Uskudar University

Institute of Health Sciences

Neuroscience Master's Program Course Contents

Required Courses

NRB521 Introduction to Neuroimaging

The aim of this course is to introduce the neuroimaging methods (MRI, fMRI, EEG, TMS, etc.) used in the field of neuroscience conceptually, as well as to enable students to design experiments in which they will use neuroimaging techniques to improve their practical skills and to analyze the data obtained from the experiments. Within the scope of the course, both theoretical information will be given and the advantages and disadvantages of different methods will be discussed in order to understand how the background of neuroimaging methods such as fMRI and EEG, which provide the opportunity to examine the neural foundations underlying human behavior.

NRB523 Neuroanatomy and Developmental Neuroscience

The aim of this course is to understand the formation of the nervous system during embryonic and early development, to learn the anatomical structures that make up the human nervous system, and to learn about current neuroimaging techniques used in brain mapping. Course Content: Neural tube and neural crest formation during embryonic development, neurogenesis and proliferation, neuron migration, neuronal differentiation, synapse formation, synaptic plasticity, molecular mechanisms in neurodevelopment process, brain anatomy, nervous system organization, neuroimaging techniques.

NRB537 Molecular Neuroscience

The aim of this course is to provide students with knowledge about Molecular Neuroscience within the field of neuroscience, which is a multidisciplinary field. Within the scope of this course, physiology, genetics, chemistry, genetic imaging and pharmacology subjects related to basic neuroscience will be explained.

ENS501 Research Methods and Ethics

The aim of this course is to provide students with knowledge about Research Methods in Neuroscience within the field of neuroscience, which is a multidisciplinary field. In this context, it is aimed that students learn basic information about research methods, statistical analyzes and study designs used in neuroscience research.

ENS502 Applied Statistics

The aim of this course is to provide students with knowledge about the applications of statistics in the field of neuroscience, which is a multidisciplinary field. Within the scope of this course, statistical analysis methods will be explained using SPSS data analysis program.

NRB522 Seminar

The aim of this course is to enable students to practice conveying thesis topics through oral and written presentations, to gain critical approach and discussion practice in the presentation of scientific findings, and to learn scientific presentation techniques. In addition to these, guiding the research of the thesis writing plan and purpose; helping students write their graduation thesis in line with their areas of expertise; literature review, reading and analysis; forming a research hypothesis, establishing a model, formulating a hypothesis, choosing a data collection method, discussing data collection and analysis methods, writing an article; Presentation plan; Various functions such as reporting the doctoral thesis plan will also be provided.

NRB524 Theoretical and Computational Neuroscience

The aim of this course is to provide students with knowledge about Theoretical and Computational Neuroscience in the field of neuroscience, which is a multidisciplinary field. In this context, artificial intelligence, brain-computer interfaces, neuroimaging and molecular modeling will be discussed.

NRB553.1 Thesis I

Thesis studies are carried out.

NRB553.2 Thesis Study II

Thesis studies are carried out.

Elective Courses

NRB533 Systems Neuroscience

The aim of this course is to provide students with knowledge about Systems Neuroscience within the field of neuroscience, which is a multidisciplinary field. Neurotransmitter structures among nerve cells and neurochemistry issues will be explained.

NRB535 Clinical Neuroscience

The aim of this course is to provide students with knowledge about Clinical Neuroscience within the field of neuroscience, which is a multidisciplinary field. In this course, the pathophysiology of psychiatric and neurological diseases, pharmacotherapeutic approaches and brain modulation treatments will be explained.

NRB539 Behavioral Neuroscience

The aim of this course is to provide students with knowledge about Behavioral Neuroscience in the field of neuroscience, which is a multidisciplinary field. In this course, animal models of psychiatric and neurological diseases, experimental psychology and analysis methods will be explained.

NRB534 Experimental Animal Models

History and importance of ethical rules in animal experimentation, experimental animal and behavioral characteristics, standardization in animal experimentation, definition of experimental animal and animal model, evaluation of cognition, behavior and depression in experimental animals, stress models, motor activity measurement tests, experimental animal models in neuroscience and these It is aimed to learn the current developments in the subject.

NRB547 Memory Processes

Based on memory types and neural networks in humans, it is aimed to give a basis with memory and neurobiology, which is one of the most basic functions. The subjects to be examined are the historical development of memory studies, working methods, molecular and cellular information coding mechanisms, short-term memory, working memory, episodic memory, semantic memory, skill memory, emotional memory, language and observational learning, and related neural systems in the brain.