



CELLULAR METABOLISM AND TRANSPORT COURSE
Year 1 Course 2
November 27, 2017 – January 12, 2018

Coordinator of the Course 1.2 Prof., Mustafa AKKİPRİK & Assoc. Prof., Dilek AKAKIN & Assist. Prof., Ergül MUTLU ALTUNDAĞ	
Module Coordinator Assoc. Prof., Özlem SARIKAYA & Assist. Prof., H. Eren SAKALLI	Introduction to Clinician Skills (ICS) Coordinators Assoc. Prof., Pemra ÜNALAN & Assist. Prof. Dr. Bülent SEZGIN
Coordinator of Clinical Skill Lab. Assoc. Prof., Pemra ÜNALAN & Inst., Berfu Çerçi ÖNGÜN	Coordinator of ICS Res. Lab. Prof., Sibel SAKARYA & Assist. Prof., Mevhibe HOCAOĞLU
Coordinator of Multidisciplinary Students' Lab. Assoc. Prof., Betül KARADEMİR & Assist. Prof., Mümtaz GÜRAN	Coordinator of Assessment Unite Assist. Prof., Cevdet NACAR & Assist. Prof., Mümtaz GÜRAN & Assist. Prof., Mevhibe HOCAOĞLU & Assist. Prof., H. Eren SAKALLI
Vice-Chief Coordinators	
Assessment Assist. Prof., Cevdet NACAR & Assist. Prof., Mümtaz GÜRAN	Students' Affairs Assist. Prof., Can ERZİK & Assist. Prof., İlke AKÇAY
Chief Coordinator Assoc. Prof., Hasan YANANLI & Assist. Prof., Mümtaz GÜRAN	Coordinator of Medical Education Program Evaluation and Development Commission Prof., Berrak Ç. YEĞEN
Educational Consultant Assoc. Prof., Mehmet Ali GÜLPINAR	
Dean (EMU) Prof., Nahide GÖKÇORA	Dean (MU) Prof., Hakan GÜNDÜZ

LEARNING OUTCOMES / COMPETENCIES

- A. Clinical Care: Qualified patient care and community oriented health care**
1. Basic clinical skills
 2. The organization and management of the patient and the patient care
 3. The organization and the management of health care delivery services / system
 4. Health promotion and disease prevention
- B. Medical Knowledge and Evidence-Based Medicine**
5. Appropriate information retrieval and management skills
 6. The integration of knowledge, critical thinking and evidence-based decision making
 7. Scientific methods and basic research skills
- C. Professional Attitudes and Values**
8. Communication skills and effective communication with patients / patient relatives
 9. Interpersonal relationships and team working
 10. Ethical and professional values, responsibilities
 11. Individual, social and cultural values and responsibilities
 12. Reflective practice and continuing development
 13. Healthcare delivery systems, management and community oriented healthcare
 14. Education and counseling

PHASE-1 LEARNING OBJECTIVES

1. Understanding the normal structures and functions of human body
2. Correlating the basic concepts and principles to each other that define health and disease; applying basic concepts and principles to health and disease conditions
3. Developing clinical problem solving, clinical reasoning and evaluation skills by integrating biomedical, clinical, social and humanities knowledge
4. Gaining basic clinical skills by applications in simulated settings.
5. Awareness of the professional values in health and disease processes (professional, individual, societal) and acquisition necessary related skills
6. Evaluating critically and synthesizing all the medical evidence and perform respecting scientific, professional and ethical values
7. Acquisition skills in reflective thinking and practicing, being open to continuous individual / professional development.

PHASES – 1 THEMA/ORGAN SYSTEM-BASED COURSE PROGRAMS

Year 1, Course 1: Introduction to Cell and Cellular Replication

Year 1, Course 2: Cellular Metabolism and Transport

Year 1, Course 3: Development and Organization of Human Body

Year 1, Course 4: Introduction to Nervous System and Human Behavior

Year 2, Course 1: Cell and Tissue Injury I

Year 2, Course 2: Cell and Tissue Injury II

Year 2, Course 3: Hematopoietic System and Related Disorders

Year 2, Course 4: Musculoskeletal, Integumentary Systems and Related Disorders

Year 2, Course 5: Respiratory System and Related Disorders

Year 3, Course 1: Cardiovascular System and Related Disorders

Year 3, Course 2: Gastrointestinal System, Metabolism and Related Disorders

Year 3, Course 3: Nervous System and Related Disorders

Year 3, Course : Growth, Development, Mental and Endocrine Disorders

Year 3, Course 5: Urinary and Reproductive System and Related Disorders

Cellular Metabolism and Transport

AIM and LEARNING OBJECTIVES of COURSE

Aim: At the end of this committee, first year students will gain knowledge about the metabolic pathways within the cell, structure of the cell membrane and transport mechanisms.

Learning Objectives: At the end of this committee, students will,

1. acquire knowledge related to structural characteristics, functions and regulation of enzymes and coenzymes
2. understand the ATP synthesis and its effect on metabolic pathways
3. describe the constituents and reactions of metabolic pathways within the cell
4. understand membrane structure and its function, physical principles of transport and signaling mechanisms both within and among the cells
5. acquire skills necessary to perform experimental applications.

ASSESSMENT SYSTEM

Module examination: Written exam at the end of module (10 % of final score)

Practical examination: Practical exams at the end of course

Course examination: Written exam at the end of course

PROGRAM EVALUATION

Evaluation at the end of the course, is done both orally and by using structured evaluation forms

DEPARTMENTS PARTICIPATING IN COURSE-1 & MODULE-2

- Biochemistry
- Biophysics
- Physiology

- Medical Biology
- Biostatistics

LECTURERS / TUTORS

Alper YILDIRIM, Assist. Prof., Physiology
Aydın KARAKUZU, Prof., General Surgery
Ayfer CİVİSİLLİ, Instructor, Medical English
Ayşe KOZANSOY, Instructor, Medical English
Berfu Çerçi ÖNGÜN, Instructor, Anatomy
Berrak YEĞEN, Prof., Physiology
Betül KARADEMİR, Assist. Prof., Biochemistry
Bülent SEZGİN, Assist. Prof., Internal Medicine
Cemal GÜRKAN, Instructor, Forensic Sciences
Cevdet NACAR, Assist. Prof., Biophysics
Duygu Gençalp, Inst. ,Biochemistry
Ergül Mutlu ALTUNDAĞ, Assist. Prof., Biochemistry
Goncagül HAKLAR, Prof., Biochemistry
Günseli Ayşe Garip İNHAN, Assoc. Prof., Biophysics
Halil Eren SAKALLI, Assist. Prof., Pharmacology

Hasan TOPER, Assist. Prof., Patology
Hülya CABADAK, Assoc. Prof., Biophysics
Ilke AKÇAY, Assist. Prof., Biostatistics
Mevhibe HOCAOĞLU, Assist. Prof., Public Health
Mümtaz GÜRAN, Assist. Prof., Microbiology
Nevber İSTİLLOZLU, Instructor, Turkish Language
Nurtane KARAGİL, Instructor, Arts and Crafts
Özgür KASIMAY, Assoc. Prof., Physiology
Saime BATIREL, Assist. Prof., Biochemistry
Şerife Çelebi SÖNMEZ, Instructor, Turkish Language
Şükrü TÜZMEN, Assoc. Prof., Medical Biology
Turgay Bülent GÖKTÜRK, Instructor of Atatürk's Principles and History of Modern Turkey
Yaşar İnci ALİCAN, Prof., Physiology

READING / STUDYING MATERIALS

- Biochemistry, Stryer, 4th Ed., Freeman
- Biochemistry, Zubay, 3rd Ed., WCB
- Biostatistics: Basic Concepts and Methodology for the Health Sciences, 10th Ed. Wayne W. Daniel, Chad L. Cross
- Harper's Biochemistry, Murray, Granner, 23rd Ed., Lange Interscience, New Jersey 2003
- Introduction to Biostatistics For Health Sciences, Micheal R. Chernick, Robert H. Friss, Willey
- Lehninger Principles of Biochemistry, Nelson, Cox, 3rd edition, Worth
- Medical Statistics at a Glance, Aviva Petrie, Caroline Sabin, Blackwell Science, London 2003
- Physics, Giancoli, 4th Ed., Prentice Hall
- Practical Statistics For Medical Research, Douglas Altman, Chapman & Hall, London 1995
- Principles of Physiology, Bern and Levy, 4th Ed.
- Temel Biyoistatistik, Mustafa Şenocak, Çağlayan Kitabevi, İstanbul 1990
- Textbook of Physiology, Guyton and Hall, 10th Ed.
- The Cell: A Molecular Approach, Cooper, 2nd Ed., ASM Press

SUMMARY OF THE COURSE 1.2

Discipline	Lecture & Group Discussion	Multidisciplinary Lab. & Clinical Skills Lab. Practice	Total
Medical Biology	4		4
Biochemistry	26	9	35
Biostatistics	10		10
Physiology	8	2	10
Biophysics	20		20
Subtotal	68	11	79
PBL Module	8		8
ICS-1 Computer Skills in Medicine and Student Research Activities	8		8
Medical English	8		8
Atatürk's Principles and History of Modern Turkey	8		8
Communication in Turkish-I (for foreign students)	16		16
Electives	8		8
TOTAL	124	11	135

	THEORETICAL AND PRACTICAL SESSIONS	LECTURER/TUTOR
Week-1 (27 November - 01 December, 2017)		
Monday	27 November	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Medical English (Gr 1 & Gr 2)	Inst. Ayfer Cavisilli
11:40-12:30	Medical English (Gr 1 & Gr 2)	Inst. Ayfer Cavisilli
13:40-14:30	Elective Course – I MDCN181 – Theoretical and Applied Forensic Sciences MDCN182 – Arts and Crafts for Medical Students MDCN184 – Laboratory Techniques in Medicine	Dr. Cemal Gürkan Inst. Nurtane Karagil Inst. Duygu Gençalp
	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
14:40-15:30	Elective Course – I MDCN181 – Theoretical and Applied Forensic Sciences MDCN182 – Arts and Crafts for Medical Students MDCN184 – Laboratory Techniques in Medicine	Dr. Cemal Gürkan Inst. Nurtane Karagil Inst. Duygu Gençalp
	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
15:40-16:30	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
16:40-17:30	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez

Tuesday	28 November	
08:40-09:30	Medical English (Gr 1 & Gr 2)	Inst. Ayşe Kozansoy
09:40-10:30	Medical English (Gr 1 & Gr 2)	Inst. Ayşe Kozansoy
10:40-11:30	Atatürk's Principles and History of Modern Turkey	Dr Turgay Bülent Göktürk
11:40-12:30	Atatürk's Principles and History of Modern Turkey	Dr Turgay Bülent Göktürk
13:40-14:30	Homeostasis	Dr. Berrak Yeğen
14:40-15:30	Bioelectric potentials	Dr. Berrak Yeğen
15:40-16:30	Bioelectric potentials	Dr. Berrak Yeğen
16:40-17:30	Writing PBL reports : Plagiarism and referencing	Dr. Mevhibe Hocoğlu
Wednesday	29 November	
08:40-09:30	ICS Research Training: Groups 1-5	Dr. Mevhibe Hocoğlu Dr. İlke Akçay
09:40-10:30	ICS Research Training: Groups 6-9	
10:40-11:30	ICS Research Training: Groups 10-12	
11:40-12:30	ICS Research Training: Groups 13-15	
13:40-14:30	Physical principles: Diffusion and facilitated transport	Dr. Hülya Cabadak
14:40-15:30	Physical principles: Diffusion and facilitated transport	Dr. Hülya Cabadak
15:40-16:30	Active transport and secondary active transport	Dr. Hülya Cabadak
16:40-17:30	STUDY TIME	
Thursday	30 November	
08:40-09:30	RELIGIOUS HOLIDAY	
09:40-10:30		
10:40-11:30		
11:40-12:30		
13:40-14:30		
14:40-15:30		
15:40-16:30		
16:40-17:30		
Friday	01 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	STUDY TIME	
11:40-12:30	STUDY TIME	
13:40-14:30	STUDY TIME	
14:40-15:30	STUDY TIME	
15:40-16:30	STUDY TIME	
16:40-17:30	STUDY TIME	
Week-2 (4-8 December, 2017)		
Monday	04 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Medical English (Gr 1 & Gr 2)	Inst. Ayfer Cavisilli Inst. Ayşe Kozansoy
11:40-12:30	Medical English (Gr 1 & Gr 2)	Inst. Ayfer Cavisilli Inst. Ayşe Kozansoy
13:40-14:30	Elective Course – I MDCN181 – Theoretical and Applied Forensic Sciences MDCN182 – Arts and Crafts for Medical Students	Dr. Cemal Gürkan Inst. Nurtane Karagil

	MDCN184 – Laboratory Techniques in Medicine	Inst. Duygu Gençalp
	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
14:40-15:30	Elective Course – I MDCN181 – Theoretical and Applied Forensic Sciences MDCN182 – Arts and Crafts for Medical Students MDCN184 – Laboratory Techniques in Medicine	Dr. Cemal Gürkan Inst. Nurtane Karagil Inst. Duygu Gençalp
	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
15:40-16:30	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
16:40-17:30	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
Tuesday	05 December	
08:40-09:30	Applications of recombinant DNA technology in medicine	Dr. Şükrü Tüzmen
09:40-10:30	Applications of recombinant DNA technology in medicine	Dr. Şükrü Tüzmen
10:40-11:30	Atatürk's Principles and History of Modern Turkey	Dr. Turgay Bülent Göktürk
11:40-12:30	Atatürk's Principles and History of Modern Turkey	Dr. Turgay Bülent Göktürk
13:40-14:30	Transport of substances (Remote Session)	Dr. Yaşar İnci Alican
14:40-15:30	Transport of substances (Remote Session)	Dr. Yaşar İnci Alican
15:40-16:30	STUDY TIME	
16:40-17:30	STUDY TIME	
Wednesday	06 December	
08:40-09:30	ICS Research Training: Groups 13-15	Dr. Mevhibe Hoccoğlu Dr. İlke Akçay
09:40-10:30	ICS Research Training: Groups 10-12	
10:40-11:30	ICS Research Training: Groups 6-9	
11:40-12:30	ICS Research Training: Groups 1-5	
13:40-14:30	Introduction to metabolism and metabolic control	Dr. Betül Karademir
14:40-15:30	Introduction to metabolism and metabolic control	Dr. Betül Karademir
15:40-16:30	Overview of glycolysis	Dr. Betül Karademir
16:40-17:30	STUDY TIME	
Thursday	07 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	STUDY TIME	
11:40-12:30	STUDY TIME	
13:40-14:30	Reactions of glycolysis	Dr. Betül Karademir
14:40-15:30	Reactions of glycolysis	Dr. Betül Karademir
15:40-16:30	Regulation of glycolysis	Dr. Betül Karademir
16:40-17:30	Regulation of glycolysis	Dr. Betül Karademir
Friday	08 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Introduction to statistical analysis	Dr. İlke Akçay
11:40-12:30	Sampling, distribution and estimation	Dr. İlke Akçay
13:40-14:30	Physical characteristics of membrane structure and function	Dr. Cevdet Nacar

14:40-15:30	Membrane proteins	Dr. Cevdet Nacar
15:40-16:30	Introduction to bioelectricity-I	Dr. Cevdet Nacar
16:40-17:30	STUDY TIME	
Week-3 (11- 15 December, 2017)		
Monday	11 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Medical English (Gr 1 & Gr 2)	Inst. Ayfer Civisilli Inst. Ayşe Kozansoy
11:40-12:30	Medical English (Gr 1 & Gr 2)	Inst. Ayfer Civisilli Inst. Ayşe Kozansoy
13:40-14:30	Elective Course – I MDCN181 – Theoretical and Applied Forensic Sciences MDCN182 – Arts and Crafts for Medical Students MDCN184 – Laboratory Techniques in Medicine	Dr. Cemal Gürkan Inst. Nurtane Karagil Inst. Duygu Gençalp
	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
14:40-15:30	Elective Course – I MDCN181 – Theoretical and Applied Forensic Sciences MDCN182 – Arts and Crafts for Medical Students MDCN184 – Laboratory Techniques in Medicine	Dr. Cemal Gürkan Inst. Nurtane Karagil Inst. Duygu Gençalp
	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
15:40-16:30	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
16:40-17:30	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
Tuesday	12 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Atatürk's Principles and History of Modern Turkey	Dr. Turgay Bülent Göktürk
11:40-12:30	Atatürk's Principles and History of Modern Turkey	Dr. Turgay Bülent Göktürk
13:40-14:30	Introduction to bioelectricity-I	Dr. Cevdet Nacar
14:40-15:30	Introduction to bioelectricity-II	Dr. Cevdet Nacar
15:40-16:30	Introduction to bioelectricity-II	Dr. Cevdet Nacar
16:40-17:30	STUDY TIME	
Wednesday	13 December	
08:40-09:30	Genome of mitochondria	Dr. Şükrü Tüzmen
09:40-10:30	Importance of genome projects in medicine	Dr. Şükrü Tüzmen
10:40-11:30	PBL Module -1	Dr. Mümtaz Güran
11:40-12:30	PBL Module -1	Dr. İlke Akçay Dr. Ergül Mutlu Altundağ Inst. Duygu Gençalp Inst. Hüseyin Bıyıkoğlu Inst. Yönte Meray
13:40-14:30	Coupling of biological reactions with high energy metabolite	Dr. Hülya Cabadak
14:40-15:30	Coupling of biological reactions with high energy metabolite	Dr. Hülya Cabadak
15:40-16:30	Energetics of electron transport	Dr. Hülya Cabadak
16:40-17:30	STUDY TIME	

Thursday	14 December	
08:40-09:30	Signal transduction	Dr. Özgür Kasımay Çakır
09:40-10:30	Cell to cell adhesions	Dr. Özgür Kasımay Çakır
10:40-11:30	Physiology LAB: Cell Physiology-Group A	Dr. Özgür Kasımay Çakır Dr. Alper Yıldırım
11:40-12:30	Physiology LAB: Cell Physiology-Group A	Dr. Özgür Kasımay Çakır Dr. Alper Yıldırım
13:40-14:30	Intercellular communication	Dr. Alper Yıldırım
14:40-15:30	Physiology LAB: Cell Physiology-Group B	Dr. Özgür Kasımay Çakır Dr. Alper Yıldırım
15:40-16:30	Physiology LAB: Cell Physiology-Group B	Dr. Özgür Kasımay Çakır Dr. Alper Yıldırım
16:40-17:30	STUDY TIME	
Friday	15 December	
08:40-09:30	ICS-1-SRA: Comp&SRA: Creating a research question, discussion about	Dr. İlke Akçay, Dr. Mevhibe Hocaoğlu
09:40-10:30	ICS-1-SRA: Comp&SRA: How to do effective presentations?	Dr. İlke Akçay, Dr. Mevhibe Hocaoğlu
10:40-11:30	ICS-1-SRA: Comp&SRA: Effective use of powerpoint during presentation	Dr. İlke Akçay, Dr. Mevhibe Hocaoğlu
11:40-12:30	ICS-1-SRA: Comp&SRA: Powerpoint practicum	Dr. İlke Akçay, Dr. Mevhibe Hocaoğlu
13:40-14:30	Tricarboxylic acid cycle and hexose monophosphate shunt	Dr. Goncağül Haklar
14:40-15:30	Tricarboxylic acid cycle and hexose monophosphate shunt	Dr. Goncağül Haklar
15:40-16:30	Tricarboxylic acid cycle and hexose monophosphate shunt	Dr. Goncağül Haklar
16:40-17:30	Tricarboxylic acid cycle and hexose monophosphate shunt	Dr. Goncağül Haklar
Week-4 (18- 22 December, 2017)		
Monday	18 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Medical English (Gr 1 & Gr 2)	Inst. Ayfer Cıvisilli Inst. Ayşe Kozansoy
11:40-12:30	Medical English (Gr 1 & Gr 2)	Inst. Ayfer Cıvisilli Inst. Ayşe Kozansoy
13:40-14:30	Elective Course – I MDCN181 – Theoretical and Applied Forensic Sciences MDCN182 – Arts and Crafts for Medical Students MDCN184 – Laboratory Techniques in Medicine	Dr. Cemal Gürkan Inst. Nurtane Karagil Inst. Duygu Gençalp
	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
14:40-15:30	Elective Course – I MDCN181 – Theoretical and Applied Forensic Sciences MDCN182 – Arts and Crafts for Medical Students MDCN184 – Laboratory Techniques in Medicine	Dr. Cemal Gürkan Inst. Nurtane Karagil Inst. Duygu Gençalp
	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
15:40-16:30	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç Inst. Şerife Çelebi Sökmez
16:40-17:30	Turkish as a Second Language (for foreign students)	Inst. Emine Özerinç

		Inst. Şerife Çelebi Sökmez
Tuesday	19 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Atatürk's Principles and History of Modern Turkey	Dr. Turgay Bülent Göktürk
11:40-12:30	Atatürk's Principles and History of Modern Turkey	Dr. Turgay Bülent Göktürk
13:40-14:30	Electron transport chain	Dr. Goncağül Haklar
14:40-15:30	Electron transport chain	Dr. Goncağül Haklar
15:40-16:30	Oxidative Phosphorylation	Dr. Goncağül Haklar
16:40-17:30	Oxidative Phosphorylation	Dr. Goncağül Haklar
Wednesday	20 December	
08:40-09:30	What is probability and probability distribution?	Dr. İlke Akçay
09:40-10:30	Bayes' Theorem	Dr. İlke Akçay
10:40-11:30	PBL Module -2	Dr. Mümtaz Güran
11:40-12:30	PBL Module -2	Dr. İlke Akçay Dr. Ergül Mutlu Altundağ Inst. Duygu Gençalp Inst. Hüseyin Bıyıkoğlu Inst. Yönter Meray
13:40-14:30	Electrochemical potentials, Nernst potential	Dr. Günseli Ayşe Garip İnan
14:40-15:30	Membrane potentials and action potential	Dr. Günseli Ayşe Garip İnan
15:40-16:30	Membrane potentials and action potential	Dr. Günseli Ayşe Garip İnan
16:40-17:30	Flow of energy in nature, first law of thermodynamics	Dr. Günseli Ayşe Garip İnan
Thursday	21 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Flow of energy in nature, first law of thermodynamics	Dr. Günseli Ayşe Garip İnan
11:40-12:30	The second law of thermodynamics, entropy, free energy	Dr. Günseli Ayşe Garip İnan
13:40-14:30	The second law of thermodynamics, entropy, free energy	Dr. Günseli Ayşe Garip İnan
14:40-15:30	Free energy and thermodynamic properties of water	Dr. Günseli Ayşe Garip İnan
15:40-16:30	STUDY TIME	
16:40-17:30	STUDY TIME	
Friday	22 December	
08:40-09:30	Y2C2 THEORETICAL EXAM	
09:40-10:30		
10:40-11:30		
11:40-12:30		
13:40-14:30	Oxidation of lipids	Dr. Saime Batirel
14:40-15:30	Oxidation of lipids	Dr. Saime Batirel
15:40-16:30	Biosynthesis of lipids	Dr. Saime Batirel
16:40-17:30	STUDY TIME	
Week-5 (25- 29 December, 2017)		
Monday	25 December	
08:40-09:30		
09:40-10:30		
10:40-11:30		
11:40-12:30		
13:40-14:30		

14:40-15:30	CHRISTMAS DAY	
15:40-16:30		
16:40-17:30		
Tuesday	26 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	PBL Module -3	Dr. Mümtaz Güran Dr. İlke Akçay Dr. Ergül Mutlu Altundağ Inst. Duygu Gençalp Inst. Hüseyin Bıyıkoğlu Inst. Yönter Meray
11:40-12:30	PBL Module -3	
13:40-14:30	Biosynthesis of lipids	Dr. Saime Batirel
14:40-15:30	Biosynthesis of lipids	Dr. Saime Batirel
15:40-16:30	Biosynthesis of lipids	Dr. Saime Batirel
16:40-17:30	STUDY TIME	
Wednesday	27 December	
08:40-09:30	STUDY TIME	
09:40-10:30	Principles of statistical analysis	Dr. İlke Akçay
10:40-11:30	Elements of statistical interference	Dr. İlke Akçay
11:40-12:30	Gluconeogenesis and glycogen metabolism-1	Dr. Betül Karademir
13:40-14:30	Gluconeogenesis and glycogen metabolism-1	Dr. Betül Karademir
14:40-15:30	Gluconeogenesis and glycogen metabolism-2	Dr. Betül Karademir
15:40-16:30	Gluconeogenesis and glycogen metabolism-2	Dr. Betül Karademir
16:40-17:30	Role of organelles in the metabolism	Dr. Betül Karademir
Thursday	28 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Biochemistry LAB: Anaerobic Glycolysis-Group A	Dr. Betül Karademir Dr. Ergül Mutlu Altundağ Inst. Duygu Gençalp
11:40-12:30	Biochemistry LAB: Anaerobic Glycolysis-Group A	
13:40-14:30	Biochemistry LAB: Anaerobic Glycolysis-Group A	Dr. Betül Karademir Dr. Ergül Mutlu Altundağ Inst. Duygu Gençalp
14:40-15:30	Biochemistry LAB: Anaerobic Glycolysis-Group A	
15:40-16:30	Biochemistry LAB: Anaerobic Glycolysis-Group A	
16:40-17:30	Biochemistry LAB: Anaerobic Glycolysis-Group A	
Friday	29 December	
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Biochemistry LAB: Anaerobic Glycolysis-Group B	Dr. Betül Karademir Dr. Ergül Mutlu Altundağ Inst. Duygu Gençalp
11:40-12:30	Biochemistry LAB: Anaerobic Glycolysis-Group B	

13:40-14:30	Biochemistry LAB: Anaerobic Glycolysis-Group B	Dr. Betül Karademir Dr. Ergül Mutlu Altundağ Inst. Duygu Gençalp
14:40-15:30	Biochemistry LAB: Anaerobic Glycolysis-Group B	
15:40-16:30	Biochemistry LAB: Anaerobic Glycolysis-Group B	
16:40-17:30	Biochemistry LAB: Anaerobic Glycolysis-Group B	
Week 6 (1- 5 January, 2018)		
Monday	01 January	
08:40-09:30	HOLIDAY (NEW YEAR)	
09:40-10:30		
10:40-11:30		
11:40-12:30		
13:40-14:30		
14:40-15:30		
15:40-16:30		
16:40-17:30		
Tuesday		02 January
08:40-09:30	STUDY TIME	
09:40-10:30	STUDY TIME	
10:40-11:30	Atatürk's Principles and History of Modern Turkey	Dr. Turgay Bülent Göktürk
11:40-12:30	Atatürk's Principles and History of Modern Turkey	Dr. Turgay Bülent Göktürk
13:40-14:30	Testing statistical hypothesis	Dr. İlke Akçay
14:40-15:30	Types of errors in statistical inference	Dr. İlke Akçay
15:40-16:30	PBL Module -4	Dr. Mümtaz Güran Dr. İlke Akçay Dr. Ergül Mutlu Altundağ Inst. Duygu Gençalp
16:40-17:30	PBL Module -4	Inst. Hüseyin Bıyıkoğlu Inst. Yönter Meray
Wednesday	03 January	
08:40-09:30	STUDY TIME	
09:40-10:30	Biochemistry LAB : Electron transport chain Group A	Dr. Saime Batirel
10:40-11:30	Biochemistry LAB : Electron transport chain Group A	Dr. Ergül Mutlu Altundağ
11:40-12:30	Biochemistry LAB : Electron transport chain Group A	Inst. Duygu Gençalp
13:40-14:30	Biochemistry LAB : Electron transport chain Group B	Dr. Saime Batirel
14:40-15:30	Biochemistry LAB : Electron transport chain Group B	Dr. Ergül Mutlu Altundağ
15:40-16:30	Biochemistry LAB : Electron transport chain Group B	Inst. Duygu Gençalp
16:40-17:30	STUDY TIME	
Thursday	04 January	
08:40-09:30	Difference between parametric and nonparametric methods; Introduction to parametric methods	Dr. İlke Akçay
09:40-10:30	One sample t-test, unpaired t-test and paired t-test	Dr. İlke Akçay
10:40-11:30	ICS-1-SRA: Questionnaire as a research tool	Dr. İlke Akçay, Dr. Mevhibe Hocaoğlu
11:40-12:30	ICS-1-SRA: Comp & SRA: Questionnaire design	Dr. İlke Akçay, Dr. Mevhibe Hocaoğlu
13:40-14:30	ICS-1-SRA: Comp & SRA: Questionnaire design	Dr. İlke Akçay, Dr. Mevhibe Hocaoğlu

14:40-15:30	ICS-1-SRA: Review of the students' research material and methods	Dr. İlke Akçay, Dr. Mevhibe Hocaoğlu
15:40-16:30	STUDY TIME	
16:40-17:30	STUDY TIME	
Friday	05 January	
08:40-09:30	Y3C2 THEORETICAL EXAM	
09:40-10:30		
10:40-11:30		
11:40-12:30		
13:40-14:30	STUDY TIME	
14:40-15:30	STUDY TIME	
15:40-16:30	STUDY TIME	
16:40-17:30	STUDY TIME	
Week 7 (8- 12 January, 2018)		
Monday	08 January	
08:40-09:30	ICS-1: First Aid Practical Exam	Main Instructor Dr. Bülent Sezgin Small group Instructor Dr. Berfu Çerçi Öngün Dr. Halil Eren Sakallı Dr. Umut Altunç Dr. Hasan Toper
09:40-10:30	ICS-1: First Aid Practical Exam	
10:40-11:30	ICS-1: First Aid Practical Exam	
11:40-12:30	ICS-1: First Aid Practical Exam	
13:40-14:30	ICS-1: First Aid Practical Exam	
14:40-15:30	ICS-1: First Aid Practical Exam	
15:40-16:30	ICS-1: First Aid Practical Exam	
16:40-17:30	ICS-1: First Aid Practical Exam	
Tuesday	09 January	
08:40-09:30	PRACTICAL EXAM	
09:40-10:30		
10:40-11:30		
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Wednesday	10 January	
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Thursday	11 January	
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16:40-17:30		

Friday	12 January	
08:40-09:30	Y1C2 THEORETICAL EXAM (starts at 9.30)	
09:40-10:30		
10:40-11:30		
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13:40-14:30		
14:40-15:30		
15:40-16:30		
16:40-17:30		