ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000835 - Ai And Legal Social And Ethical Aspects

DEGREE PROGRAMME

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

ACADEMIC YEAR & SEMESTER

2020/21 - Semester 2

Index

Learning guide

1. Description

1.1. Subject details

Name of the subject	103000835 - Ai And Legal Social And Ethical Aspects
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 *
Victor Rodriguez Doncel (Subject coordinator)	D3205	victor.rodriguez@upm.es	M - 10:00 - 13:00 Tu - 10:00 - 13:00
Asuncion De Maria Gomez Perez		asunciondemaria.gomez@upm.es	Sin horario.

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

2.2. Research assistants

Name and surname	Email	Faculty member in charge
Navas Loro, Maria	m.navas@upm.es	Rodriguez Doncel, Victor

3. Skills and learning outcomes *

3.1. Skills to be learned

CB06 - Poseer y comprender conocimientos que aporten una base u oportunidad de ser originales en el desarrollo y/o aplicación de ideas, a menudo en un contexto de investigación

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

CB08 - Que los estudiantes sean capaces de integrar conocimientos y enfrentarse a la complejidad de formular juicios a partir de una información que, siendo incompleta o limitada, incluya reflexiones sobre las responsabilidades sociales y éticas vinculadas a la aplicación de sus conocimientos y juicios

CE-EIT04 - Capacidad para desarrollar un proyecto y un modelo completos de negocio orientados al cliente usando una metodología iterativa siguiendo los pasos necesarios para crear una empresa de base tecnológica sostenible incluyendo consideraciones éticas, sociales y medioambientales.

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

RA28 - Ability to assess the societal, legal and ethical impact of Artificial Intelligence and data processing projects

RA32 - To know and apply the European and National legal and ethical framework of AI

* 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

Virtually every data scientist and AI professional will have to cope with legal and ethical issues during the professional career -especially in the health domain.

This has been always the case, but nowadays, the advances on AI algorithmics and the massive availability of data have made some questions more urgent. Beyond speculation, the European Union has published new guidelines on developing ethical AI that do also have a practical character. This course provides the student with practical and theoretical tools to address these issues.

In the first place, the students will be given some general notions on the legal framework in Europe of AI and data processing, necessary to avoid breaching the law and necessary to exercise their rights, particularly in the health domain. Students will learn on patents, trademarks, copyright, licenses and software registries but also on data protection and how to handle personal data: these skills are a must in modern AI professionals. The Open Data and Open Software paradigms will also be studied, both from a theoretical and a practical perspectives. The student will also learn to identify other recurrently appearing legal issues in the exercise of the data scientist profession, particularly for the health systems.

In the second place, the students following this course will also acquire skills to make critical assessments of AI-intensive and big data projects considering legal, ethical, and societal aspects. From a theoretical perspective, critical thinking will be appreciated and fostered in students, from a practical perspective, the official positions of the European Commisions will be applied with real use cases.

4.2. Syllabus

1. Introduction. Overview of issues raised by Artificial Intelligence.
    1.1. Motivation
    1.2. Overview of issues raised by Artificial Intelligence
2. Ethics of AI and Data Science
    2.1. Ethical theories
    2.2. Ethical Assessment of AI Projects
    2.3. Responsible Research and Innovation. Professional ethics.
3. European legal framework of AI and data science
    3.1. Intellectual Property Rights
    3.2. Privacy and Data Protection
    3.3. Law as data
4. Societal questions
    4.1. Bias, explainability and traceability
    4.2. Surveillance, propaganda, data and democracy
    4.3. The future of AI

5. Schedule

5.1. Subject schedule*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Distant / On-line	Assessment activities
1	**Lecture. START OF BLOCK 1** Duration: 02:00		**Lecture** Duration: 01:00	
2	**Lecture. START OF BLOCK 2** Duration: 02:00		**Lecture** Duration: 01:00	
3	**Lecture** Duration: 02:00		**Lecture** Duration: 01:00	
4	**Lecture** Duration: 02:00		**Lecture** Duration: 01:00	
5	**Lecture** Duration: 02:00		**Lecture** Duration: 01:00	**Delivery of report and its eventual presentation** Continuous assessment Presential Duration: 02:00
6	**Lecture START OF BLOCK 3** Duration: 02:00		**Lecture** Duration: 01:00	
7	**Lecture** Duration: 02:00		**Lecture** Duration: 01:00	
8	**Lecture** Duration: 02:00		**Lecture** Duration: 01:00	**Delivery of report and its eventual presentation.** Continuous assessment Not Presential Duration: 00:00
9				**Continuous Evaluation Test** Continuous assessment Presential Duration: 02:00
10				
11				
12				
13				
14				

15				
16				
17				**Exam** Final examination Presential Duration: 02:00

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
5	Delivery of report and its eventual presentation		Face-to-face	02:00	30%	5 / 10	CE-EIT04 CB07 CG03 CB06 CB08
8	Delivery of report and its eventual presentation.		No Presential	00:00	30%	5 / 10	CB06 CB08 CE-EIT04 CB07 CG03
9	Continuous Evaluation Test		Face-to-face	02:00	40%	5 / 10	CB08 CE-EIT04 CB07 CG03 CB06

6.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Exam		Face-to-face	02:00	100%	5 / 10	CB06 CB08 CE-EIT04 CB07 CG03

6.1.3. Referred (re-sit) examination

No se ha definido la evaluación extraordinaria.

6.2. Assessment criteria

OPTION Continuous evaluation

In the continuous assessment option, students will be evaluated as follows: Delivered works (60%), final test (40%)

OPTION Final exam evaluation

In the final exam assessment option, students will be evaluated as follows: Final test (100%)

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Textbook	Bibliography	Quinn, M. J. (2017). Ethics for the information age. Pearson.
Moodle	Bibliography	A collection of readings will be made available through the moodle platform. Additional recommended bibliography will be also referenced from Moodle.

8. Other information

8.1. Other information about the subject

Language

The course is delivered in English.

Sustainable Development Goals

Whereas no SDG is specifically addressed in the syllabus, the entire course will make the student more aware of the ability of the AI and data science to transform the world. --- we could have also said that this course impacts on every SDG.

Tools for blended learning

Students are strongly recommended to be familiar with the tools used in this course.

- **Moodle** is the tool of choice to make online questionnaires, to deliver tasks, to find learning resources, to stay up to date (news) and eventually to make official tests.
- **Microsoft Teams** will be the tool of choice to deliver remote lessons. Students are required to have a webcam while making official tests.

COVID-19

Some of the lessons in this course can be delivered in different order from the one listed before. Considering the circumstances the syllabus' order may be adapted in order to best use the presential hours. Evaluating activities (delivery of reports) will be announced in due time.