

B.Sc. & B.Sc. (Hons) with Major in Mathematics

Graduation Requirements for students admitted in AY2020/2021

To be awarded a **B.Sc. or B.Sc.(Hons) with primary major in Mathematics**, in addition to the University and Faculty requirements, a candidate must satisfy the following:

Module Level	Major Requirements	Level MCs	Cumulative Major MCs
1000	1. Pass all the following modules: <ul style="list-style-type: none"> • MA1100/MA1100T Basic Discrete Mathematics or CS1231/CS1231S Discrete Structures • MA1101R/MA2001 Linear Algebra I • MA1102R/MA2002 Calculus • CS1010/CS1010E/CS1010S/CS1010X /CS1101S Programming Methodology 	16	16
2000	2. Pass all the following modules: <ul style="list-style-type: none"> • MA2101/MA2101S Linear Algebra II • MA2104 Multivariable Calculus • MA2108/MA2108S Mathematical Analysis I • MA2202/MA2202S Algebra I • MA2216/MA2116/ST2131 Probability 3. Pass one additional module from List II, III, IV	24-28	40-44
3000	4. Pass three modules from List MA3 5. Pass two additional modules from List III, IV	20-23	60-66
4000	6. Pass MA4199 Honours Project in Mathematics 7. Pass three modules from List MA4 8. Pass two additional modules from List IV	32-34	92-98
UROPS	At most one Mathematics UROPS module may be used to fulfil the requirements of Major in Mathematics		

List II

- All MA modules at level 2000, except those coded MA23XX
- PC2130 Quantum Mechanics I
- PC2132 Classical Mechanics
- ST2132 Mathematical Statistics
- EC2101 Microeconomic Analysis I

List III

- All MA modules at level 3000, except those coded MA33XX
- BSE3703 Econometrics for Business I
- CS3230 Design & Analysis of Algorithms
- CS3231 Theory of Computation
- CS3234 Logic and Formal Systems
- DSA3102 Essential Data Analytics Tools: Convex Optimisation
- EC3101 Microeconomic Analysis II
- EC3303 Econometrics I
- PC3130 Quantum Mechanics II
- PC3236 Computational Methods in Physics
- PC3238 Fluid Dynamics
- ST3131 Regression Analysis
- ST3236 Stochastic Processes I

List IV

- All MA modules at level 4000 or higher, **except MA5232 and MA5266**
- CS4232 Theory of Computation
- CS4234 Optimisation Algorithms
- CS4236 Cryptography Theory and Practice
- ~~CS5230 Computational Complexity~~
- ~~CS5237 Computational Geometry and Applications~~
- DSA4211 High-Dimensional Statistical Analysis
- DSA4212 Optimisation for Large-Scale Data-Driven Inference
- EC4301 Microeconomic Analysis III
- ~~EC5104/EC5104R Mathematical Economics~~
- PC4248 Relativity
- PC4274 Mathematical Methods in Physics III
- PC5274 Advanced Mathematical Methods in Physics
- ST4238 Stochastic Processes II
- ST4245 Statistical Methods for Finance

List MA3

- MA3110/MA3110S/MA3210 Mathematical Analysis II
- MA3111/MA3111S/MA3211/MA3211S Complex Analysis I
- MA3201 Algebra II
- MA3205 Set Theory

- MA3209 Metric and Topological Spaces
- MA3265 Introduction to Number Theory

List MA4

- MA4203 Galois Theory
- MA4207 Mathematical Logic
- MA4221 Partial Differential Equations
- MA4229 Fourier Analysis and Approximation
- MA4262 Measure and Integration
- MA4271 Differential Geometry of Curves and Surfaces
- MA4273 Algebraic Geometry of Curves and Surfaces

*CS4232 has been recoded to CS3231 (which is in List III) wef AY2020/21 Sem 2

Modular Credit Cumulative Table

Requirements	B.Sc.	B.Sc. (Hons)
University Requirements	20 MC	20 MC
Faculty Requirements	4-8 MC*	4-12 MC*
Major Requirements	60-66 MC	92-98 MC
Unrestricted Free Electives	26-36 MC	30-44 MC
Total	120 MC	160 MC

*Faculty requirements of 12MCs and 16MCs (required for the B.Sc. and B.Sc.(Hons) programmes respectively) are partially fulfilled through the reading of CS/PC/ST modules within the major.

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