

# Level 1

Semester 1      Semester 2

Introduction to Algebra & Analysis

Mathematical Reasoning

Mathematical Methods 1

Algorithmic Thinking

Introduction to Probability & Statistics

Introduction to SOR Methods

# Level 2

Semester 1      Semester 2

Linear Algebra

Analysis

Classical Mechanics

Employability for Mathematics

Methods of Operational Research

Group Theory

Metric Spaces

Mathematical Methods 2

Statistical Inference

# Level 3

Semester 1      Semester 2

Rings and Modules

Measure and Integration

Numerical Analysis

Classical Fields

Quantum Theory

Applied Mathematics Project

Linear Models

Stochastic Processes and Risk

Mathematical Investigation

Dynamical Systems

Modelling & Simulation

Financial Mathematics

Investigations

Applied Mathematics Project

Team Project Mathematics with Finance

Statistical Data Mining with Machine Learn.

# Level 4

Semester 1      Semester 2

Topological Data Analysis / Geometry of Optimisation

Topology

MSci Project

Practical Methods for PDEs

Advanced Quantum Theory

MSci Project

Survival Analysis

MSci Project

Functional Analysis / Fourier Analysis & Appl. to PDEs

Applied Algebra & Cryptography

Information Theory

Mathematical Methods for Quant. Inf. Proc.

Statistical Mechanics / Quantum Fields

Bayesian Statistics

Core Mathematics

Applied Mathematics Applications of Maths Theoretical Physics

Pure Mathematics

Statistics & Operational Research

Modules taught in alternate years available at Level 3 or 4

0 CATS module

**Note:** not all core mathematics modules are compulsory on some programmes.

**In 2023-24:** alternate Level 3/Level 4 modules are Topological Data Analysis (S1), Functional Analysis (S2), and Statistical Mechanics (S2).