



FACULTY OF MEDICINE
UNDERGRADUATE PROGRAM

INTRODUCTION TO BASIC MEDICAL SCIENCES I			TIP111
ECTS 10	1. year – I. semester	Undergraduate	Compulsory
CREDITS 11			
	Theoretical/ Lab courses: 80 + 3h/8 week		Turkish
PROF.DR. RÜSTEM NURTEN			
ASST. PROF AYSUN YOLDAŞ			
ASST. PROF YASİN ÇELİKOK			
ASST. PROF. NURTEN DAYIOĞLU			
PROF.DR. EMEL SARI			
PROF.DR. SENİHA BİLGE HAPÇIOĞLU			
ASST. PROF. SELİN KANKAYA			
ASST. PROF SERVET DURANAY			
ASST. PROF. AYTEN ARIKAN			
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Course objectives

In medical education, each of course commission corresponds to a course. Course commissions are the course in which specific subjects are associated with and complemented each other by the kinds of interdisciplinary and constituted a meaningful whole. The main objective of the “Introduction to Basic Medical Sciences I” lasts eight weeks is to make an introduction to basic medical sciences and to give students the general features of biochemical processes and essentials of genetic material in this context.

Introducing patient-doctor relationships, essentials of public health and medical history with basic

principles to students are also the part of the course objectives. On the other hand, learning the basic principles, methods and usage of biostatistics in medicine take place in the course objectives.

Learning Outcomes and Sub-Skills

Students successful on this course,

1. Comprehend the basic biochemical molecules and mechanisms related with the life and their general features and mechanisms,
2. Learn the significance and special features of doctor-patient relationships,
3. Know the health concept, scope of health services and its general principles,
4. Get introductory information about public health,
5. Comprehend the significance of measurement and evaluation on health area,
6. Learn medical history.

Brief description of the course

This course gives the brief introduction about basic biochemical molecules and mechanisms, essentials of genetic material, doctor-patient relationships, medical history with biostatistics, significance of public health and its basic principles.

Teaching Methods and Techniques

Although courses are narrated by instructor, discussion and class participation are provided to the students. A part of the courses is "Laboratory practices" that turn the theoretical knowledge learned in the course into practice.

Prerequisites: NONE

Course Books

Behaviour Sciences

1. Gerrig, Zimbardo ve Sart . Psikoloji ve Yaşam. Nobel Akademik Yayıncılık
2. Okyayuz Ü H. Sağlık Psikolojisi: Giriş. Türk Psikologlar Derneği Yayınları
3. Burger J M. Kişilik Kaknüs Yayınları
4. Glanz K ve ark. Health Behavior and Health Education.b 4.Basım, San Francisco, John Wiley & Sons Inc.
5. Bermek E, Tiryaki D, Gökçe S, Nurten R. Biyofizik Ders Notları WEB’de bulunabilir.

Medical Biochemistry

6. Lippincott Biyokimya (Çev. Ed.) Ulukaya E. Nobel Tıp Kitapevi, Ankara, 2007
7. Gürdöl F, Ademoğlu E, Biyokimya. Nobel Tıp Kitapevi Ankara, 2010.

Supplementary books

8. Kılıç N (Çev): Biyokimyanın İlkeleri, Lehninger, Palme Yayıncılık, Ankara, 2005.
9. Renkli Biyokimya atlası (Çeviri). Koolman/Röhm.
10. Organik Kimya. Solomons ve Fryhle, 5, baskı, 2010
11. Color Atlas of Biochemistry, 2nd Ed. (J. Koolman, K.-H. Roehm). Thieme, 2005
12. Lehninger Principles of Biochemistry; David L. Nelson, Albert L. Lehninger, 2008
13. Harper Biyokimya. (Çev.Ed. Dikmen N, Özgünen T). Nobel Tıp Kitapevi, Ankara, 2004.
14. Fundamentals of Biochemistry 4.Ed. VOET, John Wiley & Sons, Inc., 2013
15. Dikmen N, Özgünen T (Çev.Ed.). Harper Biyokimya. Nobel Tıp Kitapevi, Ankara, 2004.
16. Metabolizma Atlası- Bir Bakışta Metabolizma (çeviri). İstanbul Tıp Kitapevi 2012

Medical History and Ethics

17. Bayat A H. Tıp Tarihi. Merkezefendi Geleneksel Tıp Derneği Yayınları. İstanbul, 2010
18. Çağdaş Tıp Etiği. Nobel Tıp Kitabevi, İstanbul, 2003
19. Biyomedikal Etik Prensipleri, Tom L. BEAUCHAMP, James F. CHILDRESS, 2017

Supplementary Books

Medical History and Ethics

20. Tıp Tarihi ve Tıp Etiği Ders Kitabı. İ Ü Cerrahpaşa Tıp Fak.Yay. İst. 2007
21. Türkiye Klinikleri Tıbbi Etik Dergileri. Hekimler Birliği Vakfı Yayınları, Ankara, 1994-2003
22. Hope T. Medical Ethics. Oxford University Press, 2004

Biostatistics

23. Dişçi R. Temel ve Klinik Biyoistatistik. Güneş Tıp Kitabevi, İstanbul

COURSE CONTENT

Week	WEEKLY SUBJECTS AND RELATED PRELIMINARIES
1. WEEK	ORIENTATION WEEK
2. WEEK	The Development and Definition of Behavioral Sciences Fundamental Concepts of Behavioral Sciences Culture and Cultural Change Introduction to Biophysics Molecular Structure of Living Systems DEAN'S LECTURE Health from Past to Present Development of Public Health Definition of Medicine - Introduction to Medical History - Prehistoric Period Introduction to Biochemistry, Structure and Functions of Water Interactions of Water and Biomolecules (Hydrophobic Interactions) Pre-Hippocratic Medicine (Mesopotamia, Egypt, Hittite, China, India) Ionization of Water and pH Acids and Bases LAB: pH Measurements (Theoretical) The Role and Importance of Statistics in Science? Why Are Statistics Necessary in Scientific Research? The Historical Development of Statistics. Research Design, Hypothesis, Types of Variables, Population, Sample, Observation, and Experimentation. What Are These Concepts in Statistics? Types of Research
3. WEEK	Culture and cultural change Social influence Social structure and social relationships Chemical bonds and the formation of molecules Cell building blocks LAB: pH measurements GROUP A LAB: pH measurements GROUP B LAB: pH measurements GROUP C Health and disease concepts Social determinants of health Buffer solutions Neutralization, titration Biochemical calculations Introduction to the laboratory: Lab introduction and safety

	<p>What are measurement levels? What are their characteristics? What are the differences? What are the types of graphs? How to read graphs? What is the importance of graphs in summarizing data? Introduction to probability (addition rule, multiplication rule).</p>
<p>4. WEEK</p>	<p>Social Structure and Social Relations Learning Social Groups Pre-Hippocratic Medicine (Mesopotamia, Egypt, Hittite, China, India) Hippocratic Medicine (Ancient Greece, Rome) Medieval Medicine (Europe and Islam) and Islamic Medicine LAB: pH Measurements GROUP D Solution Preparation and Titration GROUP G LAB: pH Measurements GROUP E - Solution Preparation and Titration GROUP A LAB: pH Measurements GROUP F - Solution Preparation and Titration GROUP C Binomial distribution, Poisson distribution. Normal distribution, standardized normal distribution.</p>
<p>5. WEEK</p>	<p>Social groups Personality and self Attitudes Renaissance Medicine (14th, 15th, 16th, and 17th Centuries in Europe) Bioenergetics Cellular Respiration Indicators of Health Primary Health Services Renaissance Medicine (14th, 15th, 16th, and 17th Centuries in Europe) Medicine among the Central Asian Turks and the Seljuks Medicine in the Ottoman Empire Reform in Medical Education in the Ottoman Empire Solution Preparation and Titration GROUP H Solution Preparation and Titration GROUP D Solution Preparation and Titration GROUP B What is sampling, sample, or example? Its importance in scientific research? What are sampling methods? How is sample size calculated?</p>
<p>6. WEEK</p>	<p>Attitudes Stereotypes, Prejudice, and Discrimination Redox Potential and Measures Priorities and Inequalities in Health Health Promotion Making Hypotheses. Comparing Averages</p>

7. WEEK	Interpersonal Communication Motivation LAB: PH Measurements GROUP G - Solution Preparation and Titration GROUP E LAB: PH Measurements GROUP H - Solution Preparation and Titration GROUP F Stress Job Stress: Mobbing, Burnout Coping with Stress Contemporary, Scientific, and Experimental Medicine Period (17th, 18th, 19th, and 20th Centuries) Republican Period Medicine and Medical Schools Healthcare Services and Characteristics Comparison of Averages and Application
8. WEEK	EXAM WEEK

EVALUATION SYSTEM

	NUMBER	CONTRIBUTION
Attendance		
Laboratory		
Practice		
Area studies		
Course related internship (if exist)		
Homework		
Presentation		
Projects		
Exams	1	15 %

RELATIONSHIP BETWEEN COURSE LEARNING OUTCOMES AND PROGRAM QUALIFICATION

		Contribution level				
		1	2	3	4	5
Program Qualification						
1	Learning the organization's normal structure and functioning.					x
2	Learning the mechanisms of disease formation, know the clinical and diagnostic features.		x			
3	Can take the story of the patient and perform general systemic physical examination.	x				
4	It can apply basic medical interventions for diagnosis and treatment of diseases.	x				
5	Emergency diseases can be treated and referral centers can be referred for treatment services where necessary.	x				
6	Can practice preventive medicine and forensic medicine	x				

7	It has general information about the structure and functioning of the National Health System.		x			
8	Know their legal responsibilities and define ethical principles.					x
9	It can effectively perform first-line treatment of common diseases.	x				
10	Organize scientific meetings and conduct projects.	x				
11	To be able to use statistics and computer methods to evaluate the foreign language and scientific studies to follow the literature in the field of medicine	x				

ECTS (WORKLOAD TABLE)

Events	Number	Time(Hour)	Total workload
Course Time (exam week included: 8 x total course hours)	80	1	80
Laboratory	3	2	6
Course related internship (if exist)			
Area study			
Working time out of class (preliminary study, enhancements)	144	1	144
Presentation / Seminar			
Project			
Homework			
Exams	1	3	3
Total workload			233



FACULTY OF MEDICINE
UNDERGRADUATE PROGRAM

INTRODUCTION TO BASIC MEDICAL SCIENCES II			TIP121
ECTS 10 CREDITS 16	1. year – I. semester	Undergraduate	Compulsory
	Theoretical/Practical lab courses: 96 + 8 h/8 week		Turkish
PROF.DR. RÜSTEM NURTEN			
ASST. PROF AYSUN YOLDAŞ			
ASST. PROF YASİN ÇELİKOK			
PROF. DR. HULYA GÜVEN			
ASSOC. PROF. OMERUL FARUK AYDIN			
ASST. PROF. SELİN KANKAYA			
ASST.PROF. SAADET BÜŞRA AKSOYER SEZGİN			
ASST. PROF. NURTEN DAYIOĞLU			
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Course objectives

The main goal of the course is to teach the main constituents of life; proteins, amino acids, carbohydrates, lipids and nucleotides, cell types, morphologic features of animal cells, functions, structures and features of organelles, bioenergetics, and also histologic methods used in the investigating of cell and also cell structures. Cell cultures and microscopes will be introduced in this concept.

Learning Outcomes and Sub-Skills

Students successful on this course,

7. Comprehend the basic biochemical molecules and mechanisms related with the life and their general features and mechanisms,
8. Recognize the cell, identify the cell types,
9. Know the basic constituents of the cell,
10. Comprehend the structural and functional properties of cell organelles,
11. Understand the bioenergetics,
12. Get the information about general histologic methods,
13. Learn the types of microscopes with their mechanisms.

Brief description of the course

This course contains the subjects of basic biochemical macromolecules, bioenergetics, cell structure, morphology, the structure and functions of organelles, histologic methods, microscopes and their types.

Teaching Methods and Techniques

Although courses are narrated by instructor, discussion and class participation are provided to the students. A part of the courses is "Laboratory practices" that turn the theoretical knowledge learned in the course into practice.

Prerequisites: NONE

Course Books

Histology and Embryology

- 1) Demir, R. Histoloji Atlası. Palme Yayıncılık, 2008.
- 2) Müftüoğlu S, Kaymaz F, Atilla P (Çev). Temel Histoloji. Güneş Tıp Kitapevi ,2009
- 3) Müftüoğlu S. Embriyoloji ve Doğum Defektlerinin Temelleri. Güneş Tıp Kitapevi
- 4) Solakoğlu S, Aytekin Y. Temel Histoloji. Nobel Tıp Kitapevi, İstanbul, 2009.
- 5) Özer A. Temel Histoloji. Uludağ Üniversitesi Yayınları
- 6) Solakoğlu S, Aytekin Y, Gürsoy E. Renkli Embriyoloji Atlası. Nobel Tıp Kitapevi, İstanbul, 2000.
- 7) Başaklar A C (Çev): Medikal Embriyoloji Langman. Palme Yayıncılık, 2005.
- 8) Baykal, B. (Çev.), Histoloji Konu Anlatımı ve Atlas (İlişkili Hücre Biyolojisi ve Moleküler Biyoloji ile), Ross, MH. ve Pawlina, W., Palme Yayıncılık, 2014.
- 9) Solakoğlu, S., Erdoğan, A. ve Mutlu, HS. (Çev), Junqueira Temel Histoloji Konu ve Atlas, Mescher AL., Güneş Tıp Kitabevi, 2019.
- 10) Dalçık, H. (Çev), Klinik Yönleriyle İnsan Embriyolojisi, Moore, KL. ve Persaud, TVN., Nobel Tıp Kitabevi, 2016.
- 11) İrez, T. (Çev), BRS Embriyoloji, Dudek, RW., İstanbul Tıp Kitabevleri, 2016.
- 12) Başaklar, AC., Langman-Medikal Embriyoloji, Sadler, TW, Palme Yayıncılık, 2017.

Supplementary Books

- 13) Kuruş, M., HİSTOLOJİ: Hücre, Doku, Sistemler Teknikler-Moleküller-Laboratuvar ve Klinik Yönleriyle Güncel Yaklaşımlar, Akademisyen Kitabevi, 2020

Medical Biology and Genetics

- 14) Yanık B (Çev) Hücre ve Moleküler Biyoloji- Lippincott's serisinden, (Chandar N., Viselli S.), Nobel Tıp Kitabevleri, İstanbul, 2012
- 15) TIBBİ BİYOLOJİ VE GENETİK Basım Yılı 2020 (editör: Prof.Dr.Halil KASAP) AKADEMİSYEN KİTABEVİ ISBN: 9786059354387
- 16) Moleküler Hücre Biyolojisi (Hasan Veysi Güneş), İstanbul Tıp Kitabevi
- 17) Temizkan G. (1999) GENETİK: II. Moleküler Genetik. İstanbul Üniversitesi Yayınları Sayı:4067, ISBN 975-404-429-9
- 18) Tıbbi Genetiğin Esasları (2014) 6. baskı (edit.: Prof. Dr. Uğur Özbek) İstanbul Tıp Kitabevi
- 19) Molecular Biology of the Cell. Alberts (2021) (7th Edition), New York: Garland Science,

- ISBN-13: 978-0393884821
 20) Lodish (2021) Molecular Cell Biology,, (9th Edition), W.H. Freeman and Company, ISBN-13: 978-1319208523
 21) Lewin's GENES XII (12th Edition) ISBN-13: 978-1284104493

Supplementary Books

- 22) Geçkil H., Ömen M., Yeşilada Ö (Çev) Moleküler Hücre Biyolojisi (Molecular Cell Biology) – Altıncı baskı, Lodish H., Berk A., Kaiser A.C. ve ark. Palme Yayıncılık, 2011
 23) Veysi H. Moleküler Hücre Biyolojisi, 3. Baskı Güneş, İstanbul Tıp Kitabevi. 2013.
 24) Özbek U. (Çev) Tıbbi Genetiğin Esasları (Tobias S.E., ve ark- 6. Baskı), 2014

COURSE CONTENT

Week	WEEKLY SUBJECTS AND RELATED PRELIMINARIES
1. WEEK	Cell membrane structure and functions Structure and functions of intracellular organelles Transport mechanisms The beginning of life, cell types General properties and classification of carbohydrates Classification of data and its importance in summarizing data
2. WEEK	Cell Membrane Structure and Function Microscope Types, Basic Principles of Operation and Use Phospholipid Bilayer Permeability and Membrane Transport Cytoskeleton General Structural Properties of Monosaccharides Isomers of Monosaccharides Methods and Basic Principles Used in Histology Definition of Disaster and Emergency/Definition of Emergency and First Aid Identification of First Aid and First Aid Providers Disaccharides Polysaccharides Introduction to Pharmacology: Basic Definitions Glycosaminoglycans Cell Adhesion (Cell Junctions) Extracellular Matrix Radioactivity General Properties and Classification of Lipids Fatty Acids and Their Derivatives Organelles and Their Functions (Nucleus, Endoplasmic Reticulum, Ribosome, Golgi, Lysosome, Peroxisome, Mitochondria) Measures of Aggregation: Arithmetic Mean, Mode, Median (in Simple Series, Classified) (in the series). Tens, quarters, percents.

<p>3. WEEK</p>	<p>Sources of Drugs Organelles and Their Functions (Nucleus, Endoplasmic Reticulum, Ribosomes, Golgi, Lysosomes, Peroxisomes, Mitochondria) Triglycerides, Phospholipids, and Glycolipids Lipoproteins Routes of Drug Administration I Routes of Drug Administration II Microscope, Cell Types - GROUP A Microscope, Cell Division - GROUP A Immunohistochemistry Techniques and Their Methods of Use Triage Definition/Triage Practices in Emergency and Disaster Situations First Aid in Traffic Accidents/Assessment of Injured Patients at the Scene Isoprene Derivative Lipids General Properties and Classification of Nucleic Acids (Purine and Pyrimidine Structure) DNA Synthesis RNA Synthesis Posttranscriptional Modifications Biochemistry Measurement Techniques (Spectrophotometer) LAB: Use of Spectrophotometer GROUP D LAB: Spectrophotometer GROUP E - Microscope, Cell Types - GROUP B LAB: Spectrophotometer Use GROUP F - Microscope, Cell Division - GROUP B Measures of dispersion: Width, interquartile range, mean absolute deviation, coefficient of variation. Variance, standard deviation (in simple array, classified array)</p>
<p>4. WEEK</p>	<p>Pharmaceutical Forms of Drugs Intracellular Trafficking of Proteins Use of Radioisotopes in Research and Medicine LAB: Spectrophotometer Use GROUP A LAB: Spectrophotometer Use GROUP B - Microscope, Cell Types - GROUP D LAB: Spectrophotometer Use GROUP C - Microscope, Cell Division - GROUP D Histochemistry First aid in cases of poisoning Basic life support/First aid in adults and children Cell Structure: Microscopic Structures of Cell Parts Signal Transduction Radiation Biophysics LAB: Cell Types GROUP A LAB: Cell Types GROUP B - LAB: Spectrophotometer Use GROUP G - Microscope, Cell Types - GROUP E LAB: Cell Types GROUP C - LAB: Spectrophotometer Use GROUP H - Microscope, Cell Division - GROUP E Comparison of means for more than two groups, ANOVA test.</p>
<p>5. WEEK</p>	<p>Cell Structure: Microscopic Structures of Membrane Systems Macromolecules Cell Structure: Microscopic Structures of Organelles and Inclusions Nucleic Acids Control of Cell Number and Size, and Apoptosis First Aid Procedures for Fractures, Dislocations, and Amputations First Aid Procedures for Burns and Frostbite Cell Cycle, Control, Cell Division, and the Sexual Life Cycle Are the Plants Used in Treatment Beneficial I? Are the Plants Used in Treatment Beneficial II? Proteins Comparison of Ratios, Chi-Square Analyses</p>

<p>6. WEEK</p>	<p>Cell Structure: Nucleus Amino Acids and Acid-Base Properties Cell Structure: Cytoskeleton and Intercellular Junctions Interaction of Active Proteins with Their Ligands LAB: Carbohydrate and Lipid Recognition Reactions. GROUP D - Microscope, Cell Types - GROUP F LAB: Carbohydrate and Lipid Recognition Reactions. GROUP E - LAB: Cell Types GROUP G - Microscope, Cell Division - GROUP F LAB: Carbohydrate and Lipid Recognition Reactions. GROUP F - LAB: Cell Types GROUP H First aid interventions for allergies, insect and animal bites First aid interventions for drowning and electric shocks Biological Basis of Cancer Drug Administration Routes and Pharmaceutical Forms GROUP D / Carbohydrate and Lipid Recognition Reactions. GROUP A/ Microscope, Cell Types - GROUP G Drug Administration and Pharmaceutical Forms GROUP E / Recognition Reactions for Carbohydrates and Lipids GROUP B/ Microscope, Cell Division - GROUP G Drug Administration and Pharmaceutical Forms GROUP F / Recognition Reactions for Carbohydrates and Lipids GROUP H Correlation - Simple Regression Analysis</p>
<p>7.WEEK</p>	<p>Cell Structure: Division and Differentiation of Somatic and Germ Cells LAB: Recognition Reactions of Carbohydrates and Lipids. GROUP C / Microscope, Cell Types - GROUP H/LAB: Cell Types GROUP D LAB: Recognition Reactions of Carbohydrates and Lipids. GROUP G / Microscope, Cell Division - GROUP H/LAB: Cell Types GROUP E LAB: Cell Types GROUP F Stem Cells: Embryonic and Adult Stem Cells, Plasticity, and Stem Cell Use (Therapies) Management of Bleeding Emergencies and First Aid Interventions Recognition of 112 and Emergency Response Systems, Poison Control</p>

	Centers, and Emergency Departments Enzymes - Physical Principles, Enzyme Kinetics Drug Administration and Pharmaceutical Forms - GROUP A Drug Administration and Pharmaceutical Forms - GROUP B Drug Administration and Pharmaceutical Forms - GROUP C Carbohydrates and Lipids Microscope, Cell Types - GROUP C Microscope, Cell Division - GROUP C LAB: Measurement of Action Potentials
8.WEEK	EXAM WEEK

EVALUATION SYSTEM

	NUMBER	CONTRIBUTION
Attendance		
Laboratory		
Practice		
Area studies		
Course related internship (if exist)		
Homework		
Presentation		
Projects		
Exam	1	15%

RELATIONSHIP BETWEEN COURSE LEARNING OUTCOMES AND PROGRAM QUALIFICATION

	Contribution level				
	1	2	3	4	5
Program Qualification					

1	Learning the organization's normal structure and functioning.					X
2	Learning the mechanisms of disease formation, know the clinical and diagnostic features.	x				
3	Can take the story of the patient and perform general systemic physical examination.	x				
4	It can apply basic medical interventions for diagnosis and treatment of diseases.	x				
5	Emergency diseases can be treated and referral centers can be referred for treatment services where necessary.	x				
6	Can practice preventive medicine and forensic medicine	x				
7	It has general information about the structure and functioning of the National Health System.	x				
8	Know their legal responsibilities and define ethical principles.	x				
9	It can effectively perform first-line treatment of common diseases.	x				
10	Organize scientific meetings and conduct projects.	x				
11	To be able to use statistics and computer methods to evaluate the foreign language and scientific studies to follow the literature in the field of medicine			X		

ECTS (WORKLOAD TABLE)

Events	Number	Time(Hour)	Total workload
Course Time (exam week included: 8 x total course hours)	96	1	96
Laboratory	8	2	16
Practice			
Course related internship (if exist)			
Area study			
Working time out of class (preliminary study, enhancements)	178	1	178
Presentation / Seminar			
Project			
Homework			
Exams	1	3	3
Total workload			293



FACULTY OF MEDICINE

UNDERGRADUATE PROGRAM

INTRODUCTION TO BASIC MEDICAL SCIENCES III			TIP132
ECTS 10 16 CREDITS	1. year – II. semester	Undergraduate	Compulsory
	Theoretical/Practical lab courses: 107+17h/8 week		Turkish
PROF.DR. ZAFER ARI			
ASST. PROF. ZEKİYE KARACA BOZDAĞ			
PROF.DR. RÜSTEM NURTEN			
ASST. PROF. YASİN ÇELİKOK			
PROF.DR. ASİYE NURTEN			
ASST. PROF. GÜLTEN ATEŞ ULUÇAY			
PROF.DR. MİNE KÜÇÜKER			
PROF.DR. HÜSNIYE DOĞRUMAN			
ASST. PROF. SELİN KANKAYA			
ASSOC. PROF. SAADET BÜŞRA AKSOYER SEZGİN			
PROF.DR. HÜLYA GÜVEN			
ASST. PROF. AYTEN ARIKAN			
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Course objectives

The main purpose of this course is to improve the students' knowledge from cell to organ level. Synthesis of biomolecules, carbohydrates and lipids, nitrogen metabolisms, mitosis and meiosis, synthesis of DNA and RNA, gene regulations, embryogenesis, fertilization, pregnancy, general mechanisms and properties of Mendelian genetics, chromosome anomalies, transcription, gene expression, gene regulation, gene repair, recombination and mutations, control mechanisms of body by omics and genetic engineering will be taught and also physiology in which the information stated above and combined will be introduced by ion and matter distributions in the parts of body liquids, transportation of molecules o cell membrane, formation of action potential and action potentials in different tissues. Anatomy of bone, joints, muscle and nervous system are taught following the general terminology of anatomy to complete the physiology. Normal flora is introduced by general concepts of medical microbiology, relations between microorganisms and human-microbe relations. Basic principles of medical ethics, connection between doctor and law, rights of doctor and patients and relationships between the doctors are taught to students.

Learning Outcomes and Sub-Skills

Students successful on this course

1. Learn the synthesis of biomolecules
2. Know the transcription event and nucleic acid replication
3. Understand the recombination and mutations on DNA
4. Comprehend the gene expression and regulation mechanisms of gene expressions
5. Comprehend the medical genetics and its clinical relation
6. Knows the stages of embryogenesis
7. Understand the concepts of fetal membranes and multiple-pregnancy
8. Learnt the fertilization and in vitro fertilization
9. Learnt the physiology concept
10. Know the general aspects of cell physiology
11. Comprehend the terminology of anatomy
12. Have the knowledge of the anatomies of bone, joint, muscle and nerve system.
13. Know the history of microbiology
14. Identify the type and general properties of microbes
15. Learnt the microbe-microbe and microbe-human and normal flora
16. Learnt the connection between doctor and law
17. Comprehend the general principles of medical ethics
18. Human and patient rights
19. Ethics in professional relationship between doctors

Brief description of the course

In the context of this course, physiology and anatomy related with physiology are introduced by from the synthesis and metabolism of biological molecules to cell biology included genetic material and cell physiology to the organs. The information about medical genetics is introduced from the gene level to

the chromosome level. Embryogenesis and fertilization concepts are introduced. It is also given the general introduction about the general concepts on microorganisms and its relation with human. Basic principles of medical ethics, connection between doctor and law, rights of doctor and patient and relationship between doctors.

Teaching Methods and Techniques

Although courses are narrated by instructor, discussion and class participation are provided to the students. A part of the courses is “Laboratory practices” that turn the theoretical knowledge learned in the course into practices.

Prerequisites: NONE

Course Books

Medical Microbiology

1. Gürler B (Ed) : Tıbbi Mikrobiyoloji 1. Ders Kitapları. Nobel Tıp Kitapevi, İstanbul,2013
2. Anđ Küçüker M, Tümbay E, Anđ Ö, Erturan Z (Çevirenler) : Tıbbi Mikrobiyoloji Nobel Tıp Kitapevleri , İstanbul (2002)

Physiology

3. Guyton ve Hall. Tıbbi Fizyoloji, 12. baskı. Nobel Tıp Kitapevi. 2013.
4. William F. Ganong Ganong'un Tıbbi Fizyolojisi, 24. Baskı. Nobel Tıp Kitapevi. 2015
5. İnsan Fizyolojisi, İstanbul Tıp Kitabevleri; 2020

Anatomy

6. Gövsa Gökmen F. Sistemik Anatomi. , İstanbul 2013,
7. Yıldırım M . İnsan Anatomisi, Genel Anatomi, Lokomotor Sistem, Nobel Kitapevi, İstanbul, 2005
8. Standring S. (2020). Gray's anatomy e-book: the anatomical basis of clinical practice: Elsevier Health Sciences.

Supplementary Books

Anatomy

9. Moore Keith.L, Dalley Arthur. F, Clinically Oriented Anatomy (Kliniğe Yönelik Anatomi), Nobel Tıp Kitapevi, İstanbul, 2007,
10. Schünke M., Shulte E., Schumacher U. Prometheus Lernatlas der Anatomie. Allgemeine Anatomie und Bewegungssystem, [Prometheus –Anatomi Atlası Cilt 1, (Genel Anatomi Ve Hareket Sistemi)] Nobel Tıp Kitapevi, İstanbul, 2006.
11. Platzer W. İnsan Anatomisi Renkli Atlası, Lokomotor Sistem Cilt 1, İstanbul Tıp Kitapevi, İstanbul,2013.

History of medicine and ethics

1. Tıp Tarihi ve Tıp Etiği Ders Kitabı İ.Ü. Cerrahpaşa Tıp Fak yay İst.2007
2. Türkiye Klinikleri Tıbbi Etik Dergileri (Hekimler Birliği Vakfı) Ankara 1994-2003
3. Çağdaş Tıp Etiği Nobel tıp Kitabevi İst.2003
4. Medical Ethics Tony Hope Oxford University Press 2004
5. Biyomedikal Etik Prensipleri, Tom L. BEAUCHAMP, James F. CHILDRESS, 2017

COURSE CONTENT

Week	WEEKLY SUBJECTS AND RELATED PRELIMINARIES
1. WEEK	<p>Introduction to Microbiology and Its History</p> <p>Structure of Hereditary Material (DNA), Gene Structure, Genome Organization</p> <p>Gametogenesis, Development of Germ Cells into Male and Female Gametes</p> <p>General Properties of Amino Acids and Proteins</p> <p>Introduction to Physiology</p> <p>History and Introduction to Anatomy</p> <p>Introduction to Medical and Anatomical Terminology</p> <p>LAB: DNA Isolation - Spectrophotometric and Electrophoretic Analysis - PCR and Its Applications in Medicine (Theoretical - Classroom)</p> <p>Basic Concepts of Medical Microbiology</p> <p>Week 1 of Development; From Ovulation to Implantation</p> <p>Structure of Hereditary Material (DNA), Gene Structure, Genome Organization</p> <p>Body Control Systems</p> <p>Genome Organization, Extrachromosomal Genetic Systems, and DNA Replication</p> <p>Standard Amino Acids</p> <p>Nonstandard Amino Acids</p> <p>Bioenergetic Principles, Membrane Conduction</p> <p>Biological Processes, Osmotic Work, Membrane Structure</p>

2. WEEK	Mutation and Mutagenic Factors Introduction to Medical Deontology and Medical Ethics Protein Structure Fibrillary and Globular Proteins LAB: Protein Electrophoresis (SDS - PAGE) (TEO RĪK) General Anatomy Axis, Planes, and Movements in Anatomy Mutation and Mutagenic Factors 2nd Week of Development; Bilaminar Germ Disc 3rd Week of Development; Gastrulation, Mesoderm Development, Trilaminar Germ Disc, Somite Development DNA Repair Recombination Protein Synthesis Posttranslational Modifications Membrane Potential DNA Isolation Spectrophotometric and Electrophoretic Analysis - PCR and its Applications in Medicine Group H Ions Distribution and Water
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<p>3. WEEK</p>	<p>Ectoderm, neural tube development, neurulation Recombination Mechanical Work, Muscle Contraction Chemical Work Protein-recognizing reactions GROUP B Protein-recognizing reactions GROUP C/LAB: DNA isolation, spectrophotometric and electrophoretic analysis - PCR and medical applications Group A Protein-recognizing reactions GROUP D/LAB: DNA isolation, spectrophotometric and electrophoretic analysis - PCR and medical applications Group A Classifications of microorganisms Endoderm, embryonic folding, body walls, body cavities Embryonic period, weeks 3-8 General properties of enzymes 1-2 General information on bone anatomy General information on joint anatomy Fundamental principles of medical ethics Protein-defining reactions GROUP A / LAB: DNA isolation, spectrophotometric and electrophoretic analysis - PCR and its medical applications GROUP B Protein-defining reactions GROUP E / LAB: DNA isolation, spectrophotometric and electrophoretic analysis - PCR and its medical applications GROUP B Protein-defining reactions GROUP F Transport of ions and substances across the cell membrane</p>
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4. WEEK

General characteristics of microorganisms
Mendelian genetics
General information on muscle anatomy
General information on nervous system anatomy
Molecular biophysics, DNA synthesis and energetics
LAB: DNA isolation, spectrophotometric and electrophoretic analysis - PCR and its medical applications
GROUP C / Protein identification reactions
GROUP G
LAB: DNA isolation, spectrophotometric and electrophoretic analysis - PCR and its medical applications
GROUP C / Protein identification reactions
GROUP H
Legal responsibilities and duties of physicians
Factors affecting enzyme activity
Enzyme inhibition
Regulation of enzyme activity 1-2
Protein synthesis and energetics
Enzyme kinetics GROUP A /
LAB: DNA isolation, spectrophotometric and electrophoretic analysis - PCR and its medical applications
GROUP D
Enzyme kinetics GROUP B /
LAB: DNA isolation, spectrophotometric and electrophoretic analysis - PCR and its medical applications
GROUP D
Enzyme kinetics GROUP C
Relationships between microorganisms
Rules for working in the microbiology laboratory, microscopes and their uses in microbiology, examining microorganisms under the microscope

<p>5. WEEK</p>	<p>Chromosome Anomalies Legal Responsibilities and Duties of Physicians Enzyme Kinetics GROUP D/ LAB: Working Rules in Microbiology Laboratories, Microscopes and Their Uses in Microbiology, Microscopic Examination of Microorganisms GROUP A Enzyme Kinetics GROUP E/ LAB: Working Rules in Microbiology Laboratories, Microscopes and Their Uses in Microbiology, Microscopic Examination of Microorganisms GROUP B Enzyme Kinetics GROUP F/ LAB: Working Rules in Microbiology Laboratories, Microscopes and Their Uses in Microbiology, Microscopic Examination of Microorganisms GROUP C Problem-Based Learning Bioelectric Potentials Gene Explanation Problem-Based Learning (Theoretical) DNA Isolation Spectrophotometric and Electrophoretic Analysis - PCR and Its Applications in Medicine Group G DNA Isolation Spectrophotometric and Electrophoretic Analysis - PCR and Its Applications in Medicine Group G Concept of Rights - Physicians' Rights, Right to Health, and Patients' Rights</p>
<p>6. WEEK</p>	<p>Paternalistic Attitudes in Healthcare, Physicians' Professional Relationships Regulation of Gene Expression and Epigenetic Mechanisms Enzyme Kinetics GROUP G/LAB: Working Rules in the Microbiology Laboratory, Microscopes and Their Uses in Microbiology, Microscopic Examination of Microorganisms GROUP D Enzyme Kinetics GROUP H/LAB: Working Rules in the Microbiology Laboratory, Microscopes and Their Uses in Microbiology, Microscopic Examination of Microorganisms GROUP E LAB: Working Rules in the Microbiology Laboratory, Microscopes and Their Uses in Microbiology, Microscopic Examination of Microorganisms GROUP F Stem Cell Biology Problem-Based Learning</p>

7. WEEK	Placenta and fetal membranes Fetal period LAB: Working principles in the microbiology laboratory, microscopes and their uses in microbiology, microscopic examination of microorganisms GROUP G LAB: Working principles in the microbiology laboratory, microscopes and their uses in microbiology, microscopic examination of microorganisms GROUP H DNA isolation - Spectrophotometric and electrophoretic analysis - PCR and its applications in medicine Group E Molecular basis of multiple pregnancies and early development Clinical embryology and assisted reproductive technologies LAB: Cell membrane potential, action potential THEORY RIC Applications of Genetic Engineering in Medicine and Gene Therapy Paternalistic attitudes in healthcare, physicians' professional relationships DNA isolation - Spectrophotometric and electrophoretic analysis - PCR and its applications in medicine Group F Pathophysiology
8. WEEK	EXAM WEEK

EVALUATION SYSTEM

	NUMBER	CONTRIBUTION
Attendance		
Laboratory		
Practice		
Area studies		
Course related internship (if exist)		
Homework		
Presentation		
Projects		
Exams	1	15%

RELATIONSHIP BETWEEN COURSE LEARNING OUTCOMES AND PROGRAM QUALIFICATION

		Contribution level				
Program Qualification		1	2	3	4	5
1	Learning the organization's normal structure and functioning.					X
2	Learning the mechanisms of disease formation, know the clinical and diagnostic features.					
3	Can take the story of the patient and perform general systemic physical examination.	X				
4	It can apply basic medical interventions for diagnosis and treatment of diseases.	X				
5	Emergency diseases can be treated and referral centers can be referred for treatment services where necessary.	X				
6	Can practice preventive medicine and forensic medicine	X				

7	It has general information about the structure and functioning of the National Health System.			X		
8	Know their legal responsibilities and define ethical principles.					X
9	It can effectively perform first-line treatment of common diseases.	X				
10	Organize scientific meetings and conduct projects.	X				
11	To be able to use statistics and computer methods to evaluate the foreign language and scientific studies to follow the literature in the field of medicine		X			

ECTS (WORKLOAD TABLE)

Events	Number	Time(Hour)	Total workload
Course Time (exam week included: 8 x total course hours)	106	1	106
Laboratory	17	2	34
Practice			
Course related internship (if exist)			
Area study			
Working time out of class (preliminary study, enhancements)	164	1	164
Presentation / Seminar			
Project			
Homeworks			
Exams	1	3	3
Total workload			307



T.C.
YENİ YÜZYIL
ÜNİVERSİTESİ

FACULTY OF MEDICINE
UNDERGRADUATE PROGRAM

INTRODUCTION TO BASIC MEDICAL SCIENCES IV			TIP142
ECTS 10 14 CREDITS	1. year – II. semester	Undergraduate	Compulsory
	Theoretical/Practical lab courses: 95+22h/8 week		Turkish
PROF.DR. ZAFER ARI			
ASST. PROF. ZEKİYE KARACA BOZDAĞ			
ASST. PROF. BUSE NAZ ÇANDIR			
PROF.DR. RÜSTEM NURTEN			
ASST. PROF. AYSUN YOLDAŞ			
ASST. PROF. YASİN ÇELİKOK			
PROF.DR. ASIYE NURTEN			
ASST. PROF. GÜLTEN ATEŞ ULUÇAY			
PROF.DR. SENİHA BİLGE HAPÇIOĞLU			
PROF.DR. HÜSNIYE DOĞRUMAN			
ASST. PROF. SELİN KANKAYA			
ASST. PROF. AYTEN ARIKAN			
ASST. PROF. PROF. DR. EMEL SARI			
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Course objectives

The general purpose of this course is to introduce the information about tissues, biochemistry of tissues, bone and muscle anatomies, muscle physiology and also, describe the principles of epidemiologic studies, teaching the rules about health studies and techniques. It is also pointed out understanding the patient communications clinically, describing the communication and especially describing the significance of the communications with patients have serious diagnosis and their relatives. Ethic rules in human studies as a part of medical ethics will be addressed.

Learning Outcomes and Sub-Skills

Students successful on this course,

20. Learnt different tissues,
21. Know the tissue biochemistry,
22. Know the bone and muscle anatomies,
23. Understood the muscle physiology,
24. Comprehend the principles of epidemiologic studies,
25. Know the definition of a scientific study and techniques in health area,
26. Understood the ethical rules and their importance in human studies,
27. Know the description of communication and learnt the importance of communication with patients.

Brief description of the course

In the context of this course, structures of tissues, tissue biochemistry, bone anatomy, muscle anatomy are taught to students. It is also pointed out the importance of the doctor-patient communication and taught how should be contact with patient have serious diagnosis and their relatives. Ethic rules in human studies as a part of medical ethics will be addressed.

Descriptions and techniques about epidemiologic studies are introduced. Studies and techniques applied in health area and principles are taught to the students.

Teaching Methods and Techniques

Although courses are narrated by instructor, discussion and class participation are provided to the students. A part of the courses is "Laboratory practices" that turn the theoretical knowledge learned in the course into practice.

Prerequisites: NONE

COURSE CONTENT

Week	WEEKLY SUBJECTS AND RELATED PRELIMINARIES
<p>1. WEEK</p>	<p>Theory of Knowledge Principles of Cybernetics Introduction to histology, tissues Fundamental principles of medical ethics Connective tissue biochemistry Extracellular matrix Epithelial tissue, endocrine glands, and specialized epithelium Skeleton of the lower extremity 1 (os coxae) Skeleton of the lower extremity 2 (os femoris, patella) Skeleton of the lower extremity 3 (tibia, fibula) Genetic engineering Skeleton of the lower extremity 4 (ossa pedis) Striated muscle physiology</p>
<p>2. WEEK</p>	<p>LAB: Os coxae, os femoris, patella - Groups I, II, III Informed consent, medical confidentiality LAB: Tibia, fibula, ossa pedis - Groups I, II, III Lower limb joints 1 (coxae, genu joints) Application areas of genetic engineering Lower limb joints 2 (tibiofibularis, talocrural joints, pedis) LAB: General review of lower limb bones and lower limb joints - - Groups I, II, III Bone biochemistry 1-2 Lower limb muscles 1 (hip junction muscles, thigh muscles 1) Lower limb muscles 2 (thigh muscles 2) Lower limb muscles 3 (leg and foot muscles) LAB: Epithelial tissue - Groups B, D, F Striated muscle contraction</p>

<p>3. WEEK</p>	<p>Connective Tissue Histology Upper Limb Skeleton 1 (scapula, clavicle, humerus) Definition and Importance of Communication - Negative Communication Positive Communication and Its Benefits Environment and Human Environmental Education LAB: Epithelial Tissue Groups C, E, A LAB: Lower Limb Muscles - Groups I, II, III Connective Tissue Cells and Types LAB: Connective Tissue Group B / LAB: Scapula, clavicle, humerus - Group II LAB: Connective Tissue Group D / LAB: Scapula, clavicle, humerus - Group III LAB: Connective Tissue Group F / LAB: Scapula, clavicle, humerus - Group I Upper Limb Skeleton 2 (radius, ulna, ossa manus) Smooth Muscle Contraction</p>
<p>4. WEEK</p>	<p>Communicating with Children with Health Problems and Their Families How should we establish appropriate communication with people with disabilities? Upper Limb Joints 1 (Acromioclavicular Articulation, Sternoclavicular Articulation, Humeral Articulation) Cartilage Upper Limb Joints 2 (Cuboid Articulation, Manus Articulation) LAB: Radius, Ulna, Ossa Manus - Group I / LAB: Connective Tissue Group C LAB: Radius, Ulna, Ossa Manus - Group II / LAB: Connective Tissue Group E LAB: Radius, Ulna, Ossa Manus - Group III / LAB: Connective Tissue Group A LAB: Upper Limb Bones General Review and Upper Limb Joints - I, II, III Group Upper extremity muscles 1 Bone tissue Upper extremity muscles 2 (forearm muscles 1) Upper extremity muscles 3 (forearm muscles 2 and hand muscles) Muscle tissue biochemistry Muscle contraction and metabolism Ethical principles in human research and organ transplantation</p>

5. WEEK

Axial skeleton 1 (vertebral column)
Bone growth
Ethical principles in human research and organ transplantation
Disasters and health
Transition from cells to higher organisms 1-2
LAB: Cartilage and Bone Tissue Groups C, E, A
LAB: Upper limb muscles general review - Groups I, II, III
Axial skeleton 2 (sacrum, coccyx, pelvis, and pelvic diameters)
Nerve tissue; Neuron, axon, dendrite, glial cells
Muscle physiology in exercise
Axial skeleton 3 (thoracic skeleton)
Trunk muscles 1 (thoracic muscles, abdominis muscles 1) ELECTIVE COURSE
LAB: Cartilage and Bone Tissue Group C
Trunk muscles 2 (abdominal muscles 2, dorsi muscles)
LAB: Cartilage and Bone Tissue Group B / LAB: Vertebral column and pelvis - Group II
LAB: Cartilage and Bone Tissue Group D / LAB: Vertebral column and pelvis - Group III
LAB: Cartilage and Bone Tissue Group F / LAB: Vertebral column and pelvis - Group I
Public health sciences

6. WEEK	<p>LAB: Thoracic Skeleton - Groups I, II, III</p> <p>How can we establish healthy communication with the elderly, especially those with Alzheimer's disease? How can we help?</p> <p>How can we help patients with poor diagnosis, limited or nearing depletion of resources?</p> <p>Cancer Problem</p> <p>Head Skeleton 1 (frontal bone, parietal bone)</p> <p>LAB: MUSCLE CONTRACTION (THEORETICAL)</p> <p>LAB: Muscle Contraction Groups C, E, A</p> <p>LAB: Trunk Muscles General Review Groups I, II, III</p> <p>Head Skeleton 2 (occipital bone, ethmoid bone)</p> <p>Muscle tissue: striated muscle, smooth muscle, cardiac muscle</p> <p>Electromagnetic Rays</p> <p>Home, Work, and Traffic Accidents</p> <p>Head Skeleton 3 (sphenoid bone, temporal bone)</p> <p>Facial Bones 1</p> <p>Ethical Principles Regarding the Beginning and End of Life</p> <p>Facial Bones 2, Temporomandibular Joint</p> <p>Biomechanics</p>
7. WEEK	<p>LAB: Frontal, parietal, occipital, and ethmoidale bones - Groups I, II, and III</p> <p>Ethical principles regarding the beginning and end of life</p> <p>LAB: Sphenoid, temporal, and skull skeleton overview - Groups I, II, and III</p> <p>Biological Receptors and Psychophysics</p> <p>International medical ethics declarations and oaths</p> <p>Masturcture muscles, neck muscles 1</p> <p>Changing lifestyles, their impact on health</p> <p>Neck muscles 2</p> <p>LAB: Nerve and Muscle Tissue Group B / LAB: Facial bones - Group II</p> <p>LAB: Nerve and Muscle Tissue Group D / LAB: Facial bones - Group III</p> <p>LAB: Nerve and Muscle Tissue Group F / LAB: Facial bones - Group I</p> <p>Molecular biophysical methods</p> <p>Imaging methods used in medicine</p>
8. WEEK	
9. WEEK	<p>How can we help patients with poor prognosis, diminished or nearing depletion of their medical care?</p> <p>How can we help the families of dying patients?</p> <p>Facial bones, temporomandibular joints, masticatory muscles - Groups I, II, III</p> <p>Population and health</p> <p>Chronic diseases</p> <p>Muscles of facial expression</p> <p>LAB: Muscle Contraction Group D/LAB: Nerve and Muscle Tissue Group C</p> <p>LAB: Muscle Contraction Group F/LAB: Nerve and Muscle Tissue Group E</p> <p>LAB: Muscle Contraction Group B/LAB: Nerve and Muscle Tissue Group A</p> <p>Peripheral endocrine disruptors</p> <p>Neck muscles and facial muscles - Groups I, II, III</p>
10. WEEK	EXAM WEEK

EVALUATION SYSTEM

SEMESTER STUDIES	NUMBER	CONTRIBUTION
Attendance		
Laboratory		
Practice		
Area studies		
Course related internship (if exist)		
Homework		
Presentation		
Projects		
Exams	1	15%

RELATIONSHIP BETWEEN COURSE LEARNING OUTCOMES AND PROGRAM QUALIFICATION

		Contribution level				
		1	2	3	4	5
Program Qualification						
1	Learning the organization's normal structure and functioning.					X
2	Learning the mechanisms of disease formation, know the clinical and diagnostic features.		X			
3	Can take the story of the patient and perform general systemic physical examination.	X				
4	It can apply basic medical interventions for diagnosis and treatment of diseases.	X				

5	Emergency diseases can be treated and referral centers can be referred for treatment services where necessary.	X				
6	Can practice preventive medicine and forensic medicine	X				
7	It has general information about the structure and functioning of the National Health System.			X		
8	Know their legal responsibilities and define ethical principles.					X
9	It can effectively perform first-line treatment of common diseases.	X				
10	Organize scientific meetings and conduct projects.	X				
11	To be able to use statistics and computer methods to evaluate the foreign language and scientific studies to follow the literature in the field of medicine			X		

ECTS (WORKLOAD TABLE)

Events	Number	Time(Hour)	Total workload
Course Time (exam week included: 8 x total course hours)	95	1	95
Laboratory	22	1	22
Course related internship (if exist)			
Area study			
Working time out of class (preliminary study, enhancements)	176	1	176
Presentation / Seminar			
Project			
Homework			
Exams	1	3	3
Total workload			296