

**COURSE DATA****Data Subject**

Code	33272
Name	Philosophy of science I
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	First term
1012 - Degree in Philosophy	Faculty of Philosophy and Educational Sciences	3	First 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
IRANZO GARCIA, VALERIANO	359 - Philosophy
PEREZ GONZALEZ, SAUL	359 - Philosophy

SUMMARY

This subject is intended to familiarise the student with some general aspects of scientific methodology and with the philosophical problems raised by it. The basic questions addressed are: the peculiarity of science versus other discourses; the role of the experiment in empirical hypotheses testing, in their different varieties; the nature of scientific models and theories; the different conceptions of confirmation and explanation; and the discussion of whether scientific theories are true and describe reality. This list is not exhaustive so it does not exclude addressing further related issues.



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 hay ninguna precondition.

COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

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 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 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 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 (RD 1393/2007) // NO CONTENT (RD 822/2021)

The student must be able to identify the basic and differential aspects of scientific activity versus other human activities. She must also understand what kind of philosophical issues are recurring themes in the scientific discourse and which are currently the subject of discussion.

DESCRIPTION OF CONTENTS

1. Introduction: science and philosophy of science

The role of science in our world.

Goals of science and goals of the philosophical thought about science.

2. Observation and measurement in science.

Types of concepts.

The quantitative language in science. Its usefulness and justification in various scientific areas.

The "observational - theoretical" distinction.



3.

4. Hypothesis, laws, theories, and models.

Types of hypotheses.

What is a scientific law?

Laws, prediction, and explanation.

Conceptions of scientific theories (enunciative conception / semantic conception)

Models in the empirical sciences.

5. Correlations and causes.

Associations and correlations.

Determinism and indeterminism.

Experimental designs for the discovery of causes (randomized controlled trials (RCTs), prospective designs, retrospective designs.

6. Scientific explanation.

The deductive-nomological model.

Explanation as unification.

Explanation and intervention.

Explanation and mechanisms.

7. Science and pseudoscience.

Non-philosophical implications of the "science / pseudoscience" debate.

Comparing criteria of scientific demarcation.

Science as reliable knowledge.

**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 theory classes, the main concepts and positions of each of the subjects to be covered will be explained. If deemed appropriate, the lecturer will indicate further reading on what has been explained in class.

In the practical classes, the aim is to discuss, deepen and rigorously apply the notions presented in the theoretical classes. Among the strategies that can be considered are the following:

- (a) exercises and quizzes to reinforce understanding of the fundamental concepts and ideas of each topic;
- (b) text commentaries of relevant authors in the discipline;
- (c) discussion of articles from scientific sections of newspapers or popular science magazines that are relevant to the subject matter of the course;
- (d) analysis of specific episodes in scientific history/practice;
- (e) oral presentations by students, preferably in groups, on agreed readings.

EVALUATION



The evaluation of the subject is established as follows:

- Final written and individual test on the topics discussed in the theoretical classes = 80% of the total mark. This test may ask for long answers, short answers, or a combination of both types.
- Activities carried out in the practical classes (exercises/questionnaires, text commentaries, etc.) = 20% of the total mark.
- The final grade for the course will be the sum of the marks obtained in each part, theory and practical. However, in order to pass the course, it is necessary to pass the final exam on the theoretical part. Otherwise, the marks obtained in the practical part will not be added together.

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

- Diéguez, A. (2022) Filosofía de la ciencia. Ciencia Racionalidad y realidad. Málaga: UMA Editorial.

Additional

- Chalmers, A. (2000; 3ª edic. ampliada). ¿Qué es esa cosa llamada ciencia? Madrid: Siglo XXI.

Díez, J., i Moulines, C.U. (2008) Fundamentos de Filosofía de la Ciencia.
Barcelona: Ariel.

Giere, R., (1997; 4ª ed.) Understanding Scientific Inference. Fort Worth, Texas, Harcourt and Brace College Publishers.

Humphreys, P., editor (2016) The Oxford Handbook of Philosophy of Science. Londres: Oxford University Press.

Rosenberg, A. y McIntyre, L. (2019; 4ª ed.). Philosophy of Science. A Contemporary Introduction. Londres: Routledge.

Zalta, E.N., editor The Stanford Encyclopedia of Philosophy, Acceso libre: <https://plato.stanford.edu/>