SSM
Scuola Superiore Meridionale

Course title:

Scientific Reasoning and Philosophy of Science

Duration [number of hours]**: 24**

PhD Program [MERC/MPS/SPACE]**: MERC/MPHS/SPACE**

Name and Contact details of unit organizer(s):

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Course Description [max 150 words]**:**

The course aims to summarize the philosophical debate initiated in the early 20th century by the logical empiricist movement to understand what science is and what distinguishes scientific from non-scientific claims. The course examines attempts to use logic and probability to define the scientific method and to give scientific reasoning a normative character. In the last part of the course, criticisms of this so-called orthodox view are presented and the current state of the debate about science and the scientific method is discussed. The course is organized in 20 hours of lesson + 4 hours of selected texts readings.

Syllabus [itemized list of course topics]**:**

- Scientific Inquiry
- Formal Logic
- Scientific Method
- The Demarcation Problem
- The Logic of Confirmation
- The Logic of Explanation
- The Casual Conception of Explanation
- Probabilistic Causality
- The Historicist Theories of Scientific Rationality

Assessment [form of assessment, e.g., final written/oral exam, solutions of problems during the course, final project to be handed-in, etc.]**:**

Final oral conversation.

Suggested reading and online resources:

Hans Reichenbach, *The Rise of Scientific Philosophy*, 1957.
Thomas Khun, *The Structure of Scientific Revolutions*, 1962.
Carl Popper, *The Logic of Scientific Discovery*, 1959.
The Stanford Encyclopedia of Philosophy (`https://plato.stanford.edu`)