HUM-417 **Philosophical perspectives on the exact sciences I**

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Cursus	Sem.	Type
Humanities and Social Sciences	MA1	Obl.

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**

Remark

Une seule inscription à un cours SHS+MGT autorisée. En cas d'inscriptions multiples elles seront toutes supprimées sans notification.

Summary

The course considers central themes in the philosophy of science. Starting from the debate between Leibniz and Newton about space and time, we move on to the transition from classical to quantum physics, the explanatory role of mathematics and philosophical questions about artificial intelligence.

Content

Philosophical perspectives on the exact sciences and their history
How did the visions of space and time change from Newton to Einstein? What is matter following the revolution introduced by quantum physics? What is a law of nature? Do mathematical objects really exist? Can philosophical logic be applied in computer science? What is the relationship between artificial intelligence and the mind and consciousness? These questions, among many others, will be tackled in the philosophical reflection on the exact sciences and their history that this master module 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 2 to 4 students on a particular project and present their intermediate 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.

Keywords

History and philosophy of science, philosophy of physics, philosophy of mathematics, philosophy of artificial intelligence
POLY-perspective :

- interdisciplinary perspective
- global perspective

https://www.epfl.ch/schools/cdh/cdhs-vision/

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

Moodle Link

- https://go.epfl.ch/HUM-417