SYLLABUS
COURSE DESCRIPTION

COURSE TITLE	**Artificial Intelligence**
COURSE CODE	76212
SCIENTIFIC SECTOR	INF/01
DEGREE	Bachelor in Computer Science
SEMESTER	2nd
YEAR	2nd
CREDITS	6

TOTAL LECTURING HOURS	40
TOTAL LAB HOURS	20
PREREQUISITES	There are no formal prerequisites in terms of courses to attend. Knowledge and skills in programming paradigms, discrete mathematics and logic, and algebra are strongly recommended.
COURSE PAGE	https://ole.unibz.it/

SPECIFIC EDUCATIONAL OBJECTIVES	• Type of course: “caratterizzanti” • Scientific area: “discipline informatiche” This course is about the study of the design of intelligent computational agents, and the emergence of Artificial Intelligence as an integrated science. The focus is on an intelligent agent acting in an environment. The course starts with simple agents acting in simple, static environments and gradually increases the power of the agents to cope with more challenging worlds. The course explores several dimensions of complexity introducing, gradually and with modularity, what makes building intelligent agents challenging. This is made concrete by repeatedly illustrating the ideas with different agent tasks, such as a delivery robot and a diagnostic assistant: the science of Artificial Intelligence is developed together with its engineering applications. The agent we want the student to envision is a hierarchically designed agent that acts intelligently in a stochastic environment that it can only partially observe - one that reasons about individuals and relationships among them, has complex preferences, learns while acting, takes into account other agents, and acts appropriately given its own computational limitations.

LECTURER	Enrico Franconi
SCIENTIFIC SECTOR OF THE LECTURER	INF/01

TEACHING LANGUAGE	English
OFFICE HOURS	Anytime in office POS 3.06, by previous appointment by email to the lecturer franconi@inf.unibz.it
TEACHING ASSISTANT	Andrey Rivkin Andrey.rivkin@inf.unibz.it Piazza Doemenicani 3
OFFICE HOURS	TBA
LIST OF TOPICS COVERED	• Artificial Intelligence and agents architecture • States and searching • Features and constraints • Propositions and inference • Individuals and relations • Applications: databases and natural language processing
TEACHING FORMAT	Frontal lectures, exercises in lab, assignments, case study analysis

LEARNING OUTCOMES	**Knowledge and understanding** • know the principles of artificial intelligence and potentials and limits of intelligent systems in various application domains; **Applying knowledge and understanding** • be able to adopt programming techniques of artificial intelligence to solve problems of computer science; **Ability to make judgments** • be able to collect useful data and to judge information systems and their applicability. • be able to work autonomously according to the own level of knowledge. **Communication skills** • be able to explain a project activity or a scientific study, also to non-experts; **Ability to learn** • be able to learn cutting edge IT technologies and their strengths and limitations.

ASSESSMENT	Written work: written exam with verification questions, transfer of knowledge questions, and exercises. The written exam will be based on problem solving activities and on a deep understanding of the basic principles of the technologies studied during the course.
ASSESSMENT LANGUAGE	English
EVALUATION CRITERIA AND CRITERIA FOR AWARDING MARKS	Written Exam (100%). The written exam is evaluated based on correctness of answers, clarity of answers, ability to summarize, evaluate, and establish relationships between topics, skills in critical thinking, ability to summarize in own words.

REQUIRED READINGS	David Poole and Alan Mackworth. Artificial Intelligence: Foundations of Computational Agents (2nd Edition). Cambridge University Press, 2017. ISBN: 9781107195394. copies available at the Bozen-Bolzano University Library 15-Textbook Collection *ST 300 P822(.11)*
SUPPLEMENTARY READINGS	-
SOFTWARE USED	Available from the course web page.