1. **Title of the module**

PHIL6440/PHIL6450 (PL644/PL645) – Philosophy and Mathematics

1. **School or partner institution which will be responsible for management of the module**

School of European Culture and Languages

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 5 (PHIL6440) and Level 6 (PHIL6450)

1. **The number of credits and the ECTS value which the module represents**

30 Credits (15 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Autumn or Spring

1. **Prerequisite and co-requisite modules**

None

1. **The programmes of study to which the module contributes**

Optional for BA Philosophy (Single and Joint Honours)

1. **The intended subject specific learning outcomes.  
   On successfully completing the module Level 5 students will be able to:**

8.1 Demonstrate critical understanding of some episodes in the history of the engagement between philosophy and mathematics;

8.2 Demonstrate critical understanding of the philosophical issues at stake in the Foundational Crisis;

8.3 Outline rival positions concerning some of the topics treated in Current Issues.

**On successfully completing the module Level 6 students will be able to:**

8.4 Demonstrate comprehensive understanding of some episodes in the history of the engagement between philosophy and mathematics;

8.5 Demonstrate coherent understanding of the philosophical issues at stake in the Foundational Crisis;

8.6 Outline rival accounts, demonstrating detailed and sustained understanding of their relative strengths and weaknesses, concerning some of the topics treated in Current Issues.

1. **The intended generic learning outcomes.  
   On successfully completing the module Level 5 students will be able to:**

9.1 Demonstrate their skills in critical analysis and argument, both through their reading and through listening to others;

9.2 Demonstrate their ability to make complex ideas understandable in their writing;

9.3 Demonstrate their ability to make complex ideas understandable in their public speaking;

9.4 Demonstrate their ability to work autonomously and to take responsibility for their learning.

**On successfully completing the module Level 6 students will be able to:**

9.5 Demonstrate their enhanced skills in critical analysis and argument, both through their reading and through listening to others;

9.6 Demonstrate their deepened ability to make complex ideas understandable in their writing, and focussed on precision and clarity;

9.7 Demonstrate their deepened ability to make complex ideas understandable in their public speaking;

9.8 Demonstrate confidence in working autonomously and taking responsibility for their learning.

1. **A synopsis of the curriculum**

This module will cover three areas, namely the historical mutual influence of mathematics and philosophy from Ancient Greece to the 19th century; the foundational crisis 1880-1930; and; current issues in philosophy of mathematics. Thinkers and topics that might be covered include Pythagoras, Plato, Islamic world, Renaissance, Descartes, Berkeley, Kant, Hegel, Dedekind, Frege, Russell, Gödel, Wittgenstein’s philosophy of mathematics, Lakatos’ Proofs and Refutations, revolutions in mathematics, and the applicability of mathematics.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

Aristotle (1989). *Prior Analytics*. Indianapolis: Hackett Publishing

Benacerraf, P. and Putnam H., (eds.) (1984). *Philosophy of Mathematics: Selected Readings. Second Edition*. Cambridge: Cambridge University Press

Euclid (2002). *Euclid’s Elements*. Santa Fe, N.M: Green Lion Press

Gillies, D. (ed.) (1995). *Revolutions in Mathematics*. Oxford: Oxford University Press

Jones, M. (2006). *The Good Life in the Scientific Revolution: Descartes, Pascal, Leibniz, and the Cultivation of Virtue*. Chicago: University of Chicago Press

Plato (2007). The Republic. London: Penguin Classics

1. **Learning and teaching methods**

Total Contact Hours: 40

Private Study Hours: 260

Total Study Hours: 300

1. **Assessment methods**
   1. Main assessment methods

* Seminar Participation – 15%
* Review Assignment (1,800 words) – 30%
* Essay (3,200 words) – 55%

13.2 Reassessment methods

* Reassessment Instrument: 100% Coursework

1. ***Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)***

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | 8.1 / .8.4 | 8.2 / 8.5 | 8.3 / 8.6 | 9.1 / 9.5 | 9.2 / 9.6 | 9.3 / 9.7 | 9.4 / 9.8 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |
| Private Study | **x** | **x** | **x** | **x** | **x** |  | **x** |
| Lecture | **x** | **x** | **x** |  |  |  |  |
| Seminar | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| **Assessment method** |  |  |  |  |  |  |  |
| Seminar Participation | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Review Assignment | **x** | **x** | **x** | **x** | **x** |  | **x** |
| Essay | **x** | **x** | **x** | **x** | **x** |  | **x** |

1. **Inclusive module design**

The School recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

In terms of pure research and applications in engineering and science, modern mathematics has become internationally recognised as the language of choice to study quantity, variation, space, symmetry, etc. And yet its recorded origins occur in a number of specific cultures: Ancient Egypt, Babylonia, India, China. The philosophical questioning of the status of mathematical truths first arose in Ancient Greece, where something close to our modern proof practices began, a cultural innovation transmitted via the Islamic world to Western Europe in the Middle Ages.

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**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

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| Date approved | Major/minor revision | Start date of delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
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