

Addendum to the Programme Specification

6979 MMORSE

This Addendum has been produced to highlight the key changes made to the existing Programme Specification as a result of the University's response to the Covid-19 Pandemic. You should read it in conjunction with the relevant Programme Specification from the year you started your programme.

[Programme Specification for entry in 2020-21](#)

[Programme Specification for entry in 2019-20](#)

[Programme Specification for entry in 2018-19](#)

University level information

In view of COVID-19, the University has had to make changes to some elements of programme delivery for 2020-21. These changes have included the method of delivery, such as face-to-face and online, and the number of modules available.

The University aims to provide as much of a face-to-face component to your education as prevailing conditions at the time allow, combined with its new blended approach that will develop active independent and group online learning.

As the COVID-19 pandemic develops, the University's response to this and other issues may likewise need to evolve. The University will consult with student representatives as necessary and appropriate and will communicate changes to you as soon as practicable so that you have the information you need to understand how a change may impact you and what steps you need to take next. The University remains committed to supporting you as you learn.

Programme Information

In light of Covid-19, teaching and learning methods may be adapted. Lectures, seminars, tutorials, and consultation with academic staff may be delivered online or in person as the prevailing conditions allow. Group sizes for tutorials and seminars may be adjusted. Assessment methods may also be adapted. For example, in-class test may be replaced by assignments, weightings of assessments may change, exams may be replaced by coursework or take-home assignments and group presentations and projects may take place online or be adapted to allow for social distancing guidelines.

Programme Structure

Where optional modules have been specified, the following is an indicative list of available optional modules, which are subject to change each academic year. Please note that, in some instances, modules have limited spaces available.

Part 1

Semester 1				Semester 2			
Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
MATH1048 Linear Algebra I	7.5	15	Core				

MATH1059 Calculus	7.5	15	Core				
MATH1046 First Year Mathematics Workshop					0	0	Comp
MATH1053 TT Personal Tutor meeting					0	0	Comp
MATH1024 Introduction to Probability and Statistics	7.5	15	Comp	MATH1049 Linear Algebra II	7.5	15	Comp
				MATH1058 Operational Research I and Mathematical Computing	7.5	15	Comp
				MATH1060 Multivariable Calculus	7.5	15	Comp
				ECON1002 Principles of Macroeconomics	7.5	15	Comp
Option Modules: Must take 1 module from the following:							
ECON 1001 Foundations of Microeconomics	7.5	15	Option				
ECON 1003 Principles of Microeconomics	7.5	15	Option				

Part 2

Semester 1				Semester 2			
Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
MATH2011 Statistical Distribution Theory	7.5	15	Comp	ECON2007 Econometrics 2	7.5	15	Comp
MATH2013 Introduction to Operational Research	7.5	15	Comp	MATH2010 Statistical Modelling I	7.5	15	Comp
MATH2039 Analysis	7.5	15	Comp	MATH2038 Partial Differential Equations	7.5	15	Comp
Option Modules							
Select 2 modules (15 ECTS/ 30 CATS) from the following:- Please Note:- Students on this programme must take at least 16 MATH modules over Parts 1, 2 and 3 combined, including at least 4 (30 ECTS/60 CATS) MATH3xxx modules. The number of MATH modules taken in Part 2 will affect the number of MATH modules students must take in Part 3.							
Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
A maximum of 15 credits in any level NQF5 module in subject MATH.	7.5	15	Option	A maximum of 15 credits in any level NQF5 module in subject MATH.	7.5	15	Option
FREEXY15Part 2 Elective	7.5	15	Option	FREEXY15Part 2 Elective	7.5	15	Option
LANGXX15 Language Module	7.5	15	Option	LANGXX15 Language Module	7.5	15	Option
MANG1003 Introduction to Management	7.5	15	Option	ECON2004 Topics in Macroeconomics 2	7.5	15	Option
A maximum of 15 credits in any level NQF5 module in subject UOSM.	7.5	15	Option	MANG2021 Operations Management	7.5	15	Option
				A maximum of 15 credits in any level NQF5 module in subject UOSM.	7.5	15	Option

Part 3

Semester 1				Semester 2			
Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
MATH3092 Mathematics Project					15	30	Comp
				MATH3017 Mathematical Programming	7.5	15	Comp
Please select up to 5 (0-75 credits) from the following:-							

You may wish to specialise in one of the following areas:-
 Group 1. Actuarial & Financial Mathematics
 Group 2. Operational Research, Management Sciences & Statistics
 Group 3. Mathematics & Statistics

GROUP 1 Actuarial & Financial Modules

Please select 0 up to a maximum of 5 modules (0 –75 credits) from the following:

Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
ECON3010 Topics in Macroeconomics 3	7.5	15	Option	MATH3022 Mathematical Finance	7.5	15	Option
MATH3063 Actuarial Mathematics I	7.5	15	Option	MATH3066 Actuarial Mathematics II	7.5	15	Option
MATH3085 Survival Models	7.5	15	Option	STAT3010 Statistical Methods in Insurance	7.5	15	Option

GROUP 2 Op Res, Mgt Sci & Stat Modules

Please select 0 up to a maximum of 5 modules (0 - 75 credits) from the following:

Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
MATH3010 Knowledge Management	7.5	15	Option	MANG3034 Project Management	7.5	15	Option
MATH3016 Optimization	7.5	15	Option	MATH3091 Statistical Modelling II	7.5	15	Option
MATH3018 Numerical Methods	7.5	15	Option	MATH3014 Design and Analysis of Experiments	7.5	15	Option
MATH3033 Graph Theory	7.5	15	Option				
MATH3044 Statistical Inference	7.5	15	Option				

GROUP 3 Maths and Statistics Modules

Please select 0 up to a maximum of 5 modules (0 - 75 credits) from the following:

Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
MATH3033 Graph Theory	7.5	15	Option	MATH3006 Relativity, Black Holes and Cosmology	7.5	15	Option
MATH3076 Hilbert Spaces	7.5	15	Option	MATH3052 Mathematical Biology	7.5	15	Option
MATH3083 Advanced Partial Differential Equations	7.5	15	Option	MATH3078 Further Number Theory	7.5	15	Option
MATH3086 Galois Theory	7.5	15	Option	MATH3080 Algebraic Topology	7.5	15	Option
MATH3090 Structure and Dynamics of Networks	7.5	15	Option	MATH3084 Integral Transform Methods	7.5	15	Option
				MATH3088 Complex Analysis	7.5	15	Option

Select up to 3 modules (22.5 ECTS/45 CATS) from the following groups

Select 0 modules up to a maximum of 2-3 module (15 ECTS/30 CATS) from the following:-

Note: you are permitted to only 'backtrack' once to take a Part 2 elective

Please note you cannot take MATH2049 Geometry and Topology if you have previously taken MATH2046.

Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
FREEXY15 Part 2 Elective	7.5	15	Option	MANG 2014 Accounting and Finance for Non-Specialists	7.5	15	Option
7.5 ECTS/15 CATS in any level NQF5 module in subject MATH	7.5	15	Option	FREEXY15 Part 2 Elective	7.5	15	Option
A maximum of 15 credits in any level NQF5 module in subject UOSM	7.5	15	Option	7.5 ECTS/15 CATS in any level NQF5 module in subject MATH	7.5	15	Option

				A maximum of 15 credits in any level NQF5 module in subject UOSM	7.5	15	Option
Select up to 3 modules (22.5 ECTS/45 CATS)							
Select 2 modules (15 ECTS/30 CATS) up to a maximum of 3 modules (22.5 ECTS/45 CATS) from the following:-							
Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
FREEXZ15 Part 3 Elective	7.5	15	Option	FREEXZ15 Part 3 Elective	7.5	15	Option
LANGXX15 Language Module	7.5	15	Option	LANGXX15 Language Module	7.5	15	Option
LANGXX30 Language Module	15	30	Option	LANGXX30 Language Module	15	30	Option
7.5 ECTS/15 CATS in any level NQF6 module in subject MATH	7.5	15	Option	MANG3009 International Banking	7.5	15	Option
ECON3010 Topics in Macroeconomics 3	7.5	15	Option	MANG3020 Future and Options	7.5	15	Option
MANG3046 Managing Innovation	7.5	15	Option	MANG3034 Project Management	7.5	15	Option
				STAT3010 Statistical Methods in Insurance	7.5	15	Option
				7.5 ECTS/15 CATS in any level NQF6 module in subject MATH	7.5	15	Option

Part 4

Semester 1				Semester 2			
Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
MATH6144 MMath Project					15	30	Comp
<p>When making your choices you should ensure an even balance of credits across semester 1 and semester 2.</p> <p>From Part 3 onwards, it is recommended that you specialise in one of the following areas:-</p> <p style="text-align: center;">1. Actuarial & Financial Mathematics 2. Operational Research, Management Sciences & Statistics 3. Mathematics & Statistics</p> <p>A suggested collection of optional modules which may be taken in each of these three areas is outlined in the programme specification, but other options are allowed with approval of the Programme Director.</p> <p>Additionally, there are barred combinations for certain modules as outlined below.</p> <p style="text-align: center;">You cannot take MATH6129 if you have taken MATH3063 You cannot take MATH6131 if you have taken MATH2040 You cannot take MATH6143 if you have taken MATH3085 You cannot take MATH6127 if you have taken MATH3022 You cannot take MATH6128 if you have taken MATH2012 You cannot take MATH6130 if you have taken MATH3066</p>							
Modules	ECTS	CATS	Module type	Modules	ECTS	CATS	Module Type
ECON6004 Quantitative Methods	10	20	Option	ECON6008 Industrial Economics	5	10	Option
ECON6021 Microeconomics	10	20	Option	ECON6015 Finance	5	10	Option
ECON6023 Macroeconomics	10	20	Option	ECON6016 International Trade	5	10	Option
MANG6022 Corporate Finance 1	7.5	15	Option	ECON6044 Principles of Corporate Finance	5	10	Option
MATH6129 Actuarial Mathematics I	7.5	15	Option	MANG6299 Quantitative Finance	7.5	15	Option
MATH6131 Financial Mathematics	7.5	15	Option	MANG6020 Financial Risk Management	7.5	15	Option
MATH6143 Survival Models	7.5	15	Option	MANG6023 Corporate Finance 2	7.5	15	Option
				MANG6054 Credit Scoring and Data Mining	3.75	7.5	Option
				MANG6225 Accounting and finance for Actuarial Science	7.5	15	Option
				MATH6011 Forecasting	3.75	7.5	Option
				MATH6025 Bayesian Methods	3.75	7.5	Option
				MATH6027 Design of Experiments	7.5	15	Option
				MATH6112 Computer-based statistical modelling	3.75	7.5	Option

			MATH6120 Nonlinear Optimisation	3.75	7.5	Option
			MATH6127 Mathematical Finance	7.5	15	Option
			MATH6128 Stochastic Processes	7.5	15	Option
			MATH6130 Actuarial Mathematics II	7.5	15	Option
			MATH6135 Topics in Statistics	7.5	15	Option
			MATH6157 Applied Statistical Modelling	7.5	15	Option
			MATH6122 Probability and Mathematical Statistics	7.5	15	Option