This document provides information about our research and teaching, our people, and what it is like to work in the Department.

In this document we group information broadly into the 3 categories defined by LSE 2030, the School Strategy.

From our Head of Department

Thank you for your interest in our Department. The Department has grown rapidly in recent years, with exciting developments in research, and the introduction of new teaching programmes and courses.

The Department's research and teaching are shaped to a large extent by their position within LSE, a lively and stimulating place to work. We embrace the School's ethos of research-led teaching, and view research and teaching as complementary activities, each enhancing the other. We aim to be excellent both in teaching and research, in a way that reflects our location within a social sciences institution, engaging with other parts of LSE.

We have a supportive and friendly environment in which to develop your career. We'll be happy to hear from you if you think you would like to join our Department. If you have any questions, or need more information, please consult our website or contact us by email at maths.info@lse.ac.uk to be directed to the right person.

Professor Bernhard von Stengel

Our governance, organisation and decision-making

The Department of 40 members comprises 30 faculty, 3 LSE Fellows and 7 professional services staff. It has a team of around 25 Guest Teachers, in addition to Graduate Teaching Assistants, academic Visiting Appointments, emeritus faculty and post-doctoral researchers. For a full list of current staff and PhD students please consult the website. The Department has a Head and two Deputy Heads (Teaching and Research). Governance in the Department is open and transparent. All non-confidential matters are discussed in our Departmental Meetings, which all staff attend. Our class teaching team also has its own meetings to discuss issues of relevance to them. We hold bi-annual Staff-Student Liaison Committee meetings for all our programmes.

History of our Department

Since being established as a separate department in 1995, the Department has grown in staff to students numbers, numbers of programmes and research areas. We continue to have close ties with our fellow quantitative departments at LSE (Statistics, Economics, Methodology, Finance, Management and the Data Science Institute). For more about the history of the Department of Mathematics, please see our three-part blog series here.

LSE 2030 has “Priority 1: educate for impact”. In Mathematics we will continue to work in partnership with our students to find innovative ways of teaching, learning, creating and collaborating in order to better supporting them.

Our programmes and students

The Department is responsible for Undergraduate and MSc taught programmes.

- BSc Financial Mathematics and Statistics
- BSc Mathematics with Economics
- BSc Mathematics and Economics
- BSc Mathematics with Data Science
- MSc Applicable Mathematics
- MSc Financial Mathematics
- MSc Operations Research & Analytics

All these programmes are in high demand and attract highly qualified and increasingly diverse student cohorts. We host an annual cohort of General Course (one-year visiting) students. Find out more about admissions here.

We play a vital role in teaching at LSE: some of our specialist courses are taken in significant numbers by students from a range of programmes across LSE. We provide ‘service teaching’ mathematics courses for students in most of the School’s departments.

Academic office-holders who support the development of our students and programmes include: Departmental Tutors, MSc Programme Directors, Doctoral Programme Director and Examination Sub-board Chairs.

All of our students are assigned an Academic Mentor with whom they are invited to meet regularly to discuss their academic progress and plans, and with whom they can discuss more personal matters or be signposted to other sources of support (such as our Maths Support Centre or LSE Student Wellbeing Services).

Extended Education

The Department is active in the Extended Education programmes offered by LSE. Faculty contribute to the University of London International Programmes and to a number of LSE Summer School courses.

Our PhD programme

We have a thriving PhD programme which grows steadily. Students attend, and faculty contribute to, taught courses delivered through the London Taught Course Centre for PhD Students in the Mathematical Sciences and the London Graduate School in Mathematical Finance. In their collaborations with their PhD supervisor(s), opportunities to contribute to the Department in teaching and research, and as participants in the Department’s various seminar series and reading groups. Our PhD students are effectively treated as early-career academic members of the Department.

Pictured: Undergraduate welcome, PhD cohort, our “Hoodies”, Prof Veraart Teaching, the Maths Support Centre, Prof Anthony Teaching, Graduation 2021.


Department of Mathematics
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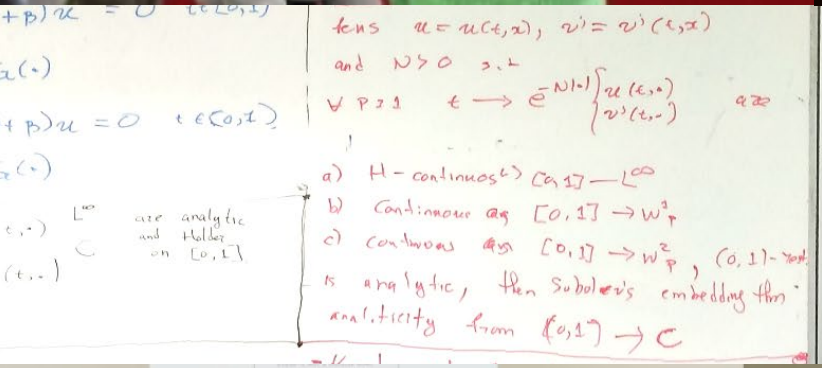
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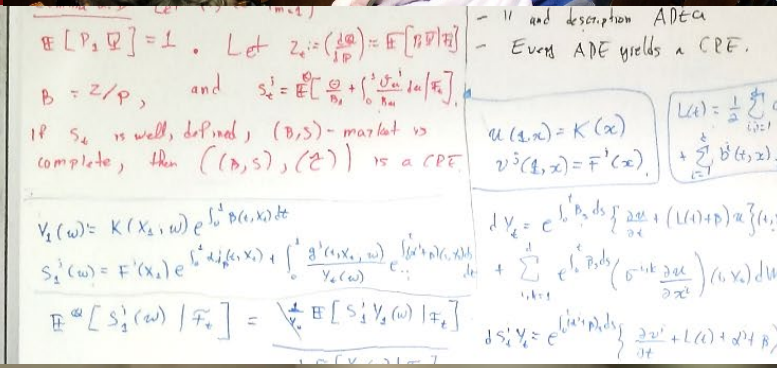
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Every ADE yields a CPE.


Department of Mathematics

LSE 2030 has "Priority 2: research for the world"

We will continue to build on our academic reputational strengths and to explore research topics within both LSE and the wider Mathematics community. In this way we will help to define the future of social sciences, in particular taking a keen interest in more recent developments in the social sciences related to mathematics (such as data science).

Pictured: Conference poster competition and public lectures.

Our research areas

Our research, broadly speaking, can be split into four overlapping areas. As is standard practice in mathematics, our faculty work in collaborative groups to which they regularly invite research visitors. These collaborations encourage expansion of research such as this selection of topics currently explored by our faculty:

- Discrete Mathematics and Algorithms: Pure mathematics (including extremal and structural properties of graphs and hypergraphs, random structures, probabilistic methods, and combinatorial geometry), applicable mathematics (including machine learning, sublinear algorithms for massive data sets, and algorithmic aspects of discrete mathematics in general). Increasing collaboration with Operations Research has encouraged the expansion of research in discrete algorithms, as well as the development of new approaches to approximation, heuristic and randomised algorithms.
- Mathematical Game Theory: Research topics include the economics and the strategic use of information, entropy methods, models of bounded rationality, games of incomplete information, repeated and stochastic games, algorithmic game theory, and the computational and geometric structures of equilibria in games.
- Financial and Related Mathematics: A wide range of topics in mathematical finance and optimal control; theories of market equilibrium; markets with transaction costs or asymmetric information; martingales; optimal order execution; optimal investment; optimal control and stopping; principal-agent contract design; risk-management; systemic risk; and stochastic portfolios.
- Operations Research: mathematical aspects of Operations Research including methods for solving linear and integer programs and network flows, polyhedral combinatorics, combinatorial optimisation, network reliability, average-case analysis of algorithms for graph problems, formula satisfiability and constraint satisfaction problems, phase transitions in the same contexts, and exact algorithms for NP-complete problems.

Our research seminars, conferences and events

The Department hosts several series of seminars and workshops. Weekly during term-time, it has a Combinatorics, Games and Optimisation seminar, as well as a more informal PhD seminar series under the same research areas, and a Joint Risk and Stochastics and Financial Mathematics seminar. In addition to these seminars, it co-hosts the bi-weekly London Mathematical Finance seminar with several other London-based universities.

The Department runs a two-day Colloquia in Combinatorics each year (with one day at LSE and one at QMUL), which has been financially supported by the London Mathematical Society and the British Combinatorial Committee. This has attracted some very high-profile speakers such as Professor Timothy Gowers.


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LSE 2030 has "Priority 3: develop LSE for everyone"

LSE thrives on diversity of people, ideas and interests. In the Department of Mathematics we will continue to improve our student community and enhance our Department, to enable every staff and student member to excel.

Our commitment to Equity, diversity and inclusion (EDI)

The Department has a dedicated Equality Officer, whose role is to oversee all aspects of activities related to EDI in the Department. We support School-wide initiatives in this area. Actions towards improvements in equity, diversity and inclusion are monitored by our EDI committee. In general, LSE has excellent provisions for staff with caring roles, including generous parental and adoption leave, with additional research leave for staff following long-term absences from the School.

The Department runs a Women In Mathematics seminar series. This is an academic, professional and personal development seminar series for all staff and students in the Department, to which we invite speakers to talk about their experiences related to the position of women studying or working in mathematics.

We were delighted to announce we were awarded the Athena Swan Silver Award by Advance HE in January 2022. This award recognises our plans to support and transform gender equality in all areas of the Department and our progress to date.

Wellbeing at LSE

LSE puts staff and student wellbeing as a priority. Throughout the year, there are workshops and information on mental, physical and professional wellbeing, as well as a free counselling service. There is a wealth of development and training opportunities available to academic and professional services staff, which you can find out about here.

LSE provides many benefits. From hobby clubs and discounted gym memberships to staff networks for gender equality and parents and carers, there are many opportunities to connect with colleagues.

Our public engagement

We contribute to LSE's extensive public lecture programme, with previous speakers including our own faculty, David Sumpter, Cathy O'Neil, Paul Embrechts and Tim Roughgarden. Find out more here.

The Department has an active research blog, the goal of which is to inform an interested lay audience about our research activities, and those of our esteemed guests.

Our social media presence

The Department engages with a widespread audience via its thriving X account, as well as on LinkedIn and our YouTube channel.

Athena Swan Silver Award
GENDER CHARTER

Pictured: Office hour meeting, our kitchen for regular coffee and cake, Women in Mathematics seminar, class teachers' meeting.


LSE
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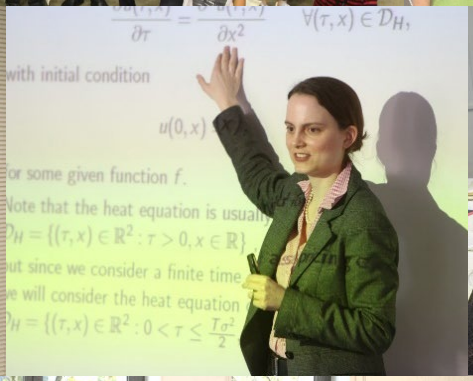
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About the Department