UNDERGRADUATE ADMISSIONS AND OUTREACH
University Offices, Wellington Square, Oxford OX1 2JD

If you require an accessible version of the document, please contact Undergraduate Admissions by email (uao.comms@admin.ox.ac.uk) or via the online form (http://www.ox.ac.uk/ask).

Mathematics and Computer Science Course Information Sheet for entry in 2022

This joint degree offers the opportunity to combine an appreciation of mathematical reasoning with an understanding of computing. Mathematics is a fundamental intellectual tool in computing, but computing is increasingly used as a key component 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 a deeper understanding of the limits on the use of computers in their own subject.

The first year and part of the second year of the course are spent acquiring 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. In the second year, students take part in a group design practical, which may be sponsored by industry.

A typical week

The typical weekly timetable for a student in Mathematics and Computer Science is similar to that for Computer Science or Mathematics.

Tutorials are usually 2-4 students with a tutor. Class sizes may vary depending on the options you choose. There would usually be around 8-12 students though classes for some of the more popular papers may be larger. Lectures may be up to 100 students.

Most tutorials are delivered by staff who are tutors in their subject. Many are world-leading experts with years of experience in teaching and research. Some teaching may also be delivered by postdoctoral researchers or postgraduate students who are studying at doctorate level.

To find out more about how our teaching year is structured, visit our Academic Year page.

Course structure

Mathematics and Computer Science can be studied for three years, leading to the award of a BA degree, or for four years, leading to the award of Master of Mathematics and Computer Science. The fourth year of the Mathematics and Computer Science degree provides the opportunity to study advanced topics and undertake a more in-depth research project. Students do not need to choose between the three-year and four-year options when applying; all students apply for the four-year course, and then decide at the start of the third year whether they wish to continue to the fourth year (which is subject to achieving a 2:1 at the end of the third year).

YEAR 1	

COURSES
• **Core Mathematics (50%)**
  ○ Analysis
  ○ Continuous maths
  ○ Groups and group actions
  ○ Introduction to complex numbers
  ○ Introduction to university maths
  ○ Linear algebra
  ○ Probability
• **Core Computer Science (50%)**
  ○ Design and analysis of algorithms
  ○ Ethics and responsible innovation
  ○ Functional programming
  ○ Imperative programming
	ASSESSMENT
	Five exam papers

YEAR 2	

COURSES
• **Core Computer Science (25%)**
  ○ Algorithms
  ○ Models of computation
  ○ Group design practical
• **Core Mathematics (30%)**
  ○ Linear algebra
  ○ Complex analysis
  ○ Metric spaces
	ASSESSMENT
	Eight exam papers (four Computer Science and four Mathematics)

YEAR 2	
• **Options in Mathematics (20%)** • **Options in Computer Science (25%)**	

YEAR 3	
COURSES • **Mathematics** Options including: o Number theory o Communication theory • **Computer Science** Options including: o Computer security o Machine learning o Computational complexity o Lambda calculus and types	**ASSESSMENT** Up to eight exam papers

YEAR 4	
RESEARCH • **Mathematics** Advanced options including: o Model theory o Category theory o Lie groups o Probabilistic combinatorics	**ASSESSMENT** Written or take-home exams plus a dissertation or project report. Currently a 2:1 is required to continue to Year 4.

YEAR 4	
• **Computer Science** Advanced options including: ○ Advanced topics in machine learning ○ Computational game theory ○ Computational learning theory ○ Automata, logic and games ○ Quantum computer science ○ Concurrent algorithms and data structures ○ Advanced security *The courses listed above are illustrative and may change. A full list of current options is available on the Computer Science website.*	

The University will seek to deliver this course in accordance with the description set out above. However, there may be situations in which it is desirable or necessary for the University to make changes in course provision, either before or after registration. These may include significant changes made necessary by a pandemic (including Covid-19), epidemic or local health emergency. For further information, please see the University's Terms and Conditions. For the latest information on the University's Covid-19 response and how it affects students please go to the Oxford University Covid-19 Response site.

Fees

These annual fees are for full-time students who begin this undergraduate course here in 2022.

Information about how much fees and other costs may increase is set out in the University's Terms and Conditions.

Please note that while the University sets out its annual fees as a single figure, this is a combined figure for both your University and college fees. More information is provided in your Terms and Conditions.

Fee status	**Annual Course fees**
Home (UK, Republic of Ireland,	£9,250

Fee status	Annual Course fees
Channel Islands & Isle of Man)	
Overseas (including most EU students– see Note below)	£39,010

Note: Following the UK's departure from the EU, most EU students starting a course in 2022/23 will pay fees at the 'Overseas' rate. Irish nationals living in the UK or Ireland, EU, other EEA, and Swiss nationals who have been granted settled or pre-settled status in the UK under the EU settlement scheme will be eligible for 'Home fee' status and student loan support, subject to meeting residency requirements. We will contact you directly if we need further information from you to determine your fee status.

Please refer to the Undergraduate fee status and the Oxford and the EU pages for more information.

Living costs

Living costs for the academic year starting in 2022 are estimated to be between £1,215 and £1,755 for each month you are in Oxford. Our academic year is made up of three eight-week terms, so you would not usually need to be in Oxford for much more than six months of the year but may wish to budget over a nine-month period to ensure you also have sufficient funds during the holidays to meet essential costs.

Living costs breakdown

	Per month		**Total for 9 months**	
	Lower range	Upper range	Lower range	Upper range
Food	£290	£410	£2,610	£3,690
Accommodation (including utilities)	£680	£810	£6,120	£7,290
Personal items	£135	£260	£1,215	£2,340
Social activities	£45	£120	£405	£1,080
Study costs	£45	£100	£405	£900
Other	£20	£55	£180	£495
Total	**£1,215**	**£1,755**	**£10,935**	**£15,795**

In order to provide these likely living costs, the University and the Oxford University Students' Union conducted a living costs survey to complement existing student expenditure data from a variety of sources including the UK government's Student Income and Expenditure Survey and the National

Union of Students (NUS). The likely lower and upper ranges above are based on a single student with no dependants living in college accommodation (including utility bills) and are provided for information only. In addition to reviewing the information above, you should fully consider and research your personal likely living costs.

When planning your finances for future years of study at Oxford beyond 2022-23, you should allow for an estimated increase in living expenses of 3% each year.

Additional Fees and Charges Information for Mathematics and Computer Science

There are no compulsory costs for this course beyond the fees shown above and your living costs.