



# Mathematics

Full details of the course are available from

[www.maths.cam.ac.uk/undergrad/](http://www.maths.cam.ac.uk/undergrad/)

and

[www.undergraduate.study.cam.ac.uk/courses/mathematics](http://www.undergraduate.study.cam.ac.uk/courses/mathematics)

## The subject at Selwyn

Courses and lectures are the responsibility of the Faculty and are the same for every student reading Mathematics at Cambridge regardless of College. The College's job is to advise students in their choice of options and to arrange supervisions for them. Mathematicians normally have two supervisions a week in groups of two. Difficulties with the lectures and set problems are tackled during supervisions. We feel that supervisions are one of the major advantages of an Oxbridge education; most other universities run example classes involving large numbers of students.

The Mathematical Tripos includes Computational Project courses which train students to solve analytically intractable mathematical problems using computers. The Faculty provides a computer laboratory (public workstation facility) for this work. Selwyn has a computer room with identical facilities which may be used for such coursework. The computers are of course connected to the Internet. In addition all students' rooms have high-speed network connections which allow personal computers to be linked to the Internet.

Selwyn has a thriving Mathematics community that includes many Ph.D. students who contribute to the teaching of undergraduates. In recent years Selwyn mathematicians have achieved consistently high results and Selwyn is one of the most successful Colleges in the subject in the University. The high STEP grades that we normally require as part of our conditional offers for Mathematics reflect both the quality of the candidates we are looking for and the competitive fields that we have attracted recently. The College is conveniently located near the Centre for Mathematical Sciences.

## The Teaching Fellows

*Dr Nikos Nikiforakis*, who is a Director of Studies for Mathematics, and has research interests in the area of Scientific Computing. He is also the Director (Academic Programmes) of the Centre for Scientific Computing of the University of Cambridge, and the Head of the Laboratory for Scientific Computing at the Department of Physics (Cavendish Laboratory).

*Dr Jack Button*, also Director of Studies for Mathematics and College Lecturer in Mathematics. His research interests are in pure mathematics, especially geometric group theory and topology.

*Dr Anita Faul*, also Director of Studies for Mathematics and Teaching Associate at the Centre for Scientific Computing, author of "A concise Introduction to Numerical Analysis". Her research interests are algorithms and machine learning.

## Qualities we are looking for

We are looking for lateral thinkers who can use taught knowledge to solve problems in their own independent way and will have a strong commitment to mathematics.

## Interviews

The interviews are usually held in December. Applicants have two 30-minute mathematics interviews. During these technical interviews we ask questions that we hope the applicants have not seen. This is so that we can assess their innate mathematical ability and minimize the effect of their background. We normally ask candidates to 'think out loud' as they tackle interview problems as a means of helping us understand each candidate's approach to mathematics.

Secondly, candidates have a general interview with the Admissions Tutor (Sciences). This is designed to learn about the candidate's interests and activities outside Mathematics, his/her motivation in choosing to study Mathematics at Cambridge, and the candidate's maturity of approach towards academic work.

## Typical offers

Mathematics applicants to Selwyn are asked to obtain good grades both in A-levels (or equivalent) and in Cambridge's Sixth Term Examination Papers (STEP). We use STEP because we see the raw marks (we thus know if a candidate just failed to get a required grade) and also we have access to the scripts, which means that we can judge the quality of the answers if necessary. The use of STEP allows us to make more conditional offers than if we relied on A-levels alone (we make 3-4 offers for every 2 places).

Candidates are asked to obtain A\*A\*A at A-level (or equivalent) in Mathematics, Further Mathematics (A-Level students only) and another subject. In addition candidates will normally be asked to take both Paper II and Paper III of the Mathematics STEP, and to obtain a grade 1 in both papers. We believe that candidates who have taken both Mathematics and Further Mathematics will be better equipped for the intensity and difficulty of the Cambridge Mathematical Tripos.

Applicants to the Mathematics course who take A-Level Mathematics in Year 12, and A-Level Further Mathematics and one other A-Level subject in Year 13 won't usually need to take another A Level in Year 13. Such students may be required to achieve A\* in the two subjects taken in Year 13 (even if they achieve A\* in Mathematics), and should be enhancing their subject knowledge through wider engagement beyond their A Levels.

There is a great deal of information about STEP, including copies of past papers and advice on how to approach preparing for the exam, available at

[www.maths.cam.ac.uk/undergrad/admissions/step/](http://www.maths.cam.ac.uk/undergrad/admissions/step/)

## Finding out more and Open Days

There is a specific Mathematics Open Day on Saturday 4 May 2019, with events in Selwyn in the morning and at the Department in the afternoon. <https://www.maths.cam.ac.uk/undergrad/admissions/openday>