

Logic

Code: 100314
ECTS Credits: 6

Degree	Type	Year	Semester
2500246 Philosophy	OB	2	1

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers

María Pilar Dellunde Clavé

Prerequisites

None.

Objectives and Contextualisation

How can I argue correctly? How am I as a writer? The objective of this subject is, first of all, to make an introduction to the fundamental logical notions: truth and falsehood, logical consequence, correct reasoning, satisfaction and consistency. Secondly, it is intended to provide students with the basic techniques for the logical analysis of reasoning, paying special attention to philosophical reasoning. The course, however, can be attended by people from other specialties. Throughout the course there will be a writing workshop to put into practice the acquired knowledge.

Competences

- Students must be capable of applying their knowledge to their work or vocation in a professional way and they should have building arguments and problem resolution skills within their area of study.
- Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
- Students must be capable of communicating information, ideas, problems and solutions to both specialised and non-specialised audiences.
- Students must develop the necessary learning skills to undertake further training with a high degree of autonomy.
- Students must have and understand knowledge of an area of study built on the basis of general secondary education, and while it relies on some advanced textbooks it also includes some aspects coming from the forefront of its field of study.
- Using the symbology and procedures of the formal sciences in the analysis and building of arguments.

Learning Outcomes

1. Ability to maintain an appropriate conversation.
2. Autonomously searching, selecting and processing information both from structured sources (databases, bibliographies, specialized magazines) and from across the network.
3. Effectively communicating and applying the argumentative and textual processes to formal and scientific texts.
4. Explaining the specific notions of the History of Philosophy.
5. Formulating arguments for and against an issue, using proper vocabulary, conceptual precision and argumentative coherence.
6. Regularising arguments of any source and calculating its logical correctness.
7. Relating elements and factors involved in the development of scientific processes.
8. Solving problems autonomously.

Content

1. Basic notions: correct argument and consistency.
2. Propositional logic: First steps towards symbolization. Connectives.
3. Semantics of propositional logic. Assignments of truth values. Truth tables. Tautologies, contradictions and contingent formulas.
4. Satisfaction and logical consequence. Logical equivalence.
5. Natural deduction for propositional logic
6. Syntax of first order logic. Symbols. Well-formed Formulas Rules. Tree of a formula. Free and bounded variables.
7. Semantics of first order logic. Structures. Truth in a structure. Interpretations.
8. Natural deduction for first order logic.
9. Writing workshop.

Methodology

- Combination of theoretical and practical classes.
- Joint resolution of exercises in class.
- Symbolization of arguments in natural language.
- Writing arguments workshop
- Optional self-learning activities.
- Introduction of different levels of difficulty in the practices.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Explanation of concepts.	20	0.8	6, 5
Solve problems in classroom	29	1.16	6, 5
Type: Supervised			
Solve doubts	26	1.04	6, 5, 8
Type: Autonomous			
Solve problems	50	2	6, 8
Study of concepts	25	1	6, 5, 8

Assessment

The evaluation is continuous, with three evaluation activities: two synthesis tests, and a series of exercises within a writing workshop, which will take place throughout the course. The first test will evaluate the content on propositional logic (points 1-4 of the program) and will be worth 45% of the grade; the second test will evaluate the contents of first-order logic (points 5-7 of the program) and will be worth 45% of the grade. The exercises done in the writing workshop will be worth 10% of the grade.

The two logic tests will be carried out, one the first fortnight of November, and the other one the second fortnight of December. The third activity will be done throughout the course, it will be necessary to do at least 15 practices in class to be evaluated of the writing workshop. At the time of carrying out each evaluation activity, the teacher will inform the students (via Moodle) of the procedure and date of review of the qualifications.

In order to participate in the final exam, students must first be evaluated in the two synthesis tests, and have obtained a minimum of 3 points (adding the results of the two tests). "Non-evaluable" will be considered only those who have not performed any of the three evaluation activities.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Synthesis Tests	90%	0	0	6, 5, 8
Writing workshop	10%	0	0	2, 4, 3, 6, 5, 1, 7, 8

Bibliography

Mandatory: P.D. Magnus, *Forallx*, University at Albany, State University of New York, modified by T. Button, University of Cambridge, under Creative Commons License.

Optional:

1. C. Badesa, I. Jané, R. Jansana, *Elementos de lógica formal*, Ariel, 2007.
2. J. Barwise and J. Etchemendy, *The Language of first-order logic*, 3era ed., Center for the Study of Language and Information, cop. 1992.
3. Coursera Course: *Logic, language and information*.
<https://www.coursetalk.com/providers/coursera/courses/logic-language-and-information-1>
4. Stanford Enciclopedia of Philosophy: <http://plato.stanford.edu/>
5. Gateway to Logic. <http://logik.phl.univie.ac.at/~chris/gateway/formular-uk.html>
6. The Logic Café, <http://thelogiccafe.net/PLI/>