Artificial Intelligence and Health

Code: 105017
ECTS Credits: 3

<table>
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<tr>
<th>Degree</th>
<th>Type</th>
<th>Year</th>
<th>Semester</th>
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<td>OT</td>
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<td>0</td>
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<td>2502442 Medicine</td>
<td>OT</td>
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<td>OT</td>
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<td>2502442 Medicine</td>
<td>OT</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Contact

Name: Jorge Navines Lopez
Email: Jorge.Navines@uab.cat

Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: No

Teachers

Manel Cremades Pérez
Francisco García Cuyas
Francesc Cayuela Vivancos
Jordi Tarasco Palomares

External teachers

MARC ANTONI BROGGI TRIAS

Prerequisites

It is advisable that the student has obtained the basic competences of the first and second year subjects, especially those related to epidemiology and preventive medicine.

It is recommended that the student be familiar with the use of new technologies.

The student must have basic knowledge of Spanish and/or Catalan, so the main part of the lectures are in those languages. English will be required to navigate and understand the information contained in the databases and audiovisual material in internet.

Objectives and Contextualisation

- To know the basics - methodological and scientific bases - of digital health and the new technologies applied to the Smart Health.
- To know the main fields of contemporary digital health development.

- Acquire competence with basic technologies based on their theoretical foundations and indications, using clinical models as facilitators of learning.

- Students will be introduced to the concepts and basic tools of Artificial Intelligence focused on their future professional practice. Sessions will aim to familiarize students with the use of the most used tools and online resources.

- Introduce the student in the ethical considerations in the use of massive data and Artificial Intelligence.

**Competences**

**Medicine**
- Be able to work in an international context.
- Demonstrate basic research skills.
- Demonstrate, in professional activity, a perspective that is critical, creative and research-oriented.
- Formulate hypotheses and compile and critically assess information for problem-solving, using the scientific method.
- Use information and communication technologies in professional practice.

**Learning Outcomes**

1. Be able to work in an international context.
2. Demonstrate basic research skills.
3. Demonstrate, in professional activity, a perspective that is critical, creative and research-oriented.
4. Formulate hypotheses and compile and critically assess information for problem-solving, using the scientific method.
5. Use information and communication technologies in professional practice.

**Content**

SUBJECT 1 - Introduction to artificial intelligence and automatic learning.

SUBJECT 2 - Evidence-based medicine and surgery. Linguistic normalization. Search engines.

SUBJECT 3 - Smart city environment. Smart Health. Liquid Hospital. The role of the doctor in a Smart Health environment.

SUBJECT 4 - Biometrics of the environment and Big Data. Internet of Things. Apps and Telemetry.


SUBJECT 6 - The global medical brain.

SUBJECT 7 - Robotics applied to the healthcare field.


**Methodology**

The orientation of the subject is informative and aims to stimulate the student to do research in the field of the new technologies.

Learning in many cases involves the introduction and use of the main facilities offered by the web applications and the selected software.
The student will have to work on the field and perform a powerpoint presentation on one of the subjects treated in class and their application to the medical assistance environment.

**Activities**

<table>
<thead>
<tr>
<th>Title</th>
<th>Hours</th>
<th>ECTS</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRACTICAL SESSIONS (SEMINARS)</td>
<td>7</td>
<td>0.28</td>
<td>2, 3, 4, 1</td>
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<td>THEORY</td>
<td>8</td>
<td>0.32</td>
<td>2, 5</td>
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**Type: Directed**

**Type: Supervised**

| TUTORIALS                                  | 10    | 0.4  | 2, 3, 4, 1        |

**Type: Autonomous**

| FIELD RESEARCH                             | 5     | 0.2  | 2, 3, 1, 5        |
| ORAL PRESENTATION                          | 5     | 0.2  | 2, 3, 4, 5        |

**Assessment**

The consolidation of what has been learned in the subject will be through a powerpoint presentation on some of the topics discussed, which will be defended in class with the rest of the classmates.

The competencies of the subject will be through continuous assessment, along with the attendance (40% of the note), the tutoring (20%) and the oral presentation (40% of the note).

The minimum qualification required to pass the subject is 5 points.

Students who have not passed the subject through continuous evaluation may do additional work as a recovery assessment.

**Assessment Activities**

<table>
<thead>
<tr>
<th>Title</th>
<th>Weighting</th>
<th>Hours</th>
<th>ECTS</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assistance and active participation in classes</td>
<td>40%</td>
<td>15</td>
<td>0.6</td>
<td>3, 4, 1</td>
</tr>
<tr>
<td>Oral presentation</td>
<td>40%</td>
<td>10</td>
<td>0.4</td>
<td>2, 3, 4, 1, 5</td>
</tr>
<tr>
<td>Tutorials</td>
<td>20%</td>
<td>15</td>
<td>0.6</td>
<td>2, 3, 4</td>
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</tbody>
</table>

**Bibliography**


https://es.coursera.org/instructor/andrewng

https://su.org/

https://ai.google/
https://aws.amazon.com/es/

http://ai.stanford.edu/