



School of Mathematics, Statistics & Applied Mathematics  
B.Sc. Mathematics Pathway

For 1st year students Ac.Yr 2021/2022

B.Sc. Undenominated Science - 1BS1 - Mathematics Pathway						
1st year		ECTS		Sem	Pre/Co-requisites	Exclusion-requisites
MA180	Mathematics	15	Core	I+II		
<b>Any other 45 ECTS</b>						

For 2nd year students Ac.Yr 2021/2022

B.Sc. Undenominated Science - 2BS1 - Mathematics Pathway						
2nd year		ECTS		Sem	Pre/Co-requisites	Exclusion-requisites
MA284	Discrete Mathematics	5	Core	I	MA180	
MA2286	Differential Forms	5	Core	I	MA180	
MA283	Linear Algebra	5	Core	II	MA180	
MA2287	Complex Analysis	5	Core	II	MA180	
<b>An additional 40 ECTS pathways / electives.</b>						
<i>Some suggested electives that may be of particular interest:</i>						
ST1111	Probability Models	5	Elective	I	MA180	ST2001&ST2002
ST1112	Statistical Methods	5	Elective	II	ST1111	ST2001&ST2002
MA2993	Mathematics of Finance	5	Elective	II	MA180	
MA2111	Anailís	5	Elective	II	MA180	
<i>Please refer to the Programme Booklet for complete list of Pathways and electives.</i>						

For 3rd year students Ac.Yr 2021/2022

B.Sc. Undenominated Science - 3BS9 - Mathematics Pathway						
3rd year				Sem	Pre/Co-requisites	Exclusion-requisites
MA3101	Euclidean and non-euclidean Geometry	5	Core	I		
MA341	Metric Spaces	5	Core	I		
MA3343	Groups	5	Core	I		
MA342	Topology	5	Core	II		
MA3491	Fields and Applications	5	Core	II		
MA378	Numerical Analysis II	5	Core	II		
<b>And ONE of: [ST2003&amp;ST2004] or [ST2001&amp;ST2002] or [ST311&amp;ST312]</b>						
ST2003	Random Variables	5	C.Option	I	ST1111 & ST1112	ST2001&ST2002
ST2004	Statistical Inference	5	C.Option	II	ST2003	ST2001&ST2002
ST1111	Probability Models	5	C.Option	I	MA180	
ST1112	Statistical Methods	5	C.Option	II	ST1111	ST2001&ST2002
ST2001	Statistics for Data Science I	5	C.Option	I	-	ST1112
ST2002	Statistics for Data Science II	5	C.Option	II	ST2001	ST1112
ST311	Applied Statistics I	5	C.Option	I	ST2002 or ST1112	ST313
ST312	Applied Statistics II	5	C.Option	II	ST311	
<b>Select a further 20 ECTS from Programme pathways/electives.</b>						
<i>Some suggested electives that may be of particular interest:</i>						
MA2111	Anailís	5	Elective	II	MA180	
MA3992	Actuarial mathematics: Life contingencies 1, pricing and reserving	5	Elective	I	MA2993	
<i>Please refer to the Programme Booklet for complete list of Pathways and electives.</i>						
† Offered on a 2yr Cycle, next available in 2021.22, †† Offered on a 2yr Cycle, next available in 2022.23.						

B.Sc. Undenominated Science - 4BS2 - Mathematics Pathway						
4th year				Sem	Pre/Co-requisites	Exclusion-requisites
MM4000	Final Year Project	10	Core	I+II		
MA490	Measure Theory	5	Core	I		
MA416	Rings	5	Core	I		
MA482	Functional Analysis	5	Core	II		
MA4344	Advanced Group Theory	5	Core	II		
<b>Select modules to a total 30 ECTS from following options, subject to timetabling and prerequisites - please refer to module owner:</b>						
MA2111	Análisis	5	Elective	II	MA180	
MA495	Actuarial Mathematics: Life Contingencies II	5	Elective	II		
MA437	Introduction to Mathematical Research Topics I	5	Elective	I		
MA438	Introduction to Mathematical Research Topics II	5	Elective	II		
MA385	Numerical Analysis I	5	Elective	I		
MA418	Differential Equations With Financial Derivatives	5	Elective	II		
MA461	Probabilistic Models for Molecular Biology	5	Elective	II	ST1111	
MA4102	Algebraic Foundations of Quantum Computing	5	Elective	I	MA283	
ST311	Applied Statistics I	5	Elective	I	ST2002(or disc. ST238) or ST1112	ST313
ST312	Applied Statistics II	5	Elective	II	ST311 or ST313	
ST313	Applied Regression Models	5	Elective	I	ST2004 (or disc.ST236)	ST311
ST417	Introduction to Bayesian Modelling	5	Elective	I	ST2003(or disc.ST235)	
ST413	Statistical Modelling	5	Elective	I	ST2004(or disc.ST236)&[either ST313 or ST311]	
ST4020	Causal Inference	5	Elective	II	ST311 or ST313	
ST4040	Modern Statistical Methods	5	Elective	II	ST413	
CS3304	Logic	5	Elective	I		
CS319	Scientific Computing	5	Elective	II		
CS402	Cryptography	5	Elective	II		
CS4102	Geometric Foundations in Data Analysis I	5	Elective	I	CS2101(or dsctd.CS208)&CS211 or MA283&MA2287	
CS4103	Geometric Foundations in Data Analysis II	5	Elective	II	CS4102	
CS4423	Networks	5	Elective	II		
MP403	Cosmology And General Relativity	5	Elective	I		
MP345	Mathematical Methods I	5	Elective	I		
MP305	Modelling I	5	Elective	I		
MP494†	Partial Differential Equations	5	Elective	I	2yr Cycle, available in 21.22	
MP346	Mathematical Methods II	5	Elective	II		
MP307	Modelling II	5	Elective	II		
MP491	Non-Linear Systems	5	Elective	II		
† Offered on a 2yr Cycle, next available in 2021.22, †† Offered on a 2yr Cycle, next available in 2022.23.						