

REPUBLIC OF TURKEY
MALTEPE UNIVERSITY FACULTY OF MEDICINE
2024 - 2025 ACADEMIC CALENDAR PROGRAM
OUTLINE and HOURSS
PHASE I

Code	Course	Theoretical Hours	Practical Hours	Total Hours	Weeks	AKTS
MED 101	Basic Sciences I Subject Committee	53	5	58	7	42
MED 103	Basic Sciences II Subject Committee	102	7	109	9	
MED 102	Basic Sciences III Subject Committee	129	19	148	10	
MED 104	Basic Sciences IV Subject Committee	113	32	145	9	
KUG 100	Human Sciences in Medicine and Introduction to Clinical Practices		26	26	13	
ENG 115	Medical English-I	28	0	28	14	2
ENG 116	Medical English-II	28	0	28	14	2
ATA 151	Principles Of Atatürk and History Of Revolution-I	28	0	28	14	2
ATA 152	Principles Of Atatürk and History Of Revolution-I I	28	0	28	14	2
TRD 151	Turkish Language-I	28	0	28	14	2
TRD 152	Turkish Language-II	28	0	28	14	2
	Elective Course-I (Fall Somester)	28	0	28	14	2
	Elective Course-II (Fall Somester)	28	0	28	14	2
	Elective Course-III (Spring Somester)	28	0	28	14	2

COMMITTEE 1
BIOCHEMISTRY

Introduction to Biochemistry
Structure and feature of water
Solutions and concept of concentration
Acids and Bases and pH
Amino acids
Structure and Functions of Proteins
Structure and Functions of Vitamins and Coenzymes
Structure and Functions of Proteins
Minerals and Trace Elements

HISTORY OF MEDICINE

The Meaning of History of Medicine, Medicine in Prehistorical Periods
Medicine in the Ancient Ages
Medicine in the Middle Ages
Turkish Medicine from the Beginning to the Ottoman Period
Turkish Medicine in the Ottomans and in the Turkish Republic Period
Western Medicine from Renaissance to today

MEDICAL BIOLOGY

Introduction to Medical Biology
Biomolecules and Evolution
Structure and Functions of Nucleic Acids
Chromosome Structure and Epigenetics
DNA Replication
Cytogenetics
DNA Damage and Repair Mechanisms

PHYSICS

Introduction to Biophysics
Measurement
Waves: Longitudinal and Standing Waves
Fluids
Electrical Field and Dipole
Molecular Forces
Effects of Electrical Current on Body
Optics and Optical Medical Instruments

COMMITTEE 2

BEHAVIOURAL SCIENCE

Psychoanalytic Theory
Stress and Adaptation
Disease, Health and Normality

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Defense Mechanisms
Biopsychosocial Model

BIOCHEMISTRY

Biological Oxidation, Bioenergetics and ATP
Introduction to Enzymes and Kinetics
Biosynthesis and Post-translational Modifications of Proteins
Protein Targeting
Protein Turnover
Structure and Functions of Carbohydrates
Structure and Functions of Lipids
Structure and Functions of Nucleotides

BIOPHYSICS

Biomechanics: Vectors
Biomechanics: Torque and Rotational Movement
Biomechanics: Elastic Properties of Tissues
Imaging Techniques and Principles (Ultrasound and NMR)
Heat, Thermodynamics and Bioenergetics
Principles of Recording Biomedical Signals

MEDICAL BIOLOGY

Transcription
Genetic Code and Protein Synthesis
Regulation of Gene Expression
Regulation of Gene Activity in Prokaryotes
Regulation of Gene Activity in Eukaryotes
Molecular Basis of Genetic Variation
Immunogenetics

COMMITTEE 3

ANATOMY

Introduction to Anatomy, Important Anatomical Terms
Bones of Upper Limb
Bones of Lower Limb
Thorax and Ribs
Vertebrae and Vertebral Column
Skull
Splanchnocranium
Neurocranium, Cranial Cavity
Temporal, Infratemporal and Pterygopalatine Fossae

BEHAVIOURAL SCIENCE

Cognition and Emotions
Thinking, intelligence and learning
Sexuality
Culture and Disease
Violence
Adulthood
Personality Process
Aging

BIOCHEMISTRY

Biomembrane Components and Transport I
Biomembrane Components and Transport II
Glycolysis
Glycogen metabolism
Gluconeogenesis
Metabolism of monosaccharides other than glucose
Citric acid cycle
Respiratory chain
Pentose phosphate pathway
Glucuronic acid metabolism
Regulation of blood glucose
Biosynthesis of lipids
Lipid Catabolism

BIOPHYSICS

Diffusion and Fick's Law
Gibbs-Donnan Equilibrium
Nernst Equilibrium
Generation of Membrane Potential



Kinetics of the Voltage Gated Channels
Action Potential
Membrane Potential Changes Induced by Subthreshold Stimulus
Compound Action Potential

BIostatISTICS

Definition and Use of Biostatistics
Descriptive Statistics
Tables and Graphics
Types and Sources of Data
Demographic and Morbidity Statistics

HISTOLOGY

Introduction to Histology: Histochemical Technics and Basic Principles
Introduction to Embryology
Microscopy
Basic Techniques for Microscopy
Cell Structure 1: Plasmalemma
Cell Structure 2: Organelles & Inclusions
Cell Structure 3: Organelles & Inclusions
Cell Structure 4: Cytoplasm
Cell Structure 5: Cytoskeleton
Cell Structure 6: Nucleus
Stem Cells
Epithelial Tissue
Fertilization
Gametogenesis
Early Embryological Period: First Week

MEDICAL BIOLOGY

Prokaryotic, Eukaryotic Cells
Cytoplasm and Cellular Organelles
Nuclear Transport
Cell Cycle and Its Regulation
Cell Division and Gametogenesis
Cellular Aging
Cell Death
Signal Transduction
Molecular Basis of Cancer
Cell Culture
Stem Cells
Recombinant DNA Technology and Its Applications

MEDICAL MICROBIOLOGY

Introduction to Microbiology
Eucaryotes and Procaryotes
Bacterial Morphology and Classification
Bacterial Metabolism
Bacterial genetics
Bacterial growth
Microbiota-Sampling for Microbiology
Viral Classification, Structure and Replication
Fungal classification, structure and general properties
Parasitic Classification, Structure and General Properties
Disinfection and Sterilization
Introduction to Immunology

PHYSIOLOGY

Volume and Composition of Body Fluids
Homeostasis
Cell Membrane and Transport of Substances Across the Cell Membrane
Bioelectric Potentials
Capillary Fluid Exchange

COMMITTEE 4

ANATOMY

Body Joints in General
Joint Types
Axial Sceleton Joints
Appendicular Sceleton Joints
Introduction to Myology



Pectoral Region and Superficial Back Muscles
Superficial Muscles of Back and Neck
Deep Muscles of Back and Neck
Shoulder Muscles
Axillary Region
Anterior Group (Flexor) Arm Muscles
Posterior Group (Extensor) Arm Muscles
Hand Anatomy
Plexus Brachialis
Gluteal Region and Hip Muscles
Anterior, Lateral and Medial Region of Thigh
Posterior Thigh Muscles, Popliteal Fossa
Leg Anterior Muscles
Leg Lateral Muscles
Leg Posterior Muscles
Foot Anatomy
Foot Anatomy
Anterior and Lateral Neck

BEHAVIOURAL SCIENCE

Verbal and non-verbal communication and empathy
Application: Verbal and non-verbal communication and empathy
Biological Foundations of Behaviors
Psychological Foundations of Behaviors
Suicide

BIOCHEMISTRY

Connective Tissue Biochemistry

BIOPHYSICS

Radioactivity and Types of Radioactive Decay
Interferation of Radioactive Beams with Materials
Radioactivity Units and Protection from Radiation
Effects of Non-iodised Radiation
Biological Effects of Radiation
Production of X-Rays
PET and Computerised Tomography
Laser Beams and it's used in Medicine

HISTOLOGY

Connective Tissue
Cartilage Tissue
Bone Tissue
Osteogenesis
Muscle Tissue
Development and Histology of Skin
Formation Of Bilaminar Embryonic Disc: Second Week
Formation Of Germ Layers and Early Tissue and Organ Differentiation: Third Week
Plasenta and Fetal Membranes
The Fetal Period: Ninth Week To Birth
Congenital Malformations and Birth

MEDICAL BIOLOGY

Mendelian Genetics
Inheritance Patterns of Monogenic Diseases
Beyond Mendel's Laws
Non-Mendelian Inheritance
Population Genetics

PHYSIOLOGY

Striated Muscles and Contraction Theories
Striated Muscles and Mechanical Features
Physiology of Smooth Muscles
Nerve Muscle Junction
Synaptic Transmission and Reseptors
Otonomic Nervous System
Periferical Nervous System Physiology
Spinal Reflexes



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PHASE II

Code	Course	Theoretical Hours	Practical Hours	Total Hours	Weeks	AKTS
MED 208	Nervous System Subject Committee	112	29	141	8	52
MED 205	Blood, Circulation And Respiratory System Subject Committee	115	28	143	8	
MED 207	Gastrointestinal System And Metabolism Subject Committee	106	27	133	7	
MED 209	Endocrine And Urogenital System Subject Committee	94	25	119	6	
MED 206	Biological Basis of Disease-I Subject Committee	80	11	91	6	
KUG 200	Human Sciences in Medicine and Introduction to Clinical Practices	0	20	20	10	
ENG 010	Reading and Speaking	28	0	28	14	2
ENG 020	Academic Writing	28	0	28	14	2
	Elective Course-I (Fall Semester)	28	0	28	14	2
	Elective Course-II (Spring Semester)	28	0	28	14	2

COMMITTEE 1

ANATOMY

Introduction to Nervous System and Central Nervous System
Meninges, Cysterna subarachnoidalis, ventricles, CSF
Dura mater, sinuses
P.N.S. - Plexuses
P.N.S. - Cranial Nerves
P.N.S. - Autonomic Nervous System
Central Nervus System - Spinal Cord
Brain Stem
Cerebellum
Diencephalon
Limbic system
Telencephalon
Basal ganglia
Vessels of the Central Nervous System
The Ear
The Eyeball, The visual pathways

BIOPHYSICS

Passive Conduction in Nerves
Biophysical Characteristics of Sensory Receptors
Biophysical Basis of Electroencephalography
Biophysics of Vision
Biophysics of Hearing

HISTOLOGY

Histology of Nervous System
Development of Nervous System
Histology of Eye
Histology of Ear
Development of Eye
Development of Ear

MEDICAL MICROBIOLOGY

Laboratory diagnosis of bacterial diseases
Staphylococcus
Enterococcus and other Gram-positive cocci
Aerobic non-spore-forming gram-positive rods
Gram-negative cocci
Mycoplasma and Ureaplasma
Mycobacteria and lepra
The mechanism of bacterial pathogenesis
Streptococcus
Actinomycetes, Nocardia, Rhodococcus
Spirochetes
Rickettsia and Coxiella

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Chlamydia and Chlamydomonada

PHYSIOLOGY

Sensory cortex

Motor cortex and pyramidal system

Basal ganglia

Cerebellum

Cerebral cortex and higher functions of the nervous system, learning and memory

Thalamus Functions

Limbic system

Physiology of Hearing

Limbic system

Cerebrospinal fluid

Cerebellum

Physiology of Vision

Sense of taste and smell

Physiology of Sleep

EEG

EEG

COMMITTEE 2

ANTOMY

Anatomy of Nose

Larynx

Trachea, Pericard, Lungs

Thoracic Wall and Mediastinum

Heart, Pericard

Diaphragm

Aorta (Ascending, Arch, Thoracic)

Abdominal Aorta

Arteries of Upper Limb

Arteries of Lower Limb

Veins

Lymphatic System

BIOCHEMISTRY

Blood Biochemistry

Blood Biochemistry

Heme Proteins

Heme Proteins

Structure and Functions of Hemoglobine

Structure and Functions of Hemoglobine

Structure and Metabolism of Erythrocytes

Structure and Metabolism of Erythrocytes

Blood Coagulation and Fibrinolysis

Blood Coagulation and Fibrinolysis

Biochemistry of Anemia

Biochemistry of Anemia

Biochemistry of Anemia

Biochemistry of Vascular Phenomena

Cardiac Muscle Metabolism

Cardiac Muscle Metabolism

BIOPHYSICS

Bioelectrical Processes in The Heart

Biophysical Basis of Electrocardiography

Basic Principles of Hemodynamics

Physiological Control Systems

Blood Pressure Control System

Modeling of Cardiovascular System

Dynamics of Respiratory System

HISTOLOGY

Blood

Hematopoiesis

Histology of Lymphoid System

Histology of the Heart

Development of the Heart & Vessels

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Fetal Circulation
Histological Features of Vessels
Histology of Respiratory System
Development of Respiratory System
Immune System

MEDICAL MICROBIOLOGY

General properties of Enterobacteriaceae
Escherichia coli
Klebsiella, Proteus and Yersinia
Salmonella and Shigella
Pseudomonas and other non-fermentatives
Vibrio
Bordetella
Haemophilus
Campylobacter and Helicobacter
Francisella – Legionella
Brucella
Anaerobic bacteria
Clostridiaceae

PHYSIOLOGY

Functions and Physical Properties of Blood
Production and Regulation of Blood
Physiological Properties of Erythrocytes
Blood Groups And Transfusion
Functions of Leucocytes
Functions of Thrombocytes and Coagulation
Regulation of Respiration
Transport of Gases in the Blood
Regulation of Respiration
Physiologic properties of Cardiac Muscle
Regulation of Heart Functions
Blood Pressure
Regulation of Heart Functions
ECG
Cardiac Valve Functions and Heart Sounds
Pathophysiology of Circulatory System
Introduction to Respiratory Physiology
Ventilation / Perfusion Relationship

COMMITTEE 3

ANTOMY

Oral Cavity
Salivary Glands, Teeth
Pharynx, Esophagus
Peritoneum
Stomach
Small and Large Intestine
Muscles of Posterior Abdominal Region
Anterolateral Group of Abdominal wall muscles, Inguinal Canal, Femoral Canal, Hernias
Pancreas, Spleen
Liver, Gallbladder and Biliary Ducts

BIOCHEMISTRY

Carbohydrate Metabolism
Lipids and Lipoprotein Metabolism
Introduction to Amino Acids Metabolism
Biological Amines and Endogen Amino Acids
Nutrition Biochemistry, Energy And Activity
Ammonia Metabolism
Special Metabolic Pathways of Amino Acids
Metabolism of Nucleotides
Physiological Buffering Systems
Catabolism of Carbon Skeleton of Amino Acids
Special Metabolic Pathways of Amino Acid
Metabolism of Inorganics
Porphyrins and Bile Pigments
Biochemical Importance of Vitamins



Digestion and Absorption of Nutrients
Nutrition Biochemistry, Energy And Activity
Porphyrins and Bile Pigments
Metabolism of Alcohol and Detoxification Mechanisms

HISTOLOGY

Histology of Upper Digestive System
Histology of Lower Digestive System
Gastrointestinal System Associated Glands
Development of Digestive System
Development of gastrointestinal glands

MEDICAL MICROBIOLOGY

The mechanism of viral pathogenesis
Herpesviruses
Poxviruses and Picornaviruses
Adenoviruses
Parvoviruses - Reovirus
Papovaviruses
Paramyxoviruses
Orthomyxoviruses
Coronaviruses and noroviruses
Orthomyxoviruses
Hepatitis viruses
Retroviruses and HIV
Rhabdoviruses
Togaviruses, Flaviviruses, Bunyaviruses
Slow virus infections and prions
Viruses and carcinogenesis
Laboratory diagnosis of viral infections

PHYSIOLOGY

Introduction to Physiology of Digestion, Oral Digestion and Deglutition
Gastric Digestion
Digestion in Small and Large Intestines
Exocrine Function of the Pancreas
Function of the Liver and the Role of Bile in Digestion
Gastrointestinal Hormones
Gastric and Intestinal Tract Absorption
Body Temperature Regulation
Basal Metabolic Rate, Balanced Diet, Hunger, Satiety

COMMITTEE 4

ANTOMY

Kidney
Ureter, Urinary Bladder
The Pelvis and Perineum
The Female Genital Organs
The Male Genital Organs
Endocrine Glands

BIOCHEMISTRY

Introduction to Hormones I
Introduction to Hormones II
Hypothalamic-Pituitary Hormones
Calcium-Phosphate Metabolic Hormones
Pancreas Hormones
Steroid Hormones
Catecholamines
Eicosanoids
Renin-Angiotensin-Aldosterone System
Thyroid Hormones

HISTOLOGY

Histology of Urinary Tract
Development of Urinary Tract
Histology of Female Reproductive System
Histology of Male Reproductive System
Development of Reproductive System



Histology of Endocrine System
Development of Endocrine Glands

MEDICAL MICROBIOLOGY

Superficial Mycoses
Subcutaneous Mycoses
Systemic mycoses
Opportunistic Mycoses
Intestinal and Urogenital Protozoa
Blood And Tissue Protozoa
Nematodes
Tremadotes
Cestodes

PHYSIOLOGY

General Consideration of Renal Physiology
Renal Glomerular Function
Renal Tubular Function
Acid-Base Balance
Clearance and Micturition
General Information About Hormones
Physiology Of The Pituitary And Hypothalamus Hormones
Thyroid Hormones Physiology
Physiology of Parathyroid Hormone and Calcitonin
Physiology of the Endocrine Functions of the Pancreas
Physiology of Adrenal Gland Hormones
Physiology of Male Reproductive System and Hormones
The Physiology of Adipose Tissue Hormones
Physiology of Female Reproductive System and Hormones

COMMITTEE 5

BIOCHEMISTRY

Introduction To Clinical Biochemistry and Instrumentation instrumentation
Clinical Biochemistry of Body Fluids
Factors Determining Enzyme Leakage into Blood
Free Radicals
Biochemistry of Aging

MEDICAL MICROBIOLOGY

Introduction to immunology
Innate immunity
Cytokines
Antigen presentation and recognition
Cell mediated immunity and effector mechanisms
Humoral immunity and effector mechanisms
Immunity to tumors
Transplantation immunology
Hypersensitivity disorders
Immunologic tolerance and autoimmunity
Immunodeficiencies
Vaccines
Immunologic laboratory techniques

PATHOLOGY

Introduction To Pathology
Cellular Responses to Stress and Noxious Stimuli
Adaptations of Cellular Growth and Differentiation
Cell Injury and Cell Death
Morphologic Alterations in Cell Injury
Mechanisms of Cell Injury
Ischemic and Hypoxic and Toxic Injury
Apoptosis
Intracellular Accumulations
Pathologic Calcification and Cellular Aging
Overview of Inflammation: Definitions and General Features
Acute Inflammation
Mediators of Inflammation
Chronic Inflammation
Injury and Tissue Repair
Immune System



Hemodynamic Disorders

PHARMACOLOGY

Introduction to Medical Pharmacology

Absorption of Drugs and Transport through Biological Membranes

The Dynamics of Drug Distribution

The Dynamics of Drug Metabolism

The Dynamics of Drug Elimination

Dose, Concentration-Effect Relationship

Drug Receptors and Pharmacodynamics

Mechanisms of Drug Action

Environmental Toxicology

Mechanisms of Drug Action

Factors Contributing to Variations in Drug Effects

Pharmacogenetics

Drug Side Effects

Drug-Drug Interactions

Routes of Drug Administration

Pharmaceutical Forms of Drugs

Pharmacovigilance

Principles of Prescription Writing


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