

# Jesus College, Oxford



## Subject Notes: MATHEMATICS AND PHILOSOPHY

### *Academic Staff*

The teaching provision at Jesus College is generous in relation to the number of Mathematics students. The college has tutors in all the main branches of Mathematics, who are committed to mathematical research as well as to teaching, and who together cover a wide range of subjects:

#### *Fellows*

**Professor Andrew Dancer's** research is in differential geometry, especially the study of Einstein spaces. He is responsible for the teaching of pure mathematics including algebra, analysis, geometry and topology.

**Dr James Oliver's** research is predominantly in fluid dynamics and its applications to free and moving boundary problems in industry, engineering and biology. He teaches Physical Applied Mathematics.

**Professor Robin Evans** teaches probability and statistics for the College. His research interests include statistical causality, graphical models and algebraic statistics.

#### *Lecturers*

**Dr Joe Cunningham** is a Lecturer in Philosophy who teaches General Philosophy, Moral Philosophy, Ethics, Knowledge & Reality, and Philosophy of Mind. His research interests are in the theories of reasons, rationality, and moral psychology.

### *About the Course*

Mathematics and Philosophy is excellent educationally for those whose interests lie in this direction, and who are prepared to work hard to take advantage of the opportunities available. The Mathematics Department is one of the largest in the UK and contains within it many world-class research groups. This is reflected in the wide choice of topics available to you, especially in the fourth year. The Philosophy Faculty is the largest philosophy department in the UK, and one of the largest in the world, with more than 70 full-time members, admitting more than 500 undergraduates annually to read the various degrees involving philosophy. Many Faculty members have a worldwide reputation, and the library and other facilities are acknowledged as among the best in the country. The large number of undergraduates and graduates reading philosophy with a variety of other disciplines affords the opportunity to participate in a diverse and lively philosophical community.

Mathematics and Philosophy is a 4-year course with a strong mathematical component. The syllabus has a substantial overlap with the pure mathematical part of the syllabus for Mathematics.

The 'Studying Mathematics at Oxford' brochure contains information about the course content and can be found at: <https://www.maths.ox.ac.uk/system/files/attachments/introbook20.pdf>

On the Philosophy side, students sit two papers at the end of the first year. The first paper, Elements of Deductive Logic, covers introductory formal logic. The content of this paper includes material studied by all first-year students in joint schools involving Philosophy, but also questions of a more mathematical nature that are specifically designed for students studying Philosophy in combination with Mathematics, Computer

Science, or Physics. The second paper, Introduction to Philosophy, has two parts. The first is General Philosophy, which covers introductory topics in epistemology, metaphysics and philosophy of mind. The second half of the paper is on Frege's *Foundations of Arithmetic* and covers introductory topics in the philosophy of mathematics. After completing the Preliminary Examination, students are required to study the Philosophy of Mathematics and must either take Early Modern Philosophy, covering key thinkers such as Descartes, Locke, and Hume, or Knowledge and Reality, which covers more advanced topics in epistemology and metaphysics. Other philosophical options are also available (see the PPE subject notes).

In your first two years, work is divided between lectures (about ten per week) and tutorials in your college (two or three per week). In your third and fourth years the same applies to philosophy subjects, but most mathematics courses are linked to intercollegiate classes rather than tutorials in your college. About a third of your week will be spent working on your own, preparing essays for philosophy tutorials, and solving problems for mathematics tutorials or classes.

## Admissions

In a total College entry of about 100 undergraduates, 8 are offered places in a typical year to read Mathematics and the related Joint Schools courses. Candidates are selected on the basis of academic record (e.g. GCSEs) and potential, as shown by their UCAS reference, performance in the written test, and in interviews if shortlisted.

**Academic requirements:** Offers made to candidates will be conditional upon A-level results or equivalent qualifications. The standard offers for students taking three (or more) A2 levels are:

- A\*A\*A including A\* in A2 Mathematics and A\* in A2 Further Mathematics
- OR A\*AA including A\* in A2 Mathematics **PLUS** A in AS Further Mathematics
- OR A\*AA including A\* in A2 Mathematics (if Further Mathematics is not taken)

We strongly recommend that candidates study Mathematics and Further Mathematics to A2 level if it is possible for them to do so. We will accept a candidate taking only one Mathematics full A2 level if we think that he or she is a good enough mathematician to cope satisfactorily with the heavy workload in the first year; such a candidate would need to do quite a bit of extra reading before coming up to Oxford in order to be prepared for the course.

We have no preference as regards other subjects taken with Mathematics and Further Mathematics. Sciences are the most common, and a Physics A2/AS level might provide some helpful background; but it is by no means essential to have a science A2 or AS level. Note that Philosophy A-level is *not* a requirement, though candidates will be expected at interview to show a strong capacity for reasoned argument and a keen interest in the subject.

**Written test:** All candidates must take the **Mathematics Admissions Test (MAT)** on **4 November 2020**. This will take place in schools or approved test centres for non-UK candidates. The registration for the MAT is through Cambridge Assessment Admissions Testing and the deadline for this is **15 October 2020**. Further information about how to register for the MAT can be found at: <http://www.ox.ac.uk/admissions/undergraduate/applying-to-oxford/tests/mat>

**Written work:** Candidates are not required to submit written work as part of the admissions process.

**Interviews:** If you are interviewed at Jesus you can expect two or three separate interviews with different Mathematics tutors. The interviews will involve some general questions, but most of the time will be spent discussing mathematical topics. There will also be an interview for Philosophy. Candidates must be of at least as high a standard in Pure Mathematics as those admitted to read single subject Mathematics. A candidate who is acceptable to read Mathematics and Philosophy would probably also be acceptable to read Mathematics.

**Deferred Entry:** Applications for deferred entry to Jesus College are possible, but generally not encouraged unless it is planned to spend at least part of the year out doing something with a high level of mathematical content. You must apply for deferred entry at the time of application to Oxford: you cannot change your mind after an offer has been made. Please refer to departmental web sites for subject-specific advice. You should be aware that applicants who are offered places for deferred entry will generally be among the strongest of the cohort for their subject. We would not usually offer more than one deferred place per subject in order not to disadvantage the following year's candidates. In some cases, an applicant for deferred entry may be offered a place for non-deferred entry instead. For further advice, please contact the Admissions Officer at [admissions.officer@jesus.ox.ac.uk](mailto:admissions.officer@jesus.ox.ac.uk)

## *Postgraduate Studies and Careers*

The Mathematical Institute at Oxford enjoys a high reputation, both nationally and internationally, for the excellence of its teaching and research, and is among the largest in the country. Mathematical research at Oxford covers a very wide range in both pure and applied mathematics. It attracts generous research funding and draws students and visiting faculty from all parts of the world. The following degrees are available at postgraduate level:

- DPhil or MSc by Research in Mathematics
- MSc Mathematical and Computational Finance [*Jesus College does not normally accept students for this course*]
- MSc Mathematical and Theoretical Physics
- MSc Mathematical Finance [*Jesus College does not normally accept students for this course*]
- MSc Mathematical Modelling and Scientific Computing
- MSc Mathematical Sciences
- MSc Mathematics and the Foundations of Computer Science

Philosophy Graduate students will find themselves members of a large graduate community, together with others with shared interests who are at an equivalent stage in their intellectual development. The following degrees are offered at postgraduate level:

- BPhil or DPhil in Philosophy
- MSt in Ancient Philosophy
- MSt in Philosophy of Physics

Recent graduates either went on to further academic study, or found employment in professions that include teaching, IT, industry, commerce and finance, both in the UK and abroad. The absence of applied mathematical content does to some extent restrict your career options, both in teaching and in industry.

## *Preliminary Reading and Further Information*

If you are contemplating a course involving Philosophy, or wondering whether such a course would suit you, you might wish to read some of the following:

Thomas Nagel  
Bertrand Russell  
M Hollis  
Nigel Warburton  
Julia Driver

*What Does It All Mean?* (Oxford)  
*The Problems of Philosophy* (Oxford)  
*Invitation to Philosophy* (Blackwell)  
*Philosophy: The Basics* (Routledge)  
*Ethics: the Fundamentals* (Blackwell)

Simon Blackburn  
Roger Scruton

*Think (Oxford)*  
*An Intelligent Person's Guide to Philosophy (Duckworth)*

Further information about Mathematics and Philosophy at Oxford can be found on the department websites at:

- [www.maths.ox.ac.uk](http://www.maths.ox.ac.uk)
- [www.philosophy.ox.ac.uk](http://www.philosophy.ox.ac.uk)

Information about Admissions is available at: <http://www.ox.ac.uk/admissions/undergraduate/courses-listing/mathematics-and-philosophy>

### *Contact details*

If you have any questions about our entrance requirements, or about applying to study at Jesus College, please contact the Admissions Officer:

Tel: 01865 279721  
Email: [admissions.officer@jesus.ox.ac.uk](mailto:admissions.officer@jesus.ox.ac.uk)  
Web: [www.jesus.ox.ac.uk/study-here](http://www.jesus.ox.ac.uk/study-here)

*Last updated: May 2020*