COURSE DATA

DATA SUBJECT

Code: 33270
Name: Logic
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	2	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1012 - Degree in Philosophy	Logic and theory of argumentation	COMPULSORY

COORDINATION

VALOR ABAD JORDI

TERRES VILLALONGA MARIA DEL PILAR

SUMMARY

This course, taught in the second year of the Philosophy degree, offers an introduction to set theory, propositional logic and first-order logic with identity. The study of these disciplines allows us to understand the meaning of linguistic expressions, such as veritative functions and quantifiers, which are fundamental for the articulation of reasoning and for our understanding of the notions of valid argument, logical consequence or deduction. The use of formal languages and basic tools of set theory will help us to provide precise definitions of these notions.

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 specified enrollment restrictions with other subjects of the curriculum

COMPETENCES / LEARNING OUTCOMES

-

Acquire a basic knowledge of the problems, texts and methods that philosophy has developed throughout its history and recognise possible androcentric biases.

Acquire the capacity to pose and solve problems, as well as to make decisions, in a limited time.

Appreciate autonomy and independence of judgement.

Be able to apply knowledge to practice.

Be able to apply knowledge to work in a professional manner and have competences for preparing and defending arguments and for solving problems within the field of study.

Be able to convey information, ideas, problems and solutions to others (experts or not).

Be able to handle the applications of information and communication technologies.

Be able to take on leadership, coordination and representation tasks.

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.

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.

Recognise human fallibility.

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.

DESCRIPTION OF CONTENTS

1. Set theory

Axioms of Zermelo-Fraenkel set theory. Fundamental notions, operations and constructions of set theory. Finite and infinite sets, ordinal and cardinal numbers.

2. Propositional logic

Syntax and semantics of propositional languages. Deductive calculus for propositional languages. The consequence operator and its properties. The properties of soundness, adequacy, completeness, compactness and decidability. Theories and models.

3. First order logic with identity

Syntax and semantics of first-order languages with identity. Deductive calculus for first-order languages. The consequence operator and its properties. The properties of soundness, adequacy, completeness, compactness and undecidability. Theories and models.

4. Non-standard logics

Intuitionistic logic as an example of non-bivalent logic. Modal operators and accessibility relations between possible worlds: modal logics as examples of non-extensional logics.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	5,00
Theory	30,00
Classroom practices	15,00
Total hours	**50,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	5,00
Individual or group project	20,00
Independent study and work	30,00
Preparation of lessons	15,00
Preparation for assessment activities	30,00
Resolution of case studies	0,00
Total hours	**100,00**

TEACHING METHODOLOGY

1. Lectures (master classes with the possible participation of the students).

Credits: 1,20

Methodology of teaching and learning: Lecturer`s exposition, with the possible participation of the students.

Competences to acquire: 1-3, 5-10, 13, 16, 17, 19, 21, 22.

2. Practical classes (participative, searching connections between theory and practice: case studies and simulations, problems resolutions, texts and documents analysis).

Credits: 0,60

Methodology of teaching and learning: Participation of the students under the teacher guidance.

Competences to acquire: 1-3, 6-8, 10-13, 15-19, 21, 22.

3. Essay

Credits: 0,80

Methodology of teaching and learning: Personal interviews to agree on the independent work of the student , the requirements of its elaboration and to follow its evolution.

Competences to acquire: 1-10, 12-14, 16, 17.

4. Supervisions (individual or in small groups)

Credits: 0,20

Methodology of teaching and learning: Personal interviews or online questions (through "Aula Virtual", e-mail, blogs, etc.)

Competences to acquire: all of them in general; especially 6, 9, 12, 13, 16.

5. Complementary activities: attendance to conferences, courses and other cultural, academic or scientific activities related with the knowledge area.

Credits: 0,20

Methodology of teaching and learning: Possible participation of the students and the writing of an essay or report about the topic.

Competences to acquire: all of them in general; especially 9, 10, 13, 16, 18.

6. Revision, preparation of tasks and realization of the tests.

Credits: 2,40

Methodology of teaching and learning: independent work.

Competences to acquire: all of them in general; especially 2, 3, 5, 6, 12, 16,

EVALUATION

The evaluation of the course will take into account the contents of the theoretical classes (up to 70% of the final grade) and the practical classes (up to 30% of the final grade). The evaluation of the contents will be carried out according to one of the following two methods (the teacher of the course will indicate at the beginning of the course which method will be used):

1) A single written test containing questions of two types: theoretical and practical.

2) Two tests: a final written test related to the content of the theoretical classes and a set of exercises to be carried out throughout the course related to the content of the practical classes.

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

[Basic references]

- Badesa, C., Jané, I. y Jansana, R. (2007). Elementos de lógica formal. Barcelona: Ariel, 2a edición.
- Deaño, A. (2017). Introducción a la lógica formal. Madrid: Alianza.
- Falguera, J. L. y Martínez, C. (1999). Lógica clásica de primer orden. Madrid: Trotta.
- García-Trevijano, C. (2002). El arte de la lógica. Madrid: Tecnos, 3a edición.
- Garrido, M. (2001). Lógica simbólica. Madrid: Tecnos, 4a edición.
- Goldstein, L. et al. (2008). Lógica. Conceptos clave en Filosofía. Valencia: PUV.
- Halmos, P. (1965). Teoría intuitiva de los conjuntos. México D.F.: Continental.
- Manzano, M. y Huertas, A. (2004). Lógica para principiantes. Madrid: Alianza.

[Complementary references]

- Agler, D. (2012). Symbolic Logic. Syntax, Semantics, and Proof. New York: Rowman & Littlefield.
- Alchourrón, C. E. (Coord.) (1995). Lógica. Madrid: Trotta.
- Enderton, H. (2004). Una introducción matemática a la lógica. México D.F.: Instituto Invest. Filosóficas.
- Frápolli, M. J. (Coord.) (2008). Filosofía de la lógica. Madrid: Tecnos.
- Goranko, V. (2016). Logic as a Tool: A Guide to Formal Logical Reasoning. Chichester: Wiley & Sons.
- Haack, S. (1991). Filosofía de las lógicas. Madrid: Cátedra.
- Hodges, W. (1977). Logic. Harmondsworth (Middlesex): Penguin Book.
- Orayen, R. y Moretti, A. (Coords.) (2004). Filosofía de la lógica. Madrid: Trotta.
- Prior, A. N. (1976). Historia de la lógica. Madrid: Tecnos.

- Quine, W. V. O. (1981). Los métodos de la lógica. Barcelona: Ariel, nueva edición.
- Quine, W. V. O. (1998). Filosofía de la lógica. Madrid: Alianza.
- Tomassi, P. (1999). Logic. London: Routledge.