ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000903 - Graph Analysis And Social Networks

DEGREE PROGRAMME

10BA - Master Universitario En Ciencia De Datos

ACADEMIC YEAR & SEMESTER

2021/22 - Semester 2

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Learning guide

1. Description

1.1. Subject details

Name of the subject	103000903 - Graph Analysis And Social Networks
No of credits	3 ECTS
Type	Optional
Academic year ot the programme	First year
Semester of tuition	Semester 2
Tuition period	February-June
Tuition languages	English
Degree programme	10BA - Master Universitario en Ciencia de Datos
Centre	10 - Escuela Tecnica Superior De Ingenieros Informaticos
Academic year	2021-22

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Emilio Serrano Fernandez		emilio.serrano@upm.es	Sin horario.
Javier Bajo Perez (Subject coordinator)		javier.bajo@upm.es	- -

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

3. Skills and learning outcomes *

3.1. Skills to be learned

CECD04 - Capacidad para aplicar técnicas para la generación de visualizaciones adecuadas a cada problema para el análisis y la exploración de datos, y para la correcta comunicación de los resultados del análisis.

CG07 - Aplicación de los últimos o más novedosos métodos para resolver problemas que, posiblemente, involucren a otras disciplinas

CG11 - Conocimiento y comprensión de la informática para crear modelos, así como sistemas y procesos de información complejos

3.2. Learning outcomes

RA10 - Ser capaz de establecer un debate fundamentado sobre el conocimiento científico y las bases de la investigación

RA34 - Apply AI techniques in real world data scenarios

RA21 - Conocer cómo se aplican las técnicas de computación científica en algún campo específico de ciencia o ingeniería

RA17 - Conocer los fundamentos de las técnicas de visualización analítica

* 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.

4. Brief description of the subject and syllabus

4.1. Brief description of the subject

Social computing is a general term for an area of computer science that is concerned with the intersection of social behavior and computational systems. During recent years the Internet introduced a social element where users could network, share interests, publish personal insights and use their computers for more than just doing a job faster, and this has led to the development of social machines where both humans and machines collaborate to solve social problems. This course presents the principals of social computing and focuses on graph and network analysis.

4.2. Syllabus

1. Introduction to Social Computing.
2. Graph mining and Social Network Analysis.
3. Sentiment Analysis in Social Networks.
4. Trust and reputation in social networks
5. Practical assignment

5. Schedule

5.1. Subject schedule*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Distant / On-line	Assessment activities
1	**Introduction to social computing.** Duration: 03:00			
2	**Graph mining and Social Network Analysis** Duration: 03:00			
3	**Graph mining and Social Network Analysis** Duration: 03:00			
4	**Research Work** Duration: 04:00			**Evaluation in class. Research Work.** Continuous assessment Presential Duration: 03:00
5	**Sentiment Analysis in Social Networks.** Duration: 03:00			
6	**Trust and reputation in social networks.** Duration: 03:00			
7	**Practical Assignment** Duration: 03:00			
8	**Practical Work** Duration: 03:00			**Evaluation in class. Practial Work.** Continuous assessment Presential Duration: 03:00
9				
10				
11				
12				
13				
14				
15				
16				
17	**Practical Work** Duration: 03:00			**Research Work** Final examination Presential Duration: 03:00 **Practical Work.** Final examination

				Presential Duration: 03:00

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 schedule is based on an a priori planning of the subject; it might be modified during the academic year, especially considering the COVID19 evolution.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
4	Evaluation in class. Research Work.		Face-to-face	03:00	40%	5 / 10	CG07 CECD04 CG11
8	Evaluation in class. Practial Work.		Face-to-face	03:00	60%	5 / 10	CECD04 CG11 CG07

6.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Research Work		Face-to-face	03:00	40%	5 / 10	CECD04 CG11 CG07
17	Practical Work.		Face-to-face	03:00	60%	5 / 10	CECD04 CG11 CG07

6.1.3. Referred (re-sit) examination

No se ha definido la evaluación extraordinaria.

6.2. Assessment criteria

Continuous Evaluacion

Research work (Exam):

Individual research work about one of the topics presented in class

The students can choose a topic of interest for them.

40% of the grade of the subject.

Practical work

Practical project about graph minning and/or analysis of social networks.

60% of the grade of the subject

Recovey exam

The student has a second chance to present one of the works (Research work or Practical work).

Extraordinary Exams.

Individual research work (40%)

Practical work (60%)

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Slides	Web resource	