HUM-417(a)

Philosophy, epistemology and history of science I

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Cursus	Sem.	Type
Humanities and Social Sciences	MA1	Opt.

Language of teaching	English
Credits	3
Session	Winter
Semester	Fall
Exam	During the semester
Workload	90h
Weeks	14
Hours	**3 weekly**
Lecture	2 weekly
Project	1 weekly
Number of positions	**60**

Summary

The course considers central themes in the philosophy of science, such as scientific realism and the ontology of physics. Starting from the debate between Leibniz and Newton about space and time, we move on to the transition from classical to quantum physics and the explanatory role of mathematics.

Content

Philosophical perspectives on the exact sciences and their history
How did the visions of space and time change from Galileo via Newton to Einstein? What is matter following the revolution introduced by quantum physics? What is a law of nature? Do mathematical objects really exist? These questions, among many others, will be tackled in the philosophical reflection on the exact sciences and their history that this master course offers. Reflecting on these issues provides intellectual tools for a better understanding of today's science and technologies.
After an introductory teaching, the students work in small groups of 1 to 3 students on a particular project and present their results to the whole group. Students are free to choose the project that interests them most, but we encourage them to work on a project that is about philosophical issues raised in connection with their main branch at EPFL. We propose several interdisciplinary projects in the philosophy of physics in cooperation with professors from the physics department.

Keywords

History and philosophy of science, philosophy of physics, philosophy of mathematics

Learning Outcomes

By the end of the course, the student must be able to:

- Argue
- Formulate
- Systematize
- Develop

Transversal skills

- Assess progress against the plan, and adapt the plan as appropriate.
- Communicate effectively, being understood, including across different languages and cultures.

Teaching methods

Ex cathedra course, project work, student presentation of projects

Expected student activities

Class participation and working in groups.

Assessment methods

Oral presentation, written essay in small groups.
Evaluation on a semester basis (grade associated to 3 ECTS). Fall semester evaluation is about knowledge acquisition and the elaboration of a project plan. Spring semester evaluation is about the realization of the project. More information is given at the beginning of the academic year.

Supervision

Office hours	Yes
Assistants	Yes
Forum	No

Resources

Bibliography

given in class

Références suggérées par la bibliothèque

- Quantum sense and nonsense / Jean Bricmont
- Philosophie des sciences : une introduction / Michael Esfeld
- Making sense of quantum mechanics / Jean Bricmont
- The metaphysics of relations / edited by Anna Marmodoro and David Yates
- A minimalist ontology of the natural world / Michael Esfeld and Dirk-André Deckert, with Dustin Lazarovici, Andrea Oldofredi and Antonio Vassallo
- Metaphysics in contemporary physics / edited by Tomasz Bigaj, Christian Wüthrich

Websites

- http://www.unil.ch/philo/page60364.html