Master in Applied Linguistics (LM-39)

Course title:	Machine Learning
Course year:	2
Semester:	2nd
Course Code:	54114
Scientific sector:	INF/01
Lecturer:	Luca Ducceschi
Module:	No
Lecturer other module:	/
Credit Points:	6
Total lecturing hours:	45
Total Hours of availability for students and tutoring:	18
Office hours:	from Monday to Friday on request
Attendance:	according to the regulations
Teaching Language:	English
Propaedeutic course:	/
Course description:	
Specific educational objectives:	The objective of the course is to provide the tools and skills necessary to build Machine Learning systems using the Python programming language and its modules. The course will focus on some background theoretical concepts, ranging from statistics to basic calculus, as well as on the practical aspects of the implementation of those concepts, in particular in the area of Natural Language Processing. At the end of the course, the students will be capable of independently set up, run and test a machine learning system.
List of topics covered:	
Teaching format:	
Learning outcomes:	The course will cover areas like statistical modeling, calculus, data management, statistical model training and testing, and deep learning. Some core Machine Learning concepts like supervised and unsupervised learning, regression and feature engineering will be explored as well. However, the main goal of the course will be on how to apply that knowledge to practical problems. We will use Python and its modules, like Scikiti-Learn, Pandas, Keras and Pythorch as well as some popular datasets to test hypothesis and explore different solutions. The students will be required to actively engage in coding, during class and to discuss the possible solutions to a problem and their outcome.
Assessment:	Oral Exam: students are required to discuss the details of a project that encompasses and develops the subjects

	covered during the course. The project will be defined and agreed upon before the exam.
Evaluation criteria and criteria for awarding marks:	The outcome of the exam will be determined by: a) the level of understanding of the topics covered during the course, b) the computational skills of the candidate, c) the clarity of the exposition and of the project.
Required readings:	Deep Learning Ian Goodfellow and Yoshua Bengio and Aaron Courville MIT Press, available here: http://www.deeplearningbook.org/
Supplementary readings:	A Programmer's Guide to Data Mining Ron Zacharski Available here: http://guidetodatamining.com/