Teaching Guide				
Identifying Data				2018/19
Subject (*)	Foundations of Artificial Intelligence		Code	614522003
Study programme	Mestrado Universitario en Bioinformática para Ciencias da Saúde			
Descriptors				
Cycle	Period	Year	Type	Credits
Official Master's Degree	1st four-month period	First	Optional	6
Language	Galician			
Teaching method	Face-to-face			
Prerequisites				
Department	Computación			
Coordinador	Moret Bonillo, Vicente	E-mail	vicente.moret@udc.es	
Lecturers	Moret Bonillo, Vicente	E-mail	vicente.moret@udc.es	
Web	moodle.udc.es			
General description	Nesta materia introducirase ao alumno nos conceptos básicos da intelixencia artificial (IA), dende os comezos ata as actuais técnicas. Preténdese que o alumno coñeza os fundamentos da IA e as técnicas de representación do coñecemento.			

Study programme competences	
Code	Study programme competences
A2	CE2 ? To define, evaluate and select the architecture and the most suitable software for solving a problem in the field of bioinformatics
A3	CE3 ? To analyze, design, develop, implement, verify and document efficient software solutions based on an adequate knowledge of the theories, models and techniques in the field of Bioinformatics
A4	CE4 - Ability to acquire, obtain, formalize and represent human knowledge in a computable form for the resolution of problems through a computer system in any field of application, particularly those related to aspects of computing, perception and action in bioinformatics applications
B1	CB6 - Own and understand knowledge that can provide a base or opportunity to be original in the development and/or application of ideas, often in a context of research
B2	CB7 - Students should know how to apply the acquired knowledge and ability to problem solving in new environments or little known within broad (or multidisciplinary) contexts related to their field of study
B6	CG1 -Search for and select the useful information needed to solve complex problems, driving fluently bibliographical sources for the field
B7	CG2 - Maintain and extend well-founded theoretical approaches to enable the introduction and exploitation of new and advanced technologies
C1	CT1 - Express oneself correctly, both orally writing, in the official languages of the autonomous community
C6	CT6 - To assess critically the knowledge, technology and information available to solve the problems they face to.

Learning outcomes			
Learning outcomes	Study programme competences		
Knowledge and application of the fundamental principles and techniques of AI and their practical application	AJ2 AJ3 AJ4	BJ1 BJ2 BJ6 BJ7	CJ1 CJ6

Contents	
Topic	Sub-topic
1. Introduction	1.1. An historical perspective 1.2. Preliminary aspects 1.3. General considerations

2. Problem-solving	2.1. Introduction to solving problems in AI 2.2. The state space concept. Searching 2.3. General characteristics of searching processes 2.4. Pure search strategies 2.5. Search strategies in state space
3. Structured Knowledge Representation	3.1. Introduction 3.2. Declarative methods 3.3. Procedural methods 3.4. Examples and a practical case 3.5. Production systems
4. Reasoning in AI	4.1 Basics of categorical reasoning 4.2 Basics of Bayesian reasoning

Planning				
Methodologies / tests	Competencies	Ordinary class hours	Student?s personal work hours	Total hours
Workshop	B2 B6 B7 C1 C6	15	45	60
Supervised projects	B2 B6 B7 C1 C6	12	36	48
Guest lecture / keynote speech	A2 A3 A4 B1	14	28	42
Personalized attention		0		0
(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.				

Methodologies	
Methodologies	Description
Workshop	Use of symbolic AI techniques to solve problems.
Supervised projects	Estudo e desenvolvemento de aplicacións de Intelixencia Artificial en diversos aspectos do contido teórico da asignatura
Guest lecture / keynote speech	Teaching the contents of the course, promoting involvement of students.

Personalized attention	
Methodologies	Description
Guest lecture / keynote speech Workshop Supervised projects	Attendance and involvement of the students will be evaluated

Assessment			
Methodologies	Competencies	Description	Qualification
Guest lecture / keynote speech	A2 A3 A4 B1	Written test to evaluate the knowledge about the course	30
Workshop	B2 B6 B7 C1 C6	Submission before the deadline and attendance will be evaluated	30
Supervised projects	B2 B6 B7 C1 C6	Entrega de trabajos relativos a las distintas partes de la asignatura	40

Assessment comments

Sources of information

Basic	- Moret et al. (20015). Fundamentos de inteligencia artificial. Servicio de publicaciones de la UDC (2ª ed, 2ª imp) - José T. Palma, Roque Marín Morales et al. (2008). Inteligencia artificial - Técnicas, métodos y aplicaciones. McGraw Hill (1ª ed.) - Russell & Norvig (2004). Inteligencia artificial: un enfoque moderno. . Pearson (2ª ed)
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Introduction to programming/614522001
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Computational intelligence for high dimensional data/614522024 Computational intelligence for bioinformatics/614522012 High performance computing in bioinformatics/614522011
Other comments

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.