

## COURSE OUTLINE

### (1) GENERAL

SCHOOL			
ACADEMIC UNIT	<b>Interdisciplinary Graduate Programme in the BRAIN and MIND sciences</b>		
LEVEL OF STUDIES	7		
COURSE CODE	<b>B&amp;M-R138</b>	SEMESTER	<b>depending on availability</b>
COURSE TITLE	Developmental Psychology		
INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDITS	
<i>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</i>			
Laboratory rotation	6	9-18	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE	Special background, skills development		
<i>general background, special background, specialised general knowledge, skills development</i>			
PREREQUISITE COURSES:	B&M-107 Introduction to Psychology and Social Neurosciences B&M-103 Introduction to Computational Neuroscience		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	English		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	<a href="https://elearn.uoc.gr/course/view.php?id=4467">https://elearn.uoc.gr/course/view.php?id=4467</a>		

### (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*

The aim of this laboratory rotation is for the student to practice skills in the analysis of genetic and epigenetic data, using computational tools for this purpose, such as PLINK, as well as programming packages in Python and R environments.

Upon completion of the exercise, the postgraduate student will have:

1. Good knowledge of methods for quality control of genetic and epigenetic data (use of tools such as PLINK, as well as packages in Python or R).
2. Good knowledge of multivariate statistical methods [Structural Equation Modeling (SEM),

## Multilevel Modeling].

### 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
- 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
- Showing social, professional and ethical responsibility and sensitivity to gender issues
- Criticism and self-criticism
- Production of free, creative and inductive thinking

### (3) SYLLABUS

The student will be required to analyze genetic data (microarrays) as well as phenotypic psychosocial data derived from a longitudinal study of a sample of Dutch adolescents (*Research on Adolescent Development And Relationships – RADAR*). The RADAR study is a longitudinal investigation of a Dutch adolescent cohort that began in 2006, when participants were on average 13 years old, and continues to this day (current mean age approximately 30 years). As of December 2023, eleven waves of data have been collected, including genetic material and repeated DNA methylation measurements (at approximately ages 17 and 25).

Within the framework of this rotation, the student will be trained in:

1. Methods for quality control of genetic data, based on published protocols (e.g., Anderson et al., 2010, doi: 10.1038/nprot.2010.116; Clarke et al., 2011, doi: 10.1038/nprot.2010.182),
2. Methods for quality control of epigenetic data (DNA methylation), and
3. Analysis of phenotypic data.

#### (4) TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i>	Face-to-face	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of ICT in teaching and communication with the students Use of publisher databases/electronic repositories of scientific articles	
<b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail.</i> <i>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.</i>  <i>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</i>	<b>Activity</b>	<b>Semester workload</b>
	Study and analysis of bibliography	50-100
	project	100-200
	essay writing	25-50
	non-directed study	50-100

#### (5) ATTACHED BIBLIOGRAPHY

<p>- <b>Suggested bibliography:</b>  Επιστημονικά άρθρα δημοσιευμένα σε έγκυρα επιστημονικά περιοδικά που άπτονται του πεδίου των ερευνητικών ενδιαφερόντων του Εργαστηρίου.</p> <ul style="list-style-type: none"> <li>■ Anderson et al., 2010, doi: 10.1038/nprot.2010.116;</li> <li>■ Clarke et al., 2011, doi: 10.1038/nprot.2010.182</li> </ul>
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