COURSE DATA

Data Subject	
Code	33273
Name	Philosophy of science II
Cycle	Grade
ECTS Credits	6.0
Academic year	2023 - 2024

Study (s)

Degree	Center	Acad. year	Period
1004 - Degree in Philosophy	Faculty of Philosophy and Educational Sciences	3	Second term
1012 - Degree in Philosophy	Faculty of Philosophy and Educational Sciences	3	Second term

Subject-matter

Degree	Subject-matter	Character
1004 - Degree in Philosophy	17 - Philosophy of science	Obligatory
1012 - Degree in Philosophy	16 - Philosophy of science	Obligatory

Coordination

Name	Department
LUQUE MARTIN, VICTOR JOSE	359 - Philosophy

SUMMARY

In this subject of the degree of Philosophy the subject of the Philosophy of Science is approached for the first time (in the same course that Philosophy of Science I). Some basic notions of the philosophy of science and how science evolves will be studied; that is, how scientific theories and practices, and even intellectual traditions, are replaced by new ones. When one theory replaces another in the scientific world, does substitution obey certain logical or epistemological rules, or not? The most influential positions in this regard in the philosophy of science of the twentieth and twenty-first centuries will be studied (Logical Positivism, Popper, Kuhn, Hacking, van Fraassen, among others).

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

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

Other requirements

There are no specifiet enrollment restrictions with other subjectes of the curriculum

OUTCOMES

1004 - Degree in Philosophy

- Que los estudiantes hayan demostrado poseer y comprender conocimientos en un área de estudio que parte de la base de la educación secundaria general, y se suele encontrar a un nivel que, si bien se apoya en libros de texto avanzados, incluye también algunos aspectos que implican conocimientos procedentes de la vanguardia de su campo de estudio.
- Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.
- Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.
- Students must have developed the learning skills needed to undertake further study with a high degree of autonomy.
- Que los estudiantes sepan aplicar sus conocimientos a su trabajo o vocación de una forma profesional y posean las competencias que suelen demostrarse por medio de la elaboración y defensa de argumentos y la resolución de problemas dentro de su área de estudio.
- 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.
- Relate problems, ideas, schools and traditions.
- Be able to apply the knowledge acquired to clarify or solve certain problems outside one's own field of knowledge.
- 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 student must be able to identify the basic and differential aspects of scientific activity compared to other human activities. You must also understand what are the recurring philosophical problems posed by scientific discourse and which are currently being discussed.

DESCRIPTION OF CONTENTS

0. Introduction

We will analyze some fundamental notions that are necessary to understand the problems posed by science and that we will use throughout the course of Philosophy of Science II. Among other issues, we will present and discuss different ways of understanding causality, natural laws, or scientific explanation.

1. Thelogical empiricism.

In this first lesson we will present the philosophical reaction against metaphysics which represented the Vienna Circle. As will be said, in this Circle were more or less present many of the leading philosophers of science of the twentieth-century (Carnap, Gödel, Hahn, Hempel,Reichenbach, etc).
Rudolf Carnap was of them a highlight,he made an enormous work in logic and scientific methodology in order to get a foundation of scientific knowledge. However, the clear separation of what science is of what it is not resisted the Carnap efforts and this resistance opened a brilliant stage of the philosophy of science.

2. Popper and the falsacionism

We will present the methodological doctrines of Karl Popper's and we will explain his concept of critical rationalism, his rejection of inductivism and justificationism, and we will develop the implications of the core of his philosophy of science: falsacionism. We will present, also, his
conception of truth and plausibility. Also, we will present his metaphysical doctrine of the 3 Worlds and why this philosophy is a point of arrival to the "objective reality" from its scientific methodology.

3. Kuhn ant the scientific revolutions.

Thomas Kuhn, historian and philosopher of science from United States .He sees scientific development through history completely built with the actions that represent the concepts of "paradigm" and "disciplinary matrix." His doctrine sees the development of science through revolutions that change strongly the contents of scientific disciplines. Some periods called by Kuhn
"of normal science" are finished by a scientific revolution that changes the "paradigm" above. This doctrine leads to Kuhn to enunciate the radical concept of "incommensurability" of scientific theories.

4. Lakatos and the sophisticated falsacionism.

Imre Lakatos was an Hongarian mathematician and philosopher of science who had to change its name (Lipschitz) not to be exterminated by the Nazis, being Jewish. Student and admirer of Popper attacked the simplicity of Popperian falsacionism proposing what was called "sophisticated falsacionism", where the rejection of theories by the scientific community builds a longer way than the one that Popper marked. Lakatos proposed the epistemological concept of "research program" where there are several related theories that point to a theoretical hard core which will
be the most difficult to falsify. Unlike Popper, i similarly to Kuhn, Lakatos gives importance to the times and history for the scientific epistemology.

5. Naturalization of Philosophy of Science.

Naturalizing philosophy of science aims to replace the classical approach, which attempts to set standards that will need to make scientific work, by an approach guided solely by an science or another (Psychology, Sociology), and not by any philosophy; also, of course, the science itself concerned for doing his epistemology. Quine and after Kuhn are pioneering authors of this doctrinal position. Other authors further away from classic positions calling for a stronger naturalization, is the case of Ronald Giere, which states that the philosophy of science must be other science, so made with the scientific method, or the case of Larry Laudan that propose contemplate scientific epistemology as a kind of map of the scientific theories where some actions are justified between them without having any special moment that would affirm the existence of any epistemic hierarchy between theories.

6. Scientific realism and constructive empiricism
Scientific realism and construct

Scientific realism states (approximately) that the entities that study science exist independently of mind and language, that the main goal of this discipline is to describe, explain, and predict reality, and that science largely provides us with reliable knowledge. This position has been defended, in different shades, by Hillary Putnam, Stathis Psillos or Mario Bunge. Among the philosophers and scientists who have held anti-realist positions, we can highlight

7. Philosophy of special sciences

This topic will deal with some central issues of some of the special philosophies of science, such as biology, the philosophy of economics, the philosophy of physics or the philosophy of cognitive sciences.

8. Sociological approaches to science
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The sociology of science studies science as a social activity. Among other things, it analyzes how the patterns of experimentation, research, organization of scientific teams, etc. are influenced or even determined by certain social relationships. A key figure in the development of this trend was Robert Merton, who identified a set of norms that guide scientific activity and that form a scientific ethos. In the 90s, the questions posed by the sociology of science reached their peak with the so-called 'Wars of Science', in which some theorists questioned scientific objectivity, the scientific

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Seminars	15,00	100
Tutorials	5,00	100
Attendance at events and external activities	5,00	0
Study and independent work	20,00	0
Readings supplementary material	20,00	0
Preparation of evaluation activities	30,00	0
Preparing lectures	25,00	0
TOTAL	**150,00**	

TEACHING METHODOLOGY

In the theoretical classes the positions and concepts on each of the topics to be discussed will be explained. Where appropriate, the teacher will indicate the readings that he deems pertinent to facilitate understanding. If the teacher considers it appropriate, and depending on the number of students enrolled, it may be chosen that students present their reflections in class, in order of memory, on the issues raised by the teacher in previous classes.

In the practical classes it is intended to discuss and apply the notions exposed in the theoretical classes through texts by authors and / or specific episodes of scientific practice. Oral presentations of students on agreed readings may also be organized.

EVALUATION

The grade for the course is established as follows:

- Written test at the end of the semester: 80% of the total mark.

- Text comments (individual or in group) or comments related to the texts, active participation in the discussion groups of practical classes, assignments, etc.: 20% of the total mark.

-Fraudulent performance in the of evaluation tests and plagiarism in any evaluation work will be considered in accordance with the ACGUV 108/2017 and ACGUV 123/2020 regulation. The use of technologies (including AI), which is not previously authorised by the teaching staff, to create assessment materials will mean that these will not be considered as self-authored and will be treated according to current regulations.

REFERENCES

Basic

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  -Díez, J. Moulines, U. (2008, 3a edició) Fundamentos de Filosofía de la Ciencia. Ariel
  Okasha, S. (2007) Una brevísima introducción a la filosofía de la ciencia. Oceáno.

Additional

- Chalmers, A. (2010; 4ª edición ampliada). ¿Qué es esa cosa llamada ciencia? Madrid: Siglo XXI.
  Dieguez, D. (2012) La vida bajo escrutinio, Buridan.
  Echeverría, J. (2003)La revolución tecnocientífica. Madrid: FCE.
  Hacking, I. (1996) Representar e intervenir. Barcelona: Gedisa.
  Harding, S. (1996) Ciencia y Feminismo, Madrid: Morata.
  Kuhn, Th. (2006) La estructura de las revoluciones científicas. México: FCE, 2006.
  Saborido, C. (2020) Filosofía de la medicina, Tecnos.
  Laudan, L. (1986) El progreso y sus problemas. Madrid: Ediciones Encuentro
  Potochnik, A., Colombo, M., Wright, C. Recipes for Science: An Introduction to Scientific Methods and Reasoning, Kindle
  Newton-Smith, W. (1981) La racionalidad de la ciencia. Buenos Aires: Paidós,
  van Fraassen, B. (1996) La imagen científica. México: Paidós.
  E.N. Zalta. The Encyclopedia of Philosophy. http://plato.stanford.edu/