COURSE OUTLINE

(1) GENERAL

SCHOOL			
ACADEMIC UNIT	**Interdisciplinary Graduate Programme in the BRAIN and MIND sciences**		
LEVEL OF STUDIES	7		
COURSE CODE	**B&M-220**	SEMESTER	**Fall**
COURSE TITLE	Philosophy of Science		

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	3	6
30 hours in total		
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-106
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES
COURSE WEBSITE (URL)	https://elearn.uoc.gr/course/view.php?id=4445

(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*

Upon completion of the course, students will:

- Acquire specialized and advanced knowledge of key aspects of the cognitive domains of the philosophy of science.
- Possess a critical understanding of various theoretical approaches, fundamental categories, and concepts necessary for examining cutting-edge research questions in the foundations of the (neuro)sciences.
- Reconstruct and analyze complex problems, substantiate conclusions, conduct conceptual analysis, and critically evaluate approaches in the field's literature.
- Assess research hypotheses and epistemological approaches, and potentially propose ways to overcome them.
- Develop analytical and argumentative skills for defending or challenging different approaches to scientific explanation and for evaluating the probabilistic nature of

scientific prediction.

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…*
	…….

- Analysis and synthesis of conceptual categories, data, and information
- Enhancement of transferable skills acquired through training in fundamental philosophical reflection on the sciences
- Adapting to new situations
- Decision-making
- Critical thinking
- Working independently
- Team work
- Working in an international environment
- Working in an interdisciplinary environment
- Production of new research ideas
- Project planning and management
- Showing social, professional and ethical responsibility and sensitivity to gender issues
- Criticism and self-criticism

(3) SYLLABUS

- Key milestones in the history of the philosophy of science
- The nature of scientific explanation – models (nomological–deductive, teleological, statistical, historical/genetic, inference to the best explanation, etc.)
- The nature of scientific laws; the problem of causality
- Theories I: The linguistic approach – the Vienna Circle
- Theories II: Models, analogies, and the semantic approach
- The epistemic status of scientific knowledge:
  - Conceptual coherence and logical consistency
  - The role of experience; confirmability and falsifiability
  - The problem of induction
  - Relations between theory and observation
  - Pragmatic reliability: “saving the phenomena,” prediction, and instrumental success
- The problem of theoretical choice; relations between scientific theories; translatability of theoretical languages; reductionism and the autonomy of scientific disciplines
- The ontological background of scientific theories: realism and anti-realism; empiricism, conventionalism, constructivisms
- The historicity of science; the problem of scientific change – cumulative or “revolutionary” scientific change?
- Theory and method in the neurosciences
- Philosophical foundations of the neurosciences

(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, communication with students*	Use of an online platform Use of publisher databases / electronic repositories of scientific articles. Communication via the course website and e-mail.
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*
Literature review and analysis	35
Preparation and presentation of a study	45
Writing of the final paper	70
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 of oral presentations and participation in the discussion of the articles/texts presented. Submission of the final written essay. Evaluation criteria are outlined in the study guide and communicated to students at the beginning of the course.

(5) ATTACHED BIBLIOGRAPHY

- **Suggested bibliography:**

Selected scientific articles from reputable academic journals and monographs/contributions to edited volumes in the broader field of the philosophy of science.