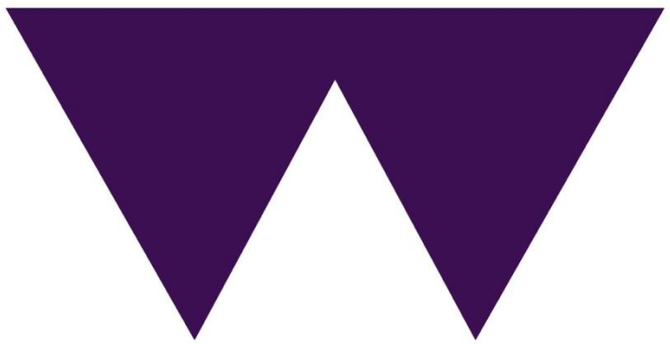

WARWICK

THE UNIVERSITY OF WARWICK

Mathematics and Philosophy Offer Holday Day 2025

What we offer

- Two degrees:
  - **3 year BA/BSc in Maths and Philosophy**
  - **4 year BSc in Maths and Philosophy with specialism in Logic and Foundations**
- Who are they for?
  - 3 year: want to study maths or philosophy, but also flexibility to pursue another subject
  - 4 year: interested in the foundations of mathematics, considering post-graduate work in mathematics, philosophy, logic, or computer science.
- Apply for the 3 year degree and transfer after the first or second year.

Entry requirements

A level typical offer

A* in Mathematics, A* in Further Mathematics and A in a further subject.

IB typical offer

39 to include 6, 6, 6 in three Higher Level subjects including Mathematics (Analysis and Approaches).

- Links:
  - Full entry requirements:
    https://warwick.ac.uk/study/undergraduate/courses/ba-bsc-mathematics-philosophy
  - Contextual offers:
    https://warwick.ac.uk/study/undergraduate/apply/contextual-offers/

Why Warwick?

1. An integrated degree programme, not just modules from two departments.
2. Flexible curriculum: >50% options in years 2 – 3 (or 4).
3. Specialised Maths-Phil modules: Logic 1/2/3, Set Theory, Computability Theory, Philosophy of Mathematics, Philosophy of Computing and Artificial Intelligence.
4. Big research-active departments in both subjects => lots of modules in *many* subject.
5. Wide range of career options.
6. Location and student life.

Summary course structure

- **First year**
  - Maths core: 7 Maths modules (80% common with single honours core — important for prerequisites)
  - Philosophy core: Logic 1, Mind and Reality
- **Second year**
  - 38% core (e.g. Logic 2, Groups and Rings, Metric Spaces), 8% optional core, 54% options
- **Third year**
  - 12.5% core (Set theory), 87.5% options
- **Fourth year (optional)**
  - Dissertation (25%) *or* Maths Essay (12.5%), at least 75% options
- **Over-CATing** (taking extra modules) allowed in all years.
  - Normal load = 120 CATS (8–10 modules)
  - Maximum load = 150 CATS (10–12 modules)

Specialised Maths–Phil modules

- Logic 1: propositional and first-order logic, truth tables, natural deduction
- Logic 2: Metatheory: models and truth, the Soundness, Completeness, and Compactness Theorems, limitations of first-order logic
- Logic 3: Incompleteness & Undecidability: Peano arithmetic (PA), Gödel's Incompleteness Theorems
- Set Theory: Russell's Paradox, countable vs uncountable sets, Zermelo-Fraenkel set theory (ZF), the Axiom of Choice
- Computability Theory: Turing machines, recursive functions, the Halting Problem, degrees of unsolvability, P vs. NP
- Philosophy of Mathematics: What are mathematical objects? How do we know about them? Logicism, Intuitionism, Formalism, Maths in the sciences, …
- Philosophy of Computing and Artificial Intelligence: What is a computer? Is the mind a computer? Can a computer be conscious? What are the practical and ethical risks of AI?

Subject to availability

For more information

- Course convenors:
  - Walter Dean (W.H.Dean@warwick.ac.uk)
  - Benedict Eastaugh (Benedict.Eastaugh@warwick.ac.uk)
- On the web:
  - Maths-Phil degrees https://warwick.ac.uk/study/undergraduate/courses/ba-bsc-mathematics-philosophy
  - Mathematics Institute https://warwick.ac.uk/fac/sci/maths/
  - Philosophy Department https://warwick.ac.uk/fac/soc/philosophy/