

# PhD Course: History and Philosophy of Science

The course "History and Philosophy of Science" will be given in the form of four two-hour lectures and a minor home-assignment. The course is taught by Richard Dawid ([profile](#)) from the department of Philosophy.

## Preliminary outline of the contents:

### I: Basic Introduction to the philosophy of Science with a focus on how it plays out in physics.

- Inductive Reasoning (a little Popperian critique and rejoinders; role of inductive reasoning in physics)
- Abductive Reasoning (inference to the best explanation)
- Confirmation (Bayesian approach; look into frequentist hypothesis testing in physics)
- Theory succession (Kuhnian revolutions; Lakatos' protective belt; brief excursion into final theory claims in physics)
- Scientific realism (What are microphysical theories in physics about?)

### II: Issues in the philosophy of physics

(Looking into philosophical issues that arise in the context of specific physical theories.)

- Foundational debate in quantum mechanics (measurement problem; role of decoherence; interpretations of QM)
- Space and time in GR and beyond (hole argument in GR; emergence of spacetime in theories of quantum gravity)
- Testability and Incompleteness in string theory

The course "History and Philosophy of Science" is one part of the mandatory (for students starting after 1 jan 2018) course "Introduction to Doctoral Studies at the Department of Physics FK40005. 5 credits."

Students accepted before this date are welcome to follow the course, but there is a limited number of participants for each installment.

### Dates:

13/11, 16/11, 20/11 and 23/11, all at 13.00

### Teacher:

Professor Richard Dawid, Department of Philosophy

### Applications:

Application to participate in the course can be made at the students office, Gorica Nolic.

*Deadline for applications is October 26.*