

# Applied Mathematics

## Joint Bachelor's Degree Programme between City University of Hong Kong and The University of Edinburgh Tentative Study Plan for CityU students of Computing Mathematics (Intake cohort 2019 and thereafter)

The matching programme at UoE: Bachelor of Science in Applied Mathematics

City U - Computing Mathematics		UoE - Applied Mathematics (BSc Hons)	
Minimum: 124 Credit units		Minimum: 480	
Gateway Education: 30			
College requirement: 6			
Major: 66		Major:	
- Core: 48		- Compulsory: 250	
- Elective: 18		- Course options: 230	
Free elective: 22			
Maximum: 144 Credit units			
Courses	Credit Units	Courses	SCQF Credits
[GE-English] GE1401 University English	3		
[GE-Chinese] GE1501 Chinese Civilization – History & Philosophy	3		
[GE-Col Specified] MA1300 Enhanced Calculus and Linear Algebra I	3	[Major-Compulsory] MATH08057 Introduction to Linear Algebra	20
[GE-Col Specified] MA1301 Enhanced Calculus and Linear Algebra II	3	[Major-Compulsory] MATH08058 Calculus and its Applications	20
[GE-Col Specified] CS1102 Introduction to Computer Studies or CS1302 Introduction to Computer Programming	3		
[CSCI-Col Requirement] two from the three science courses PHY1201 General Physics I / BCH1100 Chemistry / BCH1200 Discovery in Biology	6		
[GE-English] GE2401 English for Science	3		
[GE] Gateway Education 1 - Area 1	3		
[GE] Gateway Education 2 - Area 2	3		
		[Major-Options] Any Level 7 or 8 courses in Schedules A-Q, S, T and W	60
[Major-Core] MA2503 Linear Algebra	4	[Major-Compulsory] MATH08065 Computing and Numerics	10
[Major-Core] MA2504 Discrete Mathematics	4	[Major-Compulsory] MATH08059 Proofs and Problem Solving (Normal year taken: Year 1)	20
[Major-Core] MA2506 Probability and Statistics	4	[Major-Compulsory] MATH08066 Probability	10
[Major-Core] MA2507 Computing Mathematics Laboratory	1	[Major-Compulsory] MATH08063 Several Variable Calculus and Differential Equations	20
[Major-Core] MA2508 Multi-variable Calculus	4		
[Major-Core] MA3511 Ordinary Differential Equations	3	[Major-Compulsory] MATH08051 Statistics	10
[Major-Core] MA3524 Analysis	4	[Major-Compulsory] MATH08064 Fundamentals of Pure Mathematics	20
[Major-Core] CS2360 Java Programming	3	[Major-Options] Any Level 7 or 8 courses in Schedules A-Q, S, T and W	10
[Major-Core] CS2468 Data structures and Data Management	3	[Major-Options] Any Level 7 or 8 courses in Schedules A-Q, S, T and W	10
[GE] Gateway Education 3 - Area 3	3		
[GE] Gateway Education 4 - Area 1/2/3	3		
		[Major-Options] Any Level 7 or 8 courses in Schedules A-Q, S, T and W	30
<b>Total Credits earned in CityU</b>		<b>Total Credits transferred from CityU</b>	
<b>66</b>		<b>240</b>	

<b>Year 3 (30 credits transfer from Edinburgh)</b>	[Major-Core] MA3512 Partial Differential Equations	3	[Major-Compulsory] MATH10066 Honours Differential Equations	20
	[Major-Core] MA3515 Introduction to Optimization	3	[Major-Compulsory] MATH10068 Honours Analysis	20
	[Major-Core] MA3517 Complex Analysis	3	[Major-Compulsory] MATH10067 Honours Complex Variables	20
	[Major-Core] MA3525 Elementary Numerical Methods	3	[Major-Compulsory] MATH10060 Numerical Ordinary Differential Equations and Applications	10
	[Major-Core] MA3514 Numerical Methods for Differential Equations	3	[Major-Compulsory] MATH10098 Numerical Linear Algebra	10
	[Major-Core] MA3518 Applied Statistics	3	[Major-Options] MATH10095 Statistical Methodology or [Major-Options] MATH10096 Applied Statistics (Normal year taken: Year 4) or [Major-Options] Any Level 9 or 10 courses in Schedules A to Q, T and W. Students need to seek pre-approval from BSCM Major Leader.	10
	Major Elective	3	[Major-Options] Any Level 9 or 10 courses in Schedules A to Q, T and W	10
	Free Elective	3	[Major-Options] Any Level 9 or 10 courses in Schedules A to Q, T and W	10
	Free Elective	3	[Major-Options] Any Level 9 or 10 courses in Schedules A to Q, T and W	10
	Free Elective	3		
<b>Year 4 (30 credits transfer from Edinburgh)</b>	[Major-Elective] MA4530 Project	6	[Major-Compulsory] MATH10031 Project in Mathematics (Double)	40
	Major Elective	3	[Major-Options] MATH10007 Stochastic Modelling (10 credits)	20
	Major Elective	3	[Major-Options] MATH10013 Mathematical Biology (10 credits)	
	Major Elective	3	[Major-Options] MATH10053 Applied Stochastic Differential Equations (10 credits)	
	Free Elective	3	[Major-Options] MATH10086 Advanced Methods of Applied Mathematics (20 credits)	
	Free Elective	3	[Major-Options] MATH11140 Applied Dynamical Systems (10 credits)	
	Free Elective	3	[Major-Options] MATH11141 Multi-scale Methods in Mathematical Modelling (10 credits)	
	Free Elective	3	[Major-Options] MATH11206 Data Assimilation (10 credits)	
	Free Elective	3	[Major-Options] MATH11207 Numerical Partial Differential Equations (10 credits)	
			[Major-Options] Any Level 10 or 11 courses in Schedules A to Q, T and W	
	<b>Total Credits transferred from Edinburgh</b>	<b>60<sup>^</sup></b>	<b>Total Credits earned in Edinburgh</b>	<b>240</b>
	<b>Credit units earned towards CityU degree</b>	<b>126</b>	<b>Credit units earned towards Edinburgh degree</b>	<b>480</b>

<sup>^</sup> A maximum of 60 credits can be transferred to CityU.

# Mathematics

## Joint Bachelor's Degree Programme between City University of Hong Kong and The University of Edinburgh Tentative Study Plan for CityU students of Computing Mathematics (Intake cohort 2019 and thereafter)

The matching programme at UoE: Bachelor of Science in Mathematics

City U - Computing Mathematics		UoE - Mathematics (BSc Hons)			
Minimum: 124 Credit units Gateway Education: 30 College requirement: 6 Major: 66 - Core: 48 - Elective: 18 Free elective: 22		Minimum: 480  Major: - Compulsory: 210 - Course options: 270			
Maximum: 144 Credit units					
Courses	Credit Units	Courses	SCQF Credits		
<b>Year 1 (30 credits earned in CityU)</b>	[GE-English] GE1401 University English	3			
	[GE-Chinese] GE1501 Chinese Civilization – History & Philosophy	3			
	[GE-Col Specified] MA1300 Enhanced Calculus and Linear Algebra I	3	[Major-Compulsory] MATH08057 Introduction to Linear Algebra	20	
	[GE-Col Specified] MA1301 Enhanced Calculus and Linear Algebra II	3	[Major-Compulsory] MATH08058 Calculus and its Applications	20	
	[GE-Col Specified] CS1102 Introduction to Computer Studies or CS1302 Introduction to Computer Programming	3			
	[CSCI-Col Requirement] two from the three science courses PHY1201 General Physics I / BCH1100 Chemistry / BCH1200 Discovery in Biology	6			
	[GE-English] GE2401 English for Science	3			
	[GE] Gateway Education 1 - Area 1	3			
	[GE] Gateway Education 2 - Area 2	3			
			[Major-Options] Any Level 7 or 8 courses in Schedules A-Q, S, T and W	60	
<b>Year 2 (36 credits earned in CityU)</b>	[Major-Core] MA2503 Linear Algebra	4	[Major-Compulsory] MATH08065 Computing and Numerics	10	
	[Major-Core] MA2504 Discrete Mathematics	4	[Major-Compulsory] MATH08059 Proofs and Problem Solving (Normal year taken: Year 1)	20	
	[Major-Core] MA2506 Probability and Statistics	4	[Major-Compulsory] MATH08066 Probability	10	
	[Major-Core] MA2507 Computing Mathematics Laboratory	1	[Major-Compulsory] MATH08063 Several Variable Calculus and Differential Equations	20	
	[Major-Core] MA2508 Multi-variable Calculus	4			
	[Major-Core] MA3511 Ordinary Differential Equations	3	[Major-Compulsory] MATH08051 Statistics	10	
	[Major-Core] MA3524 Analysis	4	[Major-Compulsory] MATH08064 Fundamentals of Pure Mathematics	20	
	[Major-Core] CS2360 Java Programming	3	[Major-Options] Any Level 7 or 8 courses in Schedules A-Q, S, T and W	10	
	[Major-Core] CS2468 Data structures and Data Management	3	[Major-Options] Any Level 7 or 8 courses in Schedules A-Q, S, T and W	10	
	[GE] Gateway Education 3 - Area 3	3			
	[GE] Gateway Education 4 - Area 1/2/3	3			
		[Major-Options] Any Level 7 or 8 courses in Schedules A-Q, S, T and W	30		
<b>Total Credits earned in CityU</b>		<b>66</b>	<b>Total Credits transferred from CityU</b>		<b>240</b>

<b>Year 3 (30 credits transferred from Edinburgh)</b>	[Major-Core] MA3512 Partial Differential Equations	3	[Major-Compulsory] MATH10066 Honours Differential Equations	20
	[Major-Core] MA3515 Introduction to Optimization	3	[Major-Compulsory] MATH10068 Honours Analysis	20
	[Major-Core] MA3517 Complex Analysis	3	[Major-Compulsory] MATH10067 Honours Complex Variables	20
	[Major-Elective] MA3523 Introduction to Abstract Algebra	3	[Major-Compulsory] MATH10069 Honours Algebra	20
	[Major-Core] MA3514 Numerical Methods for Differential Equations	3	[Major-Options] MATH10098 Numerical Linear Algebra	10
	[Major-Core] MA3518 Applied Statistics	3	[Major-Options] MATH10095 Statistical Methodology or [Major-Options] MATH10096 Applied Statistics (Normal year taken: Year 4) or [Major-Options] Any Level 9 or 10 courses in Schedules A to Q, T and W. Students need to seek pre-approval from BSCM Major Leader.	10
	[Major-Core] MA3525 Elementary Numerical Methods	3	[Major-Options] MATH10060 Numerical Ordinary Differential Equations and Applications	10
	Major Elective	3	[Major-Options] Any Level 9 or 10 courses in Schedules A to Q, T and W	10
	Major Elective	3		
	Major Elective	3		
<b>Year 4 (30 credits transferred from Edinburgh)</b>	Major Elective	3	[Major-Options] Select between 20 and 40 credits of the following courses:	20/40
	Major Elective	3	MATH10010 Mathematical Education (20 credits)	
	Free Elective	3	MATH10063 Mathematics Project (20 credits)	
	Free Elective	3	MATH11127 Mathematics Dissertation (40 credits)	80/100
	Free Elective	3	[Major-Options] Any Level 10 or 11 courses in Schedules A to Q, T and W	
	Free Elective	3		
	Free Elective	3		
	Free Elective	3		
	Free Elective	3		
	Free Elective	3		
<b>Total Credits transferred from Edinburgh</b>	<b>60<sup>^</sup></b>	<b>Total Credits earned in Edinburgh</b>	<b>240</b>	
<b>Credit units earned towards CityU degree</b>	<b>126</b>	<b>Credit units earned towards Edinburgh degree</b>	<b>480</b>	

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## Mathematics and Statistics

### Joint Bachelor's Degree Programme between City University of Hong Kong and The University of Edinburgh Tentative Study Plan for CityU students of Computing Mathematics (Intake cohort 2019 and thereafter)

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[CSCI-Col Requirement] two from the three science courses PHY1201 General Physics I / BCH1100 Chemistry / BCH1200 Discovery in Biology	6		
[GE-English] GE2401 English for Science	3		
[GE] Gateway Education 1 - Area 1	3		
[GE] Gateway Education 2 - Area 2	3		
		[Major-Options] Any Level 7 and 8 courses in Schedules A-Q, S, T and W	60
[Major-Core] MA2503 Linear Algebra	4	[Major-Compulsory] MATH08065 Computing and Numerics	10
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[Major-Core] MA2507 Computing Mathematics Laboratory	1	[Major-Compulsory] MATH08063 Several Variable Calculus and Differential Equations	20
[Major-Core] MA2508 Multi-variable Calculus	4		
[Major-Core] MA3511 Ordinary Differential Equations	3	[Major-Compulsory] MATH08051 Statistics	10
[Major-Core] MA3524 Analysis	4	[Major-Compulsory] MATH08064 Fundamentals of Pure Mathematics	20
[Major-Core] CS2360 Java Programming	3	[Major-Options] Any Level 8 courses in Schedules A-Q, S, T and W	10
[Major-Core] CS2468 Data structures and Data Management	3	[Major-Options] Any Level 8 courses in Schedules A-Q, S, T and W	10
[GE] Gateway Education 3 - Area 3	3		
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		[Major-Options] Any Level 7 or 8 courses in Schedules A-Q, S, T and W	30
<b>Total Credits earned in CityU</b>	<b><u>66</u></b>	<b>Total Credits transferred from CityU</b>	<b><u>240</u></b>

<b>Year 3 (30 credits transferred from Edinburgh)</b>	[Major-Core] MA3518 Applied Statistics	3	[Major-Compulsory] MATH10095 Statistical Methodology	10
			[Major-Compulsory] MATH10093 Statistical Computing	10
	[Major-Core] MA3512 Partial Differential Equations	3	[Major-Options] MATH10066 Honours Differential Equations	20
	[Major-Core] MA3515 Introduction to Optimization	3	[Major-Options] MATH10068 Honours Analysis	20
	[Major-Core] MA3517 Complex Analysis	3	[Major-Options] MATH10067 Honours Complex Variables	20
	[Major-Core] MA3514 Numerical Methods for Differential Equations	3	[Major-Options] MATH10098 Numerical Linear Algebra	10
	[Major-Core] MA3525 Elementary Numerical Methods	3	[Major-Options] MATH10060 Numerical Ordinary Differential Equations and Applications	10
	Major Elective	3	[Major-Options] Any Level 9 or 10 courses in Schedules A to Q, T and W	10
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	Free Elective	3	[Major-Options] Any Level 10 or 11 courses in Schedules A to Q, T and W	
	Free Elective	3		
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<b>Total Credits transferred from Edinburgh</b>		<b>60<sup>^</sup></b>	<b>Total Credits earned in Edinburgh</b>	<b>240</b>
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