
	TOPLAM		59	0	59

Aim:

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Sayfa 31 / 35

At the end of this course, students are expected to comprehend the genetic, biological, environmental, and microbiological causes of diseases; to explain the pathological changes that may occur at the cellular and tissue levels; to understand the basic laboratory methods used in the diagnosis and treatment of diseases; to grasp the fundamental principles of pharmacology in approaching diseases; to explain the mechanisms of action of drugs based on their pharmacokinetic and pharmacodynamic properties; and to attain the knowledge and skills necessary to comprehend the clinical courses related to these topics.

Learning Objectives:

1. Identifies disorders related to carbohydrate metabolism and explains their biochemical mechanisms.
2. Identifies disorders in lipid metabolism and relates them to the relevant biochemical pathways.
3. Identifies purine and pyrimidine metabolism disorders and explains their biochemical basis.
4. Knowledge Objectives:
 - Define medical genetics and explain its role in medicine.
 - Explain DNA, chromosome structure, the flow of genetic information, and the basic features of mutations.
 - Describe inheritance patterns (Mendelian and non-Mendelian) with examples, and explain pedigree analysis, population genetics, and screening principles.
 - Summarize chromosomal disorders, developmental genetic mechanisms, and epigenetic-based diseases.
 - Identify the main genetic diagnostic methods and new technologies, summarize the main therapeutic approaches for genetic diseases, explain the basic principles of genetic counseling and ethics.
5. Skills Objectives:
 - Draw pedigrees from simple family histories and interpret inheritance patterns.
 - Perform simple probability calculations to assess genetic risk.
 - Relate clinical examples to basic genetic mechanisms.
6. Attitude Objectives:
 - Recognize the importance of genetic knowledge in clinical practice.
 - Demonstrate respect for genetic diversity and sensitivity toward patients with genetic diseases.
 - Uphold confidentiality, ethical principles, and respect for individuals in genetic counseling.
 - Show an open and critical approach to new genetic technologies.

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7. Explains the mechanisms of cell injury
8. Explains the mechanisms of cellular adaptation
9. Explains the mechanisms of apoptosis and autophagy
10. Explains intracellular accumulations and their mechanisms
11. Explains the pathophysiology of hemodynamic disorders
12. Explains the mechanisms of immune system diseases
13. Explains the pathogenesis of autoimmune diseases
14. Explains the pathogenesis of genetic disorders
15. Explains the types, development processes, and morphological patterns of inflammation
16. Explains the pathology of acute inflammation
17. Explains the pathology of chronic inflammation
18. Explains the mechanisms of tissue repair
19. Explains the causes and basic effects of diseases related to environment and nutrition
20. Explains the diseases of infancy and childhood, their developmental mechanisms, causes, and basic morphological findings

TOPICS:

MEDICAL BIOCHEMISTRY			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Carbohydrate metabolism disorders	Theoretical	2	Dr. Simin ROTA
Lipid metabolism disorders	Theoretical	2	Dr. Simin ROTA
Purine and Pyrimidine Metabolism Disorders	Theoretical	1	Dr. Simin ROTA
MEDICAL GENETICS			
TOPIC	TYPE	HOUR	FACULTY MEMBER
Introduction to Medical Genetics and the Role of Genetics in Medicine	Theoretical	1	Dr. Evrim ÜNSAL
DNA Packaging, Chromosome Structure and Replication	Theoretical	1	Dr. Eyyüp ÜÇTEPE
Mechanisms from DNA to Protein	Theoretical	1	Dr. Eyyüp ÜÇTEPE
Concepts of Mutation and Polymorphism and Disease Formation Mechanisms	Theoretical	1	Dr. Eyyüp ÜÇTEPE
DNA Repair Mechanisms and Breakage Syndromes	Theoretical	1	Dr. Eyyüp ÜÇTEPE
Mendelian Inheritance Patterns	Theoretical	1	Dr. Evrim ÜNSAL
Non-Mendelian Inheritance Patterns	Theoretical	1	Dr. Eyyüp ÜÇTEPE
Pedigree Analysis in Clinical Genetics	Theoretical	1	Dr. Eyyüp ÜÇTEPE
Genomic Imprinting Mechanisms and Epigenetics-Based Diseases	Theoretical	1	Dr. Eyyüp ÜÇTEPE

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Chromosomal Abnormalities and Microdeletion Syndromes	Theoretical	1	Dr. Eyyüp ÜÇTEPE
Population Genetics and Screening Principles	Theoretical	1	Dr. Evrim ÜNSAL
Human Developmental Genetics and Dymorphology	Theoretical	1	Dr. Eyyüp ÜÇTEPE
Genetic Diagnostic Methods and New Technologies	Theoretical	1	Dr. Evrim ÜNSAL
Treatment Approaches in Genetic Diseases	Theoretical	1	Dr. Eyyüp ÜÇTEPE
Genetic Counselling and Ethics in Genetics	Theoretical	1	Dr. Eyyüp ÜÇTEPE

MEDICAL PATHOLOGY

TOPIC	TYPE	HOUR	FACULTY MEMBER
Introduction to Pathology and Cell Damage	Theoretical	1	Dr. Haldun UMUDUM
Cellular Adaptations	Theoretical	1	Dr. Haldun UMUDUM
Intracellular Accumulations	Theoretical	1	Dr. Haldun UMUDUM
Necrosis, Apoptosis, Autophagy	Theoretical	2	Dr. Haldun UMUDUM
Haemodynamic Disorders	Theoretical	2	Dr. Haldun UMUDUM
Immune System Diseases	Theoretical	4	Dr. Haldun UMUDUM
Genetic Disorders	Theoretical	1	Dr. Haldun UMUDUM
Inflammation, Pathogenesis and Symptoms	Theoretical	1	Dr. Haldun UMUDUM
Acute Inflammation	Theoretical	2	Dr. Haldun UMUDUM
Chronic Inflammation	Theoretical	1	Dr. Haldun UMUDUM
Regeneration and Repair	Theoretical	1	Dr. Haldun UMUDUM
Infant and Childhood Diseases	Theoretical	2	Dr. Haldun UMUDUM

MEDICAL PHARMACOLOGY

TOPIC	TYPE	HOUR	FACULTY MEMBER
Introduction to Pharmacology and Basic Concepts	Theoretical	1	Dr. Zühal AKTUNA
New Drug Development	Theoretical	1	Dr. Zühal AKTUNA
Pharmacovigilance	Theoretical	1	Dr. Zühal AKTUNA
Pharmaceutical Forms and Drug Administration Sites	Theoretical	2	Dr. Zühal AKTUNA
Drug Absorption	Theoretical	1	Dr. Zühal AKTUNA
Membrane Transporters	Theoretical	1	Dr. Zühal AKTUNA

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Drug Distribution	Theoretical	1	Dr. Zühal AKTUNA
Drug Biotransformation	Theoretical	2	Dr. Zühal AKTUNA
Drug Elimination	Theoretical	1	Dr. Zühal AKTUNA
Drug-Receptor Relationship and Drug Mechanisms of Action	Theoretical	2	Dr. Zühal AKTUNA
Dose, Concentration, Time and Effect Relationships and Bioavailability	Theoretical	2	Dr. Zühal AKTUNA
Factors Affecting Drug Effectiveness and the Role of the Gastrointestinal Microbiome	Theoretical	1	Dr. Zühal AKTUNA
Pharmacogenetics, Pharmacogenomics, Polymorphism	Theoretical	1	Dr. Zühal AKTUNA
Drug Interactions	Theoretical	2	Dr. Zühal AKTUNA
Drug Toxicity	Theoretical	1	Dr. Zühal AKTUNA

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