COURSE DATA

DATA SUBJECT

Code: 33288
Name: Philosophy and contemporary science
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
1004 - Degree in Philosophy	Facultat de Filosofia i Ciències de l'Educació	3	First quarter
1004 - Degree in Philosophy	Facultat de Filosofia i Ciències de l'Educació		First quarter
1012 - Degree in Philosophy	Facultat de Filosofia i Ciències de l'Educació	3	First quarter
1012 - Degree in Philosophy	Facultat de Filosofia i Ciències de l'Educació	4	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1004 - Degree in Philosophy	Philosophy and contemporary science	ELECTIVES
1004 - Degree in Philosophy	Philosophy and contemporary science	ELECTIVES
1012 - Degree in Philosophy	Philosophy and contemporary science	ELECTIVES
1012 - Degree in Philosophy	Philosophy and contemporary science	ELECTIVES

COORDINATION

IRANZO GARCIA VALERIANO

SUMMARY

Contemporary science raises fundamental philosophical problems. Philosophy and Contemporary Science aims to provide an introductory overview of the most discussed philosophical issues in two quite different fields of science, one belonging to the natural sciences and the other to applied science.

The first problem is the challenge that current physics poses to determinism, betting instead on radical (ontological) indeterminism according to the most widespread interpretation of quantum mechanics.

Secondly, there will be a reflection on medicine, a technological knowledge particularly relevant at present. Theoretical as well as practical interests intersect in medicine. Consequently, it is unavoidably linked to decision-making involved in public health policies, as we have observed in this time of pandemic. We will address the philosophical discussion on the notions of health and disease, the current controversy on the evidential hierarchies used to decide issues such as drug authorization, and the role of predictive models in the COVID-19 pandemic.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

No prerequisites are necessary.

COMPETENCES / LEARNING OUTCOMES

1004 - Degree in Philosophy

Acquire the learning skills needed to undertake further studies with an increasing degree of autonomy.

Appreciate autonomy and independence of judgement.

Be able to analyse, synthesise and interpret relevant cultural, social, political, ethical or scientific data, and to make reflective judgements about them from a non-androcentric perspective.

Be able to apply knowledge to practice.

Be able to communicate in a foreign language.

Be able to convey information, ideas, problems and solutions to others (experts or not).

Be able to learn autonomously.

Be able to obtain information from different primary and secondary sources.

Be able to organise and plan work times.

Be agile and efficient managing various sources of information: bibliographical, electronic and others.

Be competent in the philosophical study of particular areas of research and human praxis, such as mind, knowledge, language, technology, science, society, culture, ethics, politics, law, religion, literature, arts and aesthetics, avoiding androcentric biases.

Be familiar with the ideas and arguments of the main philosophers and thinkers, extracted from their texts, and with the investigation of their traditions and schools, identifying the possible androcentric biases.

Capacidad de comunicación profesional oral y escrita en las lenguas propias de la Universitat de València.

Develop innovation and creativity.

Have critical and self-critical capacity.

Identify and evaluate clearly and rigorously the arguments presented either in texts or orally.

Identify the fundamental issues that underlie any type of debate.

Know how to work in a team avoiding gender discrimination.

Recognise plurality and respect differences.

Relacionar problemas, ideas, escuelas y tradiciones.

Saber aplicar los conocimientos adquiridos para clarificar o resolver determinados problemas ajenos al propio ámbito de conocimiento.

Ser respetuoso con la diferencia y la pluralidad evitando la discriminación por razones de género.

Use and rigorously analyse specialised philosophical terminology.

View original and creative thinking positively.

Work with an increasing degree of self-motivation and self-demand.

DESCRIPTION OF CONTENTS

1. Determinism and indeterminism in current physics

The behavior of matter at very small scales is surprising when compared to what occurs in our daily lives. One of the most striking aspects is the impossibility of precisely determining quantities such as position and velocity (Heisenberg's Uncertainty Principle). The reaction to Quantum Mechanics from deterministic positions (Einstein - the EPR thought experiment, the theories of "hidden variables") seems to be definitively discarded thanks to empirical evidence (Alain Aspect's experiments to contrast Bell's inequality). Those experiments point at such strange properties, from our common-sense daily perspective, as non-locality, and radical ontological indeterminism. But is a radically indeterministic image of the world fully intelligible? What is the role played by physics, compared to other discourses such as philosophy, as to detail the fundamental ontological features of reality?

2. Health and disease

Medicine is a particularly rich field for philosophical debate due to the intertwining of theoretical and

practical interests linked to the decisions of both medical professionals and public managers in charge of health policies. To begin with, there is no undisputed definition of what health is, nor of its correlate, disease. Hence the controversy, venerable but unresolved today, between the bio-statistical perspective on disease, on one side, and the social or holistic approaches, on the other. Turning to the methodological dimension, it¿s clear that medicine is interested in knowing the causes of disease, and intervening on them, if possible (think of the relationship between tobacco and lung cancer, to give a well
-known example), What is under discussion, however, is the type of evidence required to discover these causal links: statistical evidence, evidence on mechanisms, the medical lore, ... A further point of disagreement today, which has deserved a lot of attention in the recent COVID-19 pandemic period, is the role of simulation modelling. Certainly, models have been considered as crucial tools to predict the course of the disease and to assess possible social measures (use of face masks, mobility restrictions for citizens, school closures, etc.). Very different types of models have been used so far (data-driven models, compartmental models, agent-based models,) and there is no consensus about their respective assets concerning prediction, explanation, and understanding.

NOTE ON THE CONTENTS

In principle, the teaching period is equally divided between the two thematic units. However, this distribution, as well as the order in which the units are presented, may be modified by the teacher based on the interests and suggestions of the students.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	5,00
Theory	30,00
Seminar	15,00
Total hours	**50,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	15,00
Independent study and work	65,00
Preparation of lessons	0,00
Preparation for assessment activities	25,00
Resolution of case studies	0,00
Total hours	**105,00**

TEACHING METHODOLOGY

Theoretical lectures will be devoted to explaining the concepts and main philosophical positions on each topic to treat. If necessary, the teacher will indicate the supplementary readings to provide a better understanding of the topic. If the teacher thinks it is convenient, and depending on the number of students enrolled, she can ask for students' presentations/talks to display their accounts on the issues raised by the teacher in previous lectures.

The practical sessions are intended to discuss and apply the notions exposed in the theoretical lectures through several texts by authors and/or specific scientific episodes related to the topics of this course. It can also be organized oral presentations by students on specific readings.

EVALUATION

The qualification of this subject obtains as follows:

- Final written exam about of the topics discussed in the theoretical classes: 70% of the total note. It could consist of long answers, short answers, or a combination of both types.

- Text analysis (individual or group), active participation in practical classes, discussion groups, etc.: 30% of the total note.

Fraudulent conduct in assessment tests and plagiarism in assessment work will be considered in accordance with the UV Assessment and Grading Regulations (ACGUV 108/2017) and the Protocol for Action against Fraudulent Practices (ACGUV 123/2020).

The use of technologies (including AI) to create assessment materials without prior and express authorization from the teaching staff will prevent them from being considered as self-authored and will be treated according to current regulations and the UV Code of Coexistence and Good Practices (ACGUV 300/2023, DOGV, no. 9747/18.12.2023).

REFERENCES

CORE READING

- Heisenberg, W. (1976) La imagen de la naturaleza en la física actual. Barcelona, Ariel, 1976.
- Saborido, C. (2020) Filosofía de la medicina. Madrid, Tecnos.
- Sklar, L. (1994) Filosofía de la Física. Madrid, Alianza.

SUPPLEMENTARY READING

- Becker, A. (2018) What's Real: The Unfinisehd Quest for the Meaning of Quantum Physics. New York, Basic Books.
- Fine, A. (1986) The Shaky game: Einstein, Realism and the Quantum Theory. Chicago, Chicago University Press.
- Gillies, D. (2018) Causality, Probability, and Medicine. London, Routledge.
- Maudlin, T. (2019) Philosophy of Physics - Quantum theory. Princeton, Princeton University Press.
- Smolin, L. (2020) La revolución incabada de Einstein. Más allá de la física cuántica. Barcelona, Ediciones de Pasado y Presente.
- Solomon, M., Simon, J. y Kincaid, H., eds. (2017) The Routledge Companion to Philosophy of Medicine. Londres, Routledge.