Choosing Options - Year 3

BSc

(3 October 2022)

Warwick Mathematics Institute WMI

Choosing Options

- Please read the regulations at
  www2.warwick.ac.uk/fac/sci/maths/undergrad/ughandbook
  These contain all necessary information, including how the degree classifications are determined

- You need to take at least 57 CATS of list A modules
- List A = most MA3** and MA2** and some from other departments
- At minimum, this means 3 MA3** and 1 MA2**

- You need to take at least three MA3** (or 2 MA3** and ST318)
- Reasons to take more: love Maths, good at Maths
- Another reason to take more: important if you are at borderline

Choosing Options

- To be allowed to take an MA4 module, your year 2 result needs to satisfy the MMaths progression requirements.

- Some reasons for doing it:
  - Your marks are excellent
  - After BSc you consider doing MSc in Maths or Cambridge Part III
  - You have strong interest in an area

- Note that marks of all modules for which you register appear on your HEAR statement (aka transcript of marks) regardless of whether they are used in calculating your average and that this document can be seen by prospective employers and postgraduate admissions. Therefore, you are strongly advised:
  - Not to take modules that you suspect you may not pass; and
  - Not to take more than 30 CATS of MA4 modules

Choosing Options

- We plan to run the same Year 2 and Year 3 modules every year, except for some long-term changes:
  - Term 2: MA3K6 Boolean Functions
- In Year 2, the terms of modules do not change. In Years 3 and 4 the terms change from year to year.

Choosing Options

New-look prerequisites on an example of MA3J4 Mathematical Modelling with PDE

Formal registration prerequisites: None

Assumed knowledge:

- MA250 Introduction to PDEs

Useful background:

- MA254 Theory of ODEs
- MA261 Differential Equations: Modelling and Numerics

Synergies: The following modules go well together with Mathematical Modelling:

- MA3G1 Theory of PDEs
- MA261 Differential Equations: Modelling and Numerics

Leads to: The following modules have this module listed as **assumed knowledge** or **useful background:**

- MA4M1 Epidemiology by Example
- MA4L0 Advanced Topics in Fluids

Special Collection

MA372	Reading Module
MA395	Essay
MA397	Consolidation
MA3E7	Problem Solving
MA3J9	Historical Challenges in Mathematics
MA3H3	Set Theory
MA3K1	Mathematics of Machine Learning
MA3K6	Boolean Functions

Algebra Collection

Bolds are slightly more mainstream

MA3A6	Algebraic Number Theory
MA3B8	Complex Analysis
MA3D5	**Galois Theory**
MA3E1	**Groups and Representations**
MA3F1	**Introduction to Topology**
MA3G6	**Commutative Algebra**
MA3H3	Set Theory
MA3H5	Manifolds
MA3K4	**Introduction to Group Theory**
MA377	**Rings and Modules**
MA3H6	Algebraic Topology
MA3K6	Boolean Functions
MA442	Group Theory
MA453	Lie Algebras
MA473	Reflection Groups
MA4M6	Category Theory

Number Theory Collection

Bolds are slightly more mainstream

MA359 Measure Theory
MA377 Rings and Modules
MA3A6 Algebraic Number Theory
MA3B8 Complex Analysis
MA3D4 Fractal Geometry
MA3D5 Galois Theory
MA3E1 Groups and Representations
MA3G6 Commutative Algebra
MA3H3 Set Theory
MA453 Lie Algebras
MA4H9 Modular Forms

Combinatorics Collection

Bolds are slightly more mainstream

MA359	**Measure Theory**
MA3B8	Complex Analysis
MA3E1	Groups and Representations
MA3F1	Introduction to Topology
MA3G7	Functional Analysis I
MA3G8	Functional Analysis II
MA3H2	**Markov Processes and Percolation Theory**
MA3J2	**Combinatorics II**
MA3K0	High-dimensional Probability
MA3K4	Introduction to Group Theory
MA3K6	**Boolean Functions**
MA442	Group Theory
MA4J3	Graph Theory
MA453	Lie Algebras
MA4M4	Topics in Complexity Science
MA4M8	Theory of Random Graphs
MA4M9	Mathematics of Neuronal Networks

Geometry and Topology Collection

Bolds are slightly more mainstream for Topology

Greens are slightly more mainstream for Geometry

MA359 Measure Theory
MA3B8 Complex Analysis
MA3F1 Introduction to Topology
MA3G1 Theory of PDEs
MA3G6 Commutative Algebra
MA3D4 Fractal Geometry
MA3D9 Geometry of Curves and Surfaces
MA3H5 Manifolds
MA3H6 Algebraic Topology
MA453 Lie Algebras
MA4M6 Category Theory

Analysis Collection

Bolds are slightly more mainstream

MA359 Measure Theory
MA398 Matrix Analysis and Algorithms
MA3B8 Complex Analysis
MA3D1 Fluid Dynamics
MA3G1 Theory of PDEs
MA3G7 Functional Analysis I
MA3G8 Functional Analysis II
MA3H0 Numerical Analysis and PDEs
MA3H5 Manifolds
MA3H7 Control Theory
MA3J3 Bifurcations, Catastrophes and Symmetry
MA3J4 Mathematical Modelling and PDEs
MA433 Fourier Analysis
MA4F7 Brownian Motion
MA4J0 Advanced Real Analysis
MA4J1 Continuum Mechanics
MA4M2 Mathematics of Inverse Problems

Applied Maths Collection

Bolds are slightly more mainstream for Applied Analysis

Greens are slightly more mainstream for Modelling

MA359 Measure Theory
MA390 Topics in Mathematical Biology
MA398 Matrix Analysis and Algorithms
MA3D1 Fluid Dynamics
MA3G1 Theory of PDEs
MA3G7+8 Functional Analysis I and II
MA3H0 Numerical Analysis and PDEs
MA3H2 Markov Processes and Percolation Theory
MA3H5 Manifolds
MA3H7 Control Theory
MA3J3 Bifurcations, Catastrophes and Symmetry
MA3J4 Mathematical Modelling and PDEs
MA3K0 High-dimensional Probability
MA3K1 Mathematics of Machine Learning
MA4E7 Population Dynamics: Ecology and Epidemiology
MA4F7 Brownian Motion
MA4J1 Continuum Mechanics
MA4M1 Epidemiology by Example
MA4M2 Mathematics of Inverse Problems
MA4M9 Mathematics of Neuronal Networks

Probability Collection

Bolds are slightly more mainstream

MA359 Measure Theory
MA390 Topics in Mathematical Biology
MA398 Matrix Analysis and Algorithms
MA3G7 Functional Analysis I
MA3G8 Functional Analysis II
MA3H2 Markov Processes and Percolation Theory
MA3J2 Combinatorics II
MA3K0 High-dimensional Probability
MA3K1 Mathematics of Machine Learning
MA3K6 Boolean Functions
ST318 Probability Theory
MA4J3 Graph Theory
MA4E7 Population Dynamics: Ecology and Epidemiology
MA4F7 Brownian Motion
MA4M1 Epidemiology by Example
MA4M8 Theory of Random Graphs
MA4M9 Mathematics of Neuronal Networks

Q & A