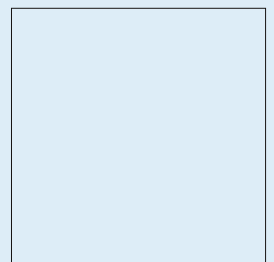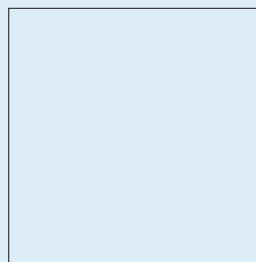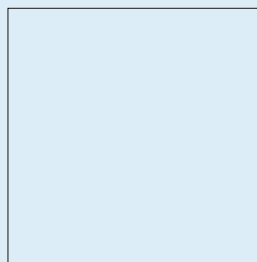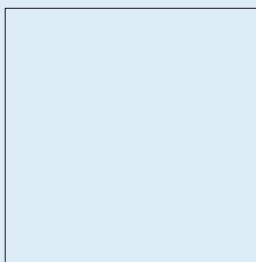Statistical analysis makes sense of data. It gives meaning to numbers and helps to decode complexity.

BA/MMath in Mathematics & Statistics

www.stats.ox.ac.uk

Statistics is an exciting area of modern mathematics. Are humans the cause of global warming? Which genetic mutations are associated with common human diseases? Statistical models and modern computational techniques can help to answer questions such as these.

The 3-year BA and 4-year MMath in Mathematics and Statistics courses combine the strengths of the traditional Oxford Mathematics degrees with the ability to pursue probability and statistics in depth. It will equip you with outstanding and sought-after analytical skills used in finance, science, industry and medicine, whilst also providing an excellent springboard for postgraduate study.

Deciding to apply was one of the best decisions I have ever made, and very soon it began to feel like a home. I immediately met friends for life, and the tutors are incredibly supportive, as well as being there to push you to help you reach your full potential.
Eleanor

Why study Mathematics & Statistics at Oxford?

The Department of Statistics is an exciting and vibrant place to study. The department has teaching and research strengths in a wide range of modern areas of statistical science.

At Oxford we have world-leading research groups in Computational Statistics and Statistical Methodology, Probability, and Statistical Genetics and Bioinformatics. The research group working on statistical machine learning and scalable methods for Big Data is flourishing. Our research covers topics as diverse as methods to unlock the secrets of human genetic variation and disease to the analysis of random graphs and networks.

These research interests are reflected in the courses available to under-graduates in the third and fourth years, and give exposure to the advances being made in statistical theory as well as the practical application of techniques to large datasets. This means that graduates from our degrees are well-equipped to enter highly analytical careers. Both the BA and MMath in Mathematics and Statistics are accredited by the Royal Statistical Society.

The University also offers fantastic facilities, exceptional academic support through the collegiate system, and has a range of financial support options available.

How is the course structured?

There are two Mathematics and Statistics degrees, the 3-year BA and the 4-year MMath. You will not be asked to choose between the degrees until your third year.

The first year and part of the second year introduce core topics in pure and applied mathematics, probability and statistics. Options start in the second year, with three long options and three short options taken. In the third and fourth year there is a wide range of options available in both mathematics and statistics.

You can choose to graduate after three years with a BA, or to continue to a fourth year to graduate with an MMath. The MMath allows for more in-depth study on advanced material, and includes a dissertation on a topic with a large statistical component.

1st year

Courses

Compulsory 1st year includes:
- Algebra
- Analysis
- Probability and statistics
- Geometry and dynamics
- Multivariate calculus and mathematical models

Assessment

First University examinations:
Five compulsory papers. Computational mathematics projects.

2nd year

Courses

Current core courses:
- Probability
- Statistics
- Algebra and differential equations
- Metric spaces and complex analysis

Current options:
- Statistical programming and simulation
- Other options in mathematics

Assessment

Final University examinations, Part A: Five core papers and four or five optional papers.

3rd year

Courses

Current options include:
- Applied & computational statistics
- Statistical inference
- Statistical machine learning
- Applied probability
- Statistical lifetime models
- Actuarial science
- Options in Maths

Assessment

Final University examinations, Part B: The equivalent of eight written papers including assessed practicals.

4th year (extended terms)

Research

Current options:
- Stochastic models
- Network analysis
- Advanced statistical machine learning
- Simulation methods
- Graphical models
- Bayes methods
- Computational biology
- Probabilistic combinatorics
- Options in Maths

Statistics project

Assessment

Final University examinations, Part C: The equivalent of eight written papers.

Currently upper second in Parts A and B combined, as well as an upper second in Part B alone, required to progress to Part C.

The options listed above are illustrative and may change. A full list of current options is available on the course websites.

Teaching at Oxford University

Mathematics and Statistics students from all colleges attend the same lectures, which are arranged by the Department. This is usually how students first meet the topics in each course. Mathematics and Statistics students can expect to attend between 9 and 12 hours of lectures per week. Each lecturer will set exercises on their lectures, and these problems will typically form the basis of college tutorials.

The University's friendly tutorial system means that you will receive much more personal tuition and greater pastoral support than many other universities can offer. A tutorial is an hour long meeting in a college between a tutor and small group (often a pair) of students. College tutors mark their students' tutorial work each week and during the tutorial the work (typically a set of problems set by the lecturer or college tutor) is considered and discussed.

What is the role of the college?

All students at the University of Oxford are a member of a college. Each college has its own particular history, ethos and architecture, but all have high academic standards. Through the college you will attend weekly tutorials with a tutor.

The colleges provide accommodation for at least two (and often more) years of your course. College life is one of the university's greatest assets, and the close college community provides a friendly and welcoming home.

Practical classes

By the third and fourth years the subject options become much more specialised and are taught in intercollegiate classes organised by the University, typically involving about 10 students. There are plenty of opportunities to ask questions and discuss ideas with class tutors.

Fourth-year dissertation

If you choose to do the four year MMath course, you will be required to write a dissertation in a topic closely related to statistics. These are a good opportunity to do individual research on a topic that interests you.

Colleges also act as a social hub, with a vast range of extracurricular activities on offer so whatever your interests – music, drama, sports, politics – there will be a society for you in Oxford.

You can name a college at the application stage, but it is not necessary to do this. Around a third of students happily end up at a college different to the one they originally applied for.

Please see **ox.ac.uk/ugcolls** for a list of all colleges offering Mathematic and Statistics.

I originally applied to straight Maths but changed as I enjoyed Stats and Probability modules. I didn't like Statistics at school – nothing was explained, you just had to take it as given. University Stats explains the pure maths before showing the applications. I was also particularly interested in Stats programming as I'm interested in a career in Operational Research.
Peter

Is this course for me?

If you are a highly motivated student and you are passionate about studying Mathematics with a particular interest in the applications to data analysis then the University of Oxford offers an outstanding environment in which to study. The course will introduce topics that may be completely new to you and will allow you to specialise in the areas that interest you most.

We strongly recommend that you take as much Mathematics as your school offers to full A-level or equivalent. If your school does not offer Further Maths, you could consider studying it through the Advanced Mathematics Support Programme. See **amsp.org.uk** for more details.

What qualifications do I need?

You should have a strong academic background, particularly in Mathematics.

A-levels: A*A*A with A* in Mathematics and in Further Mathematics (if taken).
Otherwise A*AAa with A* in Mathematics and a in AS-level Further Mathematics.
For those for whom A-level Further Mathematics is not available: A*AA with A* in Mathematics.
or
Advanced Highers: AA/AAB with A in Mathematics.
or
IB: 39 points, including score 7 in higher level Mathematics and a further 6 6.
or
any other equivalent. For further information, please see **www.maths.ox.ac.uk/r/our-offer**

What are tutors looking for?

In addition to looking for a very good track record of academic achievement and a particular enthusiasm for Mathematics, tutors are looking for candidates that have a capacity to absorb and use new ideas, the ability to think and work independently, and have perseverance and enthusiasm.

The MAT
Given the very strong competition for places, all applicants must register for and sit the Mathematics Admissions Test (MAT). This is usually undertaken at a local test centre (often your own school or college) in November or late October. MAT results will be considered when short-listing applicants for interview. Please see **ox.ac.uk/mat** for more details. The STEP does not form part of Oxford offers.

The Interview
Applicants will be shortlisted for interview in Oxford in December on the basis of their test marks and UCAS form. It may also be possible to arrange Skype, video or telephone interviews for shortlisted international candidates unable to travel to Oxford. If you are interviewed in Oxford, you are guaranteed at least one more interview at another college. Typically interviews last 20-30 minutes with two interviewers. As part of the process, applicants will stay in a college for several days, giving them the opportunity to sample college life. All meals and accommodation are provided free of charge. For more information please see **ox.ac.uk/interviews.**

Applying
All applications should be made through UCAS by 15 October, and applicants should also register for the MAT by this date. For more information about the application process, see **ox.ac.uk/apply**.

What can I do after my degree?

Many of our graduates have careers in Statistics and the closely related field of Operational Research. Graduates in Statistics can enter careers in fields as diverse as health, technology, education, research and industry. They are in high demand in the insurance and financial services, and increasingly data science and machine learning roles are providing interesting and unusual opportunties in all areas of business.

For more information on applying to the University of Oxford, please look at the admissions website at **ox.ac.uk/apply**.

Visit us

There are five Open Days each year, including two Departmental Open Days in April/May for Mathematics and its joint courses including Mathematics and Statistics. There are programmes of talks for both of these days. In addition there are three University Open Days, two in June/July and one in September. These are university-wide and there is usually a set of repeated departmental talks, allowing you to visit more than one department, including the Mathematical Institute, together with some colleges, all in one day.

Please note that booking is required to attend Departmental Open Days, but not for University Open Days. You can book and see more details at **www.maths.ox.ac.uk/open-days**.

Get in touch

For further information on our course, please contact:
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undergraduate.admissions@stats.ox.ac.uk
+44 (0)1865 282926
www.stats.ox.ac.uk

Other useful contact details:

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