COMILLAS
UNIVERSIDAD PONTIFICIA
CIHS

COURSE SYLLABUS

Course: **MIND AND ARTIFICIAL INTELLIGENCE**

COURSE DATA	
Degree	Diploma in Humanities and Global Challenges
Academic Year	2026-27
Credits	6
Course type	Elective
Departament	Psychology Department
Language of instruction	English
Name and email of instructor	Miriam Pardo Rodríguez (mprodriguez@comillas.edu) Javier Vidal Marciel (jvmarciel@comillas.edu)

SHORT DESCRIPTION

At the end of the course the student will be able to:
- Clearly recognise the essential elements of artificial intelligence in the activities of daily life using a language specific to the field of artificial intelligence.
- Learn to think critically about the difference between mind, brain and artificial intelligence.
- Understand how the brain is believed to work on the cellular, network and systems level.
- Learn about cognitive phenomena related to brain activity.
- Justifiably identify how artificial intelligence can help humanity to understand the world, to understand the human condition, to improve the current world, to solve problems, to create new occupations, and to improve human capabilities.
- Evaluate the prospective role of artificial intelligence in different domains of people's lives (family, school, health, sports...) and estimate its usefulness in people's daily activities.
- Reflect on the limits, ethics and future of AI

CONTENTS AND STRUCTURE

TOPIC 1: INTRODUCTION TO THE MIND AND AI
TOPIC 2: A BRIEF HISTORY OF AI
TOPIC 3: ARTIFICIAL INTELLIGENCE FUNDAMENTALS
TOPIC 4: COGNITIVE SCIENCE AND NEUROSCIENCE
TOPIC 5: NATURAL LANGUAGE PROCESSING
TOPIC 6: EMBODIED AI
TOPIC 7: AI APPLICATIONS TO THE HUMAN AND SOCIAL SCIENCES
TOPIC 8: AI IN EDUCATION AND WORK
TOPIC 9: INDIVIDUAL, RELATIONAL AND SOCIETAL CHALLENGES IN THE AI ERA
TOPIC 10: AI APPLICATIONS AND ETHICAL DILEMMAS

METHODOLOGY

The course focuses on a classroom-based methodology with mandatory attendance. Students are required to attend the lectures and actively participate in class activities, such as problem-solving exercises, interactive lectures, discussions, and group assignments. There are two exams: The midterm exam serves as a progress assessment, and successfully passing it eliminates the corresponding topics from the final exam. To prepare for both exams, students are expected to study and review the course material at home. Additionally, as part of the assessment, students deliver and present a project work in class, based on one of the proposed topics, showcasing their research and analysis skills. Only students who meet the attendance requirements are eligible to participate in the midterm and final exams, as well as in the project work presentation. This methodology emphasizes face-to-face learning, active engagement in class, and independent study outside the classroom, allowing students to show their understanding and application of the course cont

ASSESSMENT AND GRADING

Assessment type	Assessment criteria	Percentage
FINAL EXAM: A MINIMUM GRADE OF 5/10 IS REQUIRED TO PASS THE EXAM **STUDENTS NEED TO PASS THE EXAM IN ORDER TO PASS THE COURSE**	- Understanding of concepts. - Application of concepts and techniques. - Interpretation of information.	50%
GROUP PRESENTATION:	**Deliver and present in class a project work about one of the topics proposed in class**	30%

COURSEWORK	Complete project milestone documents and class exercises on Moodle	20%

- Committing any serious academic misconduct, such as **plagiarism** of previously published material, or **copying** in the exam or any other graded activity, **will imply not being able to pass the course in the ordinary assessment period.**
- The **use of AI** to create complete works or relevant parts, without citing the source or the tool or without being expressly allowed in the description of the work, will be considered plagiarism and regulated according to the General Regulations of the University.
- At the beginning of the term the professor will announce the office hours for the course. Tutorials are an essential part of the development of the course, and students may attend tutorials during the course within those office times, but it is recommended that they are arranged in advance with the professor.

- Any non-face-to-face learning activity that requires the submission of an assignment/document, etc. will be submitted by the student through Moodle, always in PDF format.

- To be able to take the final exam, students must not have missed **more than one third of the classes without justification**. If this requirement is not met, the student may lose the right to be assessed both in the ordinary and extraordinary assessment period (art. 93-1 of the General Regulations). Failure to attend to the first hour of a two-hour lecture, means having missed the whole session in terms of attendance, regardless of whether or not the student the second hour.

STUDENT WORKLOAD (in hours)		
CONTACT HOURS	OUTSIDE CLASSROOM	OVERALL
60	90	150

READING LIST / RELEVANT REFERENCES

Basic bibliografy

1. Turing, A. M. (1950) — *Computing Machinery and Intelligence*. Mind, 59(236). — Topic 1
2. Searle, J. R. (1980) — *Minds, Brains, and Programs*. Behavioral and Brain Sciences, 3(3). — Topic 1
3. McCarthy, Minsky, Rochester & Shannon (1955) — *A Proposal for the Dartmouth Summer Research Project on AI*. — Topic 2
4. Minsky, M., & Papert, S. (1969) — *Perceptrons*. MIT Press. — Topic 2
5. Mitchell, T. M. (1997) — *Machine Learning*. McGraw-Hill. — Topic 3

6. LeCun, Y., Bengio, Y., & Hinton, G. (2015) — *Deep Learning*. Nature, 521. — Topic 3
7. Marr, D. (1982) — *Vision*. W. H. Freeman. — Topic 4
8. Lake, B. M., et al. (2017) — *Building Machines That Learn and Think Like People*. BBS, 40. — Topic 4
9. Harris, Z. S. (1954) — *Distributional Structure*. Word, 10(2–3). — Topic 5
10. Vaswani, A., et al. (2017) — *Attention Is All You Need*. NeurIPS. — Topic 5
11. Brooks, R. A. (1991) — *Intelligence Without Representation*. Artificial Intelligence, 47(1–3). — Topic 6
12. Kozlowski, A. C., Taddy, M., & Evans, J. A. (2019) — *The Geometry of Culture*. American Sociological Review, 84(5). — Topic 7
13. Autor, D. H. (2015) — *Why Are There Still So Many Jobs?* JEP, 29(3). — Topic 8
14. Turkle, S. (2011) — *Alone Together*. Basic Books. — Topic 9
15. Bender, E. M., Gebru, T., et al. (2021) — *On the Dangers of Stochastic Parrots*. FAccT '21. — Topic 10