



INTERNATIONAL  
CAMPUS OF  
EXCELLENCE

COORDINATION PROCESS OF  
LEARNING ACTIVITIES  
PR/CL/001



E.T.S. de Ingenieros  
Informáticos

# ANX-PR/CL/001-01

## LEARNING GUIDE

### SUBJECT

**103000698 - Data mining for human computer interaction**

### DEGREE PROGRAMME

10AQ - Eit Digital Master's Programme In Human Computer Interaction And Design

### ACADEMIC YEAR & SEMESTER

2018/19 - Semester 2

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## 1. Description

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### 1.1. Subject details

<b>Name of the subject</b>	103000698 - Data mining for human computer interaction
<b>No of credits</b>	3 ECTS
<b>Type</b>	Optional
<b>Academic year of the programme</b>	First year
<b>Semester of tuition</b>	Semester 2
<b>Tuition period</b>	February-June
<b>Tuition languages</b>	English
<b>Degree programme</b>	10AQ - Eit digital master's programme in human computer interaction and design
<b>Centre</b>	10 - Escuela Tecnica Superior de Ingenieros Informaticos
<b>Academic year</b>	2018-19

## 2. Faculty

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### 2.1. Faculty members with subject teaching role

<b>Name and surname</b>	<b>Office/Room</b>	<b>Email</b>	<b>Tutoring hours *</b>
Fco.javier Segovia Perez (Subject coordinator)	2305	javier.segovia@upm.es	M - 10:00 - 11:00 Hablar con el profesor
Ernestina Menasalvas Ruiz	4303	ernestina.menasalvas@upm.es	M - 10:00 - 11:00 hablar con la profesora

\* The tutoring schedule is indicative and subject to possible changes. Please check tutoring times with the faculty member in charge.

## 3. Prior knowledge recommended to take the subject

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### 3.1. Recommended (passed) subjects

El plan de estudios Eit Digital Master's Programme In Human Computer Interaction And Design no tiene definidas asignaturas previas recomendadas para esta asignatura.

### 3.2. Other recommended learning outcomes

- ? Conocimiento adecuado del concepto de empresa, su organización y gestión.
- ? Conocimiento y aplicación de las características, funcionalidades y estructura de las bases de datos, que permitan su adecuado uso, y el diseño y el análisis e implementación de aplicaciones basadas en ellos.
- ? Conocimiento y aplicación de los principios fundamentales y técnicas básicas de los sistemas inteligentes y su aplicación práctica.
- ? Aptitud para aplicar los conocimientos sobre estadística y optimización.
- ? Design and implementation of relational databases
- SQL

## 4. Skills and learning outcomes \*

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### 4.1. Skills to be learned

CE12 - Capacidad para aplicar métodos matemáticos, estadísticos y de inteligencia artificial para modelar, diseñar y desarrollar aplicaciones, servicios, sistemas inteligentes y sistemas basados en el conocimiento

CE14 - Capacidad para conceptualizar, diseñar, desarrollar y evaluar la interacción persona¿ordenador de productos, sistemas, aplicaciones y servicios informáticos

## 4.2. Learning outcomes

RA23 - Execute a data mining project to solve specific needs, choosing the best options

\* The Learning Guides should reflect the Skills and Learning Outcomes in the same way as indicated in the Degree Verification Memory. For this reason, they have not been translated into English and appear in Spanish.

## 5. Brief description of the subject and syllabus

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### 5.1. Brief description of the subject

The course is mainly dedicated to Data Mining Project development and data mining for improvement of software engineering projects, with a special focus on HCI aspects

It will be evaluated taking into account the evaluation of the development of a project

### 5.2. Syllabus

1. Data Engineering
  - 1.1. Engineering and Science: Big Data and DataMining
  - 1.2. Data Mining Process: CRISP-DM
  - 1.3. Data Mining for Software Engineering
  - 1.4. Data: types, quality, measures of association
2. First steps using the tool: Data handling and preparation
3. Data Mining Modeling
  - 3.1. Regression
  - 3.2. Clasification
  - 3.3. Clustering
  - 3.4. Association

## 6. Schedule

### 6.1. Subject schedule\*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Other face-to-face activities	Assessment activities
1	<b>Tema 1</b> Duration: 02:00 Lecture			
2	<b>Tema 2</b> Duration: 01:00 Lecture		<b>Tema 2</b> Duration: 01:00 Problem-solving class	
3	<b>Tema 2</b> Duration: 01:00 Lecture		<b>Tema 2</b> Duration: 02:00 Problem-solving class	<b>ASSIGNMENT 1</b> Group work Continuous assessment and final examination Duration: 02:00
4	<b>Tema 3.1</b> Duration: 01:00 Lecture		<b>Tema 3.1</b> Duration: 02:00 Problem-solving class	
5	<b>Tema 3.1</b> Duration: 01:00 Lecture		<b>Tema 3.1</b> Duration: 02:00 Problem-solving class	
6	<b>Tema 3.1</b> Duration: 01:00 Lecture		<b>Tema 3.1</b> Duration: 02:00 Problem-solving class	<b>ASSIGNMENT 2</b> Group work Continuous assessment and final examination Duration: 02:00
7	<b>Tema 3.2</b> Duration: 01:00 Lecture		<b>Tema 3.2</b> Duration: 02:00 Problem-solving class	
8	<b>Tema 3.2</b> Duration: 01:00 Lecture		<b>Tema 3.2</b> Duration: 02:00 Problem-solving class	
9	<b>Tema 3.2</b> Duration: 01:00 Lecture		<b>Tema 3.2</b> Duration: 02:00 Problem-solving class	
10	<b>Tema 3.2</b> Duration: 01:00 Lecture		<b>Tema 3.2</b> Duration: 02:00 Problem-solving class	<b>ASSIGNMENT 3</b> Group work Continuous assessment and final examination Duration: 02:00
11	<b>Tema 3.3</b> Duration: 01:00 Lecture		<b>Tema 3.3</b> Duration: 02:00 Problem-solving class	
12	<b>Tema 3.3</b> Duration: 01:00 Lecture		<b>Tema 3.3</b> Duration: 02:00 Problem-solving class	

13	<b>Tema 3.3</b> Duration: 01:00 Lecture		<b>Tema 3.3</b> Duration: 02:00 Problem-solving class	<b>ASSIGNMENT 4</b> Group work Continuous assessment and final examination Duration: 02:00
14	<b>Tema 3.4</b> Duration: 01:00 Lecture		<b>Tema 3.4</b> Duration: 01:00 Problem-solving class	
15	<b>Tema 3.4</b> Duration: 01:00 Lecture		<b>Tema 3.4</b> Duration: 01:00 Problem-solving class	
16	<b>Tema 3.4</b> Duration: 01:00 Lecture		<b>Tema 3.4</b> Duration: 01:00 Problem-solving class	<b>ASSIGNMENT 5</b> Group work Continuous assessment and final examination Duration: 02:00
17				<b>FINAL PROJECT</b> Individual presentation Continuous assessment and final examination Duration: 02:00

The independent study hours are training activities during which students should spend time on individual study or individual assignments.

Depending on the programme study plan, total values will be calculated according to the ECTS credit unit as 26/27 hours of student face-to-face contact and independent study time.

\* The subject schedule is based on a previous theoretical planning of the subject plan and might go through experience some unexpected changes along throughout the academic year.

## 7. Activities and assessment criteria

### 7.1. Assessment activities

#### 7.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
3	ASSIGNMENT 1	Group work	Face-to-face	02:00	10%	5 / 10	CE12 CE14
6	ASSIGNMENT 2	Group work	Face-to-face	02:00	10%	5 / 10	CE12 CE14
10	ASSIGNMENT 3	Group work	Face-to-face	02:00	10%	5 / 10	CE12 CE14
13	ASSIGNMENT 4	Group work	Face-to-face	02:00	10%	5 / 10	CE12 CE14
16	ASSIGNMENT 5	Group work	Face-to-face	02:00	10%	5 / 10	CE12 CE14
17	FINAL PROJECT	Individual presentation	Face-to-face	02:00	50%	5 / 10	CE14 CE12

#### 7.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
3	ASSIGNMENT 1	Group work	Face-to-face	02:00	10%	5 / 10	CE12 CE14
6	ASSIGNMENT 2	Group work	Face-to-face	02:00	10%	5 / 10	CE12 CE14
10	ASSIGNMENT 3	Group work	Face-to-face	02:00	10%	5 / 10	CE12 CE14
13	ASSIGNMENT 4	Group work	Face-to-face	02:00	10%	5 / 10	CE12 CE14
16	ASSIGNMENT 5	Group work	Face-to-face	02:00	10%	5 / 10	CE12 CE14
17	FINAL PROJECT	Individual presentation	Face-to-face	02:00	50%	5 / 10	CE14 CE12

#### 7.1.3. Referred (re-sit) examination



Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
FINAL PROJECT AND ASSIGNMENTS	Individual presentation	Face-to-face	02:02	100%	5 / 10	CE12 CE14

## 7.2. Assessment criteria

The evaluation is based on the assignments and the final project.

Assignments and projects will be performed individually or by groups, depending on the size of the course

To pass the course it is mandatory to present all the assignments and the final project, in any modality of evaluation

Participation in class would give a 10% increase in the final score.

## 8. Teaching resources

### 8.1. Teaching resources for the subject

Name	Type	Notes
Principles of Data Mining (Adaptive Computation and Machine Learning), D Hand, MIT Press, 2001.	Bibliography	
Jiawei Han, Micheline Kamber, Data Mining : Concepts and Techniques, 2nd edition, Morgan Kaufmann, ISBN 1558609016, 2006.	Bibliography	
Data Mining Techniques: Marketing, Sales and Customer Support, Michael J. A. Berry, Gordon Linoff, John Wiley & Sons, 1997.	Bibliography	

Pang-Ning Tan, Michael Steinbach, Vipin Kumar, Introduction to Data Mining, Pearson Addison Wesley (May, 2005). Hardcover: 769 pages. ISBN: 0321321367	Bibliography	
Ian Witten, Eibe Frank, Mark Hall, Data Mining: Practical Machine Learning Tools and Techniques, 3rd Edition, Morgan Kaufmann, ISBN 978-0-12-374856-0, 2011.	Bibliography	
Página web de la asignatura en moodle	Web resource	
IBM SPSS MODELER	Others	
Sala de trabajo en grupo con ordenadores	Equipment	
aula	Equipment	