COURSE OUTLINE

(1) GENERAL

SCHOOL	MEDICINE		
ACADEMIC UNIT	NEUROSCIENCE GRADUATE PROGRAM		
LEVEL OF STUDIES	GRADUATE		
COURSE CODE	NEURO101	SEMESTER	1ST SEMESTER
COURSE TITLE	CELLULAR-MOLECULAR NEUROSCIENCE		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	WEEKLY TEACHING HOURS	CREDITS
LECTURES AND QUIZZES	ABOUT 4HRS/WEEK FOR 7 WEEKS	8
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	CORE COURSE, SPECIAL BACKGROUND, MANDATORY
PREREQUISITE COURSES:	NONE
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	ENGLISH
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	ELEARN PLATFORM

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

This course aims to introduce the students to basic principles of anatomy and physiology of the nervous system. Specifically:
This course is the main introductory course for the nervous system anatomy, development, metabolism, neuronal membrane physiology and neurotransmission (cellular communication, neurotransmitters, receptors, signal transduction).

Additionally, methodological approaches necessary for the study of anatomy and function of the nervous system are presented.

Upon successful completion of the course, the student will be in position to understand and recognize the relationships between structure and function of the nervous system.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Team work
Working in an international environment
Working in an interdisciplinary environment
Production of new research ideas
Project planning and management
Respect for difference and multiculturalism
Respect for the natural environment
Showing social, professional and ethical responsibility and sensitivity to gender issues
Criticism and self-criticism
Production of free, creative and inductive thinking
……
Others…
…….

Working in an international environment
Working independently

(3) SYLLABUS

1) Macroscopic anatomy of the nervous system I and II
2) Cellular and subcellular organization of the nervous system. Glia cells: morphological and functional elements as well as methods for investigation of glial function
3) Nervous system Development: neurogenesis and gliogenesis
4) Blood supply of the nervous system
5) Blood-brain barrier and cerebrospinal fluid
6) Metabolism of the nervous system I and II
7) Neuronal membrane physiology: membrane potentials
8) Neuronal membrane physiology: ion channels
9) Neurotransmission: presynaptic mechanisms, neurotransmitter release
10) Neurotransmitter receptors
11) Ionotropic receptors
12) Synaptic mechanisms for signal transduction

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face in the classroom
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Use of the elearn platform
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	
STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	Student evaluation is performed in the English language. 1) Final written exam (80%) which includes a) multiple choice questions b) essay questions 2) Quizzes (20%) Multiple choice or short answer questions The evaluation procedure will be announced in the 1st day of class and in the elearn platform.

Activity	*Semester workload*
Lectures	28
Independent study	168 (for each lecture hour, 6 hours of study are required)
Quizzes	3
Final exam	2
Course total	***201***

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- *Brady, S.T., Siegel, G.J., Albers, R.W., & Price, D.L. (2011). Basic neurochemistry: Principles of molecular, cellular, and medical neurobiology (8th ed.). Boston, MA: Academic/Elsevier.*
- *Byrne, J.H., Heidelberger, R., Waxham, M.N. (2014). From molecules to networks: An introduction to cellular and molecular neuroscience (3rd ed.). Boston, MA: Academic/Elsevier.*
- *Kandel, E.R., Swartz, J.H., & Jessel, T.M. (2014). Νευροεπιστήμη και Συμπεριφορά. Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.*
- *Purves, D., Augustine, G.J., Fitzpatrick, D., Hall, W.C., LaMantia, A.-S., & White, L.E. (2011). Neuroscience (5th ed.). Sunderland, MA: Sinauer Ass.*
- *Squire, L.R., Bloom, F.E., Spitzer, N.C., du Lac, S., Ghosh, A., & Berg D. (2008). Fundamental Neuroscience (3rd ed.). Amsterdam: Academic/Elsevier.*

- Related academic journals:

Journal of Neuroscience, Cerebral Cortex, Nature, Science, Nature Neuroscience, Journal of Neurophysiology, Cell, Neuron and other neuroscience journals