

Plan of course description (syllabus resume)

Name of the course	«Applied neurosciences»
Department responsible for the course or equivalent	Academy of Psychology and Educational Sciences
Lecturer (name, academic title, e-mail)	Kovsh Ekaterina Mikhailovna, Candidate of Science in Psychology, Associate Professor, emkovsh@sfedu.ru
Period when the course unit is delivered	Year 2, autumn term (semester 3) for full time; Year 2, spring term (semester 4) for part-time.
Teaching hours per week	8
Level of course unit	Master level
ECTS credits	5
Admission requirements	<p>all applicants must demonstrate the knowledge of English language at the level high enough to follow the curriculum during the lectures and collaborate with a teacher and each other during practical training;</p> <p>all applicants must know basic concepts and research methods in psychology and psychophysiology, paradigms of psychology and psychophysiology theories;</p> <p>all applicants must have following skills: finding the relevant sources in the Internet, use of electronic libraries; finding out sense of social actions; reading academic texts.</p>
Course objectives (aims)	<p>Training a specialist with a high level of theoretical and practical knowledge and skills in the field of psychophysiology and neurosciences, necessary both for in-depth study of other disciplines of this educational program, associated with biological basis of personality and for the successful application of the acquired competencies in the subsequent practical work of a psychologist.</p>
Course contents	<p>Module 1. Introduction to the interdisciplinarity of brain research.</p> <p>Theme 1. An interdisciplinary approach to brain research. Interdisciplinarity in neuroscience. Challenges to modern science. Biopsychosocial approach to personality research.</p> <p>Theme 2. Modern methods of researching the work of the brain.</p> <p>Theme 3. Fundamental and applied neuroscience.</p> <p>Module 2. Modern aspects of neurobiology and neurophysiology of behavior.</p> <p>Cognitive neuroscience.</p> <p>Topic 4. History of the development of cognitive neurobiology. Subject, object, methods, basic scientific achievements.</p> <p>Topic 5. Chemical and electrical processes in the nervous system.</p> <p>Topic 6. The role of neurotransmitters in electrophysiological, motor, mental processes.</p> <p>Topic 7. Intestine and brain. Features of the functioning of the neuro-immune-endocrine system of the body.</p> <p>Neurogenetics. Psychoneuroimmunology.</p>

	<p>Topic 8. History of the development of neurogenetics. Subject, object, methods, basic scientific achievements.</p> <p>Topic 9. The modern history of the development of behavior genetics, the main scientific achievements.</p> <p>Topic 10. Ontogenesis of the nervous system and genes that control it.</p> <p>Theme 11. The use of genetic analysis methods in the study of personality. Genetics of individual behavior variation</p> <p>Topic 12. The use of molecular genetics and genome-wide analysis in the needs of psychology and medicine. Candidate genes for psychological traits.</p> <p>Theme 13. Genetic, electrochemical and physiological mechanisms of neurodegenerative diseases.</p> <p>Theme 14. Epigenetics.</p> <p>The basics of neurophysiology of behavior</p> <p>Theme 15. The modern history of the development of the neurophysiology of behavior, the main scientific achievements.</p> <p>Topic 16. Neurophysiological and biochemical mechanisms of neuroplasticity.</p> <p>Theme 17. Neurophysiology of biological needs that determine human behavior (fear, aggression, empathy, curiosity).</p> <p>Theme 18. Neurophysiology of psychological signs and conditions: aggressiveness, hostility, anxiety, emotional intelligence, creativity.</p> <p>Module 3. Brain and training. The cultural brain.</p> <p>Theme 19. Neuropsychology.</p> <p>Theme 20. Neuro-linguistics.</p> <p>Theme 21. Neuropedagogy.</p> <p>Theme 22. Neuroculture and neuroesthetics</p> <p>Theme 23. Neuroethics and neurotheology.</p> <p>Module 4. The brain and society. Brain and decision making.</p> <p>Theme 24. Neurosociology.</p> <p>Theme 25. Neuropolitics, Neurojustice.</p> <p>Theme 26. Neuromanagement.</p> <p>Theme 27. Neuromarketing.</p> <p>Theme 28. Neuroeconomics.</p>
Learning outcomes	<p>The process of training is aimed at forming the following competence (in accordance with the requirements of Federal Educational Standard of Higher Education of Russian Federation (3++) and Educational Standard of Southern Federal University in the field of study 37.04.01 Psychology):</p> <p>Professional competence # 3 – Capable of creating, training and supporting interdepartmental teams to provide psychological assistance to social groups and individuals.</p>
Planned learning activities	Full time mode of study:

	<p>lectures – 16 hours, practical training – 32 hours, consultation – 48 hours, students’ independent studies – 48 hours, evaluation and assessment (examination) – 36 hours.</p> <p>Part-time mode of study: lectures – 14 hours, practical training – 28 hours, consultation – 38 hours, students’ independent studies – 84 hours, evaluation and assessment (examination) – 36 hours.</p>
Teaching methods	Among the technologies implemented in the training process there are the technologies of problem education, controlled independent work, educational discussion, etc.
Assessment methods and criteria	<p>Students’ achievements are assessed by means of grades and rating system. The final assessment including the results of midterm assessment (not more than 60 points) allows to get the following grades:</p> <p>“excellent” – 85-100 points; “good” – 71-84 points; “satisfactory” – 60-70 points.</p> <p>If a student gets less than 60 points, the course is not mastered.</p>
Course literature (recommended or required)	<p>Main reading list:</p> <p>https://www.google.ru/books/edition/Clinical_Cultural_Neuroscience/c5OzDwAAQBAJ?hl=ru&gbpv=0] Clinical Cultural Neuroscience An Integrative Approach to Cross-Cultural Neuropsychology;</p> <p>https://books.google.ru/books?hl=ru&lr=&id=QGzJFu_Ny_zcC&oi=fnd&pg=PP1&dq=neuroscience&ots=Hx2nIYzg49&sig=_pChv_ijHeGQUIHvac-NCy4b3Q&redir_esc=y#v=onepage&q=neuroscience&f=false] Fundamental Neuroscience;</p> <p>https://books.google.ru/books?hl=ru&lr=&id=m-PcDwAAQBAJ&oi=fnd&pg=PP1&dq=neuroscience&ots=Ey8qAcTdxT&sig=znzNUcfuttFzvdeevqXaXvfqLF0&redir_esc=y#v=onepage&q=neuroscience&f=false] Neuroscience: Exploring the Brain, Enhanced Edition.</p> <p>Additional reading list.</p> <p>https://www.google.ru/books/edition/_/Wv-FMQEACAAJ?hl=ru&sa=X&ved=2ahUKEwi8k6Cvy-XwAhVJposKHei6ChsQ7_IDMA96BAgGEAI] Principles of Cognitive Neuroscience;</p> <p>https://www.google.ru/books/edition/The_Cognitive_Neurosciences/IykTDgAAQBAJ?hl=ru&gbpv=0] The Cognitive Neurosciences;</p> <p>https://www.google.ru/books/edition/History_of_Cognitive_Neuroscience/JQG7LBXPDXcC?hl=ru&gbpv=0] History of Cognitive Neuroscience;</p> <p>Online resources: http://scholar.google.ru, http://ncbi.ru.</p>
Additional information	This discipline is closely interconnected with all disciplines of specialization, associated with the study of brain structure and activity, provides training for graduates to work as a psychophysiological in educational and research institutions, as well as practical psychologist with knowledge, skills and abilities in the field of neuroscience.

	<p>The competencies, knowledge and skills acquired during the study of the discipline are fundamental for further training at the postgraduate level in the direction of 37.06.01 – Psychology and for further practical work as a psychologist and neuroscientist</p>
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