NUI Galway
OÉ Gaillimh

School of Mathematics, Statistics & Applied Mathematics
B.Sc. Mathematical Studies & Computing Pathway

For 1st year students Ac.Yr 2021/2022

B.Sc. Undenominated Science - 1BS1 - Mathematical Studies & Computing Pathway						
1st year		**ECTS**		**Sem**	**Pre/Co-requisites**	**Exclusion-requisites**
CS102	Computing	15	Core	I+II		
One of: MA180 or MA161						
MA180	Mathematics	15	Core	I+II		MA161
MA161	Mathematical Studies	15	Core	I+II		MA180
Any other 30 ECTS						

For 2nd year students Ac.Yr 2021/2022

B.Sc. Undenominated Science - 2BS1 - Mathematical Studies & Computing Pathway						
2nd year		**ECTS**		**Sem**	**Pre/Co-requisites**	**Exclusion-requisites**
MA211	Calculus I	5	Core	I		
MA284	Discrete Mathematics	5	Core	I		
MA203	Linear Algebra	5	Core	II		
MA212	Calculus II	5	Core	II		
CS2101	Programming for Science and Finance	5	Core	I		
CS211	Programming and Operating Systems	5	Core	II		
CT2101	Object Orientated Programming I	5	Core	I		
CT2102	Object Orientated Programming II	5	Core	II		
An additional 20ECTS pathways or electives.						
Some suggested electives that may be of particular interest:						
MA2111	Anailís	5	Elective	II	MA180	
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 - Mathematical Studies & Computing Pathway						
3rd year				**Sem**	**Pre/Co-requisites**	**Exclusion-requisites**
MA335	Algebraic Structures	5	Core	I		
MA302	Complex Variables	5	Core	II		
MA313	Linear Algebra	5	Core	I		
ST2001	Statistics for Data Science I	5	Core	I	-	ST1112
ST2002	Statistics for Data Science II	5	Core	II	ST2001	ST1112
CS3304	Logic	5	Core	I		
CS319	Scientific Computing	5	Core	II		
CS3101	Software for Mathematical Scientists and Educators	5	Core	II		
CT3535	Object Oriented Programming	5	Core	I		
CT2108	Networks and Data Communications	5	Core	II		
Select 10 ECTS from following options:						
CT511	Databases	5	Elective	I		
CT331	Programming Paradigms	5	Elective	I		
CT411	Multimedia Development	5	Elective	II		

4th year	B.Sc. Undenominated Science - 4BS2 - Mathematical Studies & Computing Pathway			Sem	Pre/Co-requisites	Exclusion-requisites
MM4000	Final Year Project	10	Core	I+II		
MA3101	Euclidean and non-euclidean Geometry	5	Core	I		
MA3343	Groups	5	Core	I		
MA4344	Advanced Group Theory	5	Core	II		
MA342	Topology	5	Core	II		
CS402	Cryptography	5	Core	II		
CS4102	Geometric Foundations in Data Analysis I	5	Core	I	CS2101(or dsctd.CS208)&CS211 or MA283&MA2287	
CS4103	Geometric Foundations in Data Analysis II	5	Core	II		
CT4101	Machine Learning	5	Core	I		
Select modules to a total 10 ECTS from following options, subject to timetabling and prerequisites - please refer to module owner:						
MA341	Metric Spaces	5	Elective	I		
MA385	Numerical Analysis I	5	Elective	I		
MA378	Numerical Analysis II	5	Elective	II		
ST311	Applied Statistics I	5	Elective	I		
ST312	Applied Statistics II	5	Elective	II		
CT421	Artificial Intelligence	5	Elective	I		
CT865	Human Computer Interaction	5	Elective	I		
CT4100	Information Retrieval	5	Elective	I		
CT331	Programming Paradigms	5	Elective	I		
CT414	Distributive and Cooperative Systems	5	Elective	II		
CS4423	Networks	5	Elective	II		
CT548	Object Oriented Software Design & Development	5	Elective	II		