BSc in Chemistry and Biological Chemistry with 2nd Major in Data Analytics (CHDA)

AY2023 - 2024 Intake onwards

FYP with Professional Attachment

		Number of Academic Units (AU)									
	Year of	Major Re	quirement	Interdis	ciplinary	Broadening and					
Programme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)	Deepening Electives (BDE)	Total				
	1	17/18*		9		6	32/33*				
Chemistry and	2	21		8	3	6	38				
Biological	3	18			7	19	44				
Chemistry	4		22			6	28				
	Total	56/57*	22	17	10	37	142/143*				

BSc in Chemistry and Biological Chemistry with 2nd Major in Data Analytics (CHDA)

Category		AU	Total AU
	Common Core (University-level)		
	CC0001 Inquiry and Communication in the Interdisciplinary World	2	
	CC0002 Navigating the Digital World	2	
	CC0003 Ethics & Civics in a Multi-Cultural World	2	
	CC0005 Healthy Living & Wellbeing	3	17
	CC0006 Sustainability: Society, Economy & Environment	3	17
	CC0007 Science & Technology for Humanity	3	
Interdisciplinary Collaborative Core (ICC) Major Requirement	ML0004 Career and Entrepreneurial Development for the Future World	2	
	Foundational Core (College-level)		
	HW0218 Communication Across the Sciences	2	
	PS0002 Introduction to Data Science and Artificial Intelligence	3	10
	CM4082 Professional Attachment	5	
		1	
	CHEM Core	_	
	CM1001 Foundations of Chemistry I	4	
	CM1002 Foundations of Chemistry II	4	
	MH1082 Calculus for the Sciences	4	
	CM1804 [^] Mathematics for Chemistry	2	
	PH1011 Physics or PH1012* Physics A	3/4*	
	CM2011 Analytical and Bioanalytical Chemistry	3	
	CM2021 Inorganic and Bioinorganic Chemistry	3	
	CM2061 Chemistry & Biological Chemistry Laboratory 1	3	
	CM2031 Organic and Bioorganic Chemistry	3	
Major	CM2041 Physical and Biophysical Chemistry 1	3	56/57*
	CM2062 Chemistry & Biological Chemistry Laboratory 2	3	
	PS0001 [^] Introduction to Computational Thinking	3	
	CM3011 ^{&} Chemical Spectroscopy and Applications	3	
	CM3041 ^{&} Physical and Biophysical Chemistry 2	3	
	CM3062 Chemistry & Biological Chemistry Laboratory 4	3	
	CM3031 ^{&} Organic Reaction Mechanisms and Synthesis	3	
	CM3021 ^{&} Organometallic Chemistry	3	
	CM3061 Chemistry & Biological Chemistry Laboratory 3	3	
	CHEM Major Prescribed Electives (MPE)		
	CM4080 Honours Project 1	10	22
	4 x MPEs	12	

Total			142 - 149
BDE	Any 4 BDE	12	12
			1
	Students are responsible to plan for their 2nd major courses		
	MH4702 Probabilistic Methods in OR (4AU)		
	MH4511 Sampling and Survey (4AU) @ MH4512 Clinical Trials (4AU)		
	MH4320 Computational Economics (4AU)		
	MH4302 Theory of Computing (4AU)		
	MH4513 Survival Analysis (4AU)		
	MH4500 Time Series Analysis (4AU)		
	MH3701 Basic Optimization (4AU)		
Analytics (BDEs)	MH3511 Data Analysis with Computer (3AU)	9 - 12	9 - 12
2nd Major in Data	MH3510 Regression Analysis (4AU)		
	MH3400 Algorithms for the Real World (4AU) MH3500 Statistics (4AU)		
	ES2001 Computational Earth Systems Science (4AU)		
	CM4044 ^{+^} Artificial Intelligence in Chemistry (3AU)		
	CM4043 ^{+^} Molecular Modelling: Principles and Applications (3AU)		
	BS4017 High-Throughput Bioinformatics (3AU)		
	BS3008 Computational Biology and Modeling (3AU)		
	BC2407 Analytics II: Advanced Predictive Techniques (4AU)		
	Data Analytics Electives (Read any 3)		
	SCHUZH Data Visualization (SAO)		l
	Predictive Techniques (4AU) / SC4023 Big Data Management (3AU) / SC4024 Data Visualization (3AU)	3 - 4	
	7) Data Visualisation/Management: BC2406 Analytics I: Visual and		
	Analytics and Mining (3AU)		
	EE4483 Artificial Intelligence & Data Mining (3AU) / SC4020 Data	3 - 4	
	6) Data Mining: MH4510 Statistical Learning & Data Mining (4AU) /		
, (((3AU)	J - 4	
2nd Major in Data Analytics (BDEs)	5) Database: BC2402 Designing & Developing Databases (4AU) / EE4791 Database Systems (3AU) / SC2207 Introduction to Database	3 - 4	16 - 19
and Major in Data	4) Algorithms: MH1403 Algorithms & Computing	3	
	Thinking		
	3) Data Analysis/Computing: PS0001 Introduction to Computational	NA	
	2) Linear Algebra: CM1804 Mathematics for Chemistry	NA	
	Statistics	4	
	Data Analytics Compulsory Courses 1) Probability and Statistics: MH2500 Probability and Introduction to		

[^]Counted towards 2nd major in Data Analytic Compulsory Course

[†] Counted towards CHEM MPE

^{*}Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

[&] CM3011, CM3021. CM3031, CM3041 are offered in both semesters.

-	mistry and Biological Chemistry) with 21	nd major	in Data An	alytics (CHDA)			
	Study Plan for AY2023-2024 intake						
FYP WITH PI	rofessional Attachment						
Year 1 Sem	nester 1			Year 1 Sem	nester 2		
Course		Туре	AU	Course		Туре	AU
CM1001	Foundations of Chemistry I	С	4	CM1002	Foundations of Chemistry II	С	4
MH1802	Calculus for the Sciences	С	4	CM1804^	Mathematics for Chemistry	С	2
CC0001	Inquiry and Communication in the	CC	2	PH1011/	Physics or	С	3
	Interdisciplinary World			•			
CC0002	Navigating the Digital World	CC	2	PH1012*	Physics A (For students without 'A' Level Physics)	С	4
CC0005	Healthy Living & Well-being	CC	3	CC0003	Ethics & Civics in a Multi-Cultural World	СС	2
					BDE 1	BDE	3
HW0001	Introduction to Academic Communicat	ion #			BDE 2	BDE	3
			15				17/10*
# for studer	nts who have not cleared QET		15				17/18*
joi stauci	ns who have not cleared Q21						
Year 2 Sem	nester 1			Year 2 Sem	nester 2		
Course		Туре	AU	Course		Type	AU
CM2011	Analytical and Bioanalytical	С	3	CM2031	Organic and Bioorganic Chemistry	С	3
	Chemistry	_	-				
CM2021	Inorganic and Bioinorganic Chemistry	С	3	CM2041	Physical and Biophysical Chemistry 1	С	3
CM2061	Chemistry & Biological Chemistry Laboratory 1	С	3	CM2062	Chemistry & Biological Chemistry Laboratory 2	С	3
	Introduction to Computational				Introduction to Data Science and		
PS0001^	Thinking	С	3	PS0002	Artificial Intelligence	FC	3
CC0006	Sustainability: Society, Economy & Environment	CC	3	CC0007	Science & Technology for Humanity	CC	3
ML0004 Career Develo	Career and Entrepreneurial	CC	2	MH1403	Algorithms & Computing (CHDA-	BDE	3
	Development for the Future World			IVIT 1403	Core)	BDE	3
	BDE 3	BDE	3				
			20	-			18
Year 3 Sem	nester 1			Year 3 Sem	nester 2		
Course		Туре	AU	Course		Туре	AU
CM3xxx ^{&}	CHEM-Core	С	3	CM3xxx ^{&}	CHEM-Core	С	3
CM3xxx ^{&}	CHEM-Core	С	3	CM3xxx ^{&}	CHEM-Core	С	3
CM3062	Chemistry & Biological Chemistry	С	3	CM3061	Chemistry & Biological Chemistry	С	3
	Laboratory 4				Laboratory 3		
	Designing & Developing Databases					C	
BC2402	Designing & Developing Databases	BDE	4	HW0218	Communication Across the Sciences	FC	2
	(CHDA-Core)					FC	
BC2402 BC2406		BDE BDE	4	HW0218 MH3500	Communication Across the Sciences Statistics (CHDA-Elective 1)		2
BC2406	(CHDA-Core) Analytics I: Visual and Predictive	BDE			Statistics (CHDA-Elective 1)	FC BDE	4
	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core)					FC	
BC2406	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to	BDE	4	МН3500	Statistics (CHDA-Elective 1) CHDA-Elective 2	FC BDE	4
BC2406	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to	BDE	4	MH3500 <u>Year 3 Spe</u>	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem	FC BDE BDE	3
BC2406	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to	BDE	4	МН3500	Statistics (CHDA-Elective 1) CHDA-Elective 2	FC BDE	4
BC2406	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to	BDE	4	MH3500 <u>Year 3 Spe</u>	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem	FC BDE BDE	3
BC2406	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to	BDE	4	MH3500 <u>Year 3 Spe</u>	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem	FC BDE BDE	4 3 5
BC2406	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to	BDE	4	MH3500 <u>Year 3 Spe</u>	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem	FC BDE BDE	4 3 5
BC2406 MH2500 Year 4 Sem	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to Statistics (CHDA-Core)	BDE BDE	4 4	Year 3 Spe CM4082	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem Professional Attachment	FC BDE BDE	4 3 5 23
BC2406 MH2500 Year 4 Sem Course	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to Statistics (CHDA-Core)	BDE BDE	4 4 21	Year 3 Spe CM4082 Year 4 Sem Course	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem Professional Attachment	FC BDE BDE FC	4 3 5 23 AU
BC2406 MH2500 Year 4 Sem	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to Statistics (CHDA-Core) nester 1 Artificial Intelligence in Chemistry	BDE BDE Type MPE	4 4 21 AU 3	Year 3 Spe CM4082	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem Professional Attachment	FC BDE BDE	4 3 5 23
BC2406 MH2500 Year 4 Sem Course	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to Statistics (CHDA-Core) nester 1 Artificial Intelligence in Chemistry CHEM MPE2	BDE BDE Type MPE MPE	4 4 21 AU 3 3	Year 3 Spe CM4082 Year 4 Sem Course	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem Professional Attachment	FC BDE BDE FC	4 3 5 23 AU
BC2406 MH2500 Year 4 Sem Course	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to Statistics (CHDA-Core) nester 1 Artificial Intelligence in Chemistry CHEM MPE2 CHEM MPE3	BDE BDE Type MPE MPE MPE	4 4 21 AU 3 3 3	Year 3 Spe CM4082 Year 4 Sem Course	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem Professional Attachment	FC BDE BDE FC	4 3 5 23 AU
BC2406 MH2500 Year 4 Sem Course CM4044 ⁺ ^	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to Statistics (CHDA-Core) nester 1 Artificial Intelligence in Chemistry CHEM MPE2 CHEM MPE3 CHEM MPE4	BDE BDE Type MPE MPE MPE MPE	4 4 21 AU 3 3 3 3 3	Year 3 Spe CM4082 Year 4 Sem Course	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem Professional Attachment	FC BDE BDE FC	4 3 5 23 AU
BC2406 MH2500 Year 4 Sem Course	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to Statistics (CHDA-Core) mester 1 Artificial Intelligence in Chemistry CHEM MPE2 CHEM MPE3 CHEM MPE4 Artificial Intelligence & Data Mining	BDE BDE Type MPE MPE MPE	4 4 21 AU 3 3 3	Year 3 Spe CM4082 Year 4 Sem Course	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem Professional Attachment	FC BDE BDE FC	4 3 5 23 AU
BC2406 MH2500 Year 4 Sem Course CM4044 ⁺ ^	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to Statistics (CHDA-Core) nester 1 Artificial Intelligence in Chemistry CHEM MPE2 CHEM MPE3 CHEM MPE4	BDE BDE Type MPE MPE MPE MPE	4 4 21 AU 3 3 3 3 3	Year 3 Spe CM4082 Year 4 Sem Course	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem Professional Attachment	FC BDE BDE FC	4 3 5 23 AU
BC2406 MH2500 Year 4 Sem Course CM4044 ⁺ ^	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to Statistics (CHDA-Core) mester 1 Artificial Intelligence in Chemistry CHEM MPE2 CHEM MPE3 CHEM MPE4 Artificial Intelligence & Data Mining (CHDA-Core)	BDE BDE Type MPE MPE MPE MPE BDE	4 4 21 3 3 3 3 3 3 3	Year 3 Spe CM4082 Year 4 Sem Course	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem Professional Attachment	FC BDE BDE FC	4 3 5 23 AU
BC2406 MH2500 Year 4 Sem Course CM4044 ⁺ ^	(CHDA-Core) Analytics I: Visual and Predictive Techniques (CHDA-Core) Probability and Introduction to Statistics (CHDA-Core) mester 1 Artificial Intelligence in Chemistry CHEM MPE2 CHEM MPE3 CHEM MPE4 Artificial Intelligence & Data Mining (CHDA-Core)	BDE BDE Type MPE MPE MPE MPE BDE	4 4 21 3 3 3 3 3 3	Year 3 Spe CM4082 Year 4 Sem Course	Statistics (CHDA-Elective 1) CHDA-Elective 2 cial Sem Professional Attachment	FC BDE BDE FC	4 3 5 23 AU

[^]Counted towards 2nd major in Data Analytic requirements

^{&#}x27;+Counted towards CHEM MPE

^{*}Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

 $^{^{\&}amp;}$ CM3xxx refers to CM3011, CM3021, CM3031, CM3041 - These courses are offered in both semesters

BSc in Chemistry and Biological Chemistry with 2nd Major in Data Analytics (CHDA)

AY2023 - 2024 Intake onwards

with Professional Internship

_		Number of Academic Units (AU)								
	Year of	Major Requirement		Interdis	ciplinary	Broadening and				
Programme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)	Deepening Electives (BDE)	Total			
	1	17/18*		9		6	32/33*			
Chemistry and	2	21		8	3	9	41			
Biological	3	18			2	21	41			
Chemistry	4		12		10	6	28			
	Total	56/57*	12	17	15	42	142/143*			

BSc in Chemistry and Biological Chemistry with 2nd Major in Data Analytics (CHDA)

Category			AU	Total AU		
	Common C	ore (University-level)				
	CC0001 Inc	uiry and Communication in the Interdisciplinary World	2			
	CC0002 Na	vigating the Digital World	2			
	CC0003 Eth	nics & Civics in a Multi-Cultural World	2			
	CC0005 He	althy Living & Wellbeing	3			
	CC0006 Sus	stainability: Society, Economy & Environment	3	17		
nterdisciplinary	CC0007 Sci	ence & Technology for Humanity	3			
Collaborative Core (ICC)	ML0004 Ca	reer and Entrepreneurial Development for the Future World	2			
,						
	Foundation	nal Core (College-level)				
		ommunication Across the Sciences	2	15		
	PS0002 Int	roduction to Data Science and Artificial Intelligence	3	13		
	CM4081 Pr	ofessional Internship	10			
	CHEM Core	,				
	CM1001	Foundations of Chemistry I	4			
	CM1001	Foundations of Chemistry II	4			
	MH1082	Calculus for the Sciences	4			
	CM1804^	Mathematics for Chemistry	2			
	PH1011	Physics or PH1012* Physics A	3/4*			
	CM2011	Analytical and Bioanalytical Chemistry	3			
	CM2021	Inorganic and Bioinorganic Chemistry	3			
	CM2061	Chemistry & Biological Chemistry Laboratory 1	3			
	CM2031	Organic and Bioorganic Chemistry	3	/		
Major	CM2041	Physical and Biophysical Chemistry 1	3	56/57*		
Requirement	CM2062	Chemistry & Biological Chemistry Laboratory 2	3			
•	PS0001^	Introduction to Computational Thinking	3			
	CM3011 ^{&}	Chemical Spectroscopy and Applications	3			
	CM3041 ^{&}	Physical and Biophysical Chemistry 2	3			
	CM3062	Chemistry & Biological Chemistry Laboratory 4	3			
	CM3031 ^{&}	Organic Reaction Mechanisms and Synthesis	3			
	CM3021 ^{&}	Organometallic Chemistry	3			
	CM3061	Chemistry & Biological Chemistry Laboratory 3	3			
	CHEM Maj	or Prescribed Electives (MPE)				
	4 x MPEs		12	12		

Total			142 - 149
BDE	Any 6 BDE	17	17
	Students are responsible to plan for their 2nd major courses		
	MH4512 Clinical Trials (4AU) MH4702 Probabilistic Methods in OR (4AU)		
	MH4511 Sampling and Survey (4AU) @		
	MH4320 Computational Economics (4AU)		
	MH4302 Theory of Computing (4AU)		
	MH4513 Survival Analysis (4AU)		
	MH4500 Time Series Analysis (4AU)		
(5525)	MH3701 Basic Optimization (4AU)		
(BDEs)	MH3511 Data Analysis with Computer (3AU)	9 - 12	9 - 12
2nd Major in Data Analytics	MH3510 Regression Analysis (4AU)		
and Majar in	MH3400 Algorithms for the Real World (4AU) MH3500 Statistics (4AU)		
	ES2001 Computational Earth Systems Science (4AU)		
	CM4044+^ Artificial Intelligence in Chemistry (3AU)		
	CM4043+^ Molecular Modelling: Principles and Applications (3AU)		
	BS4017 High-Throughput Bioinformatics (3AU)		
	BS3008 Computational Biology and Modeling (3AU)		
	BC2407 Analytics II: Advanced Predictive Techniques (4AU)		
	Data Analytics Electives (Read any 3)		
	Predictive Techniques (4AU) / SC4023 Big Data Management (3AU) / SC4024 Data Visualization (3AU)	3 - 4	
	7) Data Visualisation/Management: BC2406 Analytics I: Visual and		
	Analytics and Mining (3AU)		
	EE4483 Artificial Intelligence & Data Mining (3AU) / SC4020 Data	3 - 4	
	6) Data Mining: MH4510 Statistical Learning & Data Mining (4AU) /		
Data Analytics (BDEs)	5) Database: BC2402 Designing & Developing Databases (4AU) / EE4791 Database Systems (3AU) / SC2207 Introduction to Database (3AU)	3 - 4	16 - 19
2nd Major in	4) Algorithms: MH1403 Algorithms & Computing	3	
	Thinking	NA	
	3) Data Analysis/Computing: PS0001 Introduction to Computational	NIA	
	2) Linear Algebra: CM1804 Mathematics for Chemistry	NA	
	1) Probability and Statistics: MH2500 Probability and Introduction to Statistics	4	
	1) Probability and Statistics, MU2500 Probability and Introduction to		

[^]Counted towards 2nd major in Data Analytic Compulsory Course

⁺ Counted towards CHEM MPE

^{*}Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

 $^{^{\&}amp;}$ CM3011, CM3021. CM3031, CM3041 are offered in both semesters.

Year 1 Sem	nester 1			Year 1 Sem	ester 2		
Course		Туре	AU	Course		Туре	ΑL
CM1001	Foundations of Chemistry I	С	4	CM1002	Foundations of Chemistry II	С	4
ИН1802	Calculus for the Sciences	С	4	CM1804^	Mathematics for Chemistry	С	2
CC0001	Inquiry and Communication in the Interdisciplinary World	CC	2	PH1011/	Physics <u>or</u>	С	3
CC0002	Navigating the Digital World	CC	2	PH1012*	Physics A (For students without 'A' Level Physics)	С	4
		00	2	000000	Ethics & Civics in a Multi-Cultural		_
CC0005	Healthy Living & Well-being	CC	3	CC0003	World	CC	2
HW0001	Introduction to Academic Communicat	ion [#]			BDE 1 BDE 2	BDE BDE	3
			15				17/1
for studer	nts who have not cleared QET						,-
ear 2 Sem	nester 1			Year 2 Sem	ester 2		
Course		Туре	AU	Course		Туре	AU
	Analytical and Bioanalytical			CM2021	Organic and Dioorganic Chamister		
CM2011	Chemistry	С	3	CM2031	Organic and Bioorganic Chemistry	С	3
CM2021	Inorganic and Bioinorganic Chemistry	С	3	CM2041	Physical and Biophysical Chemistry 1	С	3
CM2061	Chemistry & Biological Chemistry Laboratory 1	С	3	CM2062	Chemistry & Biological Chemistry Laboratory 2	С	3
°S0001^	Introduction to Computational Thinking	С	3	PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
CC0006	Sustainability: Society, Economy & Environment	CC	3	CC0007	Science & Technology for Humanity	CC	3
ML0004 Career and Entrepreneurial	Career and Entrepreneurial Development for the Future World	CC	2	MH1403	Algorithms & Computing (CHDA-Core)	BDE	3
	BDE 3	BDE	3		BDE 4	BDE	3
			20				21
Year 3 Sem	nester 1	_		Year 3 Sem	ester 2	_	
Course		Туре	AU	Course		Туре	AU
CM3xxx ^{&}	CHEM-Core	С	3	CM3xxx ^{&}	CHEM-Core	С	3
CM3xxx ^{&}	CHEM-Core	С	3	CM3xxx ^{&}	CHEM-Core	С	3
CM3062	Chemistry & Biological Chemistry	С	3	CM3061	Chemistry & Biological Chemistry	С	3
	Laboratory 4 Designing & Developing Databases				Laboratory 3		
3C2402	(CHDA-Core)	BDE	4	HW0218	Communication Across the Sciences	FC	2
3C2406	Analytics I: Visual and Predictive Techniques (CHDA-Core)	BDE	4	MH3500	Statistics (CHDA-Elective 1)	BDE	4
ИН2500	Probability and Introduction to		_		CHDA-Elective 2	BDE	3
500	Statistics (CHDA-Core)	BDE	4		BDE 5	BDE	2
			21				20
			41				20
Year 4 Sem	nester 1	_	• • •	Year 4 Sem	ester 2	_	
Course		Туре	AU	Course	Molocular Modellines Deinstellen	Туре	AL
CM4081	Professional Internship	FC	10	CM4043+^	Molecular Modelling: Principles and Applications	MPE	3
					CHEM MPE2	BDE	3
					CHEM MPE 3	MPE	3
					CHEM MPE 4	MPE	3
					CHDA-Core	BDE	3
					BDE 6	BDE	3
			10				18

B.Sci. (Chemistry and Biological Chemistry) with 2nd major in Data Analytics (CHDA)

This study plan is meant as a guide.

[^]Counted towards 2nd major in Data Analytic requirements

^{&#}x27;+Counted towards CHEM MPE

^{*}Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

[&]amp; CM3xxx refers to CM3011, CM3021, CM3031, CM3041 - These courses are offered in both semesters

BSc in Chemistry and Biological Chemistry with 2nd Major in Data Analytics (CHDA)

AY2023 - 2024 Intake onwards

with Professional Internship and FYP

			N	umber of Acad	demic Units (Al	J)		
B	Year of	Major Requirement		Interdis	ciplinary	Broadening and		
Programme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)		Total	
	1	17/18*		9		7	33/34*	
Chemistry and	2	21		8	3	3	35	
Biological	3	18	3		2	19	42	
Chemistry	4		19		10	3	32	
	Total	56/57*	22	17	15	32	142/143*	

BSc in Chemistry and Biological Chemistry with 2nd Major in Data Analytics (CHDA)

Category			AU	Total AU			
	Common (Core (University-level)					
	CC0001 Ind	quiry and Communication in the Interdisciplinary World	2				
	CC0002 Na	vigating the Digital World	2				
	CC0003 Etl	nics & Civics in a Multi-Cultural World	2				
	CC0005 He	althy Living & Wellbeing	3	17			
Intordicainlinen	CC0006 Su	stainability: Society, Economy & Environment	3	17			
Interdisciplinary	CC0007 Sc	ence & Technology for Humanity	3				
Collaborative Core (ICC)	ML0004 Ca World	areer and Entrepreneurial Development for the Future	2				
	Foundatio	nal Core (College-level)					
	HW0218 C	ommunication Across the Sciences	2				
	PS0002 Int	roduction to Data Science and Artificial Intelligence	3	15			
	CM4081 P	rofessional Internship	10				
			_				
	CHEM Cor						
	CM1001	Foundations of Chemistry I	4				
	CM1002	Foundations of Chemistry II	4				
	MH1082	Calculus for the Sciences	4				
	CM1804^	Mathematics for Chemistry	2				
	PH1011	Physics <u>or</u> PH1012* Physics A	3/4*				
	CM2011	Analytical and Bioanalytical Chemistry	3				
	CM2021	Inorganic and Bioinorganic Chemistry	3				
	CM2061	Chemistry & Biological Chemistry Laboratory 1	3				
	CM2031	Organic and Bioorganic Chemistry	3	56/57*			
Major	CM2041	Physical and Biophysical Chemistry 1	3	,			
Requirement	CM2062	Chemistry & Biological Chemistry Laboratory 2	3				
•	PS0001^	Introduction to Computational Thinking	3				
	CM3011 ^{&}	Chemical Spectroscopy and Applications	3				
	CM3041 ^{&}	Physical and Biophysical Chemistry 2	3				
	CM3062	Chemistry & Biological Chemistry Laboratory 4	3				
	CM3031 ^{&}	Organic Reaction Mechanisms and Synthesis	3				
	CM3021 ^{&}	Organometallic Chemistry	3				
	CM3061	Chemistry & Biological Chemistry Laboratory 3	3				
	<u> </u>	or Prescribed Electives (MPE)					
	CM4080	Honours Project 1	10	22			
	4 x MPEs		12				

Total			142 - 149			
BDE	Any 2 BDE	7	7			
	Students are responsible to plan for their 2nd major courses					
2nd Major in Data Analytics (BDEs)	BS3008 Computational Biology and Modeling (3AU) BS4017 High-Throughput Bioinformatics (3AU) CM4043+^ Molecular Modelling: Principles and Applications (3AU) CM4044+^ Artificial Intelligence in Chemistry (3AU) ES2001 Computational Earth Systems Science (4AU) MH3400 Algorithms for the Real World (4AU) MH3500 Statistics (4AU) MH3510 Regression Analysis (4AU) MH3511 Data Analysis with Computer (3AU) MH3701 Basic Optimization (4AU) MH4500 Time Series Analysis (4AU) MH4513 Survival Analysis (4AU) MH4513 Computational Economics (4AU) MH4302 Theory of Computing (4AU) MH4511 Sampling and Survey (4AU) MH4512 Clinical Trials (4AU) MH4702 Probabilistic Methods in OR (4AU)	9 - 12	9 - 12			
	Data Analytics Electives (Read any 3) BC2407 Analytics II: Advanced Predictive Techniques (4AU)					
	Predictive Techniques (4AU) / SC4023 Big Data Management (3AU) / SC4024 Data Visualization (3AU)	3 - 4				
	6) Data Mining: MH4510 Statistical Learning & Data Mining (4AU) / EE4483 Artificial Intelligence & Data Mining (3AU) / SC4020 Data Analytics and Mining (3AU) 7) Data Visualisation/Management: BC2406 Analytics I: Visual and	3 - 4				
2nd Major in Data Analytics (BDEs)	4) Algorithms: MH1403 Algorithms & Computing 5) Database: BC2402 Designing & Developing Databases (4AU) / EE4791 Database Systems (3AU) / SC2207 Introduction to Database (3AU)	3 3 - 4	16 - 19			
	3) Data Analysis/Computing: PS0001 Introduction to Computational Thinking 4) Algorithms: MU1403 Algorithms & Computing	NA				
	2) Linear Algebra: CM1804 Mathematics for Chemistry	NA				
	Data Analytics Compulsory Courses 1) Probability and Statistics: MH2500 Probability and Introduction to Statistics	4				

[^]Counted towards 2nd major in Data Analytic Compulsory Course

⁺ Counted towards CHEM MPE

^{*}Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

 $^{^{\&}amp;}$ CM3011, CM3021. CM3031, CM3041 are offered in both semesters.

-	mistry and Biological Chemistry) with 2r Study Plan for AY2023-2024 intake	nd major	in Data An	alytics (CHDA)			
	ssional Internship and FYP						
Year 1 Sem	nester 1			Year 1 Sem	nester 2		
Course		Туре	AU	Course		Туре	AU
CM1001	Foundations of Chemistry I	С	4	CM1002	Foundations of Chemistry II	С	4
MH1802	Calculus for the Sciences	С	4	CM1804^	Mathematics for Chemistry	С	2
CC0001	Inquiry and Communication in the Interdisciplinary World	CC	2	PH1011/	Physics <u>or</u>	С	3
CC0002	Navigating the Digital World	CC	2	PH1012*	Physics A (For students without 'A' Level Physics)	С	4
CC0005	Healthy Living & Well-being	CC	3	CC0003	Ethics & Civics in a Multi-Cultural World	CC	2
HW0001	Introduction to Academic Communicat	ion [#]			BDE 1 BDE 2	BDE BDE	3 4
							10/10#
# for studer	nts who have not cleared QET		15				18/19*
Year 2 Sem	nester 1			Year 2 Sem	ester 2		
Course		Туре	AU	Course		Type	AU
CM2011	Analytical and Bioanalytical Chemistry	С	3	CM2031	Organic and Bioorganic Chemistry	С	3
CM2021	Inorganic and Bioinorganic Chemistry	С	3	CM2041	Physical and Biophysical Chemistry 1	С	3
CM2061	Chemistry & Biological Chemistry Laboratory 1	С	3	CM2062	Chemistry & Biological Chemistry Laboratory 2	С	3
PS0001^	Introduction to Computational Thinking	С	3	PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
CC0006	Sustainability: Society, Economy & Environment	CC	3	CC0007	Science & Technology for Humanity	CC	3
ML0004	Career and Entrepreneurial Development for the Future World	СС	2	MH1403	Algorithms & Computing (CHDA- Core)	BDE	3
			17				18
v				W 2.6			
Year 3 Sem Course	nester 1	Type	AU	Year 3 Sem Course	lester 2	Type	AU
CM3xxx ^{&}	CHEM-Core	Type C	3	CM3xxx ^{&}	CHEM-Core	Type C	3
CM3xxx	CHEM-Core	С	3	CM3xxx ^{&}	CHEM-Core	С	3
CM3062	Chemistry & Biological Chemistry	С	3	CM3061	Chemistry & Biological Chemistry	С	3
51415502	Laboratory 4	Č	3	C14/3001	Laboratory 3	Č	3
BC2402	Designing & Developing Databases (CHDA-Core)	BDE	4	HW0218	Communication Across the Sciences	FC	2
BC2406	Analytics I: Visual and Predictive Techniques (CHDA-Core)	BDE	4	MH3500	Statistics (CHDA-Elective 1)	BDE	4
MH2500	Probability and Introduction to Statistics (CHDA-Core)	BDE	4		CHDA-Elective 2	BDE	3
	2223333 (0.127, 0010)		-		CHEM MPE 1	MPE	3
			21				21
Year 4 Sem	nester 1			Year 4 Sem	ester 2		
Course	-	Туре	AU	Course	-	Туре	AU
CM4081	Professional Internship	FC	10	CM4080	Honours Project 1	MPE	10
	·			CM4043+^	Molecular Modelling: Principles and Applications	MPE	3
					CHEM MPE 3	MPE	3
					CHEM MPE 4	MPE	3
					CHDA-Core	DDE	3
					CHDA-Core	BDE	3
			10		CHDA-Core	BDE	22

This study plan is meant as a guide.

[^]Counted towards 2nd major in Data Analytic requirements

^{&#}x27;+Counted towards CHEM MPE

^{*}Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

 $^{^{\&}amp;}$ CM3xxx refers to CM3011, CM3021, CM3031, CM3041 - These courses are offered in both semesters