

# COURSE CURRICULUM INFORMATION

## MSc (1AL1) MATHEMATICS

### Year 1 Core Subject: MA500 Mathematics (90 Credits)

#### Required Modules

Semester I      CS4102 Geometric Foundations of Data Analysis I

MA437 Mathematics for Decision Making I

MA4102 Algebraic Foundations of Quantum Computing

Semester II      CS4103 Geometric Foundations of Data Analysis II

MA438 Mathematics for Decision Making II

CS402 Cryptography

#### Optional Modules

CS319 Scientific Computing

CS3304 Logic

CS4423 Networks

MA215 Mathematical Molecular Biology

MA216 Mathematical Molecular Biology II

MA2287 Complex Analysis

MA284 Discrete Mathematics

MA3101 Euclidean and Non-Euclidean Geometry

MA3343 Groups

MA341 Metric Spaces

MA342 Topology

MA3491 Fields & Applications

**MA378 Numerical Analysis**

**MA385 Numerical Analysis I**

**MA416 Rings**

**MA418 Differential Equations with Financial Derivatives**

**MA4344 Advanced Group Theory**

**MA482 Functional Analysis**

**MA490 Measure Theory**

**MA495 Actuarial Mathematics: Life Contingencies II**

**MP305 Modelling I**

**MP307 Modelling II**

**MP403 Cosmology and General Relativity**

**MP491 Nonlinear Systems**

**ST311 Applied Statistics I**

**ST312 Applied Statistics II**

**ST313 Applied Regression Models**

**ST417 Introduction to Bayesian Modelling**

**EC3101 Microeconomics and Public Policy**

**EC3102 Macroeconomics and Public Policy**

**EC501 Microeconomic Theory**

**EC5109 Macroeconomic Theory and Policy**

### **RESEARCH PROJECT**

A 30-credit Research Project is completed under the guidance of an academic staff member and submitted in August. The project is an opportunity to explore a particular topic of interest in great depth. You are strongly encouraged to seek out potential supervisors as early in first semester as possible. A full list of School academic staff and their research interests is [here](#). Consult the Course Director, Dr. Tobias Rossmann (E: [tobias.rossmann@nuigalway.ie](mailto:tobias.rossmann@nuigalway.ie)), if you need assistance in finding a suitable project supervisor.