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

AY2025 - 2026 Intake onwards

FYP with Professional Internship

				Numbe	r of Academic U	Inits (AU)		
<b>D</b>	Year of	Major Red	quirement	Interdiscip	linary Collabor	Broadening and		
Programme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve and Learn (CSL)	Deepening Electives (BDE)	Total
	1	18/19* [2]		8			5	31/32* [2]
Chemistry and	2	22 [3]		6	3	3	7	41 [3]
Biological	3	18	3 [3]		3		18	42 [3]
Chemistry	4		19 [3]		10			29 [3]
	Total	58/59* [5]	22 [6]	14	16	3	30	143/144* [11]

CC0001 CC0003 ML0004 CC0015 CC0006 Interdisciplinary Collaborative Core (ICC) Profess HW021 PS0002 MLXXXX CM408:	non Core (University-level)  101 Inquiry & Communication in an Interdisciplinary World  103 Ethics & Civics in a Multi-Cultural World  104 Career Design & Workplace Readiness in the V.U.C.A World  15 Health & Wellbeing  16 Sustainability: Society, Economy & Environment  17 Science & Technology for Humanity  18 Series (College-level)  19 218 Communication Across the Sciences  10 Introduction to Data Science and Artificial Intelligence  18 Professional Internship  18 Care, Serve, Learn (University-level)	2 2 2 2 2 3 3 3	14
CC0001 CC0003 ML0004 CC0015 CC0006 Interdisciplinary Collaborative Core (ICC) Profess HW021 PS0002 MLXXXX CM408:  XXXXXXX  CM408:  CM100: CM202: CM206: CM203: CM206: CM20	01 Inquiry & Communication in an Interdisciplinary World 03 Ethics & Civics in a Multi-Cultural World 104 Career Design & Workplace Readiness in the V.U.C.A World 15 Health & Wellbeing 16 Sustainability: Society, Economy & Environment 17 Science & Technology for Humanity 18 Series (College-level) 19 Introduction to Data Science and Artificial Intelligence 19 Introduction Preparation 19 Professional Internship	2 2 2 3 3 3	
XXXXXX   XXXXXX   XXXXXX   XXXXXX   XXXXXX			
CHEM C CM100: CM100: CB1102 MH108 CM1804 PH1011 CM201: CM202: CM206: CM203: CM204: CM204: CM206: CM2	AA Care, Serve, Learn (Oniversity-level)		3
CM100: CM100: CM100: CB1102 MH108 CM1804 PH1011 CM201: CM202: CM206: CM203: CM204: CM204: CM206: CM2		<u> </u>	<u> </u>
CM304: CM306: CM303: CM302: CM306:	Foundations of Chemistry II  Introduction to Chemistry, Chemical and Biomedical Engineering Calculus for the Sciences  Mathematics for Chemistry Physics or PH1012* Physics A Analytical and Bioanalytical Chemistry Inorganic and Bioinorganic Chemistry Chemistry & Biological Chemistry Laboratory 1 Organic and Bioorganic Chemistry Physical and Biophysical Chemistry 1 Chemistry & Biological Chemistry 1 Chemistry & Biological Chemistry 1 Chemistry & Biological Chemistry Laboratory 2 Introduction to Chemical and Biological Safety Introduction to Computational Thinking Chemical Spectroscopy and Applications Physical and Biophysical Chemistry 2 Chemistry & Biological Chemistry 2 Chemistry & Biological Chemistry Laboratory 4 Organic Reaction Mechanisms and Synthesis Organometallic Chemistry	4 4 1 4 2 3/4* 3 3 3 3 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3	58/59*
CM4080 4 x MPE	1 Major Prescribed Electives (MPE)	10	22

Total			143 - 149
BDE	Any 2 BDE		5
	Students are responsible to plan for their 2nd major courses		
2nd Major in Data Analytics (BDEs)	Data Analytics Electives (Read any 3)  BC2407 Analytics II: Advanced Predictive Techniques (4AU) BS3008 Computer Aided Drug Discovery (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) MH4500 Time Series Analysis (4AU) MH4513 Survival Analysis (4AU) MH4513 Computational Economics (4AU) MH4302 Computational Economics (4AU) MH4511 Sampling and Survey (4AU) MH4512 Clinical Trials (4AU) MH4702 Probabilistic Methods in OR (4AU)	9 - 12	9 - 12
	7) Data Visualisation/Management: BC2406 Analytics I: Visual and Predictive Techniques (4AU) / SC4023 Big Data Management (3AU) / SC4024 Data Visualization (3AU)	3 - 4	
2nd Major in Data Analytics (BDEs)	5) Database: BC2402 Designing & Developing Databases (4AU) / EE4791 Database Systems (3AU) / SC2207 Introduction to Database (3AU)  6) Data Mining: MH4510 Statistical Learning & Data Mining (4AU) / IE4483 Artificial Intelligence & Data Mining (3AU) / SC4020 Data Analytics and Mining (3AU)	3 - 4	16 - 19
and Major in	1) Probability and Statistics: MH2500 Probability and Introduction to Statistics 2) Linear Algebra: CM1804 Mathematics for Chemistry 3) Data Analysis/Computing: PS0001 Introduction to Computational Thinking 4) Algorithms: MH1403 Algorithms & Computing	4 NA NA 3	
	Data Analytics Compulsory Courses		

<sup>^</sup>Counted towards 2nd major in Data Analytic Compulsory Course

<sup>&</sup>lt;sup>†</sup> Counted towards CHEM MPE

<sup>\*</sup>Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

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

FYP with Pi	ofessional Internship						
Year 1 Sem	ester 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
CB1102	Introduction to Chemistry, Chemical and Biomedical Engineering	С	1	PH1011/	Physics <u>or</u>	С	3
CC0001	Inquiry & Communication in an Interdisciplinary World	CC	2	PH1012*	Physics A (For students without 'A' Level Physics)	С	4
CC0015	Health & Wellbeing	CC	2	CC0003	Ethics & Civics in a Multi-Cultural World	CC	2
	BDE 1	BDE	3	ML0004	Career Design & Workplace Readiness in the V.U.C.A World BDE 2	CC BDE	2
HW0001	Introduction to Academic Communicat	ion #			BUE 2	BDE	2
for studer	nts who have not cleared QET		16				15/16
Year 2 Sem				Year 2 Sem	nester 2		
Course		Туре	AU	Course		Туре	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	CB2002	Introduction to Chemical and Biological Safety	С	1
CC0006	Sustainability: Society, Economy & Environment	CC	3	PS0002	Introduction to Data Science and Artificial Intelligence	PS	3
MH2500	Probability and Introduction to Statistics (CHDA-Core 3)	BDE	4	CC0007	Science & Technology for Humanity	CC	3
XXXXXX	Care, Serve, Learn	CSL	3	MH1403	Algorithms & Computing (CHDA-Core 4)	BDE	3
			22				19
Year 3 Sem Course	ester 1	Туре	AU	Year 3 Sem Course	nester 2	Туре	AU
CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3	CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3
CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3	CM3xxx <sup>&amp;</sup>	CHEM-Core	C	3
CM3062	Chemistry & Biological Chemistry Laboratory 4	С	3	CM3061	Chemistry & Biological Chemistry Laboratory 3	С	3
	CHDA-Core 5	BDE	4	HW0218	Communication Across the Sciences	PS	2
	CHDA-Core 6	BDE	4	MH3500	Statistics (CHDA-Elective 1)	BDE	4
CM4044 <sup>+</sup>	Artificial Intelligence in Chemistry	MPE	3		CHDA-Core 7	BDE	3
MLxxxx	(MPE 1) Profession Preparation	PS	1		CHDA-Elective 2	BDE	3
			21				21
Year 4 Sem	ester 1			Year 4 Sem	nester 2		
Course		Туре	AU	Course		Туре	AU
CM4081	Professional Internship	PS	10	CM4080	Honours Project 1	MPE	10
				CM4043 <sup>+</sup>	Molecular Modelling: Principles and Applications (MPE 2)	MPE	3
					CHEM MPE 3	MPE	3
					CHEM MPE 4	MPE	3
			10		Total (AU)		19
					Lotal (ALI)		143/1

This study plan is meant as a guide.

<sup>^</sup>Counted towards 2nd major in Data Analytic requirements

<sup>&</sup>lt;sup>+</sup> Counted towards CHEM MPE

<sup>\*</sup>Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

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

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

AY2025 - 2026 Intake onwards

FYP with Professional Attachment

				Numbei	of Academic l	Jnits (AU)		
	Year of	Major Red	quirement	Interdiscip	linary Collabo	Broadening and		
Programme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve and Learn (CSL)	Deepening Electives (BDE)	Total
	1	18/19* [2]		8			6	32/33* [2]
Chemistry and	2	22 [3]		6	3	3	7	41 [3]
Biological	3	18	3 [3]		8		15	44 {3}
Chemistry	4		19 [3]				6	25 [3]
	Total	58/59* [5]	22 [6]	14	11	3	34	142/143* [11]

Category		AU	Total AU
	Common Core (University-level)		
	CC0001 Inquiry & Communication in an Interdisciplinary World	2	
	Common Core (University-level) CC0001 Inquiry & Communication in an Interdisciplinary World CC0003 Ethics & Civics in a Multi-Cultural World ML0004 Career Design & Workplace Readiness in the V.U.C.A World CC0015 Health & Wellbeing CC0006 Sustainability: Society, Economy & Environment CC0007 Science & Technology for Humanity ative Core CC)  Professional Series (College-level) HW0218 Communication Across the Sciences PS0002 Introduction to Data Science and Artificial Intelligence CM4082 Professional Attachment MLXXXX Profession Preparation  XXXXXX Care, Serve, Learn (University-level)  CHEM Core CM1001 Foundations of Chemistry I CM1002 Foundations of Chemistry II CB1102 Introduction to Chemistry, Chemical and Biomedical Engineering MH1082 Calculus for the Sciences CM1804^ Mathematics for Chemistry PH1011 Physics or PH1012* Physics A CM2011 Analytical and Bioanalytical Chemistry CM2021 Inorganic and Bioinorganic Chemistry CM2021 Inorganic and Bioinorganic Chemistry CM2031 Organic and Bioiorganic Chemistry CM2041 Physical and Biophysical Chemistry I aboratory 2 CM2061 Chemistry & Biological Chemistry I aboratory 2	2	
	ML0004 Career Design & Workplace Readiness in the V.U.C.A World	2	
	Common Core (University-level) CC0001 Inquiry & Communication in an Interdisciplinary World CC0003 Ethics & Civics in a Multi-Cultural World ML0004 Career Design & Workplace Readiness in the V.U.C.A World CC0015 Health & Wellbeing CC0006 Sustainability: Society, Economy & Environment CC0007 Science & Technology for Humanity  Totalive Core (ICC) Professional Series (College-level) HW0218 Communication Across the Sciences PS0002 Introduction to Data Science and Artificial Intelligence CM4082 Professional Attachment MLXXXX Profession Preparation  XXXXXXX Care, Serve, Learn (University-level)  CHEM Core CM1001 Foundations of Chemistry I CM1002 Foundations of Chemistry II CB1102 Introduction to Chemistry, Chemical and Biomedical Engineering MH1082 Calculus for the Sciences CM1804^ Mathematics for Chemistry PH1011 Physics or PH1012* Physics A CM2011 Analytical and Bioanalytical Chemistry CM2021 Inorganic and Bioinorganic Chemistry CM2021 Inorganic and Bioinorganic Chemistry CM2021 Inorganic and Biophysical Chemistry Laboratory 1 CM2031 Organic and Biophysical Chemistry 1 CM2062 Chemistry & Biological Chemistry Laboratory 2 Introduction to Chemical and Biological Safety Physical and Biophysical Chemistry Laboratory 2 Introduction to Computational Thinking CM3011 Chemical Spectroscopy and Applications Physical and Biophysical Chemistry Laboratory 2 CM3062 Chemistry & Biological Chemistry Laboratory 2 CM3011 Chemical Spectroscopy and Applications Physical and Biophysical Chemistry Laboratory 4 CM3031 Organic Reaction Mechanisms and Synthesis CM3021 Organic Reaction Mechanisms and Synthesis	2	14
		3	
Interdisciplinary		3	
	,		
(.00)		2	
		3	
		5	11
		1	
	INILAAAA FIOIESSIOII FIEPAI ALIOII	1	
nterdisciplinary ollaborative Core (ICC) Major Requirement	XXXXXX Care Serve Learn (University-level)	3	3
	NOVON Care, Serve, Learn (Sinversity rever)		
	CHEM Core		
		4	
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	,,	4	
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	•	3/4*	
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	, , , , , , , , , , , , , , , , , , , ,	3	
	,	3	
	, , , , , , , , , , , , , , , , , , , ,	3	
	,	3	58/59*
Major	, , , , , , , , , , , , , , , , , , , ,		36/39
Requirement	, , , ,	3	
	•	3	
		3	
		3	
	, , , , , , , , , , , , , , , , , , , ,	3	
		3	
		3	
	CM3061 Chemistry & Biological Chemistry Laboratory 3	3	
	CHEM Major Procerihed Electives (MDE)		
		10	
	•	10	22
	H A IVIF LO	12	

Total			142 - 149
BDE	Any 3 BDE	9	9
	Students are responsible to plan for their 2nd major courses		
2nd Major in Data Analytics (BDEs)	Data Analytics Electives (Read any 3)  BC2407 Analytics II: Advanced Predictive Techniques (4AU) BS3008 Computer Aided Drug Discovery (3AU) BS4017 High-Throughput Bioinformatics (3AU)  CM4043 <sup>+^</sup> Molecular Modelling: Principles and Applications (3AU)  CM4044 <sup>+^</sup> Artificial Intelligence in Chemistry (3AU) ES2001 Computational Earth Systems Science (4AU) MH3400 Algorithms for the Real World (4AU) MH3510 Regression Analysis (4AU) MH3511 Data Analysis with Computer (3AU) MH3701 Basic Optimization (4AU) MH4500 Time Series Analysis (4AU) MH4502 Theory of Computing (4AU) MH4302 Computational Economics (4AU) MH431 Sampling and Survey (4AU) MH4512 Clinical Trials (4AU) MH4702 Probabilistic Methods in OR (4AU)	9 - 12	9 - 12
	Intelligence & Data Mining (3AU) / SC4020 Data Analytics and Mining (3AU)  7) Data Visualisation/Management: BC2406 Analytics I: Visual and Predictive Techniques (4AU) / SC4023 Big Data Management (3AU) / SC4024 Data Visualization (3AU)	3 - 4	
2nd Major in Data Analytics (BDEs)	2) Linear Algebra: CM1804 Mathematics for Chemistry  3) Data Analysis/Computing: PS0001 Introduction to Computational Thinking  4) Algorithms: MH1403 Algorithms & Computing  5) Database: BC2402 Designing & Developing Databases (4AU) / EE4791 Database Systems (3AU) / SC2207 Introduction to Database (3AU)  6) Data Mining: MH4510 Statistical Learning & Data Mining (4AU) / IE4483 Artificial	NA NA 3 3 - 4	16 - 19
	Data Analytics Compulsory Courses  1) Probability and Statistics: MH2500 Probability and Introduction to Statistics	4	

<sup>^</sup>Counted towards 2nd major in Data Analytic Compulsory Course

<sup>&</sup>lt;sup>†</sup> Counted towards CHEM MPE \*Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

<sup>&</sup>amp; CM3011, CM3021. CM3031, CM3041 are offered in both semesters.

	mistry and Biological Chemistry) with 2n Study Plan for AY2025-2026 intake	d major	in Data Ana	alytics (CHDA)			
	rofessional Attachment						
Year 1 Sem Course	ester 1	Туре	AU	Year 1 Sen Course	nester 2	Туре	AU
CM1001	Foundations of Chemistry I	С	4	CM1002	Foundations of Chemistry II	C	4
MH1802	Calculus for the Sciences	C	4	CM1804^	Mathematics for Chemistry	C	2
	Introduction to Chemistry, Chemical						
CB1102	and Biomedical Engineering	С	1	PH1011/	Physics <u>or</u>	С	3
CC0001	Inquiry & Communication in an Interdisciplinary World	CC	2	PH1012*	Physics A (For students without 'A' Level Physics)	С	4
CC0015	Health & Wellbeing	CC	2	CC0003	Ethics & Civics in a Multi-Cultural World	CC	2
	BDE 1	BDE	3	ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2
HW0001	Introduction to Academic Communicat	ion #			BDE 2	BDE	3
			16				16/17*
# for studen	nts who have not cleared QET		10				10/17
Year 2 Sem	nester 1			Year 2 Sen	nester 2		
Course		Туре	AU	Course		Туре	AU
	Analytical and Bioanalytical			-			
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
PS0001^	Introduction to Computational Thinking	С	3	CB2002	Introduction to Chemical and Biological Safety	С	1
CC0006	Sustainability: Society, Economy & Environment	CC	3	PS0002	Introduction to Data Science and Artificial Intelligence	PS	3
MH2500	Probability and Introduction to Statistics (CHDA-Core 3)	BDE	4	CC0007	Science & Technology for Humanity	CC	3
XXXXXX	Care, Serve, Learn	CSL	3	MH1403	Algorithms & Computing (CHDA-Core 4)	BDE	3
			22				19
Year 3 Sem	ester 1			Year 3 Sen	nester 2		
Course		Туре	AU	Course		Туре	AU
CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3	CM3xxx <sup>&amp;</sup>	CHEM-Core	C	3
CM3xxx <sup>®</sup>	CHEM-Core	С	3	CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3
CIVISXXX	Chemistry & Biological Chemistry	C	3	CIVISXXX	Chemistry & Biological Chemistry	C	3
CM3062	Laboratory 4	С	3	CM3061	Laboratory 3	С	3
	CHDA-Core 5	BDE	4	HW0218	Communication Across the Sciences	PS	2
	CHDA-Core 6	BDE	4	MH3500	Statistics (CHDA-Elective 1)	BDE	4
CM4044 <sup>+</sup>	Artificial Intelligence in Chemistry	MPE	3		CHDA-Elective 2	BDE	3
MLxxxx	Profession Preparation	PS	1				
	·			<u>Year 3 Spe</u> CM4082	<u>cial Sem</u> Professional Attachment	PS	5
			21				23
			-1				23
Year 4 Sem	nester 1			Year 4 Sen	nester 2		
Course		Туре	AU	Course		Type	AU
CM4080	Honours Project 1	MPE	10	CM4043 <sup>+</sup>	Molecular Modelling: Principles and Applications	MPE	3
	BDE 3	BDE	3		CHEM MPE 3	MPE	3
	<b> ~ ~</b>	202	3		CHEM MPE 4	MPE	3
					CHDA-Core 7	BDE	3
			13				12
					Total (AU)		142/143*
This study r	olan is meant as a guide.						

This study plan is meant as a guide.

 $<sup>{\</sup>it ^{\Lambda}Counted\ towards\ 2nd\ major\ in\ Data\ Analytic\ Compulsory\ Course}$ 

<sup>&</sup>lt;sup>†</sup> Counted towards CHEM MPE

<sup>\*</sup>Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

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

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

AY2025 - 2026 Intake onwards with Professional Internship

				Number	of Academic l	Jnits (AU)		
	Year of	Major Red	Major Requirement		linary Collabo	Broadening and		
Programme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve and Learn (CSL)	Deepening Electives (BDE)	Total
	1	18/19* [2]		8			6	32/33* [2]
Chemistry and	2	22 [3]		6	3	3	10	44 [3]
Biological	3	18	3 [3]		3		18	42 [3]
Chemistry	4		9 [3]		10		5	24 [3]
	Total	58/59* [5]	12 [6]	14	16	3	39	142/143* [11]

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

Category	1		AU	Total AU
	Common C	Core (University-level)		
		• • • • • • • • • • • • • • • • • • • •	2	
	CC0003 Eth	nics & Civics in a Multi-Cultural World	2	
	ML0004 Ca	reer Design & Workplace Readiness in the V.U.C.A World	2	
	CC0015 He	alth & Wellbeing	2	14
	Common Core (University-level) CC0001 Inquiry & Communication in an Interdisciplinary World CC0003 Ethics & Civics in a Multi-Cultural World ML0004 Career Design & Workplace Readiness in the V.U.C.A World CC0015 Health & Wellbeing CC0006 Sustainability: Society, Economy & Environment CC0007 Science & Technology for Humanity  Professional Series (College-level) HW0218 Communication Across the Sciences PS0002 Introduction to Data Science and Artificial Intelligence CM4081 Professional Internship MLXXXX Profession Preparation  XXXXXX Care, Serve, Learn (University-level)  CHEM Core CM1001 Foundations of Chemistry I CM1002 Foundations of Chemistry II CB1102 Introduction to Chemistry, Chemical and Biomedical Engineering MH1082 Calculus for the Sciences CM1804^ Mathematics for Chemistry PH1011 Physics or PH1012* Physics A CM2011 Analytical and Bioanalytical Chemistry CM2021 Inorganic and Bioinorganic Chemistry CM2021 Inorganic and Bioinorganic Chemistry CM2061 Chemistry & Biological Chemistry Laboratory 1 CM2011 Organic and Bioorganic Chemistry CM2031 Organic and Bioorganic Chemistry CM2041 Physical and Biophysical Chemistry Laboratory 2 CM2002 Introduction to Chemical and Biological Safety PS0001^ Introduction to Chemical and Biological Safety		3	
nterdisciplinary	CC0007 Sci	ence & Technology for Humanity	3	
Collaborative				
Core (ICC)	Profession	al Series (College-level)		
	HW0218 C	ommunication Across the Sciences	2	
	PS0002 Inti	roduction to Data Science and Artificial Intelligence	3	1.5
		_	10	16
	MLXXXX Pr	ofession Preparation	1	
	XXXXXX Ca	re, Serve, Learn (University-level)	3	3
				•
	CHEM Core	2		
	CM1001	•	4	
	CM1002		4	
	CB1102	Introduction to Chemistry, Chemical and Biomedical Engineering	1	
	MH1082	Calculus for the Sciences	4	
		•	2	
	PH1011	· · · — · · · · · · · · · · · · · · · ·	3/4*	
	CM2011		3	
		· · · · · · · · · · · · · · · · · · ·	3	
	CM2061	, , , , , , , , , , , , , , , , , , , ,	3	
			3	58/59*
Major			3	30,33
Requirement	CM2062	, , , , , , , , , , , , , , , , , , , ,	3	
	CB2002	- '	1	
			3	
	CM3011 <sup>&amp;</sup>	Chemical Spectroscopy and Applications	3	
	CM3041 <sup>&amp;</sup>	Physical and Biophysical Chemistry 2	3	
	CM3062	Chemistry & Biological Chemistry Laboratory 4	3	
	CM3031 <sup>&amp;</sup>	Organic Reaction Mechanisms and Synthesis	3	
	CM3021 <sup>&amp;</sup>	Organometallic Chemistry	3	
	CM3061	Chemistry & Biological Chemistry Laboratory 3	3	
	СНЕМ Мај	or Prescribed Electives (MPE)		
	4 x MPEs		12	12

otal			142 - 149
BDE	Any 5 BDE	14	14
	Students are responsible to plan for their 2nd major courses		
	MH4702 Probabilistic Methods in OR (4AU)		
	MH4512 Clinical Trials (4AU)		
	MH4511 Sampling and Survey (4AU)		
	MH4320 Computational Economics (4AU)		
	MH4302 Theory of Computing (4AU)		
	MH4513 Survival Analysis (4AU)		
	MH3701 Basic Optimization (4AU) MH4500 Time Series Analysis (4AU)		
(BDEs)	MH3511 Data Analysis with Computer (3AU)		
Data Analytics	MH3510 Regression Analysis (4AU)	9 - 12	9 - 12
2nd Major in	MH3500 Statistics (4AU)		
	MH3400 Algorithms for the Real World (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 Computer Aided Drug Discovery (3AU)		
	Data Analytics Electives (Read any 3) BC2407 Analytics II: Advanced Predictive Techniques (4AU)		
	Date Analytics Floatings (Dood any 2)		<u> </u>
	(3AU)		
	Techniques (4AU) / SC4023 Big Data Management (3AU) / SC4024 Data Visualization	3 - 4	
	7) Data Visualisation/Management: BC2406 Analytics I: Visual and Predictive		
	Intelligence & Data Mining (3AU) / SC4020 Data Analytics and Mining (3AU)	3 - 4	
(BDEs)	6) Data Mining: MH4510 Statistical Learning & Data Mining (4AU) / IE4483 Artificial		
Data Analytics	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	
	3) Data Analysis/Computing: PS0001 Introduction to Computational Thinking	NA	
	,	NA NA	
	2) Linear Algebra: CM1804 Mathematics for Chemistry	4	
	Data Analytics Compulsory Courses  1) Probability and Statistics: MH2500 Probability and Introduction to Statistics	4	

<sup>^</sup>Counted towards 2nd major in Data Analytic Compulsory Course

<sup>&</sup>lt;sup>†</sup> Counted towards CHEM MPE

<sup>\*</sup>Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

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

-	mistry and Biological Chemistry) with 2n	d major i	in Data Ana	alytics (CHDA)			
	Study Plan for AY2025-2026 intake						
with Profes	ssional Internship						
Year 1 Sem	acetor 1			Year 1 Sen	anatar 2		
Course	lester 1	Туре	AU	Course	nester 2	Туре	AU
CM1001	Foundations of Chemistry I	С	4	CM1002	Foundations of Chemistry II	С	4
MH1802	Calculus for the Sciences	C	4	CM1804^	Mathematics for Chemistry	C	2
	Introduction to Chemistry, Chemical	_			·		_
CB1102	and Biomedical Engineering	С	1	PH1011/	Physics <u>or</u>	С	3
	Inquiry & Communication in an				Physics A (For students without 'A'		
CC0001	Interdisciplinary World	CC	2	PH1012*	Level Physics)	С	4
CC0015	Health & Wellbeing	СС	2	CC0003	Ethics & Civics in a Multi-Cultural	CC	2
CC0013	nealth & Wellbeilig	CC	2	CC0003	World	CC	2
	BDE 1	BDE	3	ML0004	Career Design & Workplace	CC	2
		552	J	2000 .	Readiness in the V.U.C.A World		
		#			BDE 2	BDE	3
HW0001	Introduction to Academic Communicat	ion"					
			16				10/17*
# 6			16				16/17*
for studer	nts who have not cleared QET						
Year 2 Sem	postor 1			Year 2 Sem	nostor 2		
Course	iestei 1	Туре	AU	Course	ilestei Z	Туре	AU
	Analytical and Bioanalytical						
CM2011	Chemistry	С	3	CM2031	Organic and Bioorganic Chemistry	С	3
C1 42024	,	•		01.100.11	81		
CM2021	Inorganic and Bioinorganic Chemistry	С	3	CM2041	Physical and Biophysical Chemistry 1	С	3
CM2061	Chemistry & Biological Chemistry	С	3	CM2062	Chemistry & Biological Chemistry	С	3
CIVIZUUI	Laboratory 1	C	3	CIVIZUUZ	Laboratory 2	C	3
PS0001^	Introduction to Computational	С	3	CB2002	Introduction to Chemical and	С	1
1 30001	Thinking	C	3	CDZOOZ	Biological Safety	Č	-
CC0006	Sustainability: Society, Economy &	CC	3	PS0002	Introduction to Data Science and	PS	3
	Environment				Artificial Intelligence		
MH2500	Probability and Introduction to	BDE	4	CC0007	Science & Technology for Humanity	CC	3
	Statistics (CHDA-Core 3)				Algorithms & Computing (CHDA-Core		
XXXXXX	Care, Serve, Learn	CSL	3	MH1403	4)	BDE	3
					BDE 3	BDE	3
			22				22
Year 3 Sem	nester 1			Year 3 Sem	nester 2		
Course		Type	AU	Course		Туре	AU
CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3	CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3
CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3	CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3
CM3062	Chemistry & Biological Chemistry	С	3	CM3061	Chemistry & Biological Chemistry	С	3
C1412002	Laboratory 4				Laboratory 3		
	CHDA-Core 5	BDE	4	HW0218	Communication Across the Sciences	PS	2
	CHDA-Core 6	BDE	4	MH3500	Statistics (CHDA-Elective 1)	BDE	4
CM4044 <sup>+</sup>	Artificial Intelligence in Chemistry	MPE	3		CHDA-Elective 2	BDE	3
MLxxxx	Profession Preparation	PS	1		BDE 4	BDE	3
			21				
			21				21
Year 4 Sem	nester 1			Year 4 Sem	nester 2		
Course	<del>-</del>	Туре	AU	Course	<del>-</del>	Туре	AU
	5.5.1.11.11				Molecular Modelling: Principles and		
CM4081	Professional Internship	PS	10	CM4043 <sup>+</sup>	Applications	MPE	3
					CHEM MPE 3	MPE	3
					CHEM MPE 4	MPE	3
					CHDA-Core 7	BDE	3
					DDF F	BDE	2
					BDE 5	DDE	
					BDE 3	BDE	
			10		Total (AU)	BUE	14 142/143*

This study plan is meant as a guide.

<sup>^</sup>Counted towards 2nd major in Data Analytic Compulsory Course

<sup>&</sup>lt;sup>†</sup> Counted towards CHEM MPE

<sup>\*</sup>Students without 'A' Level Physics will take 'PH1012 Physics A' (4AU).

 $<sup>^{\</sup>it \&}$  CM3011, CM3021. CM3031, CM3041 are offered in both semesters.