



Uskudar University

Institute of Health Sciences

Neuroscience PhD Program Course Contents

Required Courses

NRB601 Data Analysis and Modeling

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.

NRB603 Functional Neuroanatomy

The aim of this course is to inform students about Neuroanatomy in neuroscience which is a multidisciplinary field. In this context, the anatomy of the central and peripheral nervous system, neuroanatomy and developmental anatomy will be explained.

NRB625 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.

NRB602 Advanced Neuroimaging Techniques

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.

NRB650 Applied Project Management I

The aim of the course is to gain practical skills in terms of project management. Project planning, work packages, Gant chart, reporting.

NRB607 Cognitive Systems

The aim of this course is to provide students with knowledge about Cognitive Neuroscience within the field of neuroscience, which is a multidisciplinary field. In this context, neural networks, electroencephalography, "what" and "where" networks, memory, executive functions, social cognition and decision making will be discussed.

NRB606 Sensory and Motor Systems

The aim of this course is to inform students about Sensory and Motor Systems in the multidisciplinary field of neuroscience. In this course, the pathophysiology of psychiatric and neurological diseases, pharmacotherapeutic approaches and brain modulation treatments will be explained.

NRB651 Applied Project Management II

The aim of the course is to gain practical skills in terms of project management. Project planning, work packages, Gant chart, reporting.

NRB652 Applied Project Management III

The aim of the course is to gain practical skills in terms of project management. Project planning, work packages, Gant chart, reporting.

NRB654 Proficiency Exam Preparation and Thesis Proposal

Within the scope of this course, preparation for the proficiency exam and after passing the exam, the thesis proposal form is delivered to the institute.

NRB690.1 Thesis Study I

Thesis studies are carried out.

NRB690.2 Thesis Study II

Thesis studies are carried out.

NRB690.3 Thesis Study III

Thesis studies are carried out.

NRB690.4 Thesis Study IV

Thesis studies are carried out.

Elective Courses

NRB608 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.

NRB61 Experimental Animal Models in Neuroscience

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.

NRB610 Neuropsychology

Examining the relationship between psychological processes and brain structures and systems, trying to understand and explain the output of brain activities in observable and measurable behaviors will be provided.

NRB612 Neurophysiology of Sleep

The course aims to explain sleep physiology and molecular mechanisms. The main subjects are circadian rhythm, slow wave sleep, REM sleep, stages of sleep, neural networks and neurochemical systems and sleep disorders on the basis of sleep.

NRB613 Learning and Memory

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.