



**MUĞLA SITKI KOÇMAN UNIVERSITY FACULTY of MEDICINE
PHASE 4
ENGLISH MEDICINE PROGRAM**

COURSE of Neuroscience

2022/2023 Academic Year

COURSE GUIDEBOOK

PREFACE

Dear Students,

Welcome to the Neuroscience Course.

We aimed to enter to the mysterious world of the neurological system as you are here being competent neuroanatomy, neurophysiology, neuropathology and neuropharmacology.

This guide explains what you will learn, the rules and working conditions you must follow during the course. We wish you all the best with the belief that this guide will guide you in your studies.

GENERAL INFORMATION on COURSE

Course Title	: Neuroscience
Main Department of Course	: Medical Sciences
Department Responsible for Course	: Division of Neurology
Course Code	: MED- 4506
Course Topic Code	: MED4-
Course Type	: Elective
Duration of the Course	: 1 week
Teaching Method of the Course	: Formal
ECTS	: 1
Language	: English
Head of the department	: Prof. Gülnihal Kutlu Günergin
Head of the division	: Prof. Gülnihal Kutlu Günergin
Teaching Staff	: Prof. Gülnihal Kutlu Günergin Prof. Semai Bek Assoc. Prof. Evren Gümüş Asst. Prof. Emrah Emre Deveci Asst. Prof. Utku Cenikli Asst. Prof. Önder Yeniçeri Asst. Prof. Ercan Saruhan Ass. Prof. Tanju Mercan Asst. Prof. Serkan Aksu

Teaching Staff	Subject area	Theoretical Course duration (Hours)
Prof. Gülnihal Kutlu Günergin	Clinical Neurophysiology	4
Prof. Semai Bek	Neurology	8
Assoc. Prof. Evren Gümüş	Medical Genetics	1
Ass. Prof. Emrah Emre Deveci	Neurology	2
Ass. Prof. Utku Cenikli	Neurology	2
Ass. Prof. Önder Yeniçeri	Medical Radiology	1
Ass. Prof. Ercan Saruhan	Medical Biochemistry	4
Ass. Prof. Tanju Mercan	Biophysics	4
Res. Ass. Serkan Aksu	Medical Physiology	4

Coordinator of the Department Education Program	: Prof. Gülnihal Kutlu Günergin
Coordinator of the Division Education Program	: Prof. Semai Bek
Coordinator of the Course Education Program	: Prof. Semai Bek
Coordinator of the Course Examinations	: Prof. Semai Bek
Coordinator of Course Assessment and Evaluation	: Asst. Prof. Serkan Aksu
E-Mail	: semaibek@mu.edu.tr

TEACHING METHODS-TECHNIQUES

1. Theoretical lessons

2. Learning Centered Teaching

Clinical practice applications in Clinical Neurophysiology Lab.

PHYSICAL SPACES

Teaching Activity	Physical Space	Explanation
Theoretical lessons	Morphology Building Classrooms	Morphology Building Classrooms
Practical lessons	Clinical Neurophysiology Lab	Mugla Education Research Hospital

RELATED LEGISLATION

<http://www.tip.mu.edu.tr/tr/ilgili-mevzuat-6641>

AIM(S) of the COURSE

1	In this course, it is aimed that students learn about working approaches by bringing together molecular, preclinical, and clinical models of brain functions. In this course, it is aimed that students can associate these biological models of brain functions with behavioral, affective, and cognitive functions and their disorders.
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OBJECTIVE(S) of the COURSE

1	To be able to explain neuronal communication through resting potential, action potential and neurotransmission.
2	To be able to explain the general organization of the brain.
3	To be able to relate brain organization to cognitive processes (such as visual processing, auditory processing, attention and/or memory) and/or hemispheric specialization.
4	To be able to explain typical and atypical cognitive and emotional processes and the pathological mechanisms underlying common diseases and/or nervous system disorders.

INTENDED LEARNING OUTCOME(S)

1	Can explain neuronal communication through resting potential, action potential and neurotransmission.
2	Can explain the general organization of the brain.
3	Can relate brain organization to cognitive processes (such as visual processing, auditory processing, attention and/or memory) and/or hemispheric specialization.
4	Can explain typical and atypical cognitive and emotional processes and the pathological mechanisms underlying common diseases and/or nervous system disorders.

COURSE CONTENT

1. Brain and Behavior
2. Genes and Behavior
3. Nerve Cell, Neural Circuit and Behavior
4. Neuroanatomical Basis of Behavior
5. Behavior and Neural Circuit Behavior
6. Imaging and Behavior
7. Nervous System Cell
8. Ion Channels
9. Membrane potentials and Passive Electrical Properties of the Neuron
10. Action Potential
11. Overview of Synaptic Transmission
12. Neuromuscular Junction
13. Synaptic Relationship in the Central Nervous System
14. Secondary Messengers
15. Transmitter Oscillation
16. Neurotransmitters

DUTIES and RESPONSIBILITIES OF STUDENTS and OTHER ISSUES

RESPONSIBILITIES

1. The training and education activities within the Course/Course blocks are carried out under the supervision of the instructor in charge of the course.
2. Before the clinical / outpatient applications, they introduce themselves as "Trainee Doctor" to the patient, give information and get permission from the patient, take the patient's medical history and perform a physical examination. They perform other medical procedures under the supervision of instructors.
3. The clothing of the trainee doctors in the working environment should be appropriate for the health worker.
4. Trainee doctors wear their ID cards visibly inside the hospital and in all educational environments.
5. Trainee doctors should wear a white doctor's coat inside the hospital.
6. They attend the theoretical and practical courses given by the instructors, as well as the applied trainings under the supervision of the instructors.
7. They attend visits during service working hours in line with the curriculum prepared by the department; They monitor all kinds of medical interventions for diagnosis and treatment in outpatient clinics, services and other diagnosis and treatment units, and perform the procedures in the practice list in accordance with the National Core Education Program / MSKU Extended Education Program at the specified level during course under the permission and supervision of the trainer.
8. In line with the program prepared by the department, they take the medical history of the patients given to them for educational purposes in the units, perform the physical examination, determine the preliminary diagnosis, make the interpretation and differential diagnosis of the case and present it to the lecturer.
9. They act in accordance with the principles and rules of medical professional ethics and deontology during practices.
10. They now the rights of patients and their relatives, acts respectfully to these rights and abides by the principle of confidentiality of patient information.

11. They do not share, use or accumulate for other purposes, information, documents and samples obtained from patients during training and practice studies with third parties, including patient relatives.
12. The patient should not inform the patient's relatives or third parties about the patient's medical condition and course without the knowledge and supervision of the instructors.
13. When they have serious information, observations and findings about patients that require changes in diagnosis and treatment, they immediately notify the relevant instructors.
14. They do not take the patient files out of the service.
15. They avoid behaviors that will harm patient safety and disrupt hospital hygiene.
16. During the course, they perform the tasks of preparing/presenting articles, preparing/presenting seminars, preparing/presenting interactive lessons, preparing/presenting cases and similar tasks.
17. All the work of the trainee students is for educational purposes only, and the trainee students cannot in any way be involved in the decisions, practices and records regarding the diagnosis, treatment, follow-up and medical care of the patients.
18. They know the patient rights regulation and the current health legislation and act accordingly.
19. During the course, it is important that the personal logbook is filled in carefully, signed and handed over to the responsible instructor at the end of the course.
20. They should be aware of the legislation of the Faculty of Medicine, including the Muğla Sıtkı Koçman University Faculty of Medicine Education-Training and Examination regulations, and act accordingly.
21. They act in accordance with the principles regarding attendance and other matters of Phase IV and V students in the MSKU Faculty of Medicine Education-Training and Examination Regulations.
22. As in all health institutions, they must comply with the rules, regulations and directives of the institution stated below.
 - ✓ Infection control rules
 - ✓ Rules on medical waste, household waste and recyclable waste
 - ✓ Radiation safety rules
 - ✓ Rules regarding employee health
 - ✓ Rules regarding patient safety

- ✓ Sample taking, sending, request writing, consent and similar rules
- ✓ Fire and safety precautions
- ✓ Ethical and deontological rules

Please read: MSKU Medical Faculty Pre-Graduation Education Rules, Students' Responsibilities and Duties

OTHER ISSUES:

1. Course duration is one week.
- 2. Information about the attendance requirement of students**
 - ✓ There is an obligation to attend the theoretical courses.
- 3. Information about learner-centered practices**
 - ✓ Interactive participation is important in all theoretical and practical lessons,
 - ✓ Combining the knowledge given in lab hour with theoretical lessons.
- 4. Information about the course report card and responsibilities**
 - ✓ Students must have performed the observation in the course report at least once.
- 5. Working principles**
 - ✓ Students must come to the lesson ready for each

RECOMMENDED RESOURCE(S)

KEY RESOURCE(S)

KEY RESOURCE(S)	Matched Course Outcome(s)
Eric R. Kandel, John D. Koester, Sarah H. Mack, Steven A. Siegelbaum, Principles of Neural Science, Sixth Edition 6th Edition	1-4

ASSESSMENT and EVALUATION

Assessment and Evaluation Methods in Course Evaluation Exam

Assessment and Evaluation Method	Explanation	Role in the End of Course Evaluation	% Value for the End of Course Evaluation
Attendance to Classes		Compulsory	
Course Logbook		Compulsory	
Multiple Choice Theoretical Test Exam	100 multiple choice theoretical questions		%100
Total			%100

Availability of Course Logbook, Place of Course Report in Course Assessment and Evaluation Principles

For the right to take the written exam, the student must be evaluated as “adequate” from the criteria specified in the course report.

Existence of Attendance Requirement and Its Place in Course Assessment-Evaluation Principles

It is stated at the beginning of the course that the student who is absent from the courses will not be taken to the written exam.

The Effect of the Assessment and Evaluation Methods to be Applied on the Success Status at the End of the Course

In order to be successful in the course, it is required to get at least 60 points at course exams

Assessment and Evaluation Methods in Resit Examination

Assessment and Evaluation Method	Explanation	Role in the End of Course Evaluation	% Value at the End of Course Evaluation
Multiple Choice Theoretical Test Exam	100 multiple choice theoretical questions		%100
Total			%100

Assessment and Evaluation Methods in Single Course Resit Exam

Assessment and Evaluation Method	Explanation	Role in the End of Course Evaluation	% Value at the End of Course Evaluation
Multiple Choice Theoretical Test Exam	100 multiple choice theoretical questions		%100
Total			%100

COURSE LOGBOOK

NAME- SURNAME

STUDENT NUMBER:

LEVEL: IV

APPLICATION	EXPLANATION	LECTURER SIGNATURE
Observation of Nerve Conduction Studies		
Observation of Electromyography		
Observation of polysomnography Scoring		
Observation of Electroencephalography Record		

DECISION: PASS FAIL

Head of Department or Coordinator:

Date:

Signature:

Faculty of Medicine
English Medicine Program
Phase 4
Neuroscience
Course
Competence Matrix

Course	PO1	P02	PO3	PO4	PO5	P06	P07	P08	P09	PO10	PO11	PO12	PO13
Neuroscience	5	4	0	0	0	0	5	1	5	5	0	5	0

* Completed according to the following program outcomes. (Score from 0 to 5.)

PO: Program Outcomes of Faculty of Medicine

PO Link: <https://muweb.mu.edu.tr/tr/program-yeterlilikleri-6598?site=tip.mu.edu.tr>

TRAINING ACTIVITY AND ASSESMENT AND EVALUATION METHODS MATCHING OF COURSE GAINS

Intended Learning Outcome	TRAINING ACTIVITY MATCHING	ASSESSMENT AND EVALUATION METHODS MATCHING
1.Can explain neuronal communication through resting potential, action potential and neurotransmission.	T, P	TE
2.Can explain the general organization of the brain.	T, P	TE
3.Can relate brain organization to cognitive processes (such as visual processing, auditory processing, attention and/or memory) and/or hemispheric specialization.	T, P	TE
4.Can explain typical and atypical cognitive and emotional processes and the pathological mechanisms underlying common diseases and/or nervous system disorders.	T, P	TE
Abbreviations Teaching Activity: Theoretical course (T), Workshop (W), Inpatient or outpatient bedside clinical practice (CP) Assessment Method: Theoretical exam (TE), project presentation (PP)		

INFORMATION AND MATCHING TABLE ON THE THEORETICAL AND PRACTICAL COURSES IN THE COURSE TO BE INCLUDED IN THE 2022- 2023 ACADEMIC YEAR COURSE PROGRAM

Lesson Type (Theoretical (T) / Practical (P))	The subject of the Lecture	Lecturer	Lecture Code	Learning Type (LC*/CB* and/or TW)	Course Aim (CA/CA Relation)	NCEP 2020 Item	Associated Topics (Vertical Integration)	Associated Topics (Horizontal Integration)
T	Course information meeting (Brain and Behavior)	Gülnihal Kutlu Günergin	MED4-NSC001	CB	2-3	G3,G5	Semiology, Neuroanatomy, Neurophysiology	All Lessons
T	Brain and Behavior	Gülnihal Kutlu Günergin	MED4-NSC001	CB	2-3	G3,G5	Semiology, Neuroanatomy, Neurophysiology	All Lessons
T	Genes and Behavior	Evren Gümüş	MED4-NSC002	CB	2	G3,G5	Semiology, Neuroanatomy, Neurophysiology	All Lessons
P	Clinical Neurophysiology Lab	All Lecturers	MED4-NSC017	LC	1-4	G3,G5	Semiology, Neuroanatomy, Neurophysiology, Neurology	All Lessons
	Interview with the mentor							
T	Nerve Cell, Neural Circuit and Behavior	Serkan Aksu	MED4-NSC003	CB	1	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Nerve Cell, Neural Circuit and Behavior	Serkan Aksu	MED4-NSC003	CB	1	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Neuroanatomical Basis of Behavior	Semai Bek	MED4-NSC004	CB	2-3	G3,G5	Neuroanatomy	All Lessons
T	Neuroanatomical Basis of Behavior	Semai Bek	MED4-NSC004	CB	2-3	G3,G5	Neuroanatomy	All Lessons
T	Behavior and Neural Circuit Behavior	Semai Bek	MED4-NSC005	CB	2-3	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Behavior and Neural Circuit Behavior	Semai Bek	MED4-NSC005	CB	2-3	G3,G5	Neurophysiology, Biophysics	All Lessons
C	Imaging and Behavior	Önder Yeniçeri	MED4-NSC006	CB	3	G3,G5	Neuroanatomy	All Lessons

P	Clinical Neurophysiology Lab	All Lecturers	MED4-NSC017	LC	1-4	G3,G5	Semiology, Neuroanatomy, Neurophysiology, Neurology	All Lessons
	Interview with the mentor							
T	Nervous System Cell	Serkan Aksu	MED4-NSC007	CB	1	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Nervous System Cell	Serkan Aksu	MED4-NSC007	CB	1	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Ion Channels	Ercan Saruhan	MED4-NSC008	CB	1	G3,G5	Neuropharmacology	All Lessons
T	Ion Channels	Ercan Saruhan	MED4-NSC008	CB	1	G3,G5	Neuropharmacology	All Lessons
T	Membrane potentials and Passive Electrical Properties of the Neuron	Tanju Mercan	MED4-NSC009	CB	1	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Membrane potentials and Passive Electrical Properties of the Neuron	Tanju Mercan	MED4-NSC009	CB	1	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Action Potential	Tanju Mercan	MED4-NSC010	CB	1	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Action Potential	Tanju Mercan	MED4-NSC010	CB	1	G3,G5	Neurophysiology, Biophysics	All Lessons
						G3,G5		
T	Overview of Synaptic Transmission	Utku Cenikli	MED4-NSC011	CB	2-3	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Overview of Synaptic Transmission	Utku Cenikli	MED4-NSC011	CB	2-3	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Neuromuscular Junction	Gülnihal Kutlu Günergin	MED4-NSC012	CB	1-2	G3,G5	Neurology, Neuropathology	All Lessons
T	Neuromuscular Junction	Gülnihal Kutlu Günergin	MED4-NSC012	CB	1-2	G3,G5	Neurology, Neuropathology	All Lessons
T	Synaptic Relationship in the Central Nervous System	Emrah Emre Deveci	MED4-NSC013	CB	1-2	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Synaptic Relationship in the Central Nervous System	Emrah Emre Deveci	MED4-NSC013	CB	1-2	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Secondary Messengers	Ercan Saruhan	MED4-NSC014	CB	1-2	G3,G5	Neurophysiology, Biophysics	All Lessons

T	Secondary Messengers	Ercan Saruhan	MED4-NSC014	CB	1-2	G3,G5	Neurophysiology, Biophysics	All Lessons
						G3,G5		
T	Transmitter Oscillation	Semai Bek	MED4-NSC015	CB	1-2	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Transmitter Oscillation	Semai Bek	MED4-NSC015	CB	1-2	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Neurotransmitters	Semai Bek	MED4-NSC016	CB	1-2	G3,G5	Neurophysiology, Biophysics	All Lessons
T	Neurotransmitters	Semai Bek	MED4-NSC016	CB	1-2	G3,G5	Neurophysiology, Biophysics	All Lessons
P	Structured free study time (Library work for individual research)							
P	Structured free study time (Library work for individual research)							
T	Final Exam	All Lecturers						
T	Final Exam	All Lecturers						
	Evaluation of course exam questions	All Lecturers /Students						
	Evaluation of course exam questions	All Lecturers /Students						
	Course Evaluation Meeting	All Lecturers /Students						
	Course Evaluation Meeting	All Lecturers /Students						
	Fall semester academic term eveluation meeting	All Departments, Phase IV Coordinatory						