GHENT UNIVERSITY

Course Specifications

From the academic year 2018-2019 up to and including the academic year

Logic (B000945)

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

Credits 5.0	**Study time 150 h**	**Contact hrs**	45.0h

Course offerings and teaching methods in academic year 2023-2024

A (semester 2)	Dutch	Gent	seminar: coached exercises	15.0h
			seminar	30.0h

Lecturers in academic year 2023-2024

Meheus, Joke	LW01	lecturer-in-charge
De Coninck, Thijs	LW01	co-lecturer
Frijters, Stef	LW01	co-lecturer
Kolen, Filip	LW01	co-lecturer

Offered in the following programmes in 2023-2024	**crdts**	**offering**

Teaching languages

Dutch

Keywords

Logic, formal logic, argumentation, reasoning, deductive inferences, inductive inferences, classical propositional logic, predicate logic

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 and grasping the meaning of sentences in natural language). These skills are important for performing scientific research in a certain domain (for instance, criminology), and for understanding and evaluating the scientific results in that domain (B.1.5, B.2.1).
Moreover, these skills are important for developing an attitude of intellectual openness and critical reflection towards others and oneself (B.3.1, B.3.2).
In addition to this, the students are familiarized with some theoretical insights that are necessary or useful with respect to the practical aims and are stimulated to apply the skills and methods to their own domain (B.3.3).

Contents

The first part of the course is concerned with a number of elementary properties of arguments. What is an argument? How are arguments structured? How can we learn to critically evaluate arguments? There are important distinctions to be made here, such as the distinction between arguments and explanations, the distinction between deductive and inductive inferences, between inferences that are correct on formal grounds and those that are correct on informal grounds, etc.
In the remainder of the course, the focus is on classical propositional logic and classical predicate logic. For each of these systems, a proof-theoretical and semantical characterisation is given. Special attention is paid to how these systems relate to natural languages.

Initial competences

No specific background knowledge is required. It is expected though that the students (in other courses than this one) learn to work, in an independent way, with the sources that are relevant for their own discipline. This, in turn,

presupposes that they are familiar with the means to gain access to these sources (archives, specialized databases, internet, ...)---see, also the section "Final Objectives".

Final competences

1 The students have a thorough insight in and knowledge of the basic concepts with respect to argumentation and reasoning.
2 The students are able to apply the theoretical insights and research methods of the own discipline (they are able, for instance, to distinguish between deductive and inductive methods).
3 The students are able to see connections between the different parts of the course and the basic skills concerning argumentation and reasoning
4 The students are able to apply (in a precise way) the basic skills and methods regarding argumentation and reasoning both to abstract examples and to examples from natural language (preferably from their own domain)
5 The students are able to process the material in a critical way.
6 The students are able to explore and understand the sources that are relevant for their own domain (for instance, in order to find and elaborate relevant applications)
7 The students are able to formalize qualitative findings (data as well as generalizations) in such a way that they can be handled by a computer program.
8 The students are able to explain why some formalizations cannot possibly lead to the intended results.
9 The students are able to analyse, in a very precise way, the meaning of sentences in natural language.
10 The students are able to construct correct inferences from a given set of premises.
11 The students are able to give a clear and logically coherent exposition (in natural language) on a topic that is relevant for the own discipline
12 the students are able to make the distinction between the question whether the parts of some inference (the premises and the conclusion) are acceptable and the question whether the inference itself is correct.
13 The students have an open attitude with respect to the people they will encounter in their later practice (because, for instance, they know that rational people may differ in opinion)
14 The students are able to project themselves into different situations and different perspectives (because, for instance, they are able to make correct inferences from premises that they do not accept themselves).

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

Access to this course unit via an exam contract is unrestricted

Teaching methods

Seminar, Seminar: coached exercises

Extra information on the teaching methods

During the lectures ("werkcolleges"), theoretical insights are taught and the students are initiated in obtaining the required skills in an interactive way. Students process the material using the textbook, the syllabus, as well as an interactive computer program. Problems encountered with the material are discussed at large, and exercises are made collectively on e.g. the evaluation of arguments and inferences.
During the exercise sessions ("werkcolleges: geleide oefeingen"), additional problems are solved by the students (concerning difficulties that become clear during the interactive lectures), in small groups and under the guidance of the teacher.

Learning materials and price

Diderik Batens, Logicaboek. Leuven/Apeldoorn, Garant, 2017.
Diderik Batens, Logicaprogramma, online accessible for free for students.
Syllabus and additional material via Minerva.

References

Course content-related study coaching

The computer program that is available for this course contains exercises for all parts of the subject matter and provides adequate and specific feedback whenever the student makes mistakes. An assistant is appointed for further questions and problems (individual guidance).

Assessment moments

end-of-term and continuous assessment

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

Written examination, Written examination with open questions

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

Written examination, Written examination with open questions

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

Written, completely "open book".
Open questions: recognizing arguments, evaluating arguments, formalising natural language sentences, checking inferences for their correctness, etc.
All questions focus on insight and the ability to apply the methods and techniques learned to new problems.

Calculation of the examination mark

100% periodical

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.

Extra:

- Minerva account is required.