# BSc in Chemistry and Biological Chemistry (CHEM)

AY2023 - 2024 Intake onwards

with Professional Internship

			N	lumber of Aca	demic Units (Al	J)		
<b>D</b>	Year of	Major Re	quirement	Interdis	sciplinary	Broadening		
Programme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)	and Deepening Electives (BDE)	Total	
	1	17/18*		9		3	29/30*	
Chemistry and	2	21		8	3	6	38	
Biological	3	18			2	17	37	
Chemistry	4		12		10	6	28	
	Total	56/57*	12	17	15	32	132/133*	

### BSc in Chemistry and Biological Chemistry (CHEM)

Category	and Biological Chemistry (CHEM)	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	
	CC0006 Sustainability: Society, Economy & Environment	3	17
Interdisciplinary	CC0007 Science & Technology for Humanity	3	
Collaborative	ML0004 Career and Entrepreneurial Development for the Future		
Core (ICC)	World	2	
	Foundational Core (College-level)		
	HW0218 Communication Across the Sciences	2	
	PS0002 Introduction to Data Science and Artificial Intelligence	3	15
	CM4081 Professional Internship	10	
_	·	•	1
	CHEM Core		
	CM1001 Foundations of Chemistry I	4	
	CM1002 Foundations of Chemistry II	4	
	MH1802 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	FC/F7*
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 <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	
	CHEM Major Prescribed Electives (MPE)		
	4 x MPEs	12	12
Broadening and	Deepening Electives (BDE)		32
broadening and	pecherning ricentaes (ppr)		32
Total			132/133*

<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.

B Sci. (Che	mistry and Biological Chemistry)						
-	Study Plan for AY2023-2024 intake						
	sional Internship						
Year 1 Sem	ester 1			Year 1 Sen	nester 2	<b>-</b>	
Course CM1001	Foundations of Chemistry I	<b>Type</b> C	<b>AU</b> 4	Course CM1002	Foundations of Chemistry II	<b>Type</b> C	<b>AU</b> 4
MH1802	Calculus for the Sciences	С	4	CM1804	Mathematics for Chemistry	C	2
CC0001	Inquiry and Communication in the Interdisciplinary World	СС	2	PH1011/	Physics <u>or</u>	С	3
CC0002	Navigating the Digital World	СС	2	PH1012*	Physics A (For students without 'A' Level Physics)	С	4
CC0005	Healthy Living & Well-being	СС	3	CC0003	Ethics & Civics in a Multi-Cultural	CC	2
					World BDE 1	BDE	3
HW0001	Introduction to Academic Communicat	ion <sup>#</sup>					
			15				14/15*
<sup>#</sup> for studen	ts who have not cleared QET						
Year 2 Sem	nester 1			Year 2 Sen	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	PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
CC0006	Sustainability: Society, Economy & Environment	СС	3	CC0007	Science & Technology for Humanity	CC	3
ML0004	Career and Entrepreneurial  Development for the Future World	CC	2		BDE 3	BDE	3
	BDE 2	BDE	3				
			20				18
Year 3 Sem	ester 1	Tuno	AU	Year 3 Sen	nester 2	Tuno	AU
Course CM3xxx <sup>&amp;</sup>	CHEM-Core	Type	3	Course CM3xxx <sup>&amp;</sup>	CHEM-Core	<b>Type</b> C	3
CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3	CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3
	Chemistry & Biological Chemistry				Chemistry & Biological Chemistry		
CM3062	Laboratory 4	С	3	CM3061	Laboratory 3	С	3
	BDE 4	BDE	3	HW0218	Communication Across the Sciences	FC	2
	BDE 5	BDE	3		BDE 7	BDE	3
	BDE 6	BDE	3		BDE 8 BDE 9	BDE BDE	3 2
			18				19
			10				13
Year 4 Sem	ester 1			Year 4 Sen	nester 2		
Course		Type	AU	Course		Туре	AU
CM4081	Professional Internship	FC	10		CHEM MPE1	MPE	3
					CHEM MPE2	MPE	3
					CHEM MPE3 CHEM MPE4	MPE MPE	3 3
					BDE 8	BDE	3
					BDE 7	BDE	3
			10				18
			-				
					Total (AU)		132/133*

This study plan is meant as a guide.

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

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

# BSc in Chemistry and Biological Chemistry (CHEM)

AY2023 - 2024 Intake onwards

FYP with Professional Attachment

			N	umber of Acad	lemic Units (A	U)	
D.,	Year of	Major Re	quirement	Interdisciplinary		Broadening and	
Programme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)	()	
	1	17/18*		9		3	29/30*
Chemistry and	2	21		8	3	6	38
Biological	3	18			7	9	34
Chemistry	4		22			9	31
	Total	56/57*	22	17	10	27	132/133*

### BSc in Chemistry and Biological Chemistry (CHEM)

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	47
	CC0006 Sustainability: Society, Economy & Environment	3	17
nterdisciplinary	CC0007 Science & Technology for Humanity	3	
Corp (ICC)	ML0004 Career and Entrepreneurial Development for the Future	2	
Core (ICC)	World	2 2 3 3	
	Foundational Core (College-level)		
	HW0218 Communication Across the Sciences	2	10
	PS0002 Introduction to Data Science and Artificial Intelligence	3	10
	CM4082 Professional Attachment	5	
	CHEM Core		
	CM1001 Foundations of Chemistry I		
	CM1002 Foundations of Chemistry II		
	MH1802 Calculus for the Sciences		
	CM1804 Mathematics for Chemistry		
	PH1011 Physics or PH1012* Physics A		
	CM2011 Analytical and Bioanalytical Chemistry		
	CM2021 Inorganic and Bioinorganic Chemistry		
	CM2061 Chemistry & Biological Chemistry Laboratory 1		
	CM2031 Organic and Bioorganic Chemistry		56/57*
Major	CM2041 Physical and Biophysical Chemistry 1		
Requirement	CM2062 Chemistry & Biological Chemistry Laboratory 2		
•	PS0001 Introduction to Computational Thinking		
	CM3011 <sup>&amp;</sup> Chemical Spectroscopy and Applications		
	CM3041 <sup>&amp;</sup> Physical and Biophysical Chemistry 2		
	CM3062 Chemistry & Biological Chemistry Laboratory 4		
	CM3031 <sup>&amp;</sup> Organic Reaction Mechanisms and Synthesis		
	CM3021 <sup>&amp;</sup> Organometallic Chemistry	_	
	CM3061 Chemistry & Biological Chemistry Laboratory 3	3	
	CHEM Major Prescribed Electives (MPE)		
	CM4080 Honours Project 1	10	22
	4 x MPEs	12	
Proadoning and	Deananing Flortives (PDF)		27
noauening and	Deepening Electives (BDE)		21
Γotal			132/133*

<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.

B.Sci. (Che	mistry and Biological Chemistry)						
	Study Plan for AY2023-2024 intake						
FYP WITH PI	rofessional Attachment Option						
Year 1 Sem	nester 1			Year 1 Sen	nester 2		
Course CM1001	Foundations of Chemistry I	<b>Type</b> C	<b>AU</b> 4	Course CM1002	Foundations of Chemistry II	<b>Type</b> C	<b>AU</b> 4
MH1802	Calculus for the Sciences	C	4	CM1002 CM1804	Mathematics for Chemistry	C	2
CC0001	Inquiry and Communication in the Interdisciplinary World	СС	2	PH1011/	Physics <u>or</u>	С	3
CC0002	Navigating the Digital World	СС	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		BDE 2	BDE	3
HW0001	Introduction to Academic Communicat	ion #					
			18	-			14/15*
# for studer	nts who have not cleared QET						
Year 2 Sem	nester 1			Year 2 Sen	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	PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
CC0006	Sustainability: Society, Economy & Environment	СС	3	CC0007	Science & Technology for Humanity	CC	3
ML0004	Career and Entrepreneurial Development for the Future World	CC	2		BDE 3	BDE	3
			17				18
Year 3 Sem	nester 1			Year 3 Sen	nester 2		
Course		Type	AU	Course		Туре	AU
CM3xxx <sup>&amp;</sup>	CHEM-Core	C	3	CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3
CM3xxx <sup>&amp;</sup>	CHEM-Core Chemistry & Biological Chemistry	С	3	CM3xxx <sup>&amp;</sup>	CHEM-Core Chemistry & Biological Chemistry	С	3
CM3062	Laboratory 4	С	3	CM3061	Laboratory 3	С	3
	BDE 4	BDE	3	HW0218	Communication Across the Sciences	FC	2
	BDE 5	BDE	3		BDE 7	BDE	3
	BDE 6	BDE	3	Year 3 Spe	cial Sem		
				CM4082	Professional Attachment	FC	5
			18				19
Year 4 Sem	nester 1	_		Year 4 Sen	nester 2	_	
Course	CUENANADEA	Type	AU	Course	Harris Brainst 4	Type	AU
	CHEM MPE1 CHEM MPE2	MPE MPE	3 3	CM4080	Honours Project 1 BDE 9	MPE BDE	10 3
	CHEM MPE3	MPE	3		<b> ~</b>	DDL	3
	CHEM MPE4	MPE	3				
	BDE 8	BDE	3				
			15				13
			-5		Total (AU)		132/133*
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This study plan is meant as a guide.

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

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

# BSc in Chemistry and Biological Chemistry (CHEM)

AY2023 - 2024 Intake onwards

with Professional Internship and FYP

		Number of Academic Units (AU)								
Programme	Year of	Major Re	quirement	Interdisc	ciplinary	Broadening and				
	Study	Core (C)	Core (C) Major PE (MPE)		Foundational Core (FC)	Deepening Electives (BDE)	Total			
	1	17/18*		9		9	35/36*			
Chemistry and	2	21		8	3	5	37			
Biological	3	18	3		2	8	31			
Chemistry	4		19		10		29			
	Total	56/57*	22	17	15	22	132/133*			

### BSc in Chemistry and Biological Chemistry (CHEM)

Category			AU	Total AU
	Common C	Core (University-level)		
	CC0001 Inc	quiry and Communication in the Interdisciplinary World	2	
	CC0002 Na	ivigating the Digital World	2	
	CC0003 Etl	hics & Civics in a Multi-Cultural World	2	
	CC0005 He	ealthy Living & Wellbeing	3	17
	CC0006 Su	stainability: Society, Economy & Environment	3	17
nterdisciplinary	CC0007 Sc	ience & Technology for Humanity	3	
Collaborative	ML0004 Ca	areer and Entrepreneurial Development for the Future	2	
Core (ICC)	World		2	
	Foundatio	nal Core (College-level)		
	HW0218 C	ommunication Across the Sciences	2	4.5
	PS0002 Int	roduction to Data Science and Artificial Intelligence	3	15
		rofessional Internship	10	
	CHEM Cor			
	CM1001	Foundations of Chemistry I	4	
	CM1002	Foundations of Chemistry II	4	
	MH1802	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 <sup>&amp;</sup>		3	
	CM3041 <sup>&amp;</sup>		3	
	CM3062	Chemistry & Biological Chemistry Laboratory 4	3	
	CM3031 <sup>&amp;</sup>	=	3	
	CM3021 <sup>&amp;</sup>	-	3	
	CM3061	Chemistry & Biological Chemistry Laboratory 3	3	
	-	or Prescribed Electives (MPE)		
	CM4080	Honours Project 1	10	22
	4 x MPEs		12	
roadening and	Deenening	Flectives (BDF)		22
. caaciiiig aila	_ ccpciiiig			
otal				132/133*

<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) Study Plan for AY2023-2024 intake						
	ssional Internship and FYP						
ear 1 Sem	nester 1			Year 1 Sen	nester 2		
Course	iester 1	Туре	AU	Course		Type	AU
CM1001	Foundations of Chemistry I	C	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	СС	2	PH1012*	Physics A (For students without 'A' Level Physics)	С	4
CC0005	Healthy Living & Well-being	СС	3	CC0003	Ethics & Civics in a Multi-Cultural World	СС	2
	BDE 1	BDE	3		BDE 2 BDE 3	BDE BDE	3 3
HW0001	Introduction to Academic Communicati	ion #					
			18	-			17/18
	nts who have not cleared QET						
ear 2 Sem	nester 1	T		Year 2 Sen	nester 2	T	
Course	Analytical and Bioanalytical	Туре	AU	Course		Туре	AU
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	PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
CC0006	Sustainability: Society, Economy & Environment	СС	3	CC0007	Science & Technology for Humanity	СС	3
ML0004	Career and Entrepreneurial Development for the Future World	СС	2		BDE 4	BDE	2
			17				17
Year 3 Sem	nester 1			Year 3 Sen	nester 2		
Course		Туре	AU	Course		Type	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 Laboratory 4	С	3	CM3061	Chemistry & Biological Chemistry Laboratory 3	С	3
	BDE 5	BDE	2	HW0218	Communication Across the Sciences	FC	2
	BDE 6	BDE	3		CHEM MPE1	MPE	3
	BDE 7	BDE	3		BDE 8	BDE	3
			17				17
	postor 1			Voor 4 Sam	noctor 2		
loar A Sam	iestei I	Туре	AU	Year 4 Sen Course	nester 2	Туре	AU
		. 150		CM4080	Honours Project 1	MPE	10
Course	Professional Internship	FC	10			_	
Course	Professional Internship	FC	10		CHEM MPE2	MPE	3
Course	Professional Internship	FC	10		CHEM MPE2 CHEM MPE3	MPE MPE	3 3
Course	Professional Internship	FC	10				
Year 4 Sem Course CM4081	Professional Internship	FC	10		CHEM MPE3	MPE	3

This study plan is meant as a guide.

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

\*CA2021 CA40041 - These course

<sup>&</sup>lt;sup>&</sup> CM3xxx refers to CM3011, CM3021, CM3031, CM3041 - These courses are offered in both semesters