COURSE INFORMATION					
Course Title	**Code**	**Phase/Semester**	**L+P Hour**	**Credits**	**ECTS**
Basic Medical Sciences II	MED 203	Phase 2/3-4	596+88	53	53*

*ECTS credits are the university credits of the courses in Yeditepe University, Faculty of Medicine, Undergraduate Medical Education Program

Prerequisites	Phase 1/Semester 1-2 MED 104 Introduction to Basic Medical Sciences

Language of Instruction	English
Course Level	Second Cycle including First Cycle Degree (One Tier Programme)
Course Type	Compulsory
Course Coordinators	**COORDINATION COMMITTEE** L. Arzu ARAL, MD, PhD, Prof. (Coordinator) Alev CUMBUL, PhD, Assoc. Prof. (Co-Coordinator) Edibe BİLİŞLİ KARA, PhD, Instructor (Co-Coordinator) Müge KOPUZ ALVAREZ NOVAL, PhD, Assist. Prof. (Co-Coordinator) Paria SHOJAOLSADATI, PhD, Instructor (Co-Coordinator) B. Tuvana US, MD, PhD. Assist. Prof. Dr. (Co-Coordinator) **PBL COORDINATION COMMITTEE** Serdar ÖZDEMİR, MD, PhD Assist. Prof. (Coordinator) Tümay Sadıkoğlu, MD, Instructor (Co-Coordinator) **ICP-II COORDINATION COMMITTEE** Güldal İzbırak MD, Prof. (Coordinator) Duygu Altıparmak MD, Instructor (Co-Coordinator) **ELECTIVE COURSES COORDINATION COMMITTEE** Seda GÜLEÇ YILMAZ, PhD. Assoc. Prof. (Coordinator) Ahmet SAÇ, MD, Instructor (Co-coordinator)
Goals	**In an evidence-based manner**, 1. ***To*** convey knowledge on biophysical, biological, anatomical, embryological, histological, physiological, biochemical, microbiological and immunological conditions of systems, 2. ***To convey*** introductory information on tissue damage and neoplasia related to systems, 3. ***To convey*** basic knowledge at the introductory level for clinics, 4. ***To equip with*** basic clinical skills (interventional or non-interventional) required for the practice of the medical profession, ***To equip with*** skills for scientific project preparation.

Content

Course Components:
COMMITTEE I Cardiovascular System (6 weeks)
COMMITTEE II Respiratory System (6 weeks)
COMMITTEE III Gastrointestinal System (7 weeks)
COMMITTEE IV Nervous System (8 weeks)
COMMITTEE V Endocrine and Urogenital Systems (9 weeks)

CONTENT of COURSE

Anatomy Department (104T+32P)

Lecture	Hour		Committee
	Theoretical	Practical	
Introduction to Cardiovascular System	1		1
Thoracic Cavity & Mediastinum	2		1
LAB: Thoracic wall, cavity & Mediastinum		1	1
Pericardium and Outer Surface of the Heart	2		1
Chambers of the Heart	2		1
LAB: Pericardium, Outer Surface, Chambers of the Heart		1	1
Great Vessels of the Heart	1		1
Major Vessels of the Heart	1		1
Coronary arteries, Cardiac veins, and Cardiac Conduction System	2		1
LAB: Coronary arteries, Cardiac Veins, Great Vessels, Cardiac Conduction System		1	1
Introduction to Lymphatic System	1		1
Circulation of Lymph	1		1
LAB: Lymphatic System		1	1
Fetal Circulation	1		1
Review of Cardiovascular Anatomy	1		1
Introduction to Respiratory System	1		2
Nasal Anatomy and Paranasal Sinuses	1		2
Pharynx	2		2
LAB: Upper Respiratory System		1	2
Larynx	2		2
Pleura and Diaphragm	2		2
LAB: Larynx, Pleura, and Diaphragm		1	2
Trachea	1		2
Lungs	1		2
Review of the Respiratory System	1		2
LAB: Lower Respiratory System		1	2
GIT development	2		3
Oral Cavity	2		3
LAB: Oral Cavity		1	3
Esophagus & Stomach	2		3
Duodenum	2		3
LAB: Stomach & Duodenum		1	3

	Small Intestine	1		3
	Large Intestine	1		3
	LAB: Small and Large Intestine		1	3
	Liver	1		3
	Biliary System	1		3
	LAB: Liver and Biliary System		1	3
	Pancreas and Spleen	1		3
	LAB: Pancreas and Spleen		1	3
	Peritoneal and Abdominal Cavity	1		3
	Abdominal Wall Topographic Anatomy	1		3
	Nerves and Vessels of the GIT	2		3
	LAB: Abdominal Cavity, Peritoneum, Nerves and Vessels		1	3
	Review of the Digestive System	2		3
	Introduction to Neuroanatomy	1		4
	Spinal Cord	2		4
	LAB: Spinal Cord		1	4
	Brainstem	3		4
	LAB: Brainstem		1	4
	Cranial Nerves	4		4
	LAB: Cranial Nerves		1	4
	Cerebellum	2		4
	Diencephalon	3		4
	LAB: Cerebellum and Diencephalon		1	4
	Basal Ganglia	2		4
	LAB: Basal Ganglia		1	4
	Telencephalon	3		4
	LAB: Telencephalon		1	4
	Limbic System	2		4
	LAB: Limbic System		1	4
	Ascending Pathways of the CNS	1		4
	Descending Pathways of the CNS	1		4
	Meninges and Dural Venous Sinuses	2		4
	LAB: Meninges and Dural Venous Sinuses		1	4
	Vasculature of the CNS	2		4
	LAB: Vasculature of the CNS	1		4
	Eye and Orbit	2		4
	Visual Pathways	2		4
	LAB: Eye and Visual Pathways		2	4
	Taste and Smell Pathways	2		4
	Ear	2		4

Auditory Pathways	1		4
LAB: Ear and Auditory Pathways		1	4
Introduction to Autonomic Nervous System	1		4
Sympathetic Nervous System	2		4
LAB: Sympathetic Nervous System		1	4
Parasympathetic Nervous System	2		4
LAB: Parasympathetic Nervous System		1	4
Skin, its derivates, and the Mammary Glands	1		4
LAB: Skin and Mammary Glands		1	4
Introduction to Urinary System	1		5
Kidneys	2		5
Urinary Tracts and Suprarenal Glands	1		5
LAB: Urinary System		1	5
Introduction to Genital Systems	1		5
Male Genital Organs	2		5
LAB: Male Genital Organs		1	5
Female Genital Organs	2		5
LAB: Female Genital Organs		1	5
Nerves and Vessels of the Pelvis	2		5
LAB: Nerves and Vessels of the Pelvis		1	5
Perineum and Ischiorectal Fossa	1		5
LAB: Perineum and Ischiorectal Fossa		1	5
Endocrine Organs	2		5
Review of the Urinary System	1		5

Biophysics Department (30T)

Lecture	**Hour**		**Committee**
	Theoretical	**Practical**	
Biophysics of Hemodynamics. Measurements of Different Hemodynamic Parameters	2		1
Hemorheology	2		1
Introduction to Bioelectromagnetics. Electric Field	2		1
Introduction to Bioelectromagnetics. Magnetic Field	2		1
Introduction to Bioelectromagnetics: Electromagnetic Field	1		1
Bioelectromagnetic Effects on the Heart	1		1
Modeling in Circulatory and Respiratory Systems	2		2
Principle of Surface Tension and Alveolar Mechanic. Work of Lungs.	2		2
Bio-thermodynamics, Laws of Thermodynamics	2		3
The Theroth and First Laws of Thermodynamics. Energy Transformation.	2		3

Applications of the First Law to Isochoric, Isobaric Processes, Enthalpy	2		3
Applications of the First Law to Isothermal and Ideobatic Processes.	2		3
The Second Law of Thermodynamics	1		3
Entropy and Free Energy: Distribution in Bio-molecular Systems	1		3
Electrical Activity of Cortex and Evoked Potentials. Neural Coding	2		4
Auditory System Biophysics and Function	1		4
Seeing with Sound: Images from Echoes (Diagnostic Ultrasound Imaging)	1		5
Basics of MRI	2		5

Biostatistics Department (18 T+1P)

Lecture	Hour		Committee
	Theoretical	Practical	
Statistical Decision Theory, Test of Hypothesis and Significance	2		1
Test of Hypothesis: Chi-Square Test	2		2
Test of Hypothesis: Chi-Square Test	2		2
Test of Hypothesis: z test for comparing proportions	2		3
Test of Hypothesis: t-tests (one sample)	2		3
Test of Hypothesis: t-tests (two independent samples)	2		4
Test of Hypothesis: t-tests (paired samples)	2		4
Correlation	2		5
Linear Regression	2		5
Computer Applications of Tests of Significance		1	5

Biochemistry Department (68T+7P)

Lecture	Hour		Committee
	Theoretical	Practical	
Porphin, Porphyrins, Heme, Hemoglobin, Structure of Hemoglobin	2		1
Functions of Hemoglobin	2		1
Synthesis of Hemoglobin, Disorders Concerning Synthesis of Hemoglobin	2		1
Degradation of Hemoglobin	2		1
Disorders Concerning Hemoglobin Metabolism	2		1
Blood Coagulation, Primary Hemostasis	2		1
Secondary Hemostasis, Procoagulation, Anticoagulation, Fibrinolysis	2		1
Peripheral Blood Smear		2	1
Digestion and Absorption of Lipids	2		3
Transport of Lipids in Plasma	2		3

Cholesterol Metabolism	2		3
Lipogenesis, Triacylglycerol Synthesis	2		3
Lipolysis	2		3
Oxidation of Fatty Acid	2		3
Ketone Bodies	2		3
Digestion and Absorption of Proteins	2		3
Metabolisms of Individual Amino Acids	2		3
Urea Cycle	2		3
Metabolic Interrelationships and Provision of Tissue Fuels	2		3
Citric Acid Cycle	2		3
Purine and Pyrimidine Metabolism	4		3
Xenobiotic Metabolism	2		3
Overview of Metabolism	2		3
Lipid Determination in Blood		2	3
Mechanisms of Hormone Actions, Intracellular and Cell Surface Receptors	2		5
Mechanisms of Hormone Actions, Intracellular and Cell Surface Receptors	2		5
Hormones of the Hypothalamus and Pituitary	3		5
Thyroid Hormones	1		5
Hormones of Adrenal Cortex and Adrenal Medulla	2		5
PTH, Calcitonin, Calcitriol	2		5
Insulin, Glucagon	4		5
Hormones Regulating Calcium Metabolism	2		5
Minerals	2		5
Vitamins	2		5
Urine Analyses		3	5

Pharmacology Department (22T+2P)

Lecture	**Hour**		**Committee**
	Theoretical	**Practical**	
Scope of Pharmacology and Passage of Drugs AcrossMembranes	1		4
Drug Distribution	2		4
Drug Metabolism	1		4
Drug Excretion	2		4
Dopamine and Drugs Affecting the Dopaminergic System	1		4
Serotonin and Drugs Effecting Serotonergic System of CNS	1		4
Drug Application Routes and Pharmaceutical Forms of Drugs	1		4
Laboratory / Pharmacology Drug Metabolism		1	4
Mechanism of Drug Action 1	1		5
Mechanism of Drug Action 2	1		5
Pharmacogenetics & Pharmacogenomics	2		5

Post-receptor Events and Second Messengers	1		5
Introduction to Drug Development	1		5
Drug Toxicity-1	1		5
Drug Toxicity-2	1		5
Development of Biopharmaceuticals	1		5
Introduction to Rational Pharmacotherapy	1		5
Eicosanoids	1		5
Vasoactive Compounds	1		5
Histamine and Antihistamines	1		5
Laboratory/Efficacy and Potency Concepts		1	5

Physiology Department (130T+18P)

Lecture	**Hour**		**Committee**
	Theoretical	**Practical**	
Functions of Blood	1		1
Erythrocyte	2		1
Leukocytes & Lymphocytes	2		1
Blood Types and Transfusion Reactions	2		1
Regulation of Cardiac Function	2		1
Platelets and Coagulation	2		1
Rhythmical Excitation of the Heart	2		1
Principles of Electrocardiography	1		1
Electrocardiographic Interpretation of Cardiac Abnormalities	1		1
Cardiac Arrhythmias	2		1
Microcirculation and the Lymphatic System	1		1
Capillary Fluid Exchange, Interstitial Fluid, and Lymph Flow	1		1
Local and Humoral Control of Blood Flow by the Tissues	2		1
Principles of Hemodynamics	2		1
Vascular Distensibility and Functions of Arterial and Venous Systems	2		1
Regulation of Blood Pressure	2		1
Heart Valves and Heart Sounds	2		1
Nervous Regulation of the Circulation	2		1
Coronary Circulation	1		1
Cardiac Failure	1		1
Circulatory Shock and Physiology of Its Treatment	1		1
Hematocrit Determination and Blood Typing & Bleeding Time		1	1
ECG I-ECG II		2	1
Blood Pressure & Heart Sounds		2	1
Pulmonary Ventilation	2		2
Pulmonary Circulation, Pulmonary Edema, Pleural Fluid	2		2

Diffusion of Blood Gases	2		2
Transport of Blood Gases	2		2
Regulation of Respiration	2		2
Aviation, High-Altitude, and Space Physiology	1		2
Physiology of Deep-Sea Diving and Hyperbaric Conditions	2		2
Sports Physiology	2		2
Introduction to Pathophysiology of Respiratory System	2		2
Spirometry		1	2
Exercise and Metabolism		1	2
Gastrointestinal Functions	2		3
Propulsion and Mixing Movements in the GI Tract	2		3
Secretory Functions of the Alimentary Tract	2		3
Digestion and Absorption in the Gastrointestinal Tract	2		3
Energetics and Metabolic Rate	2		3
Regulation of Feeding and Obesity	2		3
Body Temperature and Its Regulation	2		3
Physiology of Gastrointestinal Disorders	2		3
Liver as Organ	1		3
Digestive System		1	3
Organization of the Nervous System	1		4
Neuron and Neuroglia	1		4
Synapse and Neurotransmitters	2		4
Sensory Receptors and Pathways	1		4
Peripheral Nervous System	1		4
Cutaneous Senses	2		4
Physiology of Pain	2		4
Motor Functions of Spinal Cord	2		4
Cortical and Brainstem Control of Motor Function	2		4
Functions of Cerebellum and Basal Ganglia in motor control	2		4
States of Brain Activity- Sleep and Brain Waves	2		4
Cerebral Cortex, Intellectual Functions of the Brain	1		4
Learning and Memory	1		4
Physiology of Vision	4		4
Physiology of Hearing	2		4
Chemical Senses: Taste and Smell	2		4
Limbic System and the Hypothalamus	2		4
Autonomic Nervous System	2		4
Cerebrospinal Fluid and Brain Metabolism	2		4
Reflexes & Electroencephalography		2	4
Visual Examination		2	4

Hearing test & Galvanized Skin Response		2	4
Body Fluids and Functions of Kidneys	1		5
Micturition	1		5
Urine Formation and Renal Blood Flow	2		5
Urine Formation: Tubular Processing	2		5
Fluid and Electrolyte Balance	2		5
Regulation of Acid-Base Balance	1		5
Introduction to Endocrinology	1		5
Pituitary Gland and Hypothalamic Control	1		5
Posterior Pituitary Hormones	1		5
Thyroid Metabolic Hormones	1		5
Adrenocortical Hormones	2		5
Insulin, Diabetes Mellitus	2		5
Regulation of Calcium & Phosphate Metabolism and Bone Formation	2		5
Male Reproductive Physiology	2		5
Physiology of Growth Hormones	1		5
Pineal Gland & Melatonin	1		5
Female Reproductive Physiology	2		5
Fetal and Neonatal Physiology	1		5
Endocrine Distruptors	1		5
Pregnancy and Lactation	1		5
Glomerular Filtration & Metabolic Rate		2	5
Dissection and Examination of the Endocrine System		2	5

Histology and Embryology Department (55T+14P)

Lecture	**Hour**		**Committee**
	Theoretical	**Practical**	
Histology of Circulatory Systems; Gn Spec., Arteries	1		1
Histology of Circulatory Systems: Capillaries, Veins & Heart	1		1
Development of Circulatory Systems; Endocardial Tube Formation & Looping	1		1
Development of Circulatory Systems; Septation	1		1
Congenital Heart Anomalies	1		1
Development of Circulatory Systems; Arteries and Anomalies	1		1
Development of Circulatory Systems; Veins and Anomalies	1		1
LAB: Histology of CVS (Aort, Heart, Vena Cava, Muscular arteries)		1	1
Histology of Lymph Organs: General Aspect, Thymus, and Lymph Node	1		1
Histology of Lymph Organs; Spleen and MALT (Tonsills)	1		1
LAB: Histology of LRS (Thymus, Lymph Node, Spleen, Tonsils)		1	1
Development of Head; Splanchocranium, Neurocranium	1		1
Development of Neck; Pharyngeal Arches and Anomalies	1		1
Histology of The Upper Respiratory Tract	1		2

Histology of The Upper Respiratory Tract	1		2
Histology of The Respiratory Systems; Conducting Part	1		
Histology of The Respiratory Systems; Respiratory Part	1		
Development of The Respiratory Systems & Anomalies	1		2
Development of The Respiratory Systems & Anomalies	1		2
LAB: Histology of CVS & RS (Aort, Heart, Trachea, Lung)		1	2
Histology of Upper Gastrointestinal Tract; Oral Cavity	1		3
Histology of Alimentary Canal; Tongue, Esophagus	1		3
Histology of Alimentary Canal; Stomach	1		3
LAB: Histology of GIS I (Tongue, Lip, Esophaus, Stomach)		1	3
Histology of Alimentary Canal; Small Intestine	1		3
Histology of Alimentary Canal; Large Intestine & Appendix	1		3
Gland Associated with the Digestive System; Salivary Glands	1		3
Gland Associated with the Digestive System; Liver	1		3
Gland Associated with the Digestive System; Gall Bladder		2	3
Gland Associated with the Digestive System; Pancreas	1		3
Gland Associated with the Digestive System; APUDs	1		3
Development of Gastrointestinal Tract; Alimentary Canal	1		3
Development of Gastrointestinal Tract; Glands	1		3
Congenital Anomalies of Gastrointestinal Tract	1		
LAB: Histology of GIS II (Jejunum, Colon, Salivary Gl, Liver)		2	
Histology of CNS, PNS, Meninges, and Spinal Chord	1		4
Histology of Central Nervous System: Brain, Cerebellum	1		4
Development of Central Nervous System; Early Stages	1		4
Development of Central Nervous System; Late Stages	1		4
Congenital Anomalies of the Nervous System	1		4
Histology of Sensory Organs; Eye; Fibrous and Vascular Coat	1		4
Histology of Sensory Organs; Eye; Nervous Coat and Appendix	1		4
Histology of Sensory Organs; Ear	1		4
Development of Sensory Organs: Eye	1		4
Development of Sensory Organs; Ear	1		4
Histology of Skin and Appendage: Epidermis, Dermis, Appendage	1		4
Development of Skin and Appendage	1		4
LAB: Histology of CNS and Skin		2	
Histology of Urinary System; General Aspect, Kidney Nephron	1		5
Histology of Urinary System; Excretory Passage	1		5
Histology of Endocrine System: General Aspect, Hypothalamus, Epiphysis	1		5
Histology of Endocrine System; Hypophysis	1		5
Histology of Endocrine System: Thyroid and Parathyroid and Suprarenal Glands	1		5

LAB: Histology of ES & US (Kidney, Hypophysis, Thyroids, Pancreas)		2	5
Histology of The Male Genital System; Testis	1		5
Histology of The Male Genital System; Excretory Parts	1		5
Histology of The Female Genital System; Ovaries	1		5
Histology of The Female Genital System; Conducting Part	1		5
Development of Urinary System and Anomalies	1		5
Development of Genital System; General Aspect	1		5
Development of Male Genital System and Anomalies	1		5
Development of Female Genital System and Anomalies	1		5
LAB: Histology of Genital Sys (Testis, vas Defferences, Ovary, Uterus)		2	5
Prenatal Diagnosis, Teratology and Congenital Anomalies	1		

Immunology Department (15T)

Lecture	**Hour**		**Committee**
	Theoretical	**Practical**	
Immunology of Heart and Vessels	2	-	1
Infection and Immunity	3	-	2
Pulmonary Innate Immune Response	2	-	2
Pulmonary Adaptive Immune Response	2	-	2
Mucosal Immunity	2	-	3
Neuroimmunology	2	-	4
Hormones and Immunity	2	-	5

Microbiology Department (46T+13P)

Lecture	**Hour**		**Committee**
	Theoretical	**Practical**	
Introduction to Medical Microbiology	1		1
Cultivation and identification of bacteria	1		1
Human microbiota	1		1
Microbiology of air, water, and milk	1		1
Bacterial pathogenicity	1		1
Microbial toxins	1		1
Host-Parasite interactions	1		1
Viral Pathogenicity	1		1
1. LAB: Microbiology Laboratory Safety rules and Use of microscope		1	1
Gram (+) cocci	2		2
Gram (-) cocci	2		2
Gram Negavite Small Non- Enteric Bacilli: Francisella sp., Pasteurella sp.	1		2
Gram Negavite Small Non- Enteric Bacilli: Haemophilus sp., Bordetella sp., Legionella sp.	1		2
Gram Negavite Small Non- Enteric Bacilli: Brucella sp., Bartonella sp. and others	1		2

Gram-positive aerobic bacilli	1		2
Mycobacteria	2		2
Actinomyces and Nocardia	1		2
Mycoplasma, Chlamydia and Rickettsia	2		2
Respiratory viruses	2		2
Antimicrobial Agents: Mechanism of Action	2		2
Antimicrobial Agents: Mechanisms of Resistance	2		2
1.LAB: Laboratory Identification of Gr (+) cocci and Gr (-) cocci- I		2	2
2. LAB: Laboratory Identification of Gr (+) cocci and Gr (-) cocci- II		1	2
3. LAB: Laboratory Identification of Gr (+) bacilli and mycobacteria- I		1	2
4. LAB: Laboratory Identification of Gr (+) bacilli and mycobacteria- II		1	2
5. LAB: Antibacterial susceptibility testing and interpretation- I		1	2
6. LAB: Antibacterial susceptibility testing and interpretation- II		1	2
Enterobacterales	2		3
Anaerobes	2		3
Nonfermenters	1		3
Gram (-) curved bacilli	1		3
Enteroviruses	1		3
Viruses of diarrhea	1		3
Hepatitis viruses	2		3
Gastrointestinal and urogenital protozoa	2		3
Cestods	1		3
Trematodes	1		3
Nematodes	2		3
Medical Entomology	1		3
1. LAB: Laboratory methods in Parasitology (AMFİ)		2	3
2.LAB: İdentification of gram (-) bacilli I		2	3
3.LAB: İdentification of gram (-) bacilli II		1	3
Spirochetes	1		5
Papilloma and polyomaviruses	1		5

Pathology Department (29T+1P)

Lecture	**Hour**		**Committee**
	Theoretical	**Practical**	
Introduction to Pathology	1		1
Adaptations	2		1
Ischemia and Infarction	2		1
Hyperemia & Congestion	2		1
Cellular Injury and Necrosis	2		2
Hemodynamics	2		2
Hemorrhage and Thrombosis	2		2
Injury by Endogenous Substances	1		2

Injury by Toxic Substances and Pneumoconiosis	2		2
Inflammation	1		3
Wound Healing	1		3
Acute inflammation	2		3
Chronic Inflammation	2		3
Introduction to Neoplasia and Biologic Behaviors of Neoplasm	2		5
Histogenesis and Nomenclature	2		5
Oncogenesis, Incidence, and Distribution of Cancer	2		5
Tissue Damage by Eating Disorders and Diabetes Mellitus	1		5
Inflammation and Neoplasia		1	

Medical Biology Department (15T)

Lecture	**Hour**		**Committee**
	Theoretical	**Practical**	
Molecular Basis of Cardiovascular System	2		1
Molecular Basis of Lung Cancer	2		2
Interrelationship of Biology of Major Organs	1		3
Nutrigenomics	2		3
Molecular Basis of Colocteral Cancer	1		3
Biology of the Nervous System	2		4
Biology of Endocrine System	2		5
Hormonal Signal Transduction (estrogen)	2		5
Hormonal Signal Transduction (insulin)	1		5

Medical Genetics Department (17T)

Lecture	**Hour**		**Committee**
	Theoretical	**Practical**	
Introduction to Medical Genetics	2		2
Patterns of Single Gene Inheritance	2		2
The Human Genome and Chromosomal Basis of Heredity	1		2
Cytogenetics and Chromosomal Disorders	1		2
Developmental Genetics and Birth Defects	2		2
Cancer Genetics and Genomics	2		2
Cytogenetics and Chromosomal Disorders	1		2
Molecular Basis of Genetic Diseases	1		2
Tools of Human Molecular Genetics	1		2
Treatment of Genetic Disease-Introduction to Gene Therapy	2		2
Genetics of Complex Diseases	2		2

Scientific Research and Project Course II (17T)

Lecture	**Hour**		**Committee**
	Theoretical	**Practical**	
Presentation of Scientific Research	2		1
Scientific Presenation	3		1
Scientific Presenation	3		2
Scientific Presenation	3		3
Scientific Presenation	3		4
Scientific Presenation	3		5

Problem-Based Learning (30T)

Lecture	Hour		Committee
	Theoretical	Practical	
PBL Scenario	6		1
PBL Scenario	6		2
PBL Scenario	6		3
PBL Scenario	6		4
PBL Scenario	6		5

Course Learning Outcomes	Program Outcomes	Teaching Methods	Assessment Methods
KNOWLEDGE 1.0. Explain basic medical knowledge for the cardiovascular system, respiratory system, circulation, hemodynamics, urogenital system, gastrointestinal system, nervous system, endocrine system, immune system and immunologic response, biostatistics subjects, and elective courses.	**1.1.1.1**	1, 6	A
2.0. Explain the operational principles, interactions, and relations of the systems in the body.	**1.1.1.1**	1, 6	A
3.0. Of clinical conditions; 3.1. explain mechanisms of damages formed at molecular, cell, tissue, organ, system, and multi-system levels, 3.2. describe the structural changes caused, 3.3. list developmental progress in time.	**1.1.1.1, 2.1.3.1**	1, 6	A
4.0. Among factors that pose risk to individual and community health; 4.1. List biological agents, 4.2. Explain their mechanisms of action and outcomes.	**1.1.1.1, 1.1.1.3, 2.2.3.2**	1, 6	A
5.0. Explain the basic principles of evidence-based medicine applications**.**	**3.2.1.4, 3.1.2.3, 3.1.3.3**	1, 6	A
6.0. Describe a research project's writing, reporting, presentation, and submission to publication phases**.**	**3.1.3.3**	1, 6	A
7.0. Comprehend the biopsychosocial approach in medicine.	**1.1.3.1, 2.1.1.1, 2.1.2.4, 2.1.3.1, 2.1.4.2**	1, 6	A
8.0. Know how to make a presentation of scientific research.	**3.1.1.4, 3.1.2.3, 3.1.4.4**	1, 6	A
SKILLS 1.0. Apply basic interventional and non-interventional processes for individual preventive measures, drug application, and diagnosis or treatment.	**3.1.1.4, 3.1.2.3, 3.1.4.4**	1,6	A
2.0. Apply basic laboratory techniques and use equipment.	**2.1.3.1**	1,6	A
3.0. Prepare a presentation of a scientific research	**1.1.1.1, 3.2.1.4, 3.2.2.4, 3.2.3.4**	1,2,6	A, D

Teaching/Learning Methods:	**CONTACT HOURS (CH)** 1. Theoretical-Class/Auditorium/Conference Hall/Multimedia 1.1. Lecture/Tutorial 1.2. Case report 1.3. Case presentation 1.4. Research seminar 1.5. Seminar 1.6. Student seminar/Journal club 1.7. Invited speaker 1.8. Hospital conference 1.9. Online/Distance or e-learning (paper-based or ICT-based) 1.10. Other: 2. Theoretical-Group Activity/Interactive 2.1. Case discussion 2.2. Discussion class 2.3. Small group study session/Problem-solving session/Brainstorm session 2.4. Exercise class 2.5. Oral presentation and criticism 2.6. Panel 2.7. Workshop 2.8. Online/Distance or e-learning (paper-based or ICT-based) 2.9. Other: 3. Practice Based-Laboratory/Class 3.1. Demonstration class 3.2. Laboratory teaching 3.3. Clinical skills laboratory 3.4. Small group study session/Problem-solving session 3.5. Exercise class 3.6. Workshop (practical class) 3.7. Other: 4. Clerkship (Clinical practice and training) 4.1. Field study/Fieldwork 4.2. Outpatient clinic 4.3. Patient bedside 4.4. Imaging round 4.5. Laboratory round 4.6. Work-based practice 4.7. Grand round 4.8. Operating room 4.9. Invasive Intervention room 4.10. Night shift at ward 4.11. Night shift at intensive care unit 4.12. Night shift at an emergency care unit 4.13. Other: 5. Work placement/Internship (Clinical performance under supervision) 5.1. Field study/Fieldwork 5.2. Outpatient clinic 5.3. Patient bedside 5.4. Imaging round 5.5. Laboratory round 5.6. Work based practice 5.7. Grand round 5.8. Operating room 5.9. Invasive intervention room 5.10. Night shift at ward 5.11. Night shift at intensive care unit 5.12. Night shift at an emergency care unit 5.13. Other: • **INDEPENDENT STUDY HOURS (ISH)** 6. KNOWLEDGE (Levels: Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation) 6.1. Theoretical/Written/Oral exam/s 6.2. Presentation 6.3. Seminar 6.4. Discussion 6.5. Session 6.6. Research paper writing 6.7. Project writing 6.8. Report writing 6.9. Dissertation writing 6.10. Homework 6.11. Investigation/Survey study 6.12. Other:

	7. SKILLS: (Levels: Imitation, Manipulation, Precision, Articulation, Naturalization) 7.1. Oral/practical exam/s 7.2. Presentation 7.3. Seminar 7.4. Discussion 7.5. Session 7.6. Exercise 7.7. Workshop 7.8. Imaging round 7.9. Laboratory round 7.10. Grand round 7.11. Other: 8. ATTITUDES (Receiving, Responding, Valuing, Organization, Characterization) 8.1. Questionnaire (self-assessment) 8.2. Paper case 8.3. Other: 9. COMPETENCY (Doing/Making, Co-ordinating/Operating, Observing/Analysing/Listening to/ Controlling/Driving, Choosing/Communicating/Enhancing, Conceiving/Visioning/Foreseeing) 9.1. Portfolio preparation 9.2. Clinical performance at outpatient wards 9.3. Clinical performance at inpatient wards 9.4. Clinical performance at night shifts (ward, emergency care unit, intensive care unit) 9.5. Other: (e.g., mini-clinical exam, etc.) 10. PROFICIENCY (Doing/Making, Co-ordinating/Operating, Observing/Analysing/Listening to/ Controlling/Driving, Choosing/Communicating/Enhancing, Conceiving/Visioning/Foreseeing) 10.1. Portfolio preparation 10.2. Clinical performance at outpatient wards 10.3. Clinical performance at inpatient wards 10.4. Clinical performance at night shifts (ward, emergency care unit, intensive care unit) 10.5. Other: (e.g., mini-clinical exam, etc.)
Assessment Methods:	A. Knowledge Assessment a. Written Exam (MCQ+EMQ+KFQ) (F, S) b. Objectively Structured Oral Examination (S) c. Oral Examination (F) d. Other: B. Skills Assessment a. Practical Examination (F) b. Objectively Structured Practical Examination (S) c. Mini Clinical Examination (S) d. Other: C. Attitude Assessment a. Mini Clinical Examination (S) b. Questionnaire (self-assessment) (F) c. Paper case (S) d. Observation of behaviour (360º) (F, S) e. Other: D. Competency Assessment a. Mini Clinical Examination (S) b. Clerkship/Internship Guide/Checklist Assessment (F, S) c. Professional Portfolio Assessment (F) d. Presentation Performance Assessment (F) e. Seminar Performance Assessment (F) f. Project Writing Assessment (S) g. Other: E. Proficiency Assessment a. Mini Clinical Examination (S) b. Clerkship/Internship Guide/Checklist Assessment (F, S) c. Professional Portfolio Assessment (F) d. Presentation Performance Assessment (F) e. Seminar Performance Assessment (F) f. Other: *F: Formative, S: Summative

COURSE CONTENT		
Week	**Topics**	**Study Materials**
1-5	Committee I: Cardiovascular System	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
6	Committee Exam	
7-11	Committee II: Respiratory System	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
12	Committee Exam	
13-18	Committee III: Gastrointestinal System	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
19-21	Committee Exam-Mid Term Break	
22-28	Committee IV: Nervous System	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
29	Committee Exam	
30-37	Committee V: Endocrine and Urogenital Systems	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
38	Committee Exam	
41	Makeup Exam	
43	Final Exam	
46	Incomplete Exam	

RECOMMENDED SOURCES	
Textbooks	• Guyton and Hall-Textbook of Medical Physiology • Glantz, Stanton "A Primer of Biostatistics" McGraw-Hill, NewYork, 2002 • Armitage, P., " Statistical Methods in Medical Research" Blackwell Science, Oxford,2002 • B. G. Katzung: Basic and Clinical Pharmacology, 12th ed. McGraw-Hill Companies, New York, 2012. • Goodman&Gilman's The Pharmacologic Basis of Therapeutics, 12th ed.McGraw Hill Medical, 2011
Additional Resources	• Each instructor will provide their notes to the students

MATERIAL SHARING	
Documents	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos
Assignments	
Exams	After the exam, exam questions, question discussions, individual performance analysis reports

ASSESSMENTS

An assessment table will be made with consideration of each learning objective for each committee and will be announced and explained in introductory lectures at the beginning of each committee.

EXAMINATION MATRIX
MED 203 Basic Medical Sciences II

Committee Exams : WE + OSPE Written Exam:

Number of Questions: 100

Question Type: Multiple Choice Questions*

Committee Score (CS)= 95% of [90% CE (MCQ) + 10% (LPE)] + 5% of PBL-P

Final Exam: WE

Number of Questions 200

Question Type: Multiple Choice Questions*

The mean of committee and final examinations will form 60% and 40% of the end-of-year grade, respectively.

Incomplete Exam: WE

Number of Questions: 100-200

Question Type: Multiple Choice Questions*

MCQ: Multiple Choice Questions

EMQ: Extended Matching Questions OSPE: Objective Structured Practical Exam WE: Written Examination (WE)

SRPC: Scientific Research and Publication Course

*Percentage reflected in total points of written exam does not comply with the exact number of questions.

COURSE CATEGORY
Professional (Knowledge and Skills: physiopathological processes, pathological processes; introduction to clinical practice-advanced clinical skills)

COURSES CONTRIBUTION TO PROGRAM					
COMPETENCE AREA-1 / Professional Practices	**Contribution**				
COMPETENCE 1.1. Health Service Provider	**1**	**2**	**3**	**4**	**5**
Competency 1.1.1. Integrates knowledge, skills, and attitudes acquired from basic and clinical medical sciences, behavioral sciences, and social sciences to provide health services.	**X**				
Competency 1.1.2. Demonstrates a biopsychosocial approach that considers the individual's sociodemographic and sociocultural background without discrimination based on language, religion, race, or gender in patient management.		**X**			
Competency 1.1.3. Prioritizes the protection and improvement of individuals' and community's health in the delivery of healthcare services.	**X**				
Competency 1.1.4. Performs the necessary actions in the direction of maintaining and improving the state of health as considering the individual, social, social and environmental factors affecting health.	**X**				
Competency 1.1.5. Provides health education to healthy/ill individuals and their families, as well as to other healthcare professionals, by recognizing the characteristics, needs, and expectations of the target audience.	**X**				
Competency 1.1.6. Demonstrates a safe, rational, and effective approach in the processes of protection, diagnosis, treatment, follow-up, and rehabilitation in health service delivery.	**X**				
Competency 1.1.7. Performs interventional and/or non-interventional procedures safely and effectively for the patient in the processes of diagnosis, treatment, follow-up, and rehabilitation.	**X**				
Competency 1.1.8. Provides healthcare services considering patient and employee health and safety.	**X**				
Competency 1.1.9. Considers changes related to the physical and socio-economic environment at both regional and global scales that affect health, as well as changes in the individual characteristics and behaviors of those who seek healthcare services.	**X**				
COMPETENCE AREA-2 / Professional Values and Approaches	**Contribution**				
COMPETENCE 2.1. Adopting Professional Ethics and Principles	**1**	**2**	**3**	**4**	**5**
Competency 2.1.1. Considers good medical practices while performing the profession.	**X**				
Competency 2.1.2. Fulfills duties and obligations within the framework of ethical principles, rights, and legal responsibilities required by the profession.				**X**	
Competency 2.1.3. Demonstrates determined behavior in providing high-quality healthcare while considering the patient's integrity.	**X**				
Competency 2.1.4. Evaluates own performance in professional practices by considering own emotions and cognitive characteristics.		**X**			
COMPETENCY 2.2. Health Advocate					
Competency 2.2.1. Advocates for the improvement of healthcare service delivery by considering the concepts of social accountability and social responsibility in the protection and enhancement of community health.				**X**	

Competency 2.2.2. Plans and implements service delivery, education, and counseling processes related to individual and community health, in collaboration with all stakeholders, for the protection and improvement of health.	**X**				
Competency 2.2.3. Evaluates the impact of health policies and practices on individual and community health indicators and advocates for the improvement of healthcare quality.		**X**			
Competency 2.2.4. Gives importance to protecting and improving own physical, mental, and social health and takes necessary actions for it.				**X**	
COMPETENCY 2.3. Leader-Manager					
Competency 2.3.1. Demonstrates exemplary behavior and leadership within the healthcare team during service delivery.			**X**		
Competency 2.3.2. Utilizes resources in a cost-effective, socially beneficial, and compliant manner with regulations in the planning, implementation, and evaluation processes of healthcare services as the manager in the healthcare institution.	**X**				
COMPETENCY 2.4. Team Member					
Competency 2.4.1. Communicates effectively within the healthcare team and takes on different team roles as necessary.		**X**			
Competency 2.4.2. Displays appropriate behaviors while being aware of the duties and responsibilities of healthcare workers within the healthcare team.		**X**			
Competency 2.4.3. Works collaboratively and effectively with colleagues and other professional groups in professional practice.		**X**			
COMPETENCY 2.5. Communicator					
Competency 2.5.1. Communicates effectively with patients, their families, healthcare professionals, and other occupational groups, institutions and organizations.		**X**			
Competency 2.5.2. Communicates effectively with individuals and groups who require a special approach and have different sociocultural characteristics.		**X**			
Competency 2.5.3. Demonstrates a patient-centered approach that involves the patient in decision-making mechanisms during the diagnosis, treatment, follow-up, and rehabilitation processes.	**X**				
COMPETENCE AREA-3 / Professional and Personal Development	**Contribution**				
COMPETENCE 3.1. Scientific and Analytical Approach	**1**	**2**	**3**	**4**	**5**
Competency 3.1.1. Plans and implements scientific research, as necessary, for the population it serves, and utilizes the results obtained, as well as those from other research, for the benefit of the community.				**X**	
Competency 3.1.2. Accesses and critically evaluates current literature related to their profession.			**X**		
Competency 3.1.3. Applies evidence-based medicine principles in the clinical decision-making process.			**X**		
Competency 3.1.4. Uses information technologies to enhance the effectiveness of healthcare, research, and education activities.				**X**	
COMPETENCY 3.2. Lifelong Learner					
Competency 3.2.1. Manages effectively individual study processes and career development.				**X**	
Competency 3.2.2. Demonstrates skills in acquiring, evaluating, integrating new information with existing knowledge, applying to professional situations, and adapting to changing conditions throughout professional career.				**X**	

Competency 3.2.3. Selects the right learning resources to improve the quality of health care and organizes the learning process.				**X**	

ECTS CREDITS **MED 201 Basic Medical Sciences II**			
ACTIVITIES	#	Time (hour)	Workload (hour)
Lectures	596	1	596
Laboratory Practices	88	1	88
Scientific presentation	5	3	15
Independent Study for Midterm Exam	438	1	438
Mid-term Exam (MCQ+OSPE)	9	2	18
Independent Study for Final Exam	431	1	431
Final Exam (MCQ)	1	4	4
Total Workload per Course			1590
ECTS Credits per Course			53