COORDINATION PROCESS OF LEARNING ACTIVITIES
PR/CL/001

E.T.S. de Ingenieros Informaticos

ANX-PR/CL/001-01
LEARNING GUIDE

SUBJECT
103000900 - Societal/legal/ethical Aspects In Data Science

DEGREE PROGRAMME
10BA - Master Universitario En Ciencia De Datos

ACADEMIC YEAR & SEMESTER
2023/24 - Semester 2
Index

Learning guide

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1. Description

1.1. Subject details

<table>
<thead>
<tr>
<th>Name of the subject</th>
<th>103000900 - Societal/legal/ethical Aspects In Data Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of credits</td>
<td>3 ECTS</td>
</tr>
<tr>
<td>Type</td>
<td>Compulsory</td>
</tr>
<tr>
<td>Academic year of the programme</td>
<td>First year</td>
</tr>
<tr>
<td>Semester of tuition</td>
<td>Semester 2</td>
</tr>
<tr>
<td>Tuition period</td>
<td>February-June</td>
</tr>
<tr>
<td>Tuition languages</td>
<td>English</td>
</tr>
<tr>
<td>Degree programme</td>
<td>10BA - Master Universitario en Ciencia de Datos</td>
</tr>
<tr>
<td>Centre</td>
<td>10 - Escuela Tecnica Superior De Ingenieros Informaticos</td>
</tr>
<tr>
<td>Academic year</td>
<td>2023-24</td>
</tr>
</tbody>
</table>

2. Faculty

2.1. Faculty members with subject teaching role

<table>
<thead>
<tr>
<th>Name and surname</th>
<th>Office/Room</th>
<th>Email</th>
<th>Tutoring hours *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victor Rodriguez Doncel (Subject coordinator)</td>
<td>D3205</td>
<td><a href="mailto:victor.rodriguez@upm.es">victor.rodriguez@upm.es</a></td>
<td>M - 10:00 - 13:00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tu - 10:00 - 13:00</td>
</tr>
<tr>
<td>Asuncion De Maria Gomez Perez</td>
<td></td>
<td><a href="mailto:asunciondemaria.gomez@upm.es">asunciondemaria.gomez@upm.es</a></td>
<td>Sin horario.</td>
</tr>
</tbody>
</table>

* 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

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

CECD09 - Capacidad para actuar con los principios éticos y legales relacionados con la manipulación de datos según el ámbito de aplicación

CG10 - Apreciación de los límites del conocimiento actual y de la aplicación práctica de la última tecnología

3.2. Learning outcomes

RA38 - Ability to assess the societal, legal and ethical impact of Artificial Intelligence and data processing projects

RA37 - Knowledge of the European and national legal framework of AI and data processing

* 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.

Designing, developing or using AI systems or data intensive applications imply knowing and abiding the law (legal compliance) and being aware of the technology impact and acting accordingly (ethical responsibility).

During this course, the student will learn the European Union policies and regulations around AI and data. In particular, students will learn the basics of the forthcoming AI Regulation and the AI Liability Directive, the General Data Protection Regulation, the Data Governance Act, the Data Act, some copyright law including the Database Directive. Open Data policies in Europe will also be taught.
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.
2. Introduction to ethics.
3. Professional ethics and deontological codes.
4. Methodologies for the ethical assessment of AI and data projects.
5. Bias and explainability of AI systems
6. Privacy and data protection. GDPR.
7. Regulation of AI.
8. Regulation of data.
9. Intellectual Property Rights
10. Copyright and data licenses.
12. Information ethics. The future of AI.
5. Schedule

5.1. Subject schedule*

<table>
<thead>
<tr>
<th>Week</th>
<th>Classroom activities</th>
<th>Laboratory activities</th>
<th>Distant / On-line</th>
<th>Assessment activities</th>
</tr>
</thead>
</table>
| 1    | Lecture. START OF BLOCK 1  
Duration: 02:00  
Lecture  
Duration: 01:00  
Cooperative activities |  |  |  |
| 2    | Lecture. START OF BLOCK 2  
Duration: 02:00  
Lecture  
Duration: 01:00  
Cooperative activities |  |  |  |
| 3    | Lecture  
Duration: 02:00  
Lecture  
Duration: 01:00  
Cooperative activities |  |  |  |
| 4    | Lecture  
Duration: 02:00  
Lecture  
Lecture START OF BLOCK 3  
Duration: 01:00  
Cooperative activities |  |  | Continuous evaluation block 2  
Written test  
Continuous assessment  
Presential  
Duration: 00:00 |
| 5    | Lecture  
Duration: 02:00  
Lecture  
Duration: 01:00  
Cooperative activities |  |  | Delivery of report and its eventual presentation  
Group presentation  
Continuous assessment  
Presential  
Duration: 02:00 |
| 6    | Lecture  
Duration: 02:00  
Lecture  
Duration: 01:00  
Cooperative activities |  |  | Continuous evaluation block 3  
Written test  
Continuous assessment  
Presential  
Duration: 00:00 |
<table>
<thead>
<tr>
<th>Lecture</th>
<th>Duration</th>
<th>Activity</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>02:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td>01:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td>02:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td>01:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td>02:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td>01:00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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. Assessment

<table>
<thead>
<tr>
<th>Week</th>
<th>Description</th>
<th>Modality</th>
<th>Type</th>
<th>Duration</th>
<th>Weight</th>
<th>Minimum grade</th>
<th>Evaluated skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Continuous evaluation block 2</td>
<td>Written test</td>
<td>Face-to-face</td>
<td>00:00</td>
<td>15%</td>
<td>0 / 10</td>
<td>CB08, CG10, CECD09</td>
</tr>
<tr>
<td>5</td>
<td>Delivery of report and its eventual presentation</td>
<td>Group</td>
<td>Face-to-face</td>
<td>02:00</td>
<td>20%</td>
<td>5 / 10</td>
<td>CB08, CG10, CECD09</td>
</tr>
<tr>
<td>6</td>
<td>Continuous evaluation block 3</td>
<td>Written test</td>
<td>Face-to-face</td>
<td>00:00</td>
<td>15%</td>
<td>0 / 10</td>
<td>CB08, CG10, CECD09</td>
</tr>
<tr>
<td>8</td>
<td>Delivery of report and its eventual presentation.</td>
<td>Individual</td>
<td>No Presential</td>
<td>00:00</td>
<td>20%</td>
<td>5 / 10</td>
<td>CB08, CG10, CECD09</td>
</tr>
<tr>
<td>9</td>
<td>Continuous Evaluation Test</td>
<td>Written test</td>
<td>Face-to-face</td>
<td>02:00</td>
<td>30%</td>
<td>5 / 10</td>
<td>CB08, CG10, CECD09</td>
</tr>
</tbody>
</table>

6.1.2. Global examination

<table>
<thead>
<tr>
<th>Week</th>
<th>Description</th>
<th>Modality</th>
<th>Type</th>
<th>Duration</th>
<th>Weight</th>
<th>Minimum grade</th>
<th>Evaluated skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Exam</td>
<td>Written test</td>
<td>Face-to-face</td>
<td>02:00</td>
<td>100%</td>
<td>5 / 10</td>
<td>CB08, CG10, CECD09</td>
</tr>
</tbody>
</table>

6.1.3. Referred (re-sit) examination

No se ha definido la evaluación extraordinaria.
6.2. Assessment criteria

EVALUATION SYSTEM

There are three different evaluation activities:

- QUESTIONNAIRES. During the course, Moodle questionnaires will be open as in-class activities or homework tasks. (20%)
- GROUP WORK. This group work (4 students per group) will have an intermediate delivery (towards the middle of the course) and a final delivery. At the end of the course, there will be an oral presentation. (40%)
- GLOBAL EXAM. This final exam will consist of a Moodle questionnaire to be filled in during the exam time evaluating all the competencies of the course (a printed version will be available for students with no electronic device). (40%)

EVALUATION ONLY THROUGH GLOBAL EXAM

Notwithstanding the global exam (50%), students will have to deliver the work, even if individually, and will have to record a video to replace the oral presentation (50%).

EXTRAORDINARY EXAM

Notwithstanding the global exam (50%), students will have to deliver the work, even if individually, and will have to record a video to replace the oral presentation (50%).
7. Teaching resources

7.1. Teaching resources for the subject

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moodle</td>
<td>Bibliography</td>
<td>A collection of readings will be made available through the moodle platform. Additional recommended bibliography will be also referenced from Moodle.</td>
</tr>
</tbody>
</table>

8. Other information

8.1. Other information about the subject

Language

The course is delivered in English.