UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

History of Science

2526-2-E2004P010

Learning area

1: Linguistic and communicative processes and related cultural contexts.

Learning objectives

Knowledge and understanding

- Main concepts and themes on history and philosophy of science.
- Intellectual, social, and economic factors characterizing the development of scientific knowledge.
- Epistemological, social, and cultural implications of different scientific theories and traditions.

Applying knowledge and understanding

- Improvement of the student's cultural background, increasing his critical attitude and awareness of philosophical and scientific investigation as a tool for the management and solution of collective issues.
- Acquaintance with different forms and practices of science and scientific communication, in an interdisciplinary perspective.
- Development of an adequate capacity for conceptual thinking.
- Development of analysis and interpretation skills of texts, images, and symbols.
- Development of design capacity, organization and coordination of cultural activities and projects concerning the history of scientific disciplines.

Making judgements

- Development of the ability to critically analyze, evaluate and synthesize new and complex ideas (also in relation to emerging global problems) both through guided and/or personal reading of texts from the

Western philosophical-scientific tradition, and through group discussions and seminars.

Communication skills

- Development of the ability to communicate information, ideas, problems and solutions clearly and consciously to specialist and non-specialist interlocutors and in different training and work contexts.
- Development of a solid capacity for active listening, negotiation and working in interdisciplinary groups, as well as understanding and critically analyzing different points of view.

Learning skills

- Development of the ability to continue the study path independently, strengthened by a greater critical awareness and a renewed theoretical-conceptual and methodological sensitivity.

Contents

Title > ***Lived time: between normality and psychopathology***

The course is divided into two parts.

1. In the *first* part, of an institutional nature, after some epistemological considerations on the concept of *science*, scientific reasoning, and scientific explanation, as well as on the debate between realism and anti-realism in science and on the major twentieth-century philosophical interpretations of the logic of scientific discovery and the associated theoretical and methodological changes, the course will focus on the analysis of several key moments in the history of Western philosophical and scientific thought from the Renaissance to the twentieth century. This analysis will be largely accompanied by specific references to cosmological, astronomical, physical, and medico-biological theories of the ancient Greek world, with the aim of highlighting affinities and differences with the more recent formulations proposed in the modern and contemporary periods.

2. In the *second* part, of a monographic nature, following a concise historical and epistemological overview of the concept of *psychopathology* and of the main orientations of modern and early twentieth-century psychopathology, the course will focus on the analysis of the philosophical and clinical-methodological foundations of phenomenological psychopathology, with particular attention to the work of Eugène Minkowski (1885-1972) and to his original interpretation of mental disorders as alterations of the lived experience of temporality.

Detailed program

a) General part – *Fundamentals of history and philosophy of science*

- Preliminary historical and epistemological considerations.
    1. Science between history and philosophy.
    2. Ancient science and modern science.
    3. Hypothesis, theories, and laws.
    4. Scientific reasoning: deduction, induction, and abduction.
    5. Explanation in science.
    6. Realism and anti-realism in science.

    7. Logical positivism.
    8. Popper's falsificationism.
    9. Change and revolution in science: Kuhn, Lakatos, Feyerabend.
- The Scientific Revolution and the developement of modern science in Europe.
- The ancient cosmology and the renewal of astronomy (Copernicus, Brahe, Kepler).
- The ancient physiology and the renewal of medicine (Vesalius, Falloppio, Eustachius).
- Galileo Galilei and the experimental method.
- Francis Bacon as a prophet of technology.
- Descartes and mechanism.
- From *horror vacui* to the discovery of atmospheric pressure.
- William Harvey and the discovery of blood circulation.
- Isaac Newton’s natural philosophy.
- Lavoisier and the birth of modern chemistry.
- Spontaneous generation, epigenesis, and preformationism in the eighteenth century.
- Biology, physiology, and the life sciences in the nineteenth century.
- Charles Darwin and the theory of evolution.
- Non-Euclidean geometries, electromagnetism, and the theory of relativity.

b) Monographic part – *Lived time: between normality and psychopathology*

- Preliminary considerations on the concept of *psychopathology*.
    1. The epistemological status of psychopathology.
    2. *Descriptive* psychopathology and *structural* psychopathology.
- The two “souls” of modern psychopathology: from Pinel to Kraepelin, and from Pinel to Freud.
- The phenomenological turn: philosophical and clinical-methodological presuppositions.
- Temporality and psychopathology in the work of Eugène Minkowski.

Prerequisites

None.

Teaching methods

28 in-person lecture-based classes.

Teaching methods consist in direct exposure, group discussion, analysis of historically and scientifically significant texts, and possible in-depth seminars. The course is held in Italian. ***Class attendance is strongly recommended****.*

Assessment methods

Written Examination with Mandatory Oral Component.

Assessment consists of two parts:

- a *written test* comprising 30 multiple-choice questions (1 point for each correct answer; –0.25 points for each incorrect answer; 0 points for unanswered questions), with a duration of 30 minutes;

- an *oral examination*, which students may take only if they have achieved a passing grade on the written test (i.e., at least 18/30).

The final grade will be calculated as the average of the marks obtained in the two components.

The examination questions are designed to verify students' effective understanding of the topics and authors covered in the course, as well as their ability to navigate the texts listed in the bibliography and to engage critically with them. The written test aims to assess foundational knowledge and basic concepts related to the general part of the course. The oral examination covers the material from the monographic part as well, and is intended to evaluate not only the accuracy of students' responses but also their ability to argue, synthesize, establish connections, critically interpret the acquired notions, and employ appropriate technical terminology. For this reason, students must have with them all required texts and materials listed in the course bibliography during the oral examination (print or e-book version).

There is no midterm exam.

Textbooks and Reading Materials

- Okasha, S. (2006). *Il primo libro di filosofia della scienza*. Torino: Einaudi (pp. 3-97, 124-139).
- Bernardoni, A., & Segala, M. (2024). *Storia della scienza: dal Rinascimento al XX secolo*. Bologna: Il Mulino (pp. 19-40, 59-118, 125-142, 156-180, 195-205, 213-216, 229-252, 259-291, 331-343, 371-380).
- Cosmacini, G. (2011). *L'arte lunga. Storia della medicina dall'antichità a oggi*. Roma-Bari: Laterza (pp. 58-66, 80-83, 238-242, 252-253, 271-276) [available in pdf on the course e-learning page].
- Agazzi, E. (2024). *La scienza e l'anima dell'Occidente*. Milano-Udine: Mimesis (pp. 21-48) [available in pdf on the course e-learning page].
- Civita, A. (1999). La clinica moderna e la malattia mentale. In Civita, A., & Cosenza, D. (a cura di), *La cura della malattia mentale*. Vol. 1. *Storia ed epistemologia* (pp. 89-132; in particular, pp. 89-96). Milano: Bruno Mondadori [available in pdf on the course e-learning page].
- Civita, A. (1999). *Psicopatologia. Un'introduzione storica*. Roma: Carocci (pp. 11-23, 63-141).
- Minkowski, E. (2025). *Esistenza e psiche. Per una clinica della temporalità vissuta*, a cura di A. Molaro. Milano: Raffaello Cortina (pp. 8-71, 83-198, 247-280).
- Slides and further reading.

All students are reminded that it is strictly prohibited to disseminate and/or reproduce any course materials (including slides, texts, audio, or video recordings) online or elsewhere without the explicit written permission of the instructor. Any violations will be duly reported to the University's Legal Office and the relevant authorities.

Foreign students (Erasmus) may contact the lecturer to arrange an examination programme in English or French.

Sustainable Development Goals

QUALITY EDUCATION | GENDER EQUALITY | PEACE, JUSTICE AND STRONG INSTITUTIONS