UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

# COURSE SYLLABUS

# Logic

**2627-2-E2002R011**

## Course title

Logica

## Topics and course structure

In everyday life we use our cognitive faculties to reflect on the reality that surrounds us. What does it mean to reason correctly? Can we really know what is real and what is not, or is the truth about the world beyond our cognitive abilities?

Among the various human cognitive activities there is one that deserves special attention: scientific research, generally considered a particularly reliable source of knowledge. We can ask similar questions about scientific knowledge to those we have raised about knowledge in general: what does it mean to reason correctly in science? Can science really help us to know what is real or what is not, or is the truth about the world inaccessible even to scientific research?

These questions are central to three areas of philosophy:

1. **logic** (the study of correct reasoning)
2. **epistemology** (the study of the nature and limits of knowledge)
3. the **philosophy of science** (the study of the nature and limits of scientific knowledge).

**Why is it important to address these questions within the Study Course in Intercultural Communication?** Because communicating "well" means (also) communicating correctly: offering good justifications for the theses that are communicated and attempting to convey true representations in about the reality that surrounds us. But what does it mean to reason correctly? What does it mean to communicate true information about the world? How close can we get to knowing reality? Knowing how to reflect on these issues is important to carry out in the most

proper way the job of communicating. Furthermore, anyone wishing to tackle the increasingly important sector of scientific communication cannot do without an in-depth understanding of the nature and limits of scientific knowledge.

In this course you will be guided through these questions undergoing a very different experience from what some of you have had during the philosophy classes in secondary schools. We will deal with philosophy and not mainly with the history of philosophy: it will certainly be important to recall the thought of some important philosophers, but our attention will be directed to the problems, questions, topics for reflection, to the "what" rather than the " who". The teaching method followed in the classroom will be mainly laboratory and dialogical.

The course will be divided into three parts.

1. Logic. We will introduce the notions of logical consequence, deduction, induction, rule of inference. We will learn to use the method of truth tables to decide whether the arguments expressed in the so-called propositional logic are deductive or not. We will use some inference rules to construct deductively correct reasoning.

2. Epistemology. We will understand what it means to believe and what it means to know something. We will reflect on the notion of truth and we will realize the fact that, at least according to a classical conception of truth, any of our beliefs - including the most obvious ones - could be false.

3. Philosophy of science. We will try to understand if, and why, science is a "special" source of knowledge compared to the others. In doing so we will ask ourselves what a hypothesis is, what a scientific theory is, what it means to explain, and how we can be sure that science gives us a true picture of the world even in its unobservable aspects.

## Objectives

In this course, with a constant and participatory attendance at the lessons, we intend to stimulate

1. the exercise of your argumentation and logical reasoning skills, adequately supported by tools for formal assessment of arguments;
2. the propensity to "question", with a critical and anti-dogmatic, but constructive and rational, attitude;
3. the understanding of some key concepts of logic, epistemology and philosophy of science, and their application to study and life contexts;
4. the understanding of the reasons why science is a particularly reliable form of knowledge compared to others.

## Methodologies

The lectures will be conducted entirely in presence, and will adopt different teaching methods.
**1.** 20 lessons of 2 hours, which will be conducted in lecture mode in the initial part and in interactive mode in the second part;
**2.** 3 2-hour lectures of a laboratory nature, in which you will be invited to conduct reflective work (in small groups) on some important texts in logic, epistemology, and philosophy of science, and present the results;
**3.** 3 exercises (of 2 hours each) aimed at acquiring the logical-argumentative skills required by the course.

**Please be prepared to participate in a dense and stimulating classroom interaction**.

## Online and offline teaching materials

The e-learning page of the course will be updated weekly with the slides and other video and text materials.

## Programme and references

**Note (2): if you are an Erasmus student and want to give the exam in English, please contact Prof. Datteri (edoardo.datteri@unimib.it) to agree on a program with texts in English.**

1. Edoardo Datteri, *Logica*, McGraw-Hill Education Create: ISBN: 9781307920253 (nota: si tratta di una raccolta di alcuni capitoli di un manuale di logica. Potete reperirlo in libreria comunicando l'ISBN e il fatto che si tratta di un progetto Create della casa editrice McGraw-Hill)
2. Tommaso Piazza, "*Che cos'è la conoscenza*", Carocci, 2017 (primi 3 capitoli).
3. Peter Godfrey-Smith, *Teoria e realtà. Introduzione alla filosofia della scienza*, Raffaello Cortina, 2022.
4. Alan Musgrave, *Senso comune, scienza e scetticismo*, Raffaello Cortina, 1995.

## Assessment methods

The exam will be written and will consist of two parts.

1. **10 closed-ended questions**. To pass the exam (therefore, to get at least 18) you must answer correctly at least 8 questions out of 10.
2. **4 open-ended questions**. If you have passed the barrier of closed-ended questions, the open-ended questions will contribute to defining the final grade (between 18 and 30 cum laude). Your answers will be evaluated in terms of clarity, pertinence, correctness, argumentation skills.

During the course, if time permits, a simulation of the final exam will take place which will not contribute to the definition of the final grade.

## Office hours

You are kindly requested to write to the lecturer (edoardo.datteri@unimib.it) for any request for clarification related to the contents of the course. We will agree on a meeting, be it individual or collective.

## Programme validity

Programs are valid for two academic years.

## Course tutors and assistants

## Sustainable Development Goals

QUALITY EDUCATION