COURSE DATA

Data Subject	
Code	33288
Name	Philosophy and contemporary science
Cycle	Grade
ECTS Credits	6.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1004 - Degree in Philosophy	Faculty of Philosophy and Educational Sciences	4	First term
1012 - Degree in Philosophy	Faculty of Philosophy and Educational Sciences	4	First term

Subject-matter

Degree	Subject-matter	Character
1004 - Degree in Philosophy	29 - Philosophy and contemporary science	Optional
1012 - Degree in Philosophy	27 - Philosophy and contemporary science	Optional

Coordination

Name	Department
IRANZO GARCIA, VALERIANO	359 - Philosophy

SUMMARY

Contemporary science raises fundamental philosophical problems. Philosophy and Contemporary Science aims to provide an introductory overview of the most discussed philosophical issues in various areas of science (natural sciences, economics and social sciences, and medicine).

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.

The second problem is motivated by the difficulties of social scientists and economists to represent the human subject in such a way that her behavior is rationalizable/predictable. The goal here is to discuss the philosophical assumptions of so-called "Decision Theory", widely applied in the aforementioned areas.

Finally, 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.

OUTCOMES

1004 - Degree in Philosophy

- Ser respetuoso con la diferencia y la pluralidad evitando la discriminación por razones de género.
- Capacidad de comunicación profesional oral y escrita en las lenguas propias de la Universitat de València.
- Be able to communicate in a foreign language.
- Be able to obtain information from different primary and secondary sources.
- 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 organise and plan work times.
- Be able to convey information, ideas, problems and solutions to others (experts or not).
- Have critical and self-critical capacity.
- Know how to work in a team avoiding gender discrimination.
- Be able to apply knowledge to practice.
- Be able to learn autonomously.
- Develop innovation and creativity.

- 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.
- Use and rigorously analyse specialised philosophical terminology.
- Identify the fundamental issues that underlie any type of debate.
- Relacionar problemas, ideas, escuelas y tradiciones.
- Saber aplicar los conocimientos adquiridos para clarificar o resolver determinados problemas ajenos al propio ámbito de conocimiento.
- Identify and evaluate clearly and rigorously the arguments presented either in texts or orally.
- Be agile and efficient managing various sources of information: bibliographical, electronic and others.
- Acquire the learning skills needed to undertake further studies with an increasing degree of autonomy.
- Work with an increasing degree of self-motivation and self-demand.
- Appreciate autonomy and independence of judgement.
- View original and creative thinking positively.
- Recognise plurality and respect differences.

LEARNING OUTCOMES

The aim is to introduce the student to some of the philosophical problems raised in various fields of science in the last century (natural sciences, social sciences and technologies) that are still being debated today.

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. Agent and social science (Decision Theory)

Unlike the natural sciences, the social sciences are forced to articulate, or presuppose, a notion of the human subject. Decision Theory, widely used in economics, attempts to "model" the subject from a few elementary factors (ability to distinguish between more or less likely future events, intentional, goal-directed, behavior, and capacity to decide). It has been also considered as a set of normative principles for rational action. Can human behavior really be explained as a consequence of such principles or, on the contrary, Decision Theory is a purely normative ideal? And, if it is a normative ideal, can we consider that decision theory offers a theory of rationality in the traditional philosophical sense of the term? More generally, whats the role for the notion of rationality in social science, if any?

3. Health, disease and pandèmics.

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, its 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.

4. NOTE ON THE CONTENTS

En principi, el període lectiu es distribueix igualment entre les tres unitats temàtiques. No obstant això, aquesta distribució, i lordre en què sexposen les unitats, poden ser alterats pel professor en funció dels interessos i suggeriments dels i de les estudiants.

WORKLOAD

ACTIVITY	Hours	% To be attended
Seminars	15,00	100
Tutorials	15,00	100
Theory classes	15,00	100
Development of individual work	15,00	0
Study and independent work	45,00	0
Readings supplementary material	20,00	0
Preparation of evaluation activities	25,00	0
TOTAL	**150,00**	

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.

- Inappropriate practice related to evaluation tests and plagiarism in research work will be considered under the ACGUV Regulation 108/2017.

REFERENCES

Basic

- Heisenberg, W. (1976) La imagen de la naturaleza en la física actual. Barcelona, Ariel, 1976.
Resnik, Michael (1998) Elecciones. Una introducción a la teoría de la decisión, Barcelona, Gedisa.
Saborido, C. (2020) Filosofía de la medicina. Madrid, Tecnos.
Sklar, L. (1994) Filosofía de la Física. Madrid, Alianza.

Additional

- 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.
Ove-Hansson, Sven (2005) Decision Theory: A Brief Theory. Stockholm, Royal Institute of Technology.