COURSE DATA

DATA SUBJECT

Code: 33272
Name: Philosophy of science I
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2026-27

STUDY (S)

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

SUBJECT-MATTER

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

COORDINATION

IRANZO GARCIA VALERIANO

PEREZ GONZALEZ SAUL

SUMMARY

The subject aims to familiarise students with the most general aspects of scientific methodology and the philosophical problems it raises. The fundamental questions to be addressed, which does not exclude other related questions, are: method and objectives in science; the role of observation, measurement and experimentation in the testing of hypotheses; the influence of values in scientific practice; the nature of scientific laws, models and theories; the identification of causal relationships; the notions of confirmation and explanation; and the discussion on the nature and demarcation of science.

The course will promote knowledge of the regulatory framework and the fundamental principles of Organic Law 10/2022, of 6 September, on the comprehensive guarantee of sexual freedom. Content related to equality and a gender perspective will be addressed, and attention will be given to strategies for the prevention, awareness-raising, and detection of situations of sexual violence in educational settings. At the same time, teaching practices aimed at the prevention and detection of sexual violence will be integrated, in coordination with the institutional resources and protocols established by the University of Valencia.

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PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

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

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 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

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.

Science and values.
Non-philosophical implications of the "science / pseudoscience" debate.
Comparing criteria of scientific demarcation.
Science as reliable knowledge.

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 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.

Practical activities cannot be reassessed or resubmitted during the second assessment period.

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 bibliography]

Chalmers, A. (2010; 4ª ed. ampliada). ¿Qué es esa cosa llamada ciencia? Siglo XXI.

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

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

[Supplementary bibliography]

Diéguez, A. (2024). La ciencia en cuestión. Disenso, negación y objetividad. Herder

Giere, R. N. (2006; 5ª ed.). Understanding scientific reasoning. Thomson-Wadsworth.

Humphreys, P. (Ed.). (2016). The Oxford Handbook of Philosophy of Science. Oxford University Press.

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