UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Logic

2021-2-E2001R062

Course title

Is our mind a computer? An introduction to critical thinking and the foundations of science

Topics and course structure

All scientific research fields – including physics, psychology, chemistry – give rise to conceptual and methodological questions. These questions are for **philosophers of science**, **who try to understand how science works**. For example, cognitive science, according to which mental processes are mechanical, plays a crucial role in the study of language and communication. What is a mental process? What is a mechanical process? Why should we believe that mental processes are mechanical and that the mind is functionally organized like a computer? These are not empirical questions: these are philosophical questions concerning science, and for this reason they are addressed by philosophers of science.
The course is devoted to the analysis of the conceptual and methodological foundations of cognitive science, starting from the question whether mental processes are mechanical or not. It will provide tools to reflect critically on theses and concepts which are central in the study of language and communication.
The course will be articulated in a first, **lecture-style part**, and in a second **more practical part**.
The lecture-style part will be organized as follows.
1) Introduction to philosophy of science and to the characteristics of philosophical thinking.
2) Deeper reflection on the characteristics of philosophical thinking: correctness, good arguments, truth, and argumentative fallacies.
3) Some key concepts of scientific thinking: theory, explanation, model, law, mechanism.
4) More specific reflection on the thesis that the mind is a mechanism: the concept of mind, reductionism, relationship between minds and machines.
The second, more practical part of the course will be carried out in small groups and using video-conferencing tools. We will embark upon a philosophical discussion on the mechanical nature of mind. Due to the current pandemic, the lessons will be video-recorded with some synchronous meetings. Students will not have to physically attend the course.

Objectives

Acquisiton of some key concepts in the study of reasoning, of the foundations of science, of the foundations of cognitive science.

- Philosophical thinking: correctness, truth, argumentative fallacy.
- Foundations of science: theory, explanation, model, law, mechanism.
- Foundations of cognitive science: mind, reductionism, functionalism, neuroscience, neuro-imaging, simulations.

Development of skills.

- Good argumentation: being able to express a thesis with clarity and precision, to provide good reasons in support of it, to find counter-examples, to identify and avoid argumentative fallacies.
- Being able to discuss philosophical positions on the nature of mind, on the relationship between mind and matter, on the possibility of explaining mental processes in mechanistic terms.

Methodologies

Due to the current pandemic, all the lessons will be held through a-synchronous and synchronous video-events. Part of the lessons will be video-recorded and associated to self-evaluation tests available through the e-learning platform. Other lessons will consist in synchronous video-meetings. The students will not have to physically attend the course.

Online and offline teaching materials

Video-lessons, slides, and other textual and video materials will be available on the course page.

Programme and references for attending students

- Boniolo, Vidali, “Strumenti per ragionare. Le regole logiche, la pratica argomentativa, l'inferenza probabilistica”, Pearson, 2017. Chapters 1, 4, 7, 8, 9 (section 9.1 only, "Della cogenza: fallacie deduttive").
- Laudisa, Datteri, “La natura e i suoi modelli. Un’introduzione alla filosofia della scienza”, Archetipo, 2011. Chapters 3, 6, 7.
- Marconi, “Per la verità. Relativismo e filosofia”, Einaudi, 2007. All the chapters.
- Datteri, “Che cos’è la scienza cognitiva”, Carocci, 2017. Chapters 1, 2, 3.

Programme and references for non-attending students

Same as for attending students. Active participation in the course activities is strongly recommended.

Assessment methods

The exam will be written and will be composed of multiple-choice questions and open-ended questions. The open-ended questions will be evaluated in terms of clarity, correctness, and quality of the arguments provided.

Office hours

Please write an e-mail to the lecturer Prof. Edoardo Datteri (edoardo.datteri@unimib.it)

Programme validity

The program will be valid for two years.

Course tutors and assistants