

**COURSE DATA****DATA SUBJECT****Code:** 33273**Name:** Philosophy of science II**Cycle:** Undergraduate Studies**ECTS Credits:** 6**Academic year:** 2025-26**STUDY (S)**

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

SUBJECT-MATTER

Degree	Subject-matter	Character
1012 - Degree in Philosophy	Philosophy of science	COMPULSORY

COORDINATION

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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, 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 specific enrollment restrictions with other subjects of the curriculum



COMPETENCES / LEARNING OUTCOMES

1004 -

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 apply the knowledge acquired to clarify or solve certain problems outside one's own field of knowledge.

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.

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.



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.

Recognise plurality and respect differences.

Relate problems, ideas, schools and traditions.

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

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.

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.

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

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. Theological 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 Hungarian 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.

Scientific realism states (approximately) that the entities that study science exist independently of mind



6. Scientific realism and constructive empiricism
Scientific realism and construct

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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Sociological approaches to science

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

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	5,00
Individual or group project	0,00
Independent study and work	40,00
Preparation of lessons	25,00
Preparation for assessment activities	30,00
Resolution of case studies	0,00
Total hours	100,00



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

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).

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