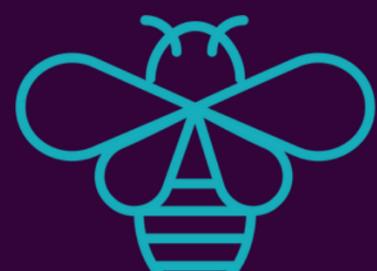


MANCHESTER
1824

The University of Manchester

MSc/MMATH IN MATHEMATICS

Dr Denis Denisov
PGT Director, Department of Mathematics



DEPARTMENT OF MATHEMATICS

One of the largest in the UK with a long history

About 85 academic members of staff in three main groupings:

- Pure Mathematics;
- Applied Mathematics;
- Probability and Statistics.

About 1300 undergraduate students

80 MSc students on 4 courses (+ one cross-Faculty Data Science MSc with 20 students on the Mathematics pathway)

In the last UK research assessment exercise (REF2021), 90% of the research outputs considered for the Department were judged to be internationally excellent, with 38% world-leading

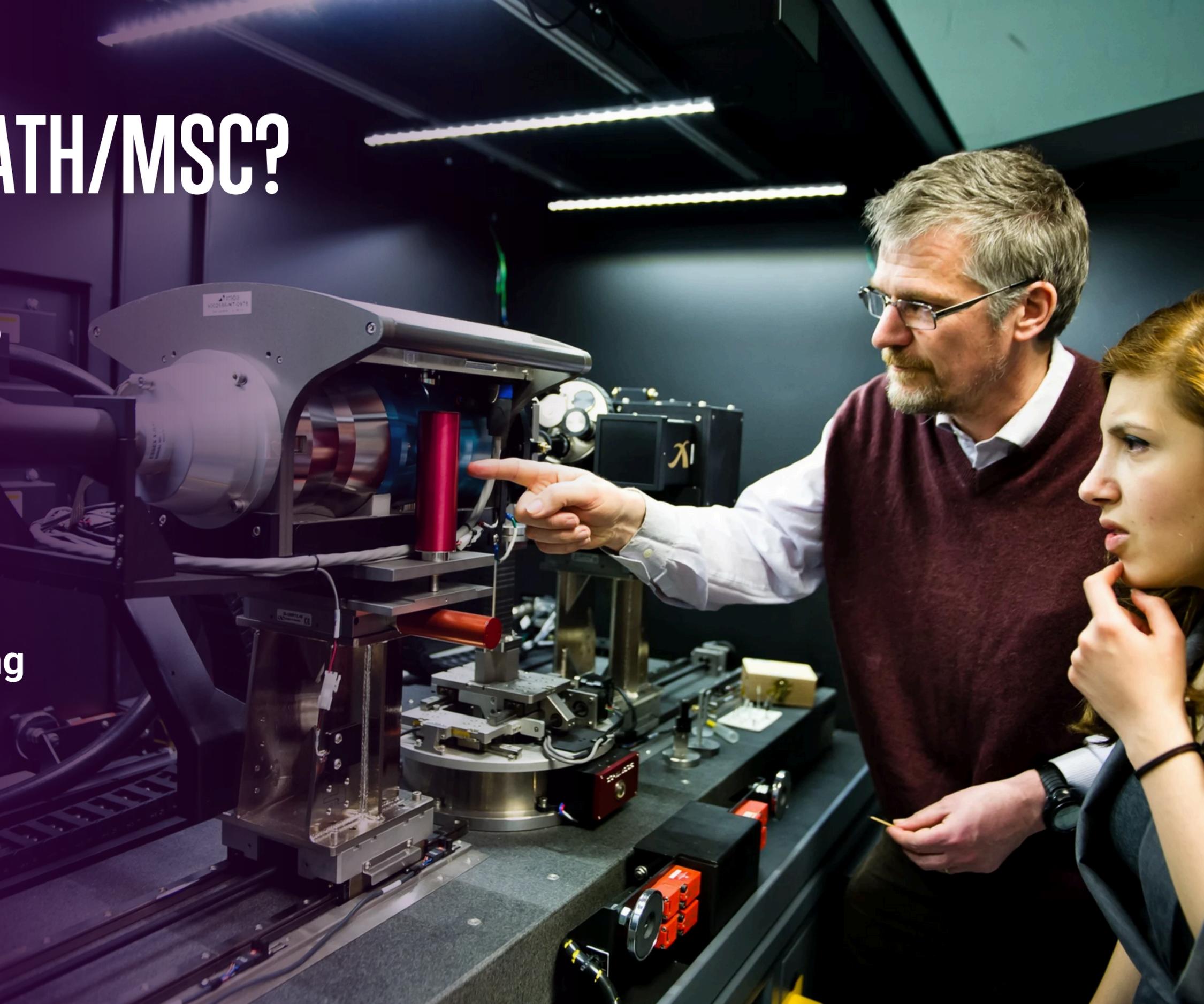


WHY DO AN MMATH/MSC?

- You enjoy an area of mathematics and wish to study it further
- To enhance your career prospects
- As a precursor to studying for a PhD



Be Curious;
Be Connected;
Be Courageous



MMATH PROGRAMMES

- MMath Mathematics
- MMath Mathematics and Statistics
- MMath Mathematics with Financial Mathematics
- Versions of these programmes with a placement year

List of available units (see Year 4)

<https://www.manchester.ac.uk/study/undergraduate/courses/2025/01688/mmath-mathematics/course-details/#content-main>



WHAT DOES STUDYING IN MMATH INVOLVE?

- You need to take **120 credits** in Year 4:
- **One academic year** (end of September- beginning of June, including exams) **of study full-time** .
- **90 taught credits** (Level 4 courses are typically 15 credits).
- **30 credits** from project work - this is the dissertation which is prepared over the period October to early May before the second semester exams. It is supervised by a member of the academic staff in the Department.



MSC COURSES AVAILABLE

Applied Mathematics

General MSc in Applied Mathematics

Statistics

Main course of general statistical topics

Accredited by the Royal Statistical Society

Mathematical Finance

Some modules for this course provided by the Alliance Manchester Business School

Pure Mathematics

With a pathway in Pure Mathematics and Mathematical Logic

In addition, there is the MSc Data Science which is a cross-Faculty course. There are 5 pathways, including one in Mathematics

Note: Duplication of third year modules are not permitted

WHAT DOES STUDYING IN MSC INVOLVE?

- You need to take **180 credits**:
- **One year of study full-time** (or two years part-time for certain courses).
- **120 taught credits** over eight modules (generally four per semester (full-time)).
- **60 credits** from the dissertation component - this is the dissertation which is prepared over the period June to September after the second semester exams. It is supervised by a member of the academic staff in the Department.



Comparison of MSc and MMATH

Dissertation

- MSc - 60 credits, 3 months in summer
- MMATH - 30 credits, October - beginning of May

Course units

- MSc - 120 credits, particular selection of courses with focus on a particular area
- MMath - 90 credits, almost all course units (with some restrictions in particular programmes)

MSC ENTRY REQUIREMENTS

MSc Courses in Mathematics

Duration: 12 months [Full-time, September entry only]

Entry Requirements:

- The entry requirement to the programmes is normally a good honours degree in mathematics or a mathematically-related discipline or an equivalent overseas qualification in a mathematical subject.
- When assessing your academic record we take into account the grades you have achieved, your academic references and the standing of the institution where you studied your qualification.

Contact us: pgt-maths@manchester.ac.uk

STAGED ADMISSIONS

As there is high demand for this course we operate a staged admissions process with selection deadlines throughout the year. Due to the competition for places, we give preference to students with grades above our minimum entry requirements.

If we make you an offer, you will have 3 weeks to accept. Any offers not accepted within 3 weeks will be withdrawn so that an offer can be made to another candidate.

Stage 1: Application received by 08 November 2024; Decision by 10 January 2025.

Stage 2: Application received by 03 January 2025; Decision by 07 March 2025.

Stage 3: Application received by 28 February 2025; Decision by 18 April 2025.

Stage 4: Application received by 23 May 2025; Decision by 20 June 2025.

MSc Applied Mathematics

Taught component - compulsory units

- Transferable Skills
- Mathematical Methods and PDES
- Intro to Uncertainty Quantification
- Scientific Computing

Optional units

- Dynamical Systems
- Stability Theory
- Continuum Mechanics
- Transport Phenomena and Conservation laws
- Approximation and Finite Element
- Numerical Linear Algebra
- Numerical Optimization and Inverse Problems
- Advanced Uncertainty Quantification

Summer Semester (60 credits)

- MSc dissertation

MSc Applied Mathematics

Programme

- The Applied Math group is the largest in the department
- Around 25 Applied MSc students per year
- A wide variety of career options after graduation, both in industry and academia

Dissertation

- Choose from a list of topics offered by about 30 academic staff
 - Possible industrial dissertations from well-known companies like Dyson and Autotrader
- All dissertations involves extended writing and possible original research

MSc Mathematical Finance

- **Focus on mathematical modelling and theory**

- Probability Theory
- Stochastic Calculus
- Stochastic Processes
- Scientific Computing

- **Financial applications (jointly with Manchester Business School)**

- Modelling for Pricing of Derivative Securities
- Models for Risk Management and Hedging

MSc Mathematical Finance

Autumn Semester (60 credits)

- Derivative Securities
- Asset Pricing Theory
- Stochastic Calculus
- Martingale Theory

Spring Semester (60 credits)

- Computational Finance
- Stochastic Modelling in Finance
- Brownian Motion
- Stochastic Control with Applications to Finance

Summer Semester (60 credits)

- MSc dissertation

MSc in Pure Mathematics

Taught component optional units

1. Category Theory
2. Computation and Complexity
3. Model Theory (mathematical logic)
4. Representation Theory
5. Riemann Surfaces
6. Graph Theory
7. Lie Algebras
8. Galois Theory
9. Algebraic Number Theory
10. Algebraic Topology
11. Differentiable Manifolds
12. Measure Theory and Ergodic Theory
13. Dynamical Systems
14. Martingale Theory
15. Stochastic Calculus
16. Brownian Motion
17. Creating a Sustainable World

MSc in Pure Mathematics

Mathematical Logic Pathway

You need to take three logic units:

- Category Theory
- Computation and Complexity,
- Model Theory

Dissertation

- **three months in summer - 60 credits**

Compulsory Module: Research and Project Skills(Sem 1 and 2).

- This unit develops your mathematical writing skills and encourages individual thinking while exploring a research area of pure mathematics.
- It consists of a few lectures and Mini-project - a soft topic (sem 1)
- Main-project - on an active area of research (provides background for dissertation).
- A supervisor is assigned (end of sem 1 and sem 2)
- 30 credits

MSc Statistics

Programme

- Major revision of the programme in 2025/26 and further revision in 2026/27.
- Current programme can be found on the web.
- Around 20 Statistics MSc students this year.
- Courses are on theoretical side, with application in R.

Dissertation

- Choose from a long list of topics offered by about 30 academic staff
- All dissertations involves extended writing and possible original research
- 3 months in summer - 60 credits

MSc Statistics

Compulsory units (provisionally)

- Statistical Theory (sem 1)
- Bayesian Statistics (sem 1)
- Multivariate Statistics (sem 1)
- Linear Models with Nonparametric Regression (sem 1)
- Generalized Linear Models and Survival Analysis (sem 2)
- Design and Analysis of Experiments (sem 2)

Optional units, 2 out of 3 (provisionally)

- Longitudinal and Spatial Data Analysis (sem 2)
- Statistical Machine Learning (sem 2)
- Time Series Analysis and Forecasting (sem 2)

MSc Programme Tutors

MSc Applied Mathematics:

Dr Yanghog Huang

MSc Mathematical Finance:

Professor Goran Peskir

MSc Pure Mathematics:

Dr Omar Leon Sanchez

MSc Statistics:

Dr Yuk Ka Chung

MSc Data Science

Dr Wentao Li

Year 4 Tutor

Dr Hung Bui

Q&A

Thank you for listening! Please ask us any questions

