Mathematics Information Sheet for entry in 2020

Mathematicians have always been fascinated by numbers. One of the most famous problems is Fermat's Last Theorem: if $n \geq 3$, the equation $x^n+y^n=z^n$ has no solutions with x, y, z all nonzero integers. An older problem is to show that one cannot construct a line of length $\sqrt[3]{2}$ with ruler and compass, starting with a unit length.

Often the solution to a problem will require you to think outside its original framing. This is true here, and while you will see the second problem solved in your course, the first is far too deep and was famously solved by Andrew Wiles.

In applied mathematics we use mathematics to explain phenomena that occur in the real world. You can learn how a leopard gets its spots, explore quantum theory and relativity, or study the mathematics of stock markets.

We will encourage you to ask questions and find solutions for yourself. We will begin by teaching you careful definitions so that you can construct theorems and proofs. Above all, mathematics is a logical subject, and you will need to *think* mathematically, arguing clearly and concisely as you solve problems. For some of you, this way of thinking or solving problems will be your goal. Others will want to see what else can be discovered. Either way, it is a subject to be enjoyed.

There are two Mathematics degrees, the three-year BA and the four-year MMath. Decisions regarding continuation to the fourth year do not have to be made until the third year. The first year consists of core courses in pure and applied mathematics (including statistics). Options start in the second year, with the third and fourth years offering a large variety of courses, including options from outside mathematics.

A typical week (Years 1 and 2)

- Around ten lectures and two-three tutorials or classes a week
- Additional practicals in computing (first year) and numerical analysis (if taken)

A typical week (Years 3 and 4)

- Six-ten lectures and two-four classes each week, depending on options taken
- Compulsory dissertation in the fourth year

Tutorials are usually 2-4 students and 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. Most tutorials, classes, and lectures 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 postgraduate students who are usually studying at doctorate level. To find out more about how our teaching year is structured, visit our Academic Year page.

Course structure

There are two Mathematics degrees, the three-year BA and the four-year MMath. Decisions regarding continuation to the fourth year do not have to be made until the third year. The first year consists of core courses in pure and applied mathematics (including statistics). Options start in the second year, with the third and fourth years offering a large variety of courses, including options from outside mathematics.

YEAR 1	
COURSES Compulsory Year 1 includes: • Algebra • Analysis • Probability and statistics • Geometry and dynamics • Multivariate calculus and mathematical models	**ASSESSMENT** First University examinations: five compulsory papers; Computational mathematics projects
YEAR 2	

COURSES
• Compulsory core:
  ○ Algebra
  ○ Complex analysis
  ○ Metric spaces
  ○ Differential equations
• Selection from topics including: Algebra; Number theory; Analysis; Applied analysis; Geometry; Topology; Fluid dynamics; Probability; Statistics; Numerical analysis; Graph theory; Special relativity; Quantum theory
	ASSESSMENT
	Final University examinations, Part A: three core papers and six or seven optional papers

YEARS 3 AND 4	
COURSES • Large variety, ranging across: Algebra; Applied and numerical analysis; Algebraic and differential geometry; Algebraic and analytic topology; Logic and set theory; Number theory; Applied probability; Statistics; Theoretical and statistical mechanics; Mathematical physics; Mathematical biology; Mathematical geoscience; Networks; Combinatorics; Information theory; Actuarial mathematics; Undergraduate ambassadors scheme; Mathematical philosophy; Computer Science options; History of mathematics	**ASSESSMENT** Year 3: Final University examinations, Part B: eight papers or equivalent Year 4: Final University examinations, Part C: eight, nine or ten papers or equivalent, including a dissertation Classification on Parts A and B: currently a 2:1 over Parts A and B,

• A dissertation in Year 4 is compulsory *The options listed above are illustrative and may change. A full list of current options is available on the Maths website.*	as well as a 2:1 in Part B alone, is required to progress to Part C.

MMathPhys Year 4
The Physics and Mathematics Departments jointly offer an integrated master's level course in Mathematical and Theoretical Physics. Mathematics students are able to apply for transfer to a fourth year studying entirely mathematical and theoretical physics, completing their degree with an MMathPhys. The course offers research-level training in: Particle physics, Condensed matter physics, Astrophysics, Plasma physics and Continuous media. **mmathphys.physics.ox.ac.uk**

The University will seek to deliver each course in accordance with the descriptions 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. For further information, please see the University's Terms and Conditions.

Fees

These annual fees are for full-time students who begin this undergraduate course here in 2020.

Fee status	Annual Course fees
Home/EU	£9,250
Islands (Channel Islands & Isle of Man)	£9,250
Overseas	£28,330

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

Please note that the course fees you pay include your fees for both University and college services and are divided between the University (including your department or faculty) and your college on a formula basis. More information is provided in your Terms and Conditions.

Additional Fees and Charges Information for Mathematics

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

Living costs

Your living costs will vary significantly dependent on your lifestyle. These are estimated to be between £1,135 and £1,650 per month in 2020-2021. Each year of an undergraduate course usually consists of three terms of eight weeks each, but you may need to be in Oxford for longer. As a guide you 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	£270	£385	£2,430	£3,465
Accommodation (including utilities)	£630	£760	£5,670	£6,840
Personal items	£130	£245	£1,170	£2,205
Social activities	£45	£110	£405	£990
Study costs	£40	£95	£360	£855
Other	£20	£55	£180	£495
Total	**£1,135**	**£1,650**	**£10,215**	**£14,850**

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.

When planning your finances for future years of study at Oxford beyond 2020-21, you should allow for an estimated increase in living expenses of 3% each year.