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

For 1st year students Ac.Yr 2021/2022

B.Sc. Undenominated Science - 1BS1 - Applied Mathematics Pathway						
1st year		**ECTS**		**Sem**	**Pre/Co-requisites**	**Exclusion-requisites**
MP180	Applied Mathematics	15	Core	I+II		
Any other subjects to a total of 45 ECTS						

For 2nd year students Ac.Yr 2021/2022

B.Sc. Undenominated Science - 2BS1 - Applied Mathematics Pathway						
2nd year		**ECTS**		**Sem**	**Pre/Co-requisites**	**Exclusion-requisites**
MP236	Mechanics I	5	Core	I	MP180	
MP237	Mechanics II	5	Core	II	MP180	
MP231	Mathematical Methods I	5	Core	I	MP180	
MP232	Mathematical Methods II	5	Core	II	MP180	
An additional 40ECTS pathways or electives.						
Some suggested electives that may be of particular interest:						
ST2001	Statistics for Data Science I	5	Elective	I	-	ST1112
ST2002	Statistics for Data Science II	5	Elective	II	ST2001	ST1112
ST1111	Probability Models	5	Elective	I	MA180	ST2001&ST2002
ST1112	Statistical Methods	5	Elective	II	ST1111	ST2001&ST2002
Please refer to the Programme Booklet for complete list of Pathways and electives.						

For 3rd year students Ac.Yr 2021/2022

B.Sc. Undenominated Science - 3BS9 - Applied Mathematics Pathway						
3rd year				**Sem**	**Pre-requisites**	**Exclusion-requisites**
MP345	Mathematical Methods I	5	Core	I		
MP346	Mathematical Methods II	5	Core	II		
MP366†	Electromagnetism	5	Core	I	2yr Cycle, available in 21.22	
MP494†	Partial Differential Equations	5	Core	I	2yr Cycle, available in 21.22	
MP365†	Fluid Mechanics	5	Core	II	2yr Cycle, available in 21.22	
MP356††	*Quantum Mechanics I*	5	Core	I	2yr Cycle, not available in 21.22	
MP357††	*Quantum Mechanics II*	5	Core	II	2yr Cycle, not available in 21.22	
MP410††	*Non-Linear Elasticity*	5	Core	I	2yr Cycle, not available in 21.22	
MP491	Non-Linear Systems	5	Core	II		
An additional 30ECTS pathways or electives.						
Please refer to the Programme Booklet for complete list of Pathways and electives.						
† Offered on a 2yr Cycle, next available in 2021.22, †† Offered on a 2yr Cycle, next available in 2022.23.						

For 4th year students Ac.Yr 2021/2022

B.Sc. Undenominated Science - 4BS2- Applied Mathematics Pathway						
4th year				**Sem**	**Pre-requisites**	**Exclusion-requisites**
MM4000	Final Year Project	10	Core	I+II		
MP403	Cosmology and General Relativity	5	Core	I		
MP305	Modelling I	5	Core	I		
MP307	Modelling II	5	Core	II		
MP366†	Electromagnetism	5	Core	I	2yr Cycle, available in 21.22	
MP494†	Partial Differential Equations	5	Core	I	2yr Cycle, available in 21.22	
MP365†	Fluid Mechanics	5	Core	II	2yr Cycle, available in 21.22	
MP356††	*Quantum Mechanics I*	5	Core	I	2yr Cycle, not available in 21.22	
MP357††	*Quantum Mechanics II*	5	Core	II	2yr Cycle, not available in 21.22	
MP410††	*Non-Linear Elasticity*	5	Core	I	2yr Cycle, not available in 21.22	

MA385	Numerical Analysis I	5	Core	I	
MA378	Numerical Analysis II	5	Core	II	
MA3101	Euclidean and non-euclidean Geometry	5	Core	I	
Select One 5 ECTS module from following options, subject to timetabling and prerequisites - please refer to module owner:					
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	
MA313	Linear Algebra I	5	Elective	I	
MA3343	Groups	5	Elective	I	
MA335	Algebraic Structures	5	Elective	I	
MA341	Metric Spaces	5	Elective	I	
MA416	Rings	5	Elective	I	
MA490	Measure Theory	5	Elective	I	
MA495	Actuarial Mathematics: Life Contingencies II	5	Elective	II	
MA302	Complex Variables	5	Elective	II	
MA334	Geometry	5	Elective	II	
MA342	Topology	5	Elective	II	
MA3491	Fields and Applications	5	Elective	II	
MA418	Differential Equations With Financial Derivatives	5	Elective	II	
MA4344	Advanced Group Theory	5	Elective	II	
MA461	Probabilistic Models for Molecular Biology	5	Elective	II	
MA482	Functional Analysis	5	Elective	II	
MA4102	Algebraic Foundations of Quantum Computing	5	Elective	I	MA283
ST311	Applied Statistics I	5	Elective	I	ST2002(or disctd. ST238) or ST1112
ST313	Applied Regression Models	5	Elective	I	ST2004 (or disctd.ST236)
ST417	Introduction to Bayesian Modelling	5	Elective	I	MA180+[ST2002 or ST2003 or disctd.ST235]
ST312	Applied Statistics II	5	Elective	II	ST311 or ST313
ST413	Statistical Modelling	5	Elective	I	ST2004(or disctd.ST236)&[either ST313 or ST311]
ST4020	Causal Inference	5	Elective	II	ST311 or ST313
ST4040	Modern Statistical Methods	5	Elective	II	ST413
PH466	Astrophysics	5	Elective	I	
PH328	Physics of the Environment I	5	Elective	I	
PH422	Solid State Physics	5	Elective	I	
PH329	Physics of the Environment II	5	Elective	II	
PH334	Computational Physics	5	Elective	I	
† Offered on a 2yr Cycle, next available in 2021.22, †† Offered on a 2yr Cycle, next available in 2022.23.					