COURSE OUTLINE

(1) GENERAL

SCHOOL			
ACADEMIC UNIT	**Interdisciplinary Graduate Programme in the BRAIN and MIND sciences**		
LEVEL OF STUDIES	7		
COURSE CODE	**B&M-205**	SEMESTER	**Fall**
COURSE TITLE	Synaptic Interactions in the Cortex		

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		1
study and analysis of bibliography	3	5
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*	Special background
PREREQUISITE COURSES:	B&M-105 Introduction to Molecular & Cellular Neuroscience B&M -102 Introduction to Systems Neuroscience I. Perception B&M -102A Introduction to Systems Neuroscience II. Movement & Cognitive Functions B&M -103 Introduction to Computational Neuroscience B&M -107 Introduction to Psychology & the Social Neuroscience B&M -106 Introduction to Philosophy of Mind B&M 232 Introduction to Statistics and Programming in Matlab Also recommended: B&M -239 Introduction to Experimental Methods in Neuroscience
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	

(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*
Through the critical review and presentation of scientific articles, students understand the ways in which specialized knowledge is acquired and gain insight into recent findings in

cutting-edge fields related to the functioning of neurons within neural circuits responsible for specific behaviors.

Upon successful completion of the course, students:

- possess highly specialized and advanced knowledge of certain cortical neural circuits,
- are able to follow, over time, the development of knowledge as it emerges from findings of approaches whose capabilities evolve alongside technological progress,
- can evaluate highly specialized new knowledge,
- independently define and critically analyze complex problems, substantiate conclusions, and carry out further analysis by consulting and assessing additional literature.

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…*
	…….

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Team work
- Working in an interdisciplinary environment
- Production of new research ideas
- Criticism and self-criticism
- Production of free, creative and inductive thinking

(3) SYLLABUS

(1) Methods for identifying neurons and the basic hippocampal model
(2) The use of immunohistochemistry for neuron identification
(3) Combining electrophysiology and immunohistochemistry
(4) Analysis of basic synaptic relationships in the cortex I
(5) Analysis of basic synaptic relationships in the cortex II
(6) Unexpected findings
(7) *In vivo* correlation of neuron identity with behavior I: Studies in anesthetized experimental animals
(8) *In vivo* correlation of neuron identity with behavior II: Studies in awake experimental animals
(9) *In vivo* correlation of neuron identity with behavior III: Studies in awake experimental animals
(10) Towards a unified perspective on neuron identification

(11)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, communication with students*	Integration of ICT in teaching Utilizing the elearn platform for uploading teaching materials Communication via "e-learn" and e-mail Use of publisher databases/electronic repositories of scientific articles
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*	

Activity	*Semester workload*
Lectures	5
Study and analysis of bibliography	45
non-directed study	100
Course total	***150***

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.*	Evaluation Language: English Assessment Methods: The quality of the presentations and participation in the discussion of the presented articles are evaluated. Evaluation criteria are outlined in the study guide and communicated to students at the beginning of the course.

(12)ATTACHED BIBLIOGRAPHY

- Suggested bibliography:
Scientific articles published in reputable scientific journals within the broader field of neuroscience.