

## The Department of Statistics

The Department of Statistics at LSE is one of the oldest and most distinguished in the UK. It has a rich research portfolio covering core areas of statistical inference and real applications, particularly in the economic, financial, actuarial, social and industrial arenas. The close collaboration between departments, its London location and strong international partnerships are reflected in the research life of the Department of Statistics through the members of staff, PhD students, postdoctoral research fellows and the thriving visitor and seminar programmes.



## Entry Requirements

Entry requirements to the MSc Risk and Stochastics programme are an upper second class honours degree or equivalent in actuarial science, mathematics, statistics or mathematical economics/finance.

This should include training in analysis and linear algebra, with rigorous proofs, and probability theory at the level of our third year undergraduate course ST302, a description of which can be found online in the LSE Calendar.

Overseas students should consult the section on equivalence of non-UK qualifications at the Graduate Admissions website below.

## How to Apply

You should apply online here:

[lse.ac.uk/study/graduate/home.aspx](http://lse.ac.uk/study/graduate/home.aspx)

You will need to click on the Apply Online icon and follow the instructions.

You will also be given access to the Graduate Application Tracker via LSE for You, which will reflect the personal details held in the School's database and the up-to-date status on your application.

## How to contact us:

For further general information about the MSc programmes please contact the MSc Administrator at the Department of Statistics or visit the Departmental website:

[lse.ac.uk/statistics/home.aspx](http://lse.ac.uk/statistics/home.aspx)



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# Statistics

**An advanced MSc in Risk Management, Financial Mathematics, Actuarial Science, and their interface. Rigorous with emphasis on applicability**

# MSc

RISK AND  
STOCHASTICS



## MSc Risk and Stochastics

Risk is present in virtually every aspect of human activity. Stochastics, which covers the mathematical theories of probability, statistics, and decision-making under uncertainty, is the core discipline for the measurement and management of risk.

The MSc in Risk and Stochastics offers in-depth instruction in advanced mathematical risk theory and its ramifications in finance, insurance, and risk management. It draws on world-class research in modern financial and actuarial mathematics within the Department. The programme provides instruction in theoretical as well as practical aspects of various techniques in risk management, and tools used to address the strong developments in merging finance and insurance.

Students registering for the MSc in Risk and Stochastics can expect high-level instruction in probabilistic and statistical methods, and will work with real financial data to receive hands-on training in real-world problems. The programme takes a unified approach to quantitative model-based risk analysis. Students receive rigorous training in risk management, financial mathematics, statistics and scientific computation, and are introduced to a broad range of practical problems from industries.

## Degree Structure

Five compulsory half unit courses:

- ST409 Stochastic Processes
- ST427 Insurance Mathematics
- ST433 Computational Methods in Finance and Insurance
- ST439 Stochastics for Derivatives Modelling
- ST440 Recent Developments in Finance and Insurance

Plus three optional half unit courses, including:

- ST422 Time Series
- ST426 Applied Stochastic Processes
- ST429 Probabilistic Methods in Risk Management and Insurance
- ST435 Advanced Probability Theory
- ST436 Financial Statistics
- MA409 Continuous Time Optimisation
- MA411 Probability and Measure
- MA415 The Mathematics of the Black & Scholes Theory
- MA416 The Foundations of Interest Rate, Foreign Exchange and Credit Risk Theory
- FM404 Forecasting Financial Time Series
- FM441 Derivatives
- FM442 Quantitative Methods for Finance and Risk Analysis

## Graduate Careers

Banks, insurers, investment companies, pension schemes and stock exchanges have created a wide range of novel products and means of risk transfer. Financial derivatives (futures, forwards, options, swaps) of ever increasing sophistication and based on a huge variety of asset classes are now dominating the financial markets. In insurance the traditional products are gradually being replaced with novel ones, allowing, in particular, venture investors to participate in insurance risk that formerly was not tradable.

Thus, implementation of sound quantitative risk models is a vital task for all financial institutions, which has especially proved to be indispensable for the healthiness of the financial system after the last financial crisis.

The programme aims to prepare candidates for a range of expert careers in financial and insurance industries, in regulatory bodies, and in applied and theoretical research.

“ The flexibility of this programme allowed me to choose courses not only from the Statistics and Mathematics departments, but also from other departments such as Finance. It was great being taught by some world renowned lecturers. I would definitely recommend this programme to anyone with a genuine interest in statistics, stochastic finance and insurance mathematics. I felt that the prestigious degree, together with the knowledge and skills I gained during the year helped me to perform well in my career so far.

I have met a lot of people from different backgrounds and many of us still stay in touch even though we took on jobs in various industries. ”

**Hui Jiang,**  
MSc Risk and Stochastics 2011/12

