

Jesus College, Oxford



Subject Notes

MATHEMATICS AND COMPUTER SCIENCE

Academic Staff

Tutorial Fellows

Professor Andrew Dancer is a Fellow and a Professor of Mathematics. His 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.

Professor Robin Evans is a Fellow and an Associate Professor of Statistics. His research interests include statistical causality, graphical models and algebraic statistics. He teaches probability and statistics for the College.

Professor James Oliver is a Fellow and a Professor of Applied Mathematics. His 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 Standa Živný is a Fellow and an Associate Professor of Theoretical Computer Science. His research is in algorithms and complexity theory. He teaches theoretical computer science courses.

About the Course

About the Undergraduate Course

This joint degree offers the opportunity to combine an appreciation of mathematical reasoning with an understanding of computing and its ability to solve problems on a large scale. Mathematics is a fundamental intellectual tool in computing, but computing is increasingly also a tool in mathematical problem solving.

The course concentrates on areas where mathematics and computing are most relevant to each other, emphasising the bridges between theory and practice. It offers opportunities for potential computer scientists both to develop a deeper understanding of the mathematical foundations of their subject, and to acquire a familiarity with the mathematics of application areas where computers can solve otherwise intractable problems. It also gives mathematicians access to both a practical understanding of the use of computers, and deeper understanding of the limits on the use of computers in their own subject.

Mathematics and Computer Science can be studied for three years (BA) or four years (Master of Mathematics and Computer Science). The fourth year allows the study of advanced topics and an in-depth research project. Everyone applies for the four-year course. Exit points are not decided until the third year.

Teaching in Mathematics and Computer Science, as in most other subjects, has two main components: University lectures and classes, and college tutorials. The lectures and classes are provided and held in the Department of Computer Science. The tutorials are held in college and cover all first-year and second-year courses, thus providing a firm grounding in the core topics from both subjects; students are then free to choose options from a wide range of Mathematics and Computer Science subjects.

More details on the structure of the degree can be found here:

<http://www.cs.ox.ac.uk/admissions/undergraduate/courses/index.html>

The teaching provision at Jesus College is generous in relation to the number of Mathematics and Computer Science students. While many Oxford colleges have only one tutor in Computer Science, Jesus College have two tutors, who are committed to research in computer science as well as to teaching, and who together will cover a wide range of subjects. Mathematics has a long tradition at Jesus. There is a vibrant community of Fellows in Mathematics and Computer Science, which includes, in addition to the tutors above, Professor George Deligiannidis (Hugh Price Fellow), Professor Judith Rousseau (Professorial Fellow), Professor Sir Nigel Shadbolt (Principal and Professorial Research Fellow), Professor Sam Staton (Hugh Prize Fellow), and Dr Oiwi Parker Jones (Hugh Prize Fellow).

Admissions

In a total College entry of about 100 undergraduates, 2 places are offered in a typical year to read Mathematics and Computer Science.

Academic requirements: Offers made to candidates will be conditional upon A-level results (A*AA, if further Mathematics is taken, then including A*A between Mathematics and Further Mathematics; otherwise A* in Mathematics) or equivalent qualifications. Further Mathematics is highly recommended. We expect you to have taken and passed any practical component in your chosen science subjects.

Written test: All candidates must take the **Mathematics Admissions Test (MAT)** in school on **4 November 2020**. The MAT is administered by the Admissions Testing Service, and the registration deadline is **15 October 2020**. For further details, see: <http://www.ox.ac.uk/admissions/undergraduate/applying-to-oxford/tests/mat>

Written work: No submitted written work is required for this course.

Interviews: Interviews are held in mid-December. If you are interviewed at Jesus you can typically expect two separate computer science interviews and two separate mathematics interviews, all with different tutors. The interviews will involve some general questions, but most of the time will be spent discussing logical and mathematical topics

Deferred Entry: Applications for deferred entry to Jesus College are accepted. 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. If you require any further advice, please contact the Admissions Officer via admissions.officer@jesus.ox.ac.uk

Postgraduate Studies and Careers

Both the Mathematical Institute and the Department of Computer Science and Oxford enjoy a high reputation, both nationally and internationally, for the excellence of its teaching and research, and are among the largest in the country.

Research at Oxford covers a very wide range in both theoretical and applied Mathematics and Computer Science. 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 in Computer Science
- DPhil in Mathematics

- MSc in Computer Science
- MSc in Mathematical Sciences
- MSc in Mathematics and Foundations of Computer Science

This course gives training in logical thought and expression, and is a good preparation for many careers. About 20% of Mathematics and Computer Science graduates tend to go on to further study. Recent graduates secured positions as software and hardware professionals in research, finance and investment analysis, and include a product controller for an international bank, an actuarial consultant and an accountant.

Further Information

Further information about Mathematics and Computer Science at Oxford can be found on the Departmental websites:

- Mathematics (<http://www.maths.ox.ac.uk/>)
- Computer Science (<http://www.cs.ox.ac.uk/admissions/undergraduate/index.html>)

Information about Admissions is available at: <https://www.ox.ac.uk/admissions/undergraduate/courses-listing/mathematics-and-computer-science?wssl=1>

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
Web: www.jesus.ox.ac.uk/study-here

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