

## GRADUATE CERTIFICATE IN SCIENCE (HISTORY AND PHILOSOPHY OF SCIENCE)

<b>Course codes</b>	Course code: LG012
<b>Admission requirements</b>	A bachelor's degree or equivalent
<b>Course completion requirements</b>	Satisfactory completion of 24 credit points
<b>Fees</b>	Domestic: \$410 per credit point International: this course is not available to international students
<b>Duration</b>	2 semesters part time only
<b>Commencement</b>	March
<b>Enquiries</b>	<a href="#">Ask a question</a>

### Course structure

#### Study plan for Graduate Certificate in Science (History and Philosophy of Science) (full time student)

FIRST YEAR	
<b>Semester 1</b>	
<a href="#">HPSC4101</a> (6cp) Philosophy of Science	<a href="#">HPSC4105</a> (6cp) Research Methods in HPS
<b>Semester 2</b>	
<a href="#">HPSC4102</a> (6cp) History of Science	<a href="#">HPSC4103</a> (6cp) Sociology of Science

### HPSC4101 - Philosophy of Physics (Philosophy of Symmetry)

Semester 1 - 2014

**Prerequisites:** Available only to students admitted to HPS Honours, Graduate Diploma in Science (History and Philosophy of Science) and Graduate Certificate in Science (History and Philosophy of Science)

6 credit points

1x 2-hour seminar per week (see [timetable](#))

**Assessment:** Presentation, paper

Symmetries have always played a central role in physical theories. Physics without symmetries would be unimaginable. They ground the very laws of physics, for laws express invariances and invariances are expressions of symmetry. But how should we *understand* symmetries? Should we distinguish between different *kinds* of symmetry? What are the *philosophical implications* of symmetry? In this course we will cover a vast range of types of symmetry from various branches of mathematics and physical theories, including classical mechanics, Maxwellian electromagnetism, the relativity theories, quantum theories, gauge theories and string theories, in a bid to answer these questions and more.

**By the end of this unit of study you should:**

- Have a good grip on the basic formal and experimental details of quantum mechanics
- Grasp the mathematical details underpinning quantum mechanics
- Understand the development of contemporary positions in the philosophy of quantum mechanics

- Be prepared for future research in philosophy of physics and philosophy of science more generally
- Be able to present and defend an academic talk
- Be able to write a large scale research essay

### HPSC4102 - History of Science

Semester 2 - 2014

**Lecturer:** Taught by all HPS unit staff and guest lecturers. **Convenor** [Professor Stephen Gaukroger](#)

**Prerequisites:** Available only to students admitted to HPS Honours, Graduate Diploma in Science (History and Philosophy of Science) and Graduate Certificate in Science (History and Philosophy of Science)

6 credit points

1 two-hour seminar/week, (see [timetable](#))

**Assessment:** questions on readings submitted weekly, major research essay, participation

This course is intended for advanced Honours and postgraduate students. It is designed to introduce them to main themes in the history of modern – that is post-Newton – science, as well as with the fundamentals of historical work. The course will be taught by all faculty members of the Unit for HPS, each class given by the person with the best expertise on the subject. The format will be uniform; an hour lecture and an hour of discussion of a primary text. The texts will be distributed to the students electronically a week before the lecture. The students will submit questions regarding the text by email to the lecturer at least three days before class. The grade will be 50% for the questions, 50% for a final, 5000 word essay on one of the discussed texts, which will be graded by the person teaching the relevant class.

### HPSC4103 - Sociology of Science

Semester 2 - 2014

**Lecturer:** [Dr Daniela Helbig](#)

**Prerequisites:** Available only to students admitted to HPS Honours, Graduate Diploma in Science (History and Philosophy of Science) and Graduate Certificate in Science (History and Philosophy of Science)

6 credit points

1 seminar/week (see [timetable](#))

**Assessment:** essay, fieldwork reports, seminar participation

#### The negotiation of scientific knowledge

Harry Collins has compared scientific knowledge to a ship in a bottle: if you just see the finished product, you can't understand how it came about, and you can't believe it's not what it says it is: the empirically-determined truth about the world.

This course aims to take a close look at some of these ships in bottles, and how they got there, introducing some of the most exciting and innovative ideas about what science is and how it works. We will examine several of the sociological & anthropological approaches that have formed the basis of the area of social studies of science and technology that has emerged over the last 30 years.

We will start with an overview of the development of history and philosophy of science since 1945, to put the emergence of the sociology of science into perspective, before moving on to a selection of readings from the field. Students will have the opportunity to evaluate the approaches discussed in this course by conducting their own research into a specific case.

**In This Unit of Study We Will Discuss:**

- The 'strong program' devised by sociologists of knowledge based on a critique of traditional philosophy of science
- The sociology of technology
- The impact of feminism on the study of science
- The 'actor-network' approach developed by Latour and Callon
- Empirical study of experimentation and laboratory life

## HPSC4105 - HPS Research Methods

Semester 1 - 2014

[Coordinator: Associate Professor Hans Pols](#)

**Prerequisites:** Available only to students admitted to HPS Honours, Graduate Diploma in Science (History and Philosophy of Science) and Graduate Certificate in Science (History and Philosophy of Science)

6 credit points

1 seminar/week (see [timetable](#))

**Assessment:** literature review, archival research project, seminar participation

### Techniques and approaches in the history, sociology and philosophy of science

Adopting a seminar style, this course aims to provide students with an advanced knowledge of the skills necessarily to conduct their own original research in the sociology, history and philosophy of science. The students will be given a weekly set of core readings, and specialists both from within the Unit and from outside will then be invited to present their views on the topic in question. This presentation will form the basis for a discussion involving the students, the academic members of the Unit, and invited speakers.

### In This Course We Will Discuss:

- The use of case studies in the philosophy of science
- Conducting oral histories
- Institutional history
- How to do the sociology of science