## BSc in Chemistry and Biological Chemistry (CHEM)

AY2022 - 2023 Intake onwards

with Professional Internship

		Number of Academic Units (AU)							
Drogrammo	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		9		3	29		
Chemistry and	2	21		8	3	6	38		
Biological	3	18			2	17	37		
Chemistry	4		12		10	6	28		
	Total	56	12	17	15	32	132		

## 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					
Common Core (University-level) CC0001 Inquiry and Communication in the Interdisciplinary World CC0003 Ethics & Civics in a Multi-Cultural World CC0003 Ethics & Civics in a Multi-Cultural World CC0005 Healthy Living & Wellbeing C0006 Sustainability: Society, Economy & Environment CC0007 Science & Technology for Humanity ML0004 Career and Entrepreneurial Development for the Future World  Foundational Core (College-level) HW0218 Communication Across the Sciences PS0002 Introduction to Data Science and Artificial Intelligence CM4081 Professional Internship  CHEM Core CM1001 Foundations of Chemistry I CM1002 Foundations of Chemistry II MH1802 Calculus for the Sciences MH804 Mathematics for Chemistry PH801 Foundations of Physics I CM2011 Analytical and Bioanalytical Chemistry CM2021 Inorganic and Bioinorganic Chemistry CM2021 Inorganic and Bioinorganic Chemistry CM2021 Chemistry & Biological Chemistry Laboratory 1 CM2031 Organic and Biooigical Chemistry 1 Chemistry & Biological Chemistry 2 CM3031 Chemistry & Biological Chemistry 2 CM3041 Physical and Biophysical Chemistry 2 CM3031 Organic Reaction Mechanisms and Synthesis CM3021 Organometallic Chemistry CM3061 Chemistry & Biological Chemistry Laboratory 3  CHEM Major Prescribed Electives (MPE) 4 x MPEs	Healthy Living & Wellbeing 3						
	CC0006 Sustainability: Society, Economy & Environment	3	17				
	CC0007 Science & Technology for Humanity	3					
	ML0004 Career and Entrepreneurial Development for the Future						
Core (ICC)	World	revel)  Inication in the Interdisciplinary World  Ital World  Multi-Cultural World  Elbeing  Stry, Economy & Environment  Stry, Economy & Stry, Economy  Stry, Economy & Stry  Str					
	Foundational Core (College-level)						
	HW0218 Communication Across the Sciences	2					
Interdisciplinary Collaborative Core (ICC)  Foundational C HW0218 Comm PS0002 Introdu CM4081 Profes  CHEM Core CM1001 Four CM1002 Four MH1802 Calci MH1804 Matil PH1801 Four CM2011 Anal CM2021 Inorg CM2021 Inorg CM2021 Inorg CM2031 Orga CM2041 Phys CM2031 Orga CM2041 Phys CM2062 Cher PS0001 Intro CM3011	PS0002 Introduction to Data Science and Artificial Intelligence	3	15				
	CM4081 Professional Internship	10					
	·						
	CHEM Core						
	CM1001 Foundations of Chemistry I	4					
	CM1002 Foundations of Chemistry II	4					
	MH1802 Calculus for the Sciences	4					
	MH1804 Mathematics for Chemistry	2					
	PH1801 Foundations of Physics I	3					
	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	ГC				
Major	CM2041 Physical and Biophysical Chemistry 1	3	56				
Requirement	CM2062 Chemistry & Biological Chemistry Laboratory 2	3					
	PS0001 Introduction to Computational Thinking	2 2 2 3 3 3 2 2 2 3 10 4 4 4 4 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 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				
Proadening and	Deenening Flectives (RDF)		32				
JOBUCHING BIN	שבבקבווווק בובכנויפי (שטב)		JL				
			132				

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

B.Sci. (Cher	mistry and Biological Chemistry)						
	Study Plan for AY2022-2023 intake						
with Profes	sional Internship						
Year 1 Sem	actor 1			Year 1 Sen	nactar 7		
Course	ester 1	Туре	AU	Course	iestei 2	Туре	AU
CM1001	Foundations of Chemistry I	C	4	CM1002	Foundations of Chemistry II	C	4
MH1802	Calculus for the Sciences	C	4	MH1804	Mathematics for Chemistry	C	2
CC0001	Inquiry and Communication in the	СС	2	PH1801	Foundations of Physics I	С	3
CC0001	Interdisciplinary World	CC	۷	LIITOOT	•	C	J
CC0002	Navigating the Digital World	CC	2	CC0003	Ethics & Civics in a Multi-Cultural	CC	2
CC0005	Healthy Living & Well-being	СС	3		World BDE 1	BDE	3
	Healthy Living & Wen Semig		3		501	DDL	3
HW0001	Introduction to Academic Communicati	ion*					
<u> </u>							
*for studen	ts who have not cleared QET		15				14
JUI STUGET	ts who have not cleared QL.						
Year 2 Sem	ester 1			Year 2 Sen	nester 2		
Course		Type	AU	Course		Туре	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
CN 420C1	Chemistry & Biological Chemistry	-	2	CN42062	Chemistry & Biological Chemistry	6	3
CM2061	Laboratory 1	С	3	CM2062	Laboratory 2	С	3
PS0001	Introduction to Computational	С	3	PS0002	Introduction to Data Science and	FC	3
	Thinking Sustainability: Society, Economy &				Artificial Intelligence		
CC0006	Environment	CC	3	CC0007	Science & Technology for Humanity	CC	3
	Career and Entrepreneurial		~			225	2
ML0004	Development for the Future World	CC	2		BDE 3	BDE	3
	BDE 2	BDE	3				
<del>                                     </del>			20				18
			20				10
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	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 4	BDE	3	HW0218	Communication Across the Sciences	FC	2
	BDE 5	BDE	3	11000210	BDE 7	BDE	3
	BDE 5 BDE 6	BDE	3		BDE 8	BDE	3
	BDE 0	DDL	3		BDE 9	BDE	2
			18				19
Year 4 Sem	anctor 1			Year 4 Sen	acetor 2		
Course	ester 1	Туре	AU	Course	iestei z	Туре	AU
CM4081	Professional Internship	FC	10	000.00	CHEM MPE1	MPE	3
	,				CHEM MPE2	MPE	3
					CHEM MPE3	MPE	3
					CHEM MPE4	MPE	3
					BDE 10	BDE	3
					BDE 11	BDE	3
			10				18
l					Total (AU)		132
•							

This study plan is meant as a guide.

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

## BSc in Chemistry and Biological Chemistry (CHEM)

AY2022 - 2023 Intake onwards

FYP with Professional Attachment

		Number of Academic Units (AU)								
D	Year of	Major Requirement		Interdisc	ciplinary	Broadening and				
Programme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)	Deepening Electives (BDE)	Total			
	1	17		9		3	29			
Chemistry and	2	21		8	3	3	35			
Biological	3	18			7	12	37			
Chemistry	4		22			9	31			
	Total	56	22	17	10	27	132			

BSc in Chemistry and Biological Chemistry (CHEM)

-	and Biological Chemistry (CHEM)		T =
Category	lo	AU	Total AU
Interdisciplinary Collaborative Core (ICC)	Common Core (University-level)  CC0001 Inquiry and Communication in the Interdisciplinary World  CC0002 Navigating the Digital World  CC0003 Ethics & Civics in a Multi-Cultural World  CC0005 Healthy Living & Wellbeing  CC0006 Sustainability: Society, Economy & Environment  CC0007 Science & Technology for Humanity  ML0004 Career and Entrepreneurial Development for the Future  World	2 2 2 3 3 3 2	17
	Foundational Core (College-level) HW0218 Communication Across the Sciences PS0002 Introduction to Data Science and Artificial Intelligence CM4082 Professional Attachment	2 3 5	10
Major Requirement	CHEM Core  CM1001 Foundations of Chemistry I  CM1002 Foundations of Chemistry II  MH1802 Calculus for the Sciences  MH1804 Mathematics for Chemistry  PH1801 Foundations of Physics I  CM2011 Analytical and Bioanalytical Chemistry  CM2021 Inorganic and Bioinorganic Chemistry  CM2061 Chemistry & Biological Chemistry Laboratory 1  CM2031 Organic and Biophysical Chemistry  CM2041 Physical and Biophysical Chemistry 1  CM2062 Chemistry & Biological Chemistry Laboratory 2  PS0001 Introduction to Computational Thinking  CM3011 <sup>&amp;</sup> Chemical Spectroscopy and Applications  CM3041 Physical and Biophysical Chemistry 2  CM3062 Chemistry & Biological Chemistry Laboratory 4  CM3031 Organic Reaction Mechanisms and Synthesis  CM3021 Organometallic Chemistry  CM3061 Chemistry & Biological Chemistry Laboratory 3	4 4 4 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	56
	CHEM Major Prescribed Electives (MPE) CM4080 Honours Project 1 4 x MPEs	10 12	22
			T
Broadening and	Deepening Electives (BDE)		27
Total			132

 $<sup>^{-8}</sup>$  CM3011, CM3021. CM3031, CM3041 are offered in both semesters.

-	mistry and Biological Chemistry)						
	Study Plan for AY2022-2023 intake rofessional Attachment Option						
Year 1 Sen	nester 1			Year 1 Sen	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	MH1804	Mathematics for Chemistry	С	2
CC0001	Inquiry and Communication in the Interdisciplinary World	СС	2	PH1801	Foundations of Physics I	С	3
CC0002	Navigating the Digital World	CC	2	CC0003	Ethics & Civics in a Multi-Cultural World	CC	2
CC0005	Healthy Living & Well-being	CC	3		BDE 1	BDE	3
HW0001	Introduction to Academic Communicati	ion*					
*for studer	nts who have not cleared QET		15				14
Year 2 Sen	nester 1			Year 2 Sen	nester 2		
Course		Type	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	СС	3	CC0007	Science & Technology for Humanity	СС	3
ML0004	Career and Entrepreneurial Development for the Future World	CC	2		BDE 2	BDE	3
			17				18
Year 3 Sem	nester 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	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 3	BDE	3	HW0218	Communication Across the Sciences	FC	2
	BDE 4	BDE	3		BDE 6	BDE	3
	BDE 5	BDE	3				
				<u>Year 3 Spe</u> CM4082	<u>cial Sem</u> Professional Attachment	FC	5
			18				19
Year 4 Sen	anetor 1			Year 4 Sen	nortor 3		
Year 4 Sen	iestel 1	Туре	AU	Year 4 Sen Course	iestel 2	Туре	AU
Course	CHEM MPE1	MPE	3	CM4080	Honours Project 1	MPE	10
	CHEM MPE2	MPE	3	2 1000	BDE 9	BDE	3
	CHEM MPE3	MPE	3		-		-
	CHEM MPE4	MPE	3				
	BDE 7	BDE	3				
	BDE 8	BDE	3				
			18				13
					Total (AU)		132

This study plan is meant as a guide.

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

## BSc in Chemistry and Biological Chemistry (CHEM)

AY2022 - 2023 Intake onwards

with Professional Internship and FYP

Programme		Number of Academic Units (AU)								
	Year of	Major Re	quirement	Interdisc	ciplinary	Broadening and				
riogramme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)	Deepening Electives (BDE)	Total			
	1	17		9		9	35			
Chemistry and	2	21		8	3	2	34			
Biological	3	18	3		2	11	34			
Chemistry	4		19		10		29			
1	Total	56	22	17	15	22	132			

BSc in Chemistry and Biological Chemistry (CHEM)

Category			AU	Total AU
<u> </u>	Common C	Core (University-level)		
		quiry and Communication in the Interdisciplinary World	2	
		vigating the Digital World		
		nics & Civics in a Multi-Cultural World		
		althy Living & Wellbeing		
		stainability: Society, Economy & Environment	niversity-level) ad Communication in the Interdisciplinary World g the Digital World 2 giving a Wellbeing 3 gility: Society, Economy & Environment 3 Technology for Humanity ad Entrepreneurial Development for the Future 2 e (College-level) nication Across the Sciences on to Data Science and Artificial Intelligence onal Internship 10 ations of Chemistry I ations of Chemistry II ations of Physics I ical and Bioanalytical Chemistry ations of Physics I icand Bioinorganic Chemistry stry & Biological Chemistry 1 and Biophysical Chemistry 1 and Biophysical Chemistry 1 astry & Biological Chemistry 2 auction to Computational Thinking 2 all Spectroscopy and Applications 3 all and Biophysical Chemistry Laboratory 4 3 ic Reaction Mechanisms and Synthesis 0 ometallic Chemistry 3 stry & Biological Chemistry Laboratory 3 3 icribed Electives (MPE) ars Project 1 10 12	17
Interdisciplinary				
Collaborative				
Core (ICC)	World	·	2	
	Foundatio	nal Core (College-level)		
			2	
	PS0002 Int	roduction to Data Science and Artificial Intelligence		15
		_		
		·	•	<u>'</u>
	CHEM Core	e		
	CM1001	Foundations of Chemistry I	4	
	CM1002	Foundations of Chemistry II	4	
	MH1802	Calculus for the Sciences	4	
	MH1804	•	2	
	PH1801	•	3	
	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
Major	CM2041	Physical and Biophysical Chemistry 1	3	30
Requirement	CM2062	Chemistry & Biological Chemistry Laboratory 2	3	
Requirement	PS0001	Introduction to Computational Thinking	3	
	CM3011 <sup>&amp;</sup>	Career and Entrepreneurial Development for the Future  2  ional Core (College-level)  Communication Across the Sciences Introduction to Data Science and Artificial Intelligence Professional Internship  2  Foundations of Chemistry I Foundations of Chemistry II Calculus for the Sciences Mathematics for Chemistry Foundations of Physics I Analytical and Bioanalytical Chemistry Inorganic and Bioinorganic Chemistry Schemistry & Biological Chemistry Laboratory 1 Organic and Biophysical Chemistry 1 Chemistry & Biological Chemistry 2 Chemistry & Biological Chemistry Laboratory 4 Corganic Reaction Mechanisms and Synthesis Corganometallic Chemistry Chemistry & Biological Chemistry Laboratory 3  ajor Prescribed Electives (MPE) Honours Project 1		
	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 Maj	or Prescribed Electives (MPE)		
	CM4080	Honours Project 1	10	22
	4 x MPEs		12	22
Broadening and	Deenening	Flectives (RDF)		22
n caucining and	Decperinig			
Total .				132

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

	Study Plan for AY2022-2023 intake						
-							
Year 1 Sem	nester 1	_			nester 2	_	
Course	Face delices of Changing 1				Face dell's as of Characters II	Туре	AU
CM1001 MH1802	Foundations of Chemistry I Calculus for the Sciences					C C	4 2
	Inquiry and Communication in the				•		
CC0001	Interdisciplinary World	CC	2	PH1801	Foundations of Physics I	С	3
CC0002	Navigating the Digital World	CC	2	CC0003	World	CC	2
CC0005	Healthy Living & Well-being					BDE	3
	BDE 1	BDE	3		BUE 3	BDE	3
HW0001	Introduction to Academic Communicati	ion*					
*for studer	nts who have not cleared QET		18				17
-							
Year 2 Sem Course	nester 1	Type	ΔΗ		nester 2	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	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		Туре	AU
CM3xxx <sup>&amp;</sup>	CHEM-Core	С	3		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		С	3
	Laboratory 4 BDE 5	DDE	2	LIM/0210	•	FC	2
	BDE 5	CC 2 CC0003 Ethics & Civics in a Multi-Cultural World BDE 2 BDE 3 BDE 3  On*  18  Year 2 Semester 2  Course  C 3 CM2031 Organic and Bioorganic Chemistry  C 3 CM2041 Physical and Biophysical Chemistry 1  C 3 CM2062 Chemistry & Biological Chemistry Laboratory 2 Introduction to Data Science and Artificial Intelligence  CC 3 CC0007 Science & Technology for Humanity  CC 2 BDE 4  Year 3 Semester 2  Course  CM3xxx <sup>®</sup> CHEM-Core Chemistry & Biological Chemistry COURSE  COURSE  COURSE  COURSE  COURSE  COURSE  COURSE  COURSE  CHEM-Core Chemistry & Biological Chemistry	MPE	3			
	BDE 7					BDE	3
			17				17
Year 4 Sem	nester 1				nester 2		
Course						Type	AU
CM4081	Professional Internship	FC	10	CM4080	-	MPE	10
						MPE	3
						MPE MPE	3
			10				19
					i otal (AU)		132

This study plan is meant as a guide.

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