COURSE OUTLINE

(1) GENERAL

SCHOOL	NATURAL SIENCES		
ACADEMIC UNIT	BIOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	BIO_ZE03	SEMESTER	5/7
COURSE TITLE	NEUROBIOLOGY		

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, Laboratory Exercises	3 (lec) + 2 (lab/ 2nd week)	6
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*	Field of Science Skills Development
PREREQUISITE COURSES:	There are no prerequisites. However, a good knowledge of Animal Physiology I & II is recommended
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	NO
COURSE WEBSITE (URL)	https://eclass.upatras.gr/courses/BIO228/

(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*

At the end of the course the student is will have acquired a basic knowledge of neuroscience; including brain organization, neural cells, synapses, neurotransmission, physiology of movement .Nervous cell survival, aging, neurodegeneration (Parkinson's disease, Alzheimer's disease, multiple sclerosis, etc.), special senses molecular basis of biorhythms origins of human language and animal models used for language perception, neuroimaging techniques, neuropharmacology etc.

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

At the end of this course the student will have developed a competence in understanding all levels of brain function (from cellular to systems)

Also will have developed the following skills:

- Animal brain dissection
- Behavioural tests (i.e. open field test)
- Be a team player, capable of planning, execute and record experimental procedures/data. to retrieve related scientific information on Human Physiology.
- To write assays on Neurobiology
- Team-working
- To prepare power-point presentations.

(3) SYLLABUS

1. Organization of the CNS. Structure and function of nerve cells and glial cells
2. Axonal flow and transport. Neurotransmissio
3. Synapses.
4. Neurotransmitter systems with an emphasis on GABAergic, Catecholaminergic and Glutaminergic System.
5. Development of central nervous system
6. Physiology of movement
7. Nervous cell survival, aging, neurodegeneration (Parkinson's disease, Alzheimer's disease, multiple sclerosis, etc.)
8. Special senses (vision, hearing, taste, smell).
9. Biorhythms (molecular basis, genes and behaviour)
10. Language (origins of human language, animal models used for language perception, language defects, neurobiology of speaking
11. Neuroimaging techniques (PET, MRI, fMRI, etc.)
12. Neuropharmacology

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education,*	Lectures (using power-point presentations).

communication with students	
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*	<table><tr><th>*Activity*</th><th>*Semester workload*</th></tr><tr><td>Lectures (13 weeks x 3 hours per week)</td><td>39</td></tr><tr><td>Laboratory exercises (5 weeks x 2 hours per week)</td><td>10</td></tr><tr><td>Home study</td><td>101</td></tr><tr><td>Course total</td><td>*150*</td></tr></table>
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.*	Written exams at the end of semester (85% and oral presentations 15 % or 100 % without assay and oral presentation). Final Course Grade: Theory Grade x 0.85 + x 0.15 assay and oral presentation or only Theory Grade Grading scale: 1-10. Passing grade ≥ 5 Grading ≤3 correspond to ECTS grade F. Grade 4 corresponds to ECTS grade FX. Passing grades correspond to ECTS grades as follows: 5=E, 6=D, 7=C, 8=B, ≥9=A.

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:
- Related academic journals:

Essentials of Neural Science and Behavior Kandel ER, Schwartz JH & Jessel TM . (in greek), Publ. of Univ of Crete,2011

Neuroscience . Purves P. , Augustine G. , Fitzpatrick D., Hall W., Lamantia A.S. & McNamara J . Williams S.(in greek) Parisianos Publ. SA,2010.