INTERNATIONAL
CAMPUS OF
EXCELLENCE

POLITÉCNICA

E.T.S. de Ingenieros
Informaticos

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000834 - Graph Analysis And Social Networks

DEGREE PROGRAMME

10AX - Master Universitario Innovación Digital Ciencia de Datos Itinerario Health

ACADEMIC YEAR & SEMESTER

2020/21 - Semester 2

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1. Description

1.1. Subject details

Name of the subject	103000834 - 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	10AX - Master Universitario Innovación Digital Ciencia de Datos Itinerario Health
Centre	10 - Escuela Tecnica Superior de Ingenieros Informaticos
Academic year	2020-21

2. Faculty

2.1. Faculty members with subject teaching role

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

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

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3. Skills and learning outcomes *

3.1. Skills to be learned

CB07 - Que los estudiantes sepan aplicar los conocimientos adquiridos y su capacidad de resolución de problemas en entornos nuevos o poco conocidos dentro de contextos más amplios (o multidisciplinares) relacionados con su área de estudio

CG01 - Que los estudiantes sean capaces de predecir y controlar la evolución de situaciones complejas mediante el desarrollo de nuevas e innovadoras metodologías de trabajo adaptadas al ámbito científico/investigador, tecnológico o profesional concreto, en general multidisciplinar, en el que se desarrolle su actividad.

CG03 - La capacidad de usar la lengua inglesa de manera competente, es decir, con capacitación para tareas complejas de trabajo y estudio.

3.2. Learning outcomes

RA2 - Conocer técnicas de visualización y procesos de análisis de datos, y de programación, diseño y depuración de algoritmos, para computación de altas prestaciones

RA3 - Conocer cómo se aplican las técnicas de computación científica en algún campo específico de ciencia o ingeniería

* 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.

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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

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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				**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				**Evaluation in class. Practial Work.** Continuous assessment Presential Duration: 03:00
9				
10				
11				
12				
13				
14				
15				
16				
17				**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.

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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	CG03 CB07 CG01
8	Evaluation in class. Practial Work.		Face-to-face	03:00	60%	5 / 10	CG03 CB07 CG01

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	CB07 CG01 CG03
17	Practical Work.		Face-to-face	03:00	60%	5 / 10	CB07 CG01 CG03

6.1.3. Referred (re-sit) examination

No se ha definido la evaluación extraordinaria.

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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%)

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7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Slides	Web resource	