

Identification	Subject	Nervous System: Higher Nervous Activity and Somatosensory System , PSYC 417, 3KU (6 AKTS)
	Department	School of Humanities and Social Sciences Department, faculty of Psychology
	Program (Undergraduate, Graduate)	Bachelor's degree
	Term	Fall Semester 2026
	Instructor	Aygun Zeynalova
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	Phone:	+994 55 268 29 30
	Classroom/hours	Nefchilar campus
	Consultations	After classes- 30 minute
Prerequisites	-	
Language	English	
Compulsory/Elective	Mandatory	
Textbooks and course materials	Primary Reading 1. Hall, J. E., & Hall, M. E. (2026). Guyton and Hall textbook of medical physiology (15th ed.). Elsevier. 2. Amen, D. G. (2015). Change your brain, change your life: The breakthrough program for conquering anxiety, depression, obsessiveness, lack of focus, anger, and memory problems (Rev. and expanded ed.). Harmony. Additional Reading 1. Bear, M. F., Connors, B. W., & Paradiso, M. A. (2026). Neuroscience: Exploring the brain (5th ed.). Jones & Bartlett Learning. 2. Kandel, E. R., Koester, J. D., Mack, S. H., & Siegelbaum, S. A. (2021). Principles of neural science (6th ed.). McGraw Hill. 3. Haines, D. E., Mihailoff, G. A., & Willis, M. A. (2026). Fundamental neuroscience for basic and clinical applications (6th ed.). Elsevier. 4. Patestas, M. A., Meyer, A. J., & Gartner, L. P. (2025). A textbook of neuroanatomy (3rd ed.). Wiley. 5. Felten, D. L., & Maida, M. S. (2024). Netter's neuroscience coloring book (2nd ed.). Elsevier.	
Course description	Higher Nervous Activity and Somatosensory System provides an integrated introduction to the organization and functional principles of the human nervous system, with particular emphasis on higher nervous activity and somatosensory processing. The course examines the structural and functional organization of the central and peripheral nervous systems and explores how neural circuits support sensation, perception, cognition, learning, memory, emotion, and behavior. A major component of the course focuses on the somatosensory system, including the neural mechanisms underlying touch, pressure, vibration, proprioception, temperature, and pain. Students examine somatosensory receptors, ascending sensory pathways, thalamocortical processing, and the organization and functional specialization of the somatosensory cortex. The course also addresses cortical integration of sensory information and the neural mechanisms underlying conscious perception. The course further explores higher nervous activity, including cortical functions, attention, learning and memory, executive functions, language, emotion, and the neural basis of complex behavior. Emphasis is placed on understanding the relationship	

	between neural mechanisms and psychological processes, integrating findings from neuroscience, neuroanatomy, cognitive psychology, and behavioral science.		
Course objectives	The course aims to provide students with a comprehensive understanding of the organization and functional principles of the human nervous system, with particular emphasis on higher nervous activity and the somatosensory system. It seeks to develop students' knowledge of the neural mechanisms underlying sensation, perception, cognition, learning, memory, emotion, and behavior. Particular attention is given to the organization and processing of somatosensory information, including touch, pressure, vibration, proprioception, temperature, and pain, as well as the roles of the spinal cord, brainstem, thalamus, and cerebral cortex in sensory processing. The course also aims to help students understand the neural basis of higher cognitive and behavioral functions and to integrate concepts from neuroscience, neuroanatomy, cognitive psychology, and behavioral science. An additional objective is to develop students' ability to critically evaluate contemporary neuroscientific evidence and apply fundamental principles of nervous system function to the understanding of psychological processes and human behavior.		
Learning Outcomes	By the end of the course, students will be able to demonstrate an integrated understanding of the structural and functional organization of the human nervous system and explain the fundamental neural mechanisms underlying sensation, perception, and higher nervous activity. Students will be able to describe the organization and functions of the somatosensory system, including the neural mechanisms involved in touch, pressure, vibration, proprioception, temperature, and pain, and explain the major ascending sensory pathways and their cortical representation. They will be able to explain the roles of the spinal cord, brainstem, thalamus, and cerebral cortex in sensory processing and demonstrate an understanding of how sensory information is integrated to produce conscious perception. Students will also be able to describe the neural mechanisms underlying higher cognitive and behavioral functions, including attention, learning, memory, language, emotion, and executive functions. Furthermore, students will be able to integrate neuroscientific concepts with psychological processes, interpret and critically evaluate basic experimental findings and contemporary scientific evidence, and apply principles of neuroscience to the analysis of human behavior and psychological phenomena.		
Teaching methods	Case analysis		+
	Group discussion		+
	Lecture		+
	Simulation		+
Evaluation Criteria	Methods	Date/deadlines	Percentage (%)
	Attendance		5
	Participation		5
	Quiz I	Until midterm exam	10
	Midterm Exam	Week 8	30
	Quiz II	Until final exam	10
	Final Exam	January	40
	Total		100
Class Policy	Marking Criteria Attendance • Regular Attendance: Attends class sessions consistently, with minimal absences. • Punctuality: Arrives on time for class sessions. Participation • Active Engagement: Regularly contributes to class discussions and activities. • Quality of Contributions: Offers thoughtful and insightful comments that demonstrate understanding of the material. • Respectful Dialogue: Listens attentively to others and engages in respectful and constructive dialogue.		

Quiz I • Knowledge and Understanding: Demonstrates a clear understanding of the key concepts, and theories covered in the first half of the semester. • Application: Can effectively apply theoretical knowledge to real-world scenarios and case studies related to the covered material. • Accuracy: Answers questions accurately and comprehensively. Midterm Exam • Knowledge and Understanding: Demonstrates a clear understanding of key concepts and theories related to Nervous System: Higher Nervous Activity and Somatosensory System. • Critical Thinking: Applies critical thinking skills to analyze and evaluate information, drawing logical conclusions and making well-supported arguments. • Clarity and Organization: States ideas clearly and logically, using appropriate language and structure. Quiz II • Knowledge and Understanding: Demonstrates a clear understanding of the key concepts and theories covered in the second half of the semester. • Application: Can effectively apply theoretical knowledge to real-world scenarios and case studies related to the remaining material. • Accuracy: Answers questions accurately and comprehensively. Final Exam • Comprehensive Understanding: Demonstrates a comprehensive understanding of the course material, including key concepts and theories. • Critical Thinking and Application: Applies critical thinking skills to analyze and evaluate information and effectively applies theoretical knowledge to real-world scenarios. • Problem-Solving: Can solve problems related to psychopathology, demonstrating a deep understanding of the subject matter. • Clarity and Organization: States ideas clearly and logically, using appropriate language and structure. Rules (educational policy and behavior) We want to build a classroom climate that is safe for all. It is important that we • display respect for all members of the classroom – including the instructor and students; • pay attention to and participate in all class sessions and activities; • avoid unnecessary disruption during class time (e.g. having private conversations, reading the newspaper, surfing the Internet, doing work for other classes, making/receiving phone calls, text messaging, etc.); • avoid racist, sexist, homophobic, or other negative language that may unnecessarily exclude members of our campus and classroom. This is not an exhaustive list of behaviors; rather, it represents examples of the types of things that can have a dramatic impact on the class environment. Use of Artificial Intelligence (AI): AI tools may be used for brainstorming, organizing ideas, language editing, and supporting preparation for class activities. AI-generated content must not replace the student's own analysis or understanding. The use of AI tools during quizzes, including Quiz I and Quiz II, is prohibited unless explicitly authorized by the instructor.			
Tentative Schedule			
Week	Date/Day (tentative)	Topics	Textbook/Assignments

1	18.09.2026	Introduction to Nervous System: Higher Nervous Activity and Somatosensory System	Textbook of Medical Physiology - Chapter 1, pp. 56-166
2	25.09.2026	Organization of the Nervous System, Basic Functions of Synapses, and Neurotransmitters	Textbook of Medical Physiology - Chapter 45, pp. 543-557
3	02.10.2026	Sensory Receptors, Neuronal Circuits for Processing Information	Textbook of Medical Physiology - Chapter 46, pp. 559-569
4	09.10.2026	Somatic Sensations: I. General Organization, the Tactile and Position Senses	Textbook of Medical Physiology - Chapter 47, pp. 571-581
5	16.10.2026	Somatic Sensations: II. Pain, Headache and Thermal Sensations	Textbook of Medical Physiology - Chapter 48, pp. 583-592
6	23.10.2026	Quiz I	
7	30.10.2026	States of Brain Activity — Sleep, Brain Waves, Epilepsy, Psychoses	Textbook of Medical Physiology - Chapter 59, pp. 721-727
8		Midterm exam	
9	06.11.2026	Higher Nervous Activity – Conditioned and Unconditioned Reflexes	Textbook of Medical Physiology - Chapter 60, pp. 836-849
10	13.11.2026	Limbic System Prescriptions	Change Your Brain, Change Your Life - pp. 105-132
11	20.11.2026	Basal Ganglia Prescription	Change Your Brain, Change Your Life - pp. 148-169
12	27.11.2026	The Cingulate System	Change Your Brain, Change Your Life - pp. 170-187
13	04.12.2026	Presentation/Group discussion	
14	11.12.2026	Prefrontal Cortex Prescriptions	Change Your Brain, Change Your Life - pp. 188-205

15	18.12.2026	Quiz II Temporal Lobe Prescription	Change Your Brain, Change Your Life - pp. 245-263
16		Final exam	