

## Anno Accademico 2018/2019

ARTIFICIAL INTELLIGENCE	
Enrollment year	2017/2018
Academic year	2018/2019
Regulations	DM270
Academic discipline	ING-INF/05 (DATA PROCESSING SYSTEMS)
Department	DEPARTMENT OF ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING
Course	COMPUTER ENGINEERING
Curriculum	Computer Science and Multimedia
Year of study	2°
Period	1st semester (01/10/2018 - 18/01/2019)
ECTS	6
Lesson hours	45 lesson hours
Language	English
Activity type	WRITTEN AND ORAL TEST
Teacher	PIASTRA MARCO (titolare) - 6 ECTS
Prerequisites	Basic mathematical skills, practical knowledge of at least one programming language.
Learning outcomes	The course follows a conceptual pathway along the fundamental principles of the discipline. It is divided into two parts: the first part is an introduction to classical formal logic, both propositional and first order, with a special focus to the aspects of automatic calculus, while the second part is an introduction to the basic principles of machine learning and self-organizing systems.
Course contents	Classical logic and automated symbolic reasoning Boolean algebras Logical language and semantical structures: logical consequence Deductive systems for propositional logic

	<ul> <li>Decision problems and decidability</li> <li>Predicates and relations: first order logic</li> <li>Semi-decidability of first order logic</li> <li>First-order resolution with unification</li> <li>Machine Learning</li> <li>Logic and probability: representation or statistics?</li> <li>The language of probability: representation</li> <li>Bayesian inference</li> <li>Graphical models and automation</li> <li>Probabilistic learning</li> <li>Clustering: K-means and related methods</li> </ul>
	Self-organizing systems and applications
Teaching methods	Lectures (hours/year in lecture theatre): 45 Practical class (hours/year in lecture theatre): 0 Practicals / Workshops (hours/year in lecture theatre): 0
Reccomended or required readings	See the home page of the course for lecture slides, suggested readings and software for the exercises
Assessment methods	The final exam is an interview about the theory, together with the discussion of practical activities in the lab.
Further information	The final exam is an interview about the theory, together with the discussion of practical activities in the lab.
Sustainable development goals - Agenda 2030	<u>\$Ibl_legenda_sviluppo_sostenibile_</u>