Logic and Argumentation (A005443)

Course size   *(nominal values; actual values may depend on programme)*

Credits 5.0   **Study time 150 h**

Course offerings in academic year 2025-2026

A (Year)   Dutch   Gent

Lecturers in academic year 2025-2026

Kolen, Filip	LW01	staff member
Lefevere, Merel	LW01	staff member
Meheus, Joke	LW01	lecturer-in-charge

Offered in the following programmes in 2025-2026	crdts	offering
Bachelor of Arts in Moral Sciences	5	A

Teaching languages

Dutch

Keywords

logic, formal logic, argumentation, reasoning, deductive inferences, inductive inferences, classical propositional logic, predicate logic, non-classical logics, fallacies

Position of the course

The main objective of this course is to train students in the basic skills with respect to argumentation and reasoning, such as:
• recognizing arguments and inferences,
• distinguishing correct inferences from incorrect ones,
• constructing correct inferences from given premises(with an emphasis on heuristisc),
• grasping the meaning of sentences in natural language.
These skills are not only necessary to perform scientific research in a certain domain, but also to understand and evaluate the scientific results in that domain. These skills are moreover a necessary condition for an attitude of critical reflection on and of intellectual openness.

Contents

In a first part, students are familiarized with some basic insights concering arguments and inferences (the distinction between arguments and explanations, the distinction between deductive and inductive inferences, the distinction between inferences that are correct on formal grounds and those that are correct on informal grounds, main fallacies, ...) The remaining parts mainly concentrate on: classical propositional logic, an extension of this with a relevant implication (that has a close resemblance to implications in natural languages), and classical predicate logic. For each of these systems, both the syntax and the semantics are presented and special attention is paid to applications in natural language. The diversity of logical systems and application domains is illustrated by means of some other logics: many-valued, modal, paraconsistent, ...

Initial competences

No specific background needed.

Final competences

1 A thorough knowledge of the basic concepts concerning reasoning and argumentation.

2 To be able to make proofs in classical propositional logic, in an extension of the latter with a relevant implication, and in classical predicate logic.

3 To master the semantic decision methods (truth tables, semantic tableaux).

4 To be able to analyse and formalise sentences from natural language.

5 To be able to build correct arguments from a set of premises, including premises one does not indorse.

6 To be able to distinguish between the question whether the premises and the conclusion of an argument are acceptable and the question whether the argument is valid.

7 To have a basic insight in some alternative logical systems.

8 To have an insight in the main fallacies.

Conditions for credit contract

Access to this course unit via a credit contract is unrestricted: the student takes into consideration the conditions mentioned in 'Starting Competences'

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Seminar, Independent work

Extra information on the teaching methods

The seminars follow the "flipped classroom" model. The material is divided into work packages that are prepared by the students at home on the basis of assignments. The seminars serve to make and grade tests, to make more difficult exercises, and to deepen theoretical insights. Preparation (the assignments) and participation in the seminars (including making the tests) are mandatory.

Study material

None

References

No specific references.

Course content-related study coaching

For the guided self-study there are on the one hand assignments that guide the students step by step through the theory and on the other hand there is the "Logic program" on Alice that contains exercises for all parts of the material. An assistant is available (online) at fixed times for questions.
For whom this is not enough, there is the possibility of individual guidance. The individual guidance is intended to supplement the classess, not to replace them. Anyone who has not taken part in one or more classes or has not completed one or more assignments without a valid reason cannot count on individual guidance.

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Written assessment

Examination methods in case of periodic assessment during the second examination period

Written assessment

Examination methods in case of permanent assessment

Participation, Written assessment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

NPE: participation:
• making all assignments (in a serious way) and submit them on time
• making the weekly tests (in a serious way)
• active participation in the feedback for the assignments and tests
• the assignments and weekly tests serve as preparation for the "progress tests" (NPE) and the exam (PE); maximum of points are awarded if all assignments and tests have been made in a serious way and if there was active participation during the feedback

NPE: exam:
- "progress tests" at the end of each module (4 in total)
- written, open book
- the questions assess insight (seeing connections between the different parts of the material, for example) and assume that one is capable of correctly applying the studied methods and techniques to new problems
- the "real" points (obtained for the 4 progress tests) are awarded

PE:
- written exam
- open book
- the questions assess insight and ability to apply the material to new problems

Calculation of the examination mark

First chance exam
NPE:
- weekly assignments and weekly tests: 10%
- progress tests: 40%

PE: 50%
Second chance exam: 100% PE

Facilities for Working Students

Facilities:
- Possible rescheduling of the examination to a different time in the same academic year.
- Feedback can be given by an appointment during or after office hours.

For more information concerning flexible learning: contact the monitoring service of the faculty of Arts and philosophy