Curriculum

I Foundation Programme — 12 Credits

All students entering the undergraduate programme complete our common core, The Foundation Programme, in the first year. The Foundation Programme is designed around four Studios, each of three credits. They are:

Democracy and Justice
Environment and Climate Change
Neighbourhoods
Water

The studios deliver interdisciplinary learning around six domains:
Data Science, Communication, Behaviour, Constitution & Civilisation, Materials, and Biology & Life.

II General Education Requirement — 30 Credits

Humanities and Languages GER
Social Sciences GER
Biological and Life Sciences GER
Mathematical and Physical Sciences GER
Performance and Visual Arts GER
GER Elective 1: Communication I
GER Elective 2: Communication II
GER Elective 3: Any course at the university outside the major
GER Elective 4: Any course at the university outside the major
GER Elective 5: Any course at the university outside the major

III Major Requirements — 51 Credits

Major Requirements	Credits
Major Core	***33***
Probability	
Mathematical Statistics	
Discrete Mathematics	
Design and Analysis of Data structures and Algorithms	
Applied Linear Algebra /Advanced Linear Algebra	
Differential Equations	
Multivariable Calculus	
Introduction to Real Analysis	
Machine Learning	
Artificial intelligence (AI)	
Mathematical Modelling	
Major Electives	***18***

IV Free Electives — 18 Credits

Free Electives provide flexibility to students to customise their education at the University.

1. Free Electives allow you to take additional courses as per your choice (apart from the Foundation Programme, GERs and Major Requirements), upto 18 credits, across the university to increase your depth or breadth.
2. A student can take a Minor in any area designated as a Minor at any School or Centre of the University. Some Minors may have specific pre-requisites. Free Electives can also be used along with some courses from the Major Requirements and GERs towards a Minor.

V Volunteerism — Required

All students will complete 30 hours of engagement with society to develop a sense of engagement, concern, build problem solving skills, and understand the role of an engaged member of a society. This will be done through a mandatory course, *Engagement with Society*, that would be a graduation requirement. This course can be taken anytime during the stay at the University but it is advised that the student engage with the courses during the first two years at the University. The 30 hours of volunteer work may be completed during one semester or during the Winter or Summer Break.

MS in Quantitative Finance

I Quantitative Finance Courses	69 Credits
	Credits
Foundation Module	***Required***
Communication and Writing Skills	
Modelling for Managerial Decisions	
Programme Core	***25.5***
Microeconomics I	3
Microeconomics II	3
Macroeconomics I	3
Macroeconomics II	3
Foundation of Finance and Financial Markets	3
Econometrics	3
Security Analysis and Portfolio Management	3
Corporate Finance	1.5
Applications of Machine Learning	3
Disciplinary Core	***22.5***
Financial Derivatives	3
Risk Management	3
Mergers, Acquisitions & Private Equity	3
Financial Time Series Analysis	3
Fixed Income Securities and its Derivatives	3
Asset Pricing	3
Research in Quantitative Finance	3
Technical Analysis	1.5
Disciplinary Electives	***15***
Summer Internship	***Required***
Thesis/Capstone	***6***