Pathways

BSc Mathematics programme

Hugo Maruri Aguilar (as third year tutor)

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Pathways presentations

In your final year you will pick one of **three pathways** depending on your mathematical interests and strengths. When choosing your pathway, **think about what style of maths** and which particular **modules** you enjoyed most in your first two years. Also think about what you hope to do **after graduation**, although for many careers and further study **any of the pathways** would provide good background.

There is plenty of choice of modules within each pathway. Once you have made your pathway choice you will need to pick modules within it.

We are running three sessions, one for each pathway.

Pathway	Date and time	Venue
Pure	20 March 1200	Fogg LT (MTH5113 lec.)
Statistics/Finance	21 March 1100	PP Great Hall (MTH5120 lec.)
General	21 March 1700	Arts two LT (MTH5114 lec.)

BSc Mathematics programme Year 1

Semester A

Four compulsory modules:

- MTH4000 Programming in Python I
- MTH4213 Numbers, Sets and Functions
- MTH4300 Intr. to Analysis with Calculus
- MTH4500 Probability & Statistics

Semester B

Four compulsory modules:

- MTH4104 Introduction to Algebra
- MTH4215 Vectors and Matrices
- MTH4300 Intr. to Analysis with Calculus (continued)
- MTH4500 Probability & Statistics (continued)

BSc Mathematics programme Year 2

Semester A

Two compulsory modules:
- MTH5112 Linear Algebra I
- MTH5123 Differential Equations

Choose two modules from:
- MTH5104 Convergence and Continuity
- MTH5129 Probability and Statistics II
- MTH5130 Number Theory
- MTH5124 Actuarial Mathematics I

Semester B

One compulsory module:
- MTH5005 Programming in Python II

Choose three modules from:
- MTH5103 Complex Variables
- MTH5105 Diff. and Integral Analysis
- MTH5113 Intr. to Diff. Geometry
- MTH5114 Linear Prog. and Games
- MTH5120 Statistical Modelling I

From 2025/26, Level 5 modules in Year 3 are not allowed. If you want MTH5130 Number Theory or MTH5124 Actuarial Maths I, you must take them in Year 2. Modules not listed above (normally a maximum of 15 credits) may be taken with School approval.

BSc Mathematics programme Year 3

Pathways

You should choose a pathway. Here are the three pathways:

- The **pure** pathway

- The **statistics and financial** pathway.

- The **general** pathway

Once you have chosen your pathways you should choose your modules from the selection for that pathway.

Modules outside pathways (normally a maximum of 15 credits) may be taken with School approval.

BSc Mathematics programme: The Pure Pathway

Most of the modules in this pathway involve more formal abstract mathematics. You can expect theorems, proofs and formal definitions to be prominent in many of them. However you will still pick up many widely relevant skills, and many modules contain applicable parts of pure maths.

Consider this pathway if you
- enjoy maths 'for its own sake'
- are reasonably comfortable with proofs and abstract definitions
- enjoyed the modules Numbers, Sets and Functions, Introduction to Algebra, and Convergence & Continuity
- are considering further study in maths

BSc Mathematics programme Year 3

Pure Pathway

Semester A

Choose four modules from:
- MTH5130 Number Theory
- MTH6106 Group Theory
- MTH6115 Cryptography
- MTH6138 Third Year Project*
- MTH6140 Linear Algebra II
- MTH6107 Chaos and Fractals
- MTH6151 Partial Differential Equations

Semester B

Choose four modules from:
- MTH6105 Algorithmic Graph Theory
- MTH6110 Communicating & Teaching Mathematics**
- MTH6127 Metric Spaces and Topology
- MTH6138 Third Year Project*
- MTH6132 Relativity
- MTH6142 Complex Networks
- MTH6150 Num. Comp. C and C++
- MTH6158 Ring Theory

BSc Mathematics programme: The Statistics and Financial Pathway

Many of the modules in this pathway are concerned with statistics. The idea of understanding and modelling the world through data is a powerful tool which these days is used almost everywhere. The skills you learn in these modules will be relevant whether or not you become a professional statistician.

Consider this pathway if you
- enjoy using data to understand the world
- are reasonably comfortable with statistical and probabilistic ideas and reasoning
- enjoyed the modules Probability & Statistics I and II
- are considering further study or a career in statistics

BSc Mathematics programme Year 3

Statistics and Financial Pathway Pathway

Semester A

Choose four modules from:
- MTH5124 Actuarial Mathematics I
- MTH6102 Bayesian Statistical Methods
- MTH6134 Statistical Modelling II
- MTH6138 Third Year Project*
- MTH6141 Random Processes
- MTH6151 Partial Differential Equations
- MTH6154 Financial Mathematics I

Semester B

Choose four modules from:
- MTH6101 Intr. to Machine Learning
- MTH6110 Communicating & Teaching Mathematics**
- MTH6113 Mathematical Tools for Asset Management
- MTH6138 Third Year Project*
- MTH6139 Time Series
- MTH6142 Complex Networks
- MTH6150 Num. Comp. C and C++
- MTH6155 Financial Mathematics II

BSc Mathematics programme: The General Pathway

This pathway contains a broad spread of modules from a variety of areas of maths. You can choose of mixture of pure and applied modules but you will not be able to go as deeply into one area.

Consider this pathway if you
- enjoy lots of different parts of maths
- had no clear favourites among your first and second year modules

Avoid this pathway if you
- want to go more deeply into a particular area

BSc Mathematics programme Year 3

General Pathway

Semester A

Choose four modules from:
- MTH5130 Number Theory
- MTH6115 Cryptography
- MTH6138 Third Year Project*
- MTH6140 Linear Algebra II
- MTH6141 Random Processes
- MTH6151 Partial Differential Equations
- MTH6154 Financial Mathematics I

Semester B

Choose four modules from:
- MTH6101 Intr. to Machine Learning
- MTH6105 Algorithmic Graph Theory
- MTH6110 Communicating & Teaching Mathematics (approval in term A)**
- MTH6132 Relativity
- MTH6138 Third Year Project*
- MTH6142 Complex Networks
- MTH6150 Num. Comp. C and C++
- MTH6155 Financial Mathematics II

Final

We hope you found this session useful!

You can find all the information of this presentation in qmplus, search for `https://qmplus.qmul.ac.uk/course/view.php?id=24404`

As additional help, you may find useful talking to your advisor. Alternatively, most week days around lunchtime you can meet and talk informally to members of staff in the Maths Learning Cafe, in the academic hub (basement of Maths building).

Thank you!