



SCIENCE AND RESEARCH METHODS (2019-2020)

INTRODUCTION OF THE COURSE

COURSE PERIOD	: Year 1 – Semester 2
COURSE CODE	: MED 112
COURSE DURATION	: 5 weeks
NATIONAL CREDIT	: 4
ECTS CREDIT	: 6
COURSE COORDINATOR	: Prof. Meltem ÇÖL, Prof. Yasemin YAVUZ
COURSE SECRETARY	: Buket ADIŞANLI, Bahadır ÇEVİRİM
COURSE DATES	: 20.04.2020 – 22.05.2020
TRAINING LOCATIONS	: Prof. Dr. Şükrü Kaymakçalan Auditorium, Prof. Dr. Kazım Türker Classroom, Brain Research Center, Hepatology Institute, Anatomy Laboratory, Stem Cell Laboratory, Pathophysiology Laboratory, Research Office, Medical Skills Laboratory

COORDINATING DEPARTMENTS

Public Health
Biostatistics
Medical History & Ethics
Physiopathology

CONTRIBUTING DEPARTMENTS

Anatomy
Biophysics
Brain Research Center
Gastroenterology
General Surgery
Hematology
Hepatology Institute
Histology & Embryology
Medical Oncology
Medical Pathology
Medical Pharmacology
Physiology
Plastic Surgery
School of Foreign Languages
Stem Cell Institute

TEACHING STAFF

Prof. Hamdi AKAN	Prof. Atilla H. ELHAN	Prof. Yasemin YAVUZ
Prof. Hakan AKBULUT	Prof. Hakan ERGÜN	Prof. Nuray YAZIHAN
Prof. Kamil Can AKÇALI	Prof. Ramazan İDİLMAN	Assoc. Prof. Beyza ERDOĞAN
Prof. Nihal APAYDIN	Prof. Akın KAYA	Assoc. Prof. Derya GÖKMEN
Prof. Berna ARDA	Prof. Işınsu KUZU	Assoc. Prof. Güvem GÜMÜŞ AKAY
Prof. Mithat BOZDAYI	Prof. M. Ayhan KUZU	Assoc. Prof. Burak KAYA
Prof. Alp CAN	Prof. Ahmet SALTİK	Assoc. Prof. Selami K. TOPRAK
Prof. Metehan ÇİÇEK	Prof. Savaş SEREL	Assist. Prof. M. Volkan KAVAS
Prof. Meltem ÇÖL	Prof. Serap ŞAHİNOĞLU KUŞ	Lecturer H. Sinan ATAY

AIM OF THE COURSE

To gain knowledge about science; science and medicine relationship; ethics of science, research and publication; research methods, resources and design, and academic writing. Also, to gain skills for writing a research project plan, and basic medical practices.

LEARNING OBJECTIVES OF THE COURSE

Explains the concept of science and medicine and their relationship.

Knows the philosophy of science and research.

Sorts the basic principles of science and research ethics.

Sorts the basic principles of ethics of scientific publication.

Understands the importance of leadership in science.

Knows the national and international collaborations.

Defines and classifies the basic research methods.

Knows the stages of scientific research.

Knows and creates the research design.

Knows and searches the research resources.

Explains designing of observational, experimental and methodological studies.

Reads and interprets an article, and uses the guidelines.

Knows the principles and techniques of academic writing.

Writes a research project plan.

Performs team working.

Makes the scientific presentation.

Performs basic medical skills (suturing and receiving, wound care).

PROGRAM LEARNING OUTCOMES RELATED WITH COURSE LEARNING OBJECTIVES

COURSE LEARNING OBJECTIVES	PROGRAM LEARNING OUTCOMES
Explains the concept of science and medicine and their relationship.	LO-1
Knows the philosophy of science and research.	LO-1
Sorts the basic principles of science and research ethics.	LO-1, LO-25
Sorts the basic principles of ethics of scientific publication.	LO-1, LO-25
Understands the importance of leadership in science.	LO-1
Knows the national and international collaborations.	LO-1
Defines and classifies the basic research methods.	LO-1, LO-25
Knows the stages of scientific research.	LO-1, LO-25
Knows and creates the research design.	LO-1, LO-25
Knows and searches the research resources.	LO-1, LO-24, LO-25
Explains designing of observational, experimental and methodological studies.	LO-1, LO-25
Reads and interprets an article, and uses the guidelines.	LO-1, LO-24
Knows the principles and techniques of academic writing.	LO-1, LO-25
Writes a research project plan.	LO-25
Performs team working.	LO-25
Makes the scientific presentation.	LO-25
Performs basic medical skills (suturing and receiving, wound care).	LO-1, LO-3

ASSESSMENT AND EVALUATION

ASSESSMENT SYSTEM

MID-TERM EXAM	<ul style="list-style-type: none">• Homework presentation
PRACTICAL EXAM AT THE END OF COURSE	<ul style="list-style-type: none">• Objectively structured clinical exam for medical skills (10%)• Project presentation (30%)
WRITTEN EXAM AT THE END OF COURSE	Written exam consisting of multiple-choice questions
CALCULATION OF COURSE FINAL SCORE	Mid-term exam : 30% Practical exam at the end of course : 40% Written exam at the end of course : 40%

PROGRAM EVALUATION

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

SUMMARY OF THE COURSE

	Lecture	Panel	Workshop	Lab Visit	Medical Skills	Total
Anatomy				2		2
Biophysics	2			2		4
Biostatistics	10					10
Brain Research Center				2		2
Chest Diseases	1					1
Gastroenterology	1					1
General Surgery	2					2
Hematology	2	2				4
Hepatology Institute				2		2
Histology & Embryology	1					1
Medical History & Ethics	5					5
Medical Oncology	2		1			3
Medical Pathology		2				2
Medical Pharmacology	1					1
Physiology	2		1			3
Physiopathology	4			2		6
Public Health	9		2			11
School of Foreign Languages	2					2
Plastic, Reconstructive & Aesthetic Surgery					16	16
TOTAL	44	2	4	10	20	80

COURSE PROGRAM

WEEK-1

MONDAY (20.04.2020)

08.30-09:15	Introduction of the course	Prof. Yasemin YAVUZ
09:30-10:15	Introduction to science and medicine	Prof. Nuray YAZIHAN
10:30-11:15		
11:30-12:15	The science of the 20 th century: Modeling of science from epistemology to the theory of knowledge	Assist. Prof. M. Volkan KAVAS
12:15-13:30	Lunch Break	
13:30-14:15	Fundamental principles of ethics of science	Prof. Serap ŞAHİNOĞLU KUŞ
14:30-15:15	Leadership in science	Prof. Alp CAN
15:30-16:15	Turkish Language II	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language II	Lect. Meltem AYABAKAN İPEK

TUESDAY (21.04.2020)

08.30-09:15	Basic philosophy of medicine and health services	Prof. Ahmet SALTİK
09:30-10:15	Basic philosophy of medicine and health services	Prof. Ahmet SALTİK
10:30-11:15	Panel: Transformation in medicine - Leading innovations in healthcare	Prof. Işinsu KUZU Assoc. Prof. Selami K. TOPRAK
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Ataturk's Principles and History of Revolution II	Lect. Demo Ahmet ASLAN
14:30-15:15	Ataturk's Principles and History of Revolution II	Lect. Demo Ahmet ASLAN
15:30-16:15	Science fiction or science fact	Prof. Kamil Can AKÇALI
16:30-17:15	Science fiction or science fact	Prof. Kamil Can AKÇALI

WEDNESDAY (22.04.2020)

08.30-09:15	Basic Medical Skills (Suturing and receiving)	Prof. Savaş SEREL Assoc. Prof. Burak KAYA
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 II	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER

THURSDAY (23.04.2020)		
08.30-09:15	NATIONAL SOVEREIGNTY AND CHILDREN'S DAY	
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30		
13:30-14:15		
14:30-15:15		
15:30-16:15		
16:30-17:15		
FRIDAY (24.04.2020)		
08.30-09:15	The anatomy and physiology of medical research	Assoc. Prof. Beyza ERDOĞAN
09:30-10:15	Conceiving the research question and developing the study plan	Assoc. Prof. Beyza ERDOĞAN
10:30-11:15	Resources for literature search: Performing a literature search (databases, e-library)	Assoc. Prof. Derya GÖKMEN
11:30-12:15	Resources for literature search: Performing a literature search (databases, e-library)	Assoc. Prof. Derya GÖKMEN
12:15-13:30	Lunch Break	
13:30-14:15	Laboratory visit (Brain Research Center)	Assoc. Prof. Güvem G. AKAY
14:30-15:15		
15:30-16:15		
16:30-17:15		

WEEK-2		
MONDAY (27.04.2020)		
08.30-09:15	Independent Learning Session	
09:30-10:15	Choosing the study subjects: Specification, sampling and recruitment	Prof. Yasemin YAVUZ
10:30-11:15	Planning the measurement - Data collection tools	Prof. Yasemin YAVUZ
11:30-12:15	Planning the measurement - Data collection tools	Prof. Yasemin YAVUZ
12:15-13:30	Lunch Break	
13:30-14:15	International relationships in science and medicine	Prof. M. Ayhan KUZU
14:30-15:15	International relationships in science and medicine	Prof. M. Ayhan KUZU
15:30-16:15	Turkish Language II	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language II	Lect. Meltem AYABAKAN İPEK

TUESDAY (28.04.2020)		
08.30-09:15	Getting ready to estimate sample size: Hypotheses and underlying principles	Prof. Atilla H. ELHAN
09:30-10:15	Getting ready to estimate sample size: Hypotheses and underlying principles	Prof. Atilla H. ELHAN
10:30-11:15	Research types and classification	Prof. Meltem ÇÖL
11:30-12:15	Critical appraisal of the literature	Assoc. Prof. Derya GÖKMEN
12:15-13:30	Lunch Break	
13:30-14:15	Ataturk's Principles and History of Revolution II	Lect. Demo Ahmet ASLAN
14:30-15:15	Ataturk's Principles and History of Revolution II	Lect. Demo Ahmet ASLAN
15:30-16:15	ACADEMIC ADVISORY MEETING	
16:30-17:15		
WEDNESDAY (29.04.2020)		
08.30-09:15	Basic Medical Skills (Suturing and receiving)	Prof. Savaş SEREL Assoc. Prof. Burak KAYA
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 II	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
THURSDAY (30.04.2020)		
08.30-09:15	Independent Learning Session	
09:30-10:15	Designing observational studies (descriptive, cross-sectional, case control and cohort studies)	Prof. Meltem ÇÖL
10:30-11:15	Designing observational studies (descriptive, cross-sectional, case control and cohort studies)	Prof. Meltem ÇÖL
11:30-12:15	Workshop: Guidelines and checklists for observational studies (<i>See descriptions</i>) Case series - CARE Cross-sectional study - STROBE Case-control study - STROBE Cohort study – STROBE	Prof. Meltem ÇÖL
12:15-13:30	Lunch Break	
13:30-14:15	Laboratory Visit (Hepatology Institute)	Prof. Mithat BOZDAYI
14:30-15:15		

15:30-16:15	ELECTIVE COURSES	
16:30-17:15		
FRIDAY (01.05.2020)		
08.30-09:15	LABOR AND SOLIDARITY DAY	
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30		
13:30-14:15		
14:30-15:15		
15:30-16:15		
16:30-17:15		

WEEK-3		
MONDAY (04.05.2020)		
08.30-09:15	Independent Learning Session	
09:30-10:15	Designing experimental and methodological studies	Prof. Meltem ÇÖL
10:30-11:15	Designing experimental and methodological studies	Prof. Meltem ÇÖL
11:30-12:15	Workshop: Guidelines and checklists for experimental studies and methodological studies (<i>See descriptions</i>) RCT - CONSORT Reliability and agreement studies - GRRAS Diagnostic studies – STARD	Prof. Meltem ÇÖL
12:15-13:30	Lunch Break	
13:30-14:15	Designing basic researches and practice with guidelines	Prof. Nuray YAZIHAN
14:30-15:15	Designing basic researches and practice with guidelines	Prof. Nuray YAZIHAN
15:30-16:15	Turkish Language II	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language II	Lect. Meltem AYABAKAN İPEK
TUESDAY (05.05.2020)		
08.30-09:15	Independent Learning Session	
09:30-10:15	Experimental Studies – Animal Studies	Prof. Metehan ÇİÇEK
10:30-11:15	Experimental Studies – Animal Studies	Prof. Metehan ÇİÇEK
11:30-12:15	Workshop: Preparation for presentations	Prof. Metehan ÇİÇEK
12:15-13:30	Lunch Break	
13:30-14:15	Ataturk's Principles and History of Revolution II	Lect. Demo Ahmet ASLAN
14:30-15:15	Ataturk's Principles and History of Revolution II	Lect. Demo Ahmet ASLAN

15:30-16:15	Preparation for the homework presentation	Group study
16:30-17:15		
WEDNESDAY (05.05.2020)		
08.30-09:15	Basic Medical Skills (Wound care)	Prof. Savaş SEREL Assoc. Prof. Burak KAYA
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 II	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
THURSDAY (07.05.2020)		
08.30-09:15	Preparation for the homework presentation	Group study
09:30-10:15	Clinical studies	Prof. Hakan AKBULUT
10:30-11:15	Clinical study design	Prof. Hakan AKBULUT
11:30-12:15	Workshop: Guidelines and checklists for clinical studies	Prof. Hakan AKBULUT
12:15-13:30	Lunch Break	
13:30-14:15	Write about science for general audiences	Prof. Hamdi AKAN
14:30-15:15	Key principles of effective presentations	Prof. Hamdi AKAN
15:30-16:15	ELECTIVE COURSES	
16:30-17:15		
FRIDAY (08.05.2020)		
08.30-09:15	Preparation for the homework presentation	Group study
09:30-10:15	HOMEWORK PRESENTATIONS (Article and checklist results)	Coordinators: Prof. Meltem ÇÖL Prof. Yasemin YAVUZ
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Visit to experimental study labs (Anatomy)	Prof. Nihal APAYDIN
14:30-15:15		
15:30-16:15	Preparation for the project presentation	Group study
16:30-17:15		

WEEK-4**MONDAY (11.05.2020)**

08.30-09:15	Independent Learning Session	
09:30-10:15	Milestones in the history of research ethics	Prof. Berna ARDA
10:30-11:15	Research ethics	Prof. Berna ARDA
11:30-12:15	Ethics of scientific publication	Prof. Berna ARDA
12:15-13:30	Lunch Break	
13:30-14:15	Ethical issues in animal and human studies	Prof. Hakan ERGÜN
14:30-15:15	Writing for publication in a medical journal and types of scientific publications	Prof. Akın KAYA
15:30-16:15	Turkish Language II	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language II	Lect. Meltem AYABAKAN İPEK

TUESDAY (12.05.2020)

08.30-09:15	Independent Learning Session	
09:30-10:15	Academic writing: Anatomy of an article	Prof. Ramazan İDİLMAN
10:30-11:15	Technical aspects for successful academic writing	Lect. H. Sinan ATAY
11:30-12:15	Technical aspects for successful academic writing	Lect. H. Sinan ATAY
12:15-13:30	Lunch Break	
13:30-14:15	Ataturk's Principles and History of Revolution II	Lect. Demo Ahmet ASLAN
14:30-15:15	Ataturk's Principles and History of Revolution II	Lect. Demo Ahmet ASLAN
15:30-16:15	Preparation for the project presentation	Group study
16:30-17:15		

WEDNESDAY (13.05.2020)

08.30-09:15	Basic Medical Skills (Wound care)	Prof. Savaş SEREL Assoc. Prof. Burak KAYA
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 II	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER

THURSDAY (14.05.2020)

08.30-09:15	Preparation for the project presentation	Group study
09:30-10:15		

10:30-11:15	Laboratory visit (Stem Cell Laboratory)	Prof. Kamil Can AKÇALI
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	Preparation for the project presentation	Group study
14:30-15:15		
15:30-16:15	ELECTIVE COURSES	
16:30-17:15		
FRIDAY (15.05.2020)		
08.30-09:15	Preparation for the project presentation	Group study
09:30-10:15		
10:30-11:15	Visit to experimental study labs (Pathophysiology)	Prof. Nuray YAZIHAN
11:30-12:15	Visit to experimental study labs (Research Office)	Prof. Nuray YAZIHAN
12:15-13:30	Lunch Break	
13:30-14:15	Preparation for the project presentation	Group study
14:30-15:15		
15:30-16:15		
16:30-17:15		

WEEK-5		
MONDAY (18.05.2020)		
08.30-09:15	INDEPENDENT STUDY FOR EXAMS	
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	INDEPENDENT STUDY FOR EXAMS	
14:30-15:15		
15:30-16:15	Turkish Language II	Lect. Meltem AYABAKAN İPEK
16:30-17:15	Turkish Language II	Lect. Meltem AYABAKAN İPEK
TUESDAY (19.05.2020)		
08.30-09:15	COMMEMORATION OF ATATURK, YOUTH AND SPORT DAY	
09:30-10:15		
10:30-11:15		

11:30-12:15		
12:15-13:30		
13:30-14:15		
14:30-15:15		
15:30-16:15		
16:30-17:15		
WEDNESDAY (20.05.2020)		
08.30-09:15		
09:30-10:15	MEDICAL SKILLS EXAM (Suturing and receiving; Wound care)	Prof. Savaş SEREL Assoc. Prof. Burak KAYA
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 II	Lect. Deniz ÇOKER
14:30-15:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
15:30-16:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
16:30-17:15	Development of Reading and Writing Skills in English II	Lect. Deniz ÇOKER
THURSDAY (21.05.2020)		
08.30-09:15	INDEPENDENT STUDY FOR EXAMS	
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	WRITTEN EXAM AT THE END OF COURSE	
14:30-15:15		
15:30-16:15	ELECTIVE COURSES	
16:30-17:15		
FRIDAY (22.05.2020)		
08.30-09:15	PROJECT PRESENTATIONS	
09:30-10:15		
10:30-11:15		
11:30-12:15		
12:15-13:30	Lunch Break	
13:30-14:15	FEEDBACK SESSION OF THE COURSE	All Faculty Members
14:30-15:15		

15:30-16:15		
16:30-17:15		

Descriptions

Students will be divided into 6 groups and each group is given 1 research type. Students search relevant databases and find an article. Then they evaluate these articles with appropriate guidelines. Students will be asked to share their findings with the whole class with a powerpoint presentation the middle of the module. Homework will be midterm exam.

READING/STUDYING SOURCES

- Basic Epidemiology: A Textbook for Students (2nd Edition); Ruth Bonita, Robert Beaglehole, Tord Kjellström; World Health Organization, 2006.
- Epidemiology (5th Edition); Leon Gordis; Elsevier Saunders, Philadelphia, 2014.
- Fundamentals of Biostatistics (8th Edition); Bernard Rosner; Cengage Learning, Boston, 2016.
- Biostatistics: A Foundation for Analysis in the Health Sciences (10th Edition); Wayne W. Daniel; Chad L. Cross; John Wiley & Sons, 2013.
- Principles of Biomedical Ethics (7th Edition); Tom L. Beauchamp, James F. Childress; Oxford University Press, 2012.