



CELL BIOLOGY (2019-2020)

COURSE INTRODUCTION

COURSE PERIOD	: Year 1 – Semester 1
COURSE CODE	: MED 109
COURSE DURATION	: 7 weeks
NATIONAL CREDIT	: 7
ECTS CREDIT	: 10
COURSE COORDINATOR	: Prof. Alp CAN
COORDINATOR ASSISTANT	: Assist. Prof. Nüket YÜRÜR KUTLAY
COURSE SECRETARY	: Buket ADIŞANLI, Bahadır ÇEVİRİM
COURSE DATES	: 25.11.2019 – 10.01.2020
TRAINING LOCATIONS	: Prof. Dr. Şükrü Kaymakçalan Auditorium, Prof. Dr. Kazım Türker Classroom, Rıdvan Ege Laboratory, Medical Skills Laboratory

COORDINATING DEPARTMENTS

Biophysics
Histology & Embryology
Medical Biochemistry
Medical Biology
Medical Genetics
Physiology

CONTRIBUTING DEPARTMENTS

Anesthesiology & Reanimation
Hematology
Medical Education & Informatics
Plastic, Reconstructive & Aesthetic Surgery

TEACHING STAFF

Prof. Meral BEKSAÇ
Prof. Alp CAN
Prof. Özgür ÇINAR
Prof. Erdiñç DEVRİM
Prof. İlker DURAK
Prof. Aslıhan GÜRBÜZ
Prof. Hatice ILGIN RUHİ
Prof. Hasan Serdar ÖZTÜRK
Prof. Asuman SUNGUROĞLU
Prof. Ayşe Fulya TEKŞEN

Prof. Mehmet UĞUR
Assoc. Prof. Oya Sena AYDOS
Assoc. Prof. Özlem Selvi CAN
Assoc. Prof. Burak KAYA
Assoc. Prof. Başak Ceyda MEÇO
Assist. Prof. İpek GÖNÜLLÜ
Assist. Prof. Halil Gürhan KARABULUT
Assist. Prof. Timur TUNCALI
Assist. Prof. Nüket YÜRÜR KUTLAY
Lecturer Simge AYKAN ZERGEROĞLU

AIM OF THE COURSE

To gain knowledge about the structure, function and mechanisms of human organism at the molecular and cellular level. Also, to gain skills for basic medical practices.

LEARNING OBJECTIVES OF THE COURSE

Explains the origin of life and the universal properties of cells.

Lists the macromolecules of the livings, and relates the three-dimensional structure functionally.

Explains the functions of the macromolecules involved in the metabolism.

Interprets the macromolecular mechanisms in the cell.

Describes the structure of genome, and explains the diversity of the genome.

Understands that all living organisms have a common origin and divided in to three groups as archea, eubacteria and eukaryote.

Explains the formation of living organisms with eukaryotic cells and gradually evolve until today.

Explains the structure and function of the cell membrane.

Defines the structure of the cytoplasm, lists the organelles in the cytoplasm, and explains their functions.

Explains the structure and function of the cell nucleus.

Explains the mechanism of transport of molecules across the cell membrane, cytoplasm and nucleus, and understands their relation in cellular processes.

Lists the components of the cytoskeleton, and explains their differences.

Understands the signaling mechanisms within and between the cells.

Knows and applies the basic methods for cell analysis.

Distinguishes various types of cells on microscopic level.

Explains the structure and function of DNA, and interprets the relation between them.

Explains the mechanism of packaging of DNA to chromosomes and the molecules that play a role in this process.

Explains the mutation, its varieties, mechanisms of occurrence and detection methods.

Explains the DNA repair mechanisms.

Describes the recombination mechanisms, and explains the consequences and effects on the evolution process of this mechanism.

Explains the RNA types, their synthesis and functions from the formation of primitive organisms to today's more complex organisms.

Explains protein synthesis, defines genetic code and associates it with protein synthesis.

Defines gene structure, and explains the all steps of the gene transcription.

Explains all phases and mechanisms of gene expression control.

Sorts the methods used in gene expression, gene sequences and identifying changes of their functions, and interprets the results.

Explains the cell division and its control.

Explains the cell proliferation and its control.

Explains the cell aging process.

Defines the types of cell death, and explains their mechanisms.

Explains the general principles and mechanisms of evolution, and understands its importance in the health sciences.

Understands the importance of discovery of DNA molecules in the development of health sciences.

Describes the differences of intraspecies and interspecies in genetic information.

Uses the frequently used terms in cell biology, and associates them.

Defines the stem cells, and sorts out them in clinical use.

Uses the basic laboratory equipment required for basic experiments.

Performs basic medical skills (basic life support).

PROGRAM LEARNING OUTCOMES RELATED WITH COURSE LEARNING OBJECTIVES

COURSE LEARNING OBJECTIVES	PROGRAM LEARNING OUTCOMES
Explains the origin of life and the universal properties of cells.	LO-1
Lists the macromolecules of the livings, and relates the three-dimensional structure functionally.	LO-1
Explains the functions of the macromolecules involved in the metabolism.	LO-1
Interprets the macromolecular mechanisms in the cell.	LO-1
Describes the structure of genome, and explain the diversity of the genome.	LO-1
Understands that all living organisms have a common origin and divided in to three groups as archea, eubacteria and eukaryote.	LO-1
Explains the formation of living organisms with eukaryotic cells and gradually evolve until today.	LO-1
Explains the structure and function of the cell membrane.	LO-1
Defines the structure of the cytoplasm, lists the organelles in the cytoplasm, and explains their functions.	LO-1
Explains the structure and function of the cell nucleus.	LO-1
Explains the mechanism of transport of molecules across the cell membrane, cytoplasm and nucleus, and understands their relation in cellular processes.	LO-1
Lists the components of the cytoskeleton, and explains their differences.	LO-1
Understands the signaling mechanisms within and between the cells.	LO-1
Knows and applies the basic methods for cell analysis.	LO-1
Distinguishes various types of cells on microscopic level.	LO-1
Explains the structure and function of DNA, and interprets the relation between them.	LO-1
Explains the mechanism of packaging of DNA to chromosomes and the molecules that play a role in this process.	LO-1
Explains the mutation, its varieties, mechanisms of occurrence and detection methods.	LO-1
Explains the DNA repair mechanisms.	LO-1
Describes the recombination mechanisms, and explains the consequences and effects on the evolution process of this mechanism.	LO-1

Explains the RNA types, their synthesis and functions from the formation of primitive organisms to today's more complex organisms.	LO-1
Explains protein synthesis, defines genetic code and associates it with protein synthesis.	LO-1
Describes the biochemical properties of the extracellular matrix, and sorts the biochemical stages of collagen and elastin synthesis.	LO-1
Defines gene structure, and explains the all steps of the gene transcription.	LO-1
Explains all phases and mechanisms of gene expression control.	LO-1
Sorts the methods used in gene expression, gene sequences and identifying changes of their functions, and interprets the results.	LO-1
Explains the cell division and its control.	LO-1
Explains the cell proliferation and its control.	LO-1
Explains the cell aging process.	LO-1
Defines the types of cell death, and explains their mechanisms.	LO-1
Explains the general principles and mechanisms of evolution, and understands its importance in the health sciences.	LO-1
Understands the importance of discovery of DNA molecules in the development of health sciences.	LO-1
Describes the differences of intraspecies and interspecies in genetic information.	LO-1
Uses the frequently used terms in cell biology, and associates them.	LO-1
Defines the stem cells, and sorts out them in clinical use.	LO-1
Uses the basic laboratory equipment required for basic experiments.	LO-1
Performs basic medical skills (basic life support).	LO-1, LO-3

ASSESSMENT AND EVALUATION

ASSESSMENT SYSTEM

MID-TERM EXAM	Written exam consisting of multiple-choice questions
PRACTICAL FINAL EXAM	<ul style="list-style-type: none">• Objectively structured clinical exam for medical skills (10%)• Objectively structured practical and clinical exam (20%)
WRITTEN FINAL EXAM	Written exam consisting of multiple-choice questions
COURSE FINAL SCORE CALCULATION	Mid-term exam : 30% Practical exam at the end of course : 30% Written exam at the end of course : 50%

PROGRAM EVALUATION

Course evaluation is implemented both orally and electronically using structured evaluation forms at the end of the course.

SUMMARY OF THE COURSE

	Lecture	Panel	Lab Practice	Medical Skills	Total
Biophysics	4				4
Hematology		2			2
Histology & Embryology	5	2	2		9
Medical Biochemistry	10		3		13
Medical Biology	21	2	14		37
Medical Genetics	25		4		29
Physiology	4				4
Plastic Surgery		2			2
Anesthesiology & Reanimation				20	20
Medical Education & Informatics				20	20
TOTAL	69	2	23	20	114

COURSE PROGRAM

WEEK-1

MONDAY (25.11.2019)

08.30-09:15		
09:30-10:15	Introduction of the course	Prof. Alp CAN
10:30-11:15	Water and pH	Prof. Erdiñç DEVRİM
11:30-12:15	Origin of life, universal features of cells	Assist. Prof. Timur TUNCALI
12:15-13:30	Lunch Break	
13:30-14:15	Macromolecules in medicine: Carbohydrates	Prof. Hasan Serdar ÖZTÜRK
14:30-15:15	Macromolecules in medicine: Carbohydrates	Prof. Hasan Serdar ÖZTÜRK
15:30-16:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK

TUESDAY (26.11.2019)

08.30-09:15	Macromolecules in medicine: Amino acids	Prof. Aslıhan GÜRBÜZ
09:30-10:15	Nucleic acids	Prof. Aslıhan GÜRBÜZ
10:30-11:15	Enzymes	Prof. Erdiñç DEVRİM
11:30-12:15	Enzymes	Prof. Erdiñç DEVRİM
12:15-13:30	Lunch Break	
13:30-14:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
14:30-15:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
15:30-16:15	Free Learning Session	
16:30-17:15		

WEDNESDAY (27.11.2019)

08.30-09:15	Basic Medical Skills (Airway opening, airway placement)	Assoc. Prof. Özlem Selvi CAN Assoc. Prof. Başak Ceyda MEÇO Assist. Prof. İpek GÖNÜLLÜ
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER

THURSDAY (28.11.2019)		
08.30-09:15	Macromolecules in medicine: Lipids	Prof. Hasan Serdar ÖZTÜRK
09:30-10:15	Macromolecules in medicine: Lipids	Prof. Hasan Serdar ÖZTÜRK
10:30-11:15	Physicochemical properties of macromolecular interactions	Prof. Mehmet UĞUR
11:30-12:15	Physicochemical properties of macromolecular interactions	Prof. Mehmet UĞUR
12:15-13:30	Lunch Break	
13:30-14:15	ACADEMIC ADVISORY MEETING	
14:30-15:15		
15:30-16:15	Information and Communication Technologies I	e-Learning
16:30-17:15	Information and Communication Technologies I	e-Learning
FRIDAY (29.11.2019)		
08:30-09:15	Free Learning Session	
09:30-10:15	Physicochemical properties of macromolecular bonds	Prof. Mehmet UĞUR
10:30-11:15	Reactions in binding of macromolecules to small molecules	Prof. Mehmet UĞUR
11:30-12:15	Diversity of genomes and genomic structure	Assist. Prof. Timur TUNCALI
12:15-13:30	Lunch Break	
13:30-14:15	Free Learning Session	
14:30-15:15		
15:30-16:15	Orientation Programming to the University Life	e-Learning
16:30-17:15	Orientation Programming to the University Life	e-Learning

WEEK-2		
MONDAY (02.12.2019)		
08.30-09:15	Free Learning Session	
09:30-10:15	Lab Practice: Laboratory safety	Prof. Erdinç DEVRİM
10:30-11:15	Archea, eubacteria and eukaryotic cells	Prof. Ayşe Fulya TEKŞEN
11:30-12:15	Archea, eubacteria and eukaryotic cells	Prof. Ayşe Fulya TEKŞEN
12:15-13:30	Lunch Break	
13:30-14:15	Lab Practice: Introduction to microscopy and cell imaging techniques (examples of cells/tissue preparations techniques)	Prof. Özgür ÇINAR
14:30-15:15		
15:30-16:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK

TUESDAY (03.12.2019)		
08.30-09:15	Structure of the cell membrane	Prof. Asuman SUNGUROĞLU
09:30-10:15	Structure of the cell membrane	Prof. Asuman SUNGUROĞLU
10:30-11:15	Cytoplasmic compartments and organelles	Prof. Özgür ÇINAR
11:30-12:15	Cytoplasmic compartments and organelles	Prof. Özgür ÇINAR
12:15-13:30	Lunch Break	
13:30-14:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
14:30-15:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
15:30-16:15	Free Learning Session	
16:30-17:15		
WEDNESDAY (04.12.2019)		
08.30-09:15	Basic Medical Skills (Heimlich maneuver in adult and infant)	Assoc. Prof. Özlem Selvi CAN Assoc. Prof. Başak Ceyda MEÇO Assist. Prof. İpek GÖNÜLLÜ
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
THURSDAY (05.12.2019)		
08.30-09:15	Free Learning Session	
09:30-10:15	Basic principles in physiology	Lec. Simge AYKAN ZERGEROĞLU
10:30-11:15	Transport of substances across cell membrane	Lec. Simge AYKAN ZERGEROĞLU
11:30-12:15	Free Learning Session	
12:15-13:30	Lunch Break	
13:30-14:15	Lab Practice: How do I estimate cell size using a microscope?	Prof. Asuman SUNGUROĞLU
14:30-15:15		
15:30-16:15	Information and Communication Technologies I	e-Learning
16:30-17:15	Information and Communication Technologies I	e-Learning
FRIDAY (06.12.2019)		
08.30-09:15	Free Learning Session	
09:30-10:15	Membrane potentials	Lec. Simge AYKAN ZERGEROĞLU
10:30-11:15	Receptors and signal transduction	Lec. Simge AYKAN ZERGEROĞLU

11:30-12:15	Nuclear transport	Prof. Ayşe Fulya TEKŞEN
12:15-13:30	Lunch Break	
13:30-14:15	Free Learning Session	
14:30-15:15		
15:30-16:15	Orientation Programming to the University Life	e-Learning
16:30-17:15	Orientation Programming to the University Life	e-Learning

WEEK-3

MONDAY (09.12.2019)

08.30-09:15	The structure and function of DNA	Assist. Prof. Halil G. KARABULUT
09:30-10:15	Chromosomal DNA and its packaging, chromatin structure and function	Prof. Hatice ILGIN RUHİ
10:30-11:15	The maintenance of DNA sequences and DNA replication	Assist. Prof. Timur TUNCALI
11:30-12:15	The maintenance of DNA sequences and DNA replication	Assist. Prof. Timur TUNCALI
12:15-13:30	Lunch Break	
13:30-14:15	Lab Practice: DNA isolation	Prof. Asuman SUNGUROĞLU
14:30-15:15		
15:30-16:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK

TUESDAY (10.12.2019)

08.30-09:15	Free Learning Session	
08.30-09:15		
09:30-10:15	Mutation-1	Assist. Prof. Nüket Y. KUTLAY
10:30-11:15	Mutation-2	Assist. Prof. Nüket Y. KUTLAY
12:15-13:30	Lunch Break	
13:30-14:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
14:30-15:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
15:30-16:15	Free Learning Session	
16:30-17:15		

WEDNESDAY (11.12.2019)

08.30-09:15	Basic Medical Skills (Artificial respiration in adult and infant)	Assoc. Prof. Özlem Selvi CAN Assoc. Prof. Başak Ceyda MEÇO Assist. Prof. İpek GÖNÜLLÜ
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	

13:30-14:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
THURSDAY (12.12.2019)		
08.30-09:15	DNA repair systems	Assist. Prof. Nüket Y. KUTLAY
09:30-10:15	DNA repair systems	Assist. Prof. Nüket Y. KUTLAY
10:30-11:15	From DNA to RNA and RNA world	Assist. Prof. Halil G. KARABULUT
11:30-12:15	From RNA to proteins	Assist. Prof. Halil G. KARABULUT
12:15-13:30	Lunch Break	
13:30-14:15	Mutation detection methods	Assist. Prof. Timur TUNCALI
14:30-15:15	Mutation detection methods	Assist. Prof. Timur TUNCALI
15:30-16:15	Information and Communication Technologies I	e-Learning
16:30-17:15	Information and Communication Technologies I	e-Learning
FRIDAY (13.12.2019)		
08.30-09:15	Homologous and site-specific recombination	Assist. Prof. Nüket Y. KUTLAY
09:30-10:15	Posttranslational modifications of proteins	Prof. Aslıhan GÜRBÜZ
10:30-11:15	Cell secretion (vesicular trafficking)	Prof. Alp CAN
11:30-12:15	Cytoskeleton	Prof. Alp CAN
12:15-13:30	Lunch Break	
13:30-14:15	Free Learning Session	
14:30-15:15		
15:30-16:15	Orientation Programming to the University Life	e-Learning
16:30-17:15	Orientation Programming to the University Life	e-Learning

WEEK-4

MONDAY (16.12.2019)		
08.30-09:15	MID-TERM EXAM	
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Cell signaling	Prof. Asuman SUNGUROĞLU
14:30-15:15	Cell signaling	Prof. Asuman SUNGUROĞLU

15:30-16:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK
TUESDAY (17.12.2019)		
08.30-09:15	Free Learning Session	
09:30-10:15	Cell motility	Prof. Alp CAN
10:30-11:15	Post transcriptional control	Assist. Prof. Halil G. KARABULUT
11:30-12:15	Free Learning Session	
12:15-13:30	Lunch Break	
13:30-14:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
14:30-15:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
15:30-16:15	Free Learning Session	
16:30-17:15		
WEDNESDAY (18.12.2019)		
08.30-09:15	Basic Medical Skills (External cardiac massage in adult and infant)	Assoc. Prof. Özlem Selvi CAN Assoc. Prof. Başak Ceyda MEÇO Assist. Prof. İpek GÖNÜLLÜ
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
THURSDAY (19.12.2019)		
08.30-09:15	Free Learning Session	
09:30-10:15	An overview of gene control	Assist. Prof. Halil G. KARABULUT
10:30-11:15	Transcriptional regulation	Assist. Prof. Halil G. KARABULUT
11:30-12:15	Noncoding RNAs and regulation of gene expression	Assist. Prof. Timur TUNCALI
12:15-13:30	Lunch Break	
13:30-14:15	Epigenetics	Prof. Asuman SUNGUROĞLU
14:30-15:15	Epigenetics	Prof. Asuman SUNGUROĞLU
15:30-16:15	Information and Communication Technologies I	e-Learning
16:30-17:15	Information and Communication Technologies I	e-Learning
FRIDAY (20.12.2019)		
08.30-09:15	Free Learning Session	
09:30-10:15		

10:30-11:15	Cell cycle and cell division: Mitosis and meiosis	Assoc. Prof. Oya Sena AYDOS
11:30-12:15	Cell cycle and cell division: Mitosis and meiosis	Assoc. Prof. Oya Sena AYDOS
12:15-13:30	Lunch Break	
13:30-14:15	What have we learned so far?	Prof. Asuman SUNGUROĞLU
14:30-15:15		Assist. Prof. Halil G. KARABULUT
15:30-16:15	Orientation Programming to the University Life	e-Learning
16:30-17:15	Orientation Programming to the University Life	e-Learning

WEEK-5

MONDAY (23.12.2019)

08.30-09:15	Lab Practice: Epigenetics - X chromatin assay	Prof. Asuman SUNGUROĞLU
09:30-10:15		
10:30-11:15	Cell cycle and cell division: Mitosis and meiosis	Assoc. Prof. Oya Sena AYDOS
11:30-12:15	Cell cycle and cell division: Mitosis and meiosis	Assoc. Prof. Oya Sena AYDOS
12:15-13:30	Lunch Break	
13:30-14:15	Lab Practice: Simple cell viability and proliferation assay	Assoc. Prof. Oya Sena AYDOS
14:30-15:15		
15:30-16:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK

TUESDAY (24.12.2019)

08.30-09:15	Free Learning Session	
09:30-10:15	Cell proliferation and control mechanisms	Prof. Asuman SUNGUROĞLU
10:30-11:15	Cell proliferation and control mechanisms	Prof. Asuman SUNGUROĞLU
11:30-12:15	Genetic diversity and polymorphism	Assist. Prof. Timur TUNCALI
12:15-13:30	Lunch Break	
13:30-14:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
14:30-15:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
15:30-16:15	Free Learning Session	
16:30-17:15		

WEDNESDAY (25.12.2019)

08.30-09:15	Practice for Basic Medical Skills (Airway opening and airway placement; Heimlich maneuver in adult and infant; Artificial respiration in adult and infant; External cardiac massage in adult and infant)	Assoc. Prof. Özlem Selvi CAN Assoc. Prof. Başak Ceyda MEÇO Assist. Prof. İpek GÖNÜLLÜ
09:30-10:15		
10:30-11:15		
11:30-12:15		

12:15-13:30	Lunch Break	
13:30-14:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
THURSDAY (26.12.2019)		
08.30-09:15	Free Learning Session	
09:30-10:15	Cell death: Types and mechanisms	Prof. Asuman SUNGUROĞLU
10:30-11:15	Cell death: Types and mechanisms	Prof. Asuman SUNGUROĞLU
11:30-12:15	Cellular senescence and aging	Prof. Ayşe Fulya TEKŞEN
12:15-13:30	Lunch Break	
13:30-14:15	Lab Practice: Cell division (mitosis)	Assoc. Prof. Oya Sena AYDOS
14:30-15:15		
15:30-16:15	Information and Communication Technologies I	e-Learning
16:30-17:15	Information and Communication Technologies I	e-Learning
FRIDAY (27.12.2019)		
08.30-09:15	Free Learning Session	
09:30-10:15	Evolutionary mechanisms: Microevolution and neutral theory of evolution	Assist. Prof. Timur TUNCALI
10:30-11:15	Evolutionary mechanisms: Microevolution and neutral theory of evolution	Assist. Prof. Timur TUNCALI
11:30-12:15	Population genetics	Assist. Prof. Timur TUNCALI
12:15-13:30	Lunch Break	
13:30-14:15	Free Learning Session	
14:30-15:15		
15:30-16:15	Orientation Programming to the University Life	e-Learning
16:30-17:15	Orientation Programming to the University Life	e-Learning

WEEK-6

MONDAY (30.12.2019)		
08.30-09:15	Evolutionary mechanisms: Macroevolution	Assist. Prof. Timur TUNCALI
09:30-10:15	Evolutionary processes and its impact on health sciences	Assist. Prof. Timur TUNCALI
10:30-11:15	Lab Practice: Programmed cell death - Apoptosis assay	Prof. Asuman SUNGUROĞLU
11:30-12:15		
12:15-13:30	Lunch Break	

13:30-14:15	Practice: Online genome and variation databases	Assist. Prof. Timur TUNCALI
14:30-15:15		
15:30-16:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK
TUESDAY (31.12.2019)		
08.30-17:15	FREE DAY	
WEDNESDAY (01.01.2020)		
08.30-17:15	NEW YEAR'S DAY	
THURSDAY (02.01.2020)		
08.30-09:15	Free Learning Session	
09:30-10:15	Mechanisms of developmental biology	Prof. Ayşe Fulya TEKŞEN
10:30-11:15	Stem cell biology	Prof. Asuman SUNGUROĞLU
11:30-12:15	Stem cell biology	Prof. Asuman SUNGUROĞLU
12:15-13:30	Lunch Break	
13:30-14:15	Lab Practice: Hypo-osmotic solutions and hemolysis	Prof. Asuman SUNGUROĞLU
14:30-15:15		
15:30-16:15	Information and Communication Technologies I	e-Learning
16:30-17:15	Information and Communication Technologies I	e-Learning
FRIDAY (03.01.2020)		
08.30-09:15	Free Learning Session	
09:30-10:15		
10:30-11:15	Panel: Stem cells and regenerative medicine	Prof. Asuman SUNGUROĞLU Prof. Alp CAN Prof. Meral BEKSAÇ Assoc. Prof. Burak KAYA
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Free Learning Session	
14:30-15:15		
15:30-16:15	Orientation Programming to the University Life	e-Learning
16:30-17:15	Orientation Programming to the University Life	e-Learning

WEEK-7

MONDAY (06.01.2020)		
08.30-09:15	Lab Practice: Effects of substrate concentration of enzyme activation	Prof. İlker DURAK
09:30-10:15		

10:30-11:15	Demonstration: Lab ware and equipment (electrophoresis, DNA amplification etc.)	Medical Genetics
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Free Study Session	
14:30-15:15		
15:30-16:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language I	Lect. Meltem AYABAKAN İPEK
TUESDAY (07.01.2020)		
08.30-09:15	Free Study Session	
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
14:30-15:15	Ataturk's Principles and History of Revolution I	Lect. Demo Ahmet ASLAN
15:30-16:15	Free Study Session	
16:30-17:15		
WEDNESDAY (08.01.2020)		
08.30-09:15	MEDICAL SKILLS EXAM (Airway opening and airway placement; Heimlich maneuvering practice in adult and infant; Artificial respiration in adult and infant; External cardiac massage in adult and infant)	Assoc. Prof. Özlem Selvi CAN Assoc. Prof. Başak Ceyda MEÇO Assist. Prof. İpek GÖNÜLLÜ
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English I	Lect. Deniz ÇOKER
THURSDAY (09.01.2020)		
08.30-09:15	Free Study Session	
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Free Study Session	
14:30-15:15		

15:30-16:15	Information and Communication Technologies I	e-Learning
16:30-17:15	Information and Communication Technologies I	e-Learning
FRIDAY (10.01.2020)		
08.30-12:15	PRACTICAL FINAL EXAM	
12:15-13:30	Lunch Break	
13:30-14:15	WRITTEN FINAL EXAM	
14:30-15:15		
15:30-16:15	FEEDBACK SESSION OF THE COURSE	All Faculty Members
16:30-17:15		

READING/STUDYING SOURCES

- Histology and Cell Biology: An Introduction to Pathology (4th Edition); Abraham L. Kierszenbaum, Laura L. Tres; Elsevier Saunders, Philadelphia, 2015.
- Histology: A Text and Atlas with Correlated Cell and Molecular Biology (7th Edition); Micheal H. Ross, Wojciech Pawlina; Lippincott Williams & Wilkins, 2015.
- Molecular Biology of the Cell (6th Edition); Bruce Alberts; Garland Science, New York, 2015.
- Molecular Cell Biology (8th Edition); Harvey Lodish; W. H. Freeman & Co, 2016.
- Marks' Basic Medical Biochemistry A Clinical Approach (5th Edition); Michael Lieberman, Alisa Peet; Wolters Kluwer, Philadelphia, 2018.
- Harper's Illustrated Biochemistry (30th Edition); Victor W. Rodwell, David Bender, Kathleen M. Botham, Peter J. Kennelly, P. Anthony Weil; McGraw-Hill, 2015.
- Emery's Elements of Medical Genetics (15th Edition); Peter D. Turnpenny, Sian Ellard; Elsevier, Philadelphia, 2017.
- Molecular and Cellular Biophysics; Meyer B. Jackson; Cambridge University Press, Cambridge, 2006.
- The Developing Human: Clinically Oriented Embryology (10th Edition); Keith L. Moore, T.V.N. Persaud, Mark G. Torchia; Elsevier, Philadelphia, 2015.
- Langman's Medical Embryology (13th Edition); T. Sadler; Lippincott Williams & Wilkins, Philadelphia, 2015.