COURSE OUTLINE

(1) GENERAL

SCHOOL	PHILOSOPHY		
ACADEMIC UNIT	PHILOLOGY		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	**GLOF206**	**SEMESTER**	**3-83**
COURSE TITLE	Artificial Intelligence and Large Language Models		

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**
	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*	SCIENTIFIC AREA OF SPECIALIZATION
PREREQUISITE COURSES:	GLOF100, GLOF175
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in Greek)
COURSE WEBSITE (URL)	https://elearn.uoc.gr/

(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 main course objective is students' familiarization with the basic principles of Computational Linguistics, both on a theoretical, as well as a practical level. Specifically, upon completion of the course, students should be able to:

1) Know the basic principles and issues in Computational Linguistics
2) Are familiar with basic concepts and mathematical methods widely used in Computational and Formal Linguistics such as the basics of Set Theory, Mathematical Logic and Probability Theory
3) Have a basic understanding of programming with Python
4) Implement small-scale natural language processing tasks/projects in Python

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
Working in an international environment
Decision-making
Production of free, creative and inductive thinking
Working in an interdisciplinary environment
Team work

(3) SYLLABUS

The course is comprised of a theoretical and a practical part. In the former, Large Language Models (LLMs) are introduced, on a par with their historical evolution, their basic architecture, as well as previous approaches to NLP such as symbolic systems, classical machine learning

approaches, and non-pre-trained deep neural networks. In the latter part, students are introduced to Python programming on a more specialized level, through implementation of small computational projects that utilize LLMs for research purposes. Through these practical applications, students acquire the ability to work in collaboration with LLMs and utilize these linguistic and in general research tasks

(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*	• Class lectures, presentations, slides (pdf) • Class notes, announcements & communication via ClassWeb • Communication via email
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	39
Independent study and exam preparation	83
Final written exam	3
Course total	***125***

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*	Three hour long written exam in Greek

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.*	

(5) ATTACHED BIBLIOGRAPHY

- Προτεινόμενη Βιβλιογραφία:

Jurafsky, D. & J. H. Martin. (2020). *Speech and Language Processing: An Introduction to Natural Language Processing, Speech Recognition, and Computational Linguistics.* 2nd edition. Prentice-Hall. Partee B., A. Ter Meulen & R. E. Wall (3rd edition draft. Available online here: https://web.stanford.edu/~jurafsky/slp3/)

Bird, Steven, Edward Loper and Ewan Klein (2009), *Natural Language Processing with Python*. O'Reilly (available online here: https://www.nltk.org/book/)

Media Inc.Downey, A., 2008. *How to think like a computer scientist: learning with python.* Green Tea Press. (selected material from the book uploaded at eLearn)

Chatzikyriakidis S. *Lecture Slides.* (uploaded at eLearn).