

BSc in Chemistry and Biological Chemistry with 2nd Major in Environmental Science (CHES)								
AY2021 - 2022 Intake								
<i>FYP with Professional Attachment</i>								
Programme	Year of Study	Number of Academic Units (AU)						
		Major Requirement		Interdisciplinary		Broadening and Deepening Electives	Total	
		Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)			
Chemistry and Biological Chemistry	1	24		9		8	41	
	2	21		8	3	6	38	
	3	18			7	18	43	
	4		22			2	24	
	Total	63	22	17	10	34	146	
BSc in Chemistry and Biological Chemistry with 2nd Major in Environmental Science (CHES)								
Category							AU	Total AU
Interdisciplinary Collaborative Core (ICC)	Common Core (University-level)							
	CC0001 Inquiry and Communication in the Interdisciplinary						2	17
	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	
	CC0007 Science & Technology for Humanity						3	
	ML0004 Career and Entrepreneurial Development for the						2	
	Foundational Core (College-level)							
	HW0218 Communication Across the Sciences						2	10
PS0002 Introduction to Data Science and Artificial Intelligence						3		
CM4082 Professional Attachment						5		
Major Requirement	CHEM Core							
	CM1021	Basic Inorganic Chemistry with Laboratory				4	63	
	CM1031	Basic Organic Chemistry with Laboratory				4		
	MH1802	Calculus for the Sciences				4		
	CM1041	Basic Physical Chemistry with Laboratory				4		
	CM1051	Basic Biological Chemistry				3		
	MH1804	Mathematics for Chemistry				2		
	PH1801	Foundation of Physics 1				3		
	CM2011	Analytical Chemistry				3		
	CM2021	Inorganic and Bioinorganic Chemistry				3		
	CM2061	Chemistry & Biological Chemistry Laboratory 1				3		
	PS0001	Introduction to Computational Thinking				3		
	CM2031	Organic and Bioorganic Chemistry				3		
	CM2041	Physical and Biophysical Chemistry 1				3		
	CM2062	Chemistry & Biological Chemistry Laboratory 2				3		
	CM3011	Chemical Spectroscopy and Applications				3		
	CM3041	Physical and Biophysical Chemistry 2				3		
	CM3062	Chemistry & Biological Chemistry Laboratory 4				3		
	CM3021	Organometallic Chemistry				3		
	CM3031	Organic Reaction Mechanisms and Synthesis				3		
	CM3061	Chemistry & Biological Chemistry Laboratory 3				3		
	CHEM Major Prescribed Electives (MPE)							
CM4080	Honours Project 1				10	22		
4 x MPEs				12				

	Environmental Science Compulsory Courses		
	1) ES1001 E2S2 Environment and Society	4	
	2) ES2003 E2S2 Biosphere	4	
	3) ES3009 Introduction to Geochemistry	4	
	4) ES5001 Natural Hazards, Climate Change and Society	3	
	5) ES5006 Environmental Sustainability	3	
	Choose 4 Courses from the following list		
2nd Major in Environmental Science (CHES)	1) ES1007 Climate Change	3	30
	2) ES3801 Biogeochemistry	3	
	3) ES3802 The Urban Environment: Issue, Assessment, and Management	3	
	4) ES5002 Emergent Life	3	
	5) ES5003 Blue Planet: How the Oceans Work	3	
	6) ES5005 (ES8005) Environmental Earth Systems Science	3	
	7) ES9003 The Genome and Society	3	
	8) EM5101 (EM9101) Environmental Quality	3	
	9) EM5103 Water Resource Management	3	
	10) EM5104 (EM9104) Air Quality Management	3	
	11) EM5105 (EM9105) Energy Resources Management	3	
	12) EM 5107 (EM9107) Environmental Health and Safety Management	3	
	13) EM5109 Environmental Issues and Sustainability	3	
<i>Students are responsible to plan for their 2nd major courses</i>			
BDE	Any 2 BDE	4	4
Total			146

BSc in Chemistry and Biological Chemistry with 2nd Major in Environmental Science (CHES)**Suggested Study Plan for AY2021-2022 intake**

FYP with Professional Attachment Option

Year 1 Semester 1

Course		Type	AU
CM1021	Basic Inorganic Chemistry with Laboratory	C	4
CM1031	Basic Organic Chemistry with Laboratory	C	4
MH1802	Calculus for the Sciences	C	4
CC0001	Inquiry and Communication in an Interdisciplinary World	CC	2
CC0002	Navigating the Digital World	CC	2
ES1001	Environment and Society	BDE	4

HW0001 Introduction to Academic Communication*

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*for students who have not cleared QET

Year 2 Semester 1

Course		Type	AU
CM2011	Analytical Chemistry	C	3
CM2021	Inorganic and Bioinorganic Chemistry	C	3
CM2061	Chemistry & Biological Chemistry Laboratory 1	C	3
PS0001	Introduction to Computational Thinking	C	3
CC0006	Sustainability: Society, Economy & Environment	CC	3
CC0007	Science & Technology for Humanity	CC	3
ES5001 (ES8001)	Natural Hazards and Society	BDE	3

21**Year 3 Semester 1**

Course		Type	AU
CM3011	Chemical Spectroscopy and Applications	C	3
CM3041	Physical and Biophysical Chemistry 2	C	3
CM3062	Chemistry & Biological Chemistry Laboratory 4	C	3
ES3009	Introduction to Geochemistry	BDE	4
	ES Prescribe Elective 1	BDE	3
	Broadening and Deepening Elective 1	BDE	2

18**Year 4 Semester 1**

Course		Type	AU
CM4XXX	CHEM MPE	MPE	3
CM4XXX	CHEM MPE	MPE	3
CM4XXX	CHEM MPE	MPE	3
CM4XXX	CHEM MPE	MPE	3

12**Year 1 Semester 2**

Course		Type	AU
CM1041	Basic Physical Chemistry with Laboratory	C	4
CM1051	Basic Biological Chemistry	C	3
MH1804	Mathematics for Chemistry	C	2
PH1801	Foundation of Physics 1	C	3
CC0003	Ethics & Civics in a Multicultural World	CC	2
CC0005	Healthy Living and Wellbeing	CC	3
ES2003	E2S2 Biosphere	BDE	4

21**Year 2 Semester 2**

Course		Type	AU
CM2031	Organic and Bioorganic Chemistry	C	3
CM2041	Physical and Biophysical Chemistry 1	C	3
CM2062	Chemistry & Biological Chemistry Laboratory 2	C	3
ML0004	Career & Entrepreneurial Development for the Future World	CC	2
PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
ES5006 (ES8006)	Environmental Sustainability	BDE	3

17**Year 3 Semester 2**

Course		Type	AU
CM3021	Organometallic Chemistry	C	3
CM3031	Organic Reaction Mechanisms and Synthesis	C	3
CM3061	Chemistry & Biological Chemistry Laboratory 3	C	3
HW0218	Effective Communication 2	FC	2
	ES Prescribe Elective 2	BDE	3
	ES Prescribe Elective 3	BDE	3
	ES Prescribe Elective 4	BDE	3

Year 3 Special Sem

CM4082	Professional Attachment	FC	5
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25**Year 4 Semester 2**

Course		Type	AU
CM4080	Honours Project 1	MPE	10
	Broadening and Deepening Elective 2	BDE	2

12**Total (AU)****146**

BSc in Chemistry and Biological Chemistry with 2nd Major in Environmental Science (CHES)								
AY2021 - 2022 Intake with Professional Internship								
Programme	Year of Study	Number of Academic Units (AU)					Total	
		Major Requirement		Interdisciplinary		Broadening and Deepening Electives (BDE)		
		Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)			
Chemistry and Biological Chemistry	1	24		9		8	41	
	2	21		8	3	6	38	
	3	18			2	19	39	
	4		12		10	6	28	
	Total	63	12	17	15	39	146	
BSc in Chemistry and Biological Chemistry with 2nd Major in Environmental Science (CHES)								
Category						AU	Total AU	
Interdisciplinary Collaborative Core (ICC)	Common Core (University-level)							
	CC0001 Inquiry and Communication in the Interdisciplinary World					2	17	
	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		
	CC0007 Science & Technology for Humanity					3		
	ML0004 Career and Entrepreneurial Development for the Future World					2		
	Foundational Core (College-level)							
	HW0218 Communication Across the Sciences					2	10	
PS0002 Introduction to Data Science and Artificial Intelligence					3			
CM4082 Professional Attachment					5			
Major Requirement	CHEM Core							
	CM1021	Basic Inorganic Chemistry with Laboratory			4	63		
	CM1031	Basic Organic Chemistry with Laboratory			4			
	MH1802	Calculus for the Sciences			4			
	CM1041	Basic Physical Chemistry with Laboratory			4			
	CM1051	Basic Biological Chemistry			3			
	MH1804	Mathematics for Chemistry			2			
	PH1801	Foundation of Physics 1			3			
	CM2011	Analytical Chemistry			3			
	CM2021	Inorganic and Bioinorganic Chemistry			3			
	CM2061	Chemistry & Biological Chemistry Laboratory 1			3			
	PS0001	Introduction to Computational Thinking			3			
	CM2031	Organic and Bioorganic Chemistry			3			
	CM2041	Physical and Biophysical Chemistry 1			3			
	CM2062	Chemistry & Biological Chemistry Laboratory 2			3			
	CM3011	Chemical Spectroscopy and Applications			3			
	CM3041	Physical and Biophysical Chemistry 2			3			
	CM3062	Chemistry & Biological Chemistry Laboratory 4			3			
	CM3021	Organometallic Chemistry			3			
	CM3031	Organic Reaction Mechanisms and Synthesis			3			
	CM3061	Chemistry & Biological Chemistry Laboratory 3			3			
	CHEM Major Prescribed Electives (MPE)							
	CM4080 Honours Project 1						10	22
4 x MPEs					12			

	Environmental Science Compulsory Courses			
2nd Major in Environmental Science (CHES)	1) ES1001 E2S2 Environment and Society	4	30	
	2) ES2003 E2S2 Biosphere	4		
	3) ES3009 Introduction to Geochemistry	4		
	4) ES5001 Natural Hazards, Climate Change and Society	3		
	5) ES5006 Environmental Sustainability	3		
	Choose 4 Courses from the following list			
	1) ES1007 Climate Change	3		
	2) ES3801 Biogeochemistry	3		
	3) ES3802 The Urban Environment: Issue, Assessment, and Management	3		
	4) ES5002 Emergent Life	3		
	5) ES5003 Blue Planet: How the Oceans Work	3		
	6) ES5005 (ES8005) Environmental Earth Systems Science	3		
	7) ES9003 The Genome and Society	3		
	8) EM5101 (EM9101) Environmental Quality	3		
9) EM5103 Water Resource Management	3			
10) EM5104 (EM9104) Air Quality Management	3			
11) EM5105 (EM9105) Energy Resources Management	3			
12) EM 5107 (EM9107) Environmental Health and Safety Management	3			
13) EM5109 Environmental Issues and Sustainability	3			
<i>Students are responsible to plan for their 2nd major courses</i>				
BDE	Any 2 BDE	4	4	
Total			146	

BSc in Chemistry and Biological Chemistry with 2nd Major in Environmental Science (CHES)
Suggested Study Plan for AY2021-2022 intake
with Professional Internship
Year 1 Semester 1

Course		Type	AU
CM1021	Basic Inorganic Chemistry with Laboratory	C	4
CM1031	Basic Organic Chemistry with Laboratory	C	4
MH1802	Calculus for the Sciences	C	4
CC0001	Inquiry and Communication in an Interdisciplinary World	CC	2
CC0002	Navigating the Digital World	CC	2
ES1001	Environment and Society	BDE	4
HW0001	<i>Introduction to Academic Communication*</i>		

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**for students who have not cleared QET*
Year 2 Semester 1

Course		Type	AU
CM2011	Analytical Chemistry	C	3
CM2021	Inorganic and Bioinorganic Chemistry	C	3
CM2061	Chemistry & Biological Chemistry Laboratory 1	C	3
PS0001	Introduction to Computational Thinking	C	3
CC0006	Sustainability: Society, Economy & Environment	CC	3
CC0007	Science & Technology for Humanity	CC	3
ES5001 (ES8001)	Natural Hazards and Society	BDE	3

21
Year 3 Semester 1

Course		Type	AU
CM3011	Chemical Spectroscopy and Applications	C	3
CM3041	Physical and Biophysical Chemistry 2	C	3
CM3062	Chemistry & Biological Chemistry Laboratory 4	C	3
ES3009	Introduction to Geochemistry	BDE	4
	ES Prescribe Elective 1	BDE	3
	Broadening and Deepening Elective 1	BDE	3

19
Year 4 Semester 1

Course		Type	AU
CM4081	Professional Internship	FC	10

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Year 1 Semester 2

Course		Type	AU
CM1041	Basic Physical Chemistry with Laboratory	C	4
CM1051	Basic Biological Chemistry	C	3
MH1804	Mathematics for Chemistry	C	2
PH1801	Foundation of Physics 1	C	3
CC0003	Ethics & Civics in a Multicultural World	CC	2
CC0005	Healthy Living and Wellbeing	CC	3
ES2003	E2S2 Biosphere	BDE	4

21
Year 2 Semester 2

Course		Type	AU
CM2031	Organic and Bioorganic Chemistry	C	3
CM2041	Physical and Biophysical Chemistry 1	C	3
CM2062	Chemistry & Biological Chemistry Laboratory 2	C	3
ML0004	Career & Entrepreneurial Development for the Future World	CC	2
PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
ES5006 (ES8006)	Environmental Sustainability	BDE	3

17
Year 3 Semester 2

Course		Type	AU
CM3021	Organometallic Chemistry	C	3
CM3031	Organic Reaction Mechanisms and Synthesis	C	3
CM3061	Chemistry & Biological Chemistry Laboratory 3	C	3
HW0218	Effective Communication 2	FC	2
	ES Prescribe Elective 2	BDE	3
	ES Prescribe Elective 3	BDE	3
	ES Prescribe Elective 4	BDE	3

20
Year 4 Semester 2

Course		Type	AU
CM4XXX	CHEM MPE	MPE	3
CM4XXX	CHEM MPE	MPE	3
CM4XXX	CHEM MPE	MPE	3
CM4XXX	CHEM MPE	MPE	3
	Broadening and Deepening Elective 2	BDE	3
	Broadening and Deepening Elective 3	BDE	3

18
Total (AU)
146

BSc in Chemistry and Biological Chemistry with 2nd Major in Environmental Science (CHES)								
AY2021 - 2022 Intake with Professional Internship and FYP								
Programme	Year of Study	Number of Academic Units (AU)						
		Major Requirement		Interdisciplinary		Broadening and Deepening Electives	Total	
		Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)			
Chemistry and Biological Chemistry	1	24		9		8	41	
	2	21		8	3	6	38	
	3	18	3		2	16	39	
	4		19		10		29	
	Total	63	22	17	15	30	147	
BSc in Chemistry and Biological Chemistry with 2nd Major in Environmental Science (CHES)								
Category				AU	Total AU			
Interdisciplinary Collaborative Core (ICC)	Common Core (University-level)							
	CC0001	Inquiry and Communication in the Interdisciplinary World		2			17	
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					
CC0007	Science & Technology for Humanity		3					
ML0004	Career and Entrepreneurial Development for the Future World		2					
	Foundational Core (College-level)							
	HW0218	Communication Across the Sciences		2			15	
	PS0002	Introduction to Data Science and Artificial Intelligence		3				
	CM4081	Professional Internship		10				
Major Requirement	CHEM Core							
	CM1021	Basic Inorganic Chemistry with Laboratory		4			63	
	CM1031	Basic Organic Chemistry with Laboratory		4				
	MH1802	Calculus for the Sciences		4				
	CM1041	Basic Physical Chemistry with Laboratory		4				
	CM1051	Basic Biological Chemistry		3				
	MH1804	Mathematics for Chemistry		2				
	PH1801	Foundation of Physics 1		3				
	CM2011	Analytical Chemistry		3				
	CM2021	Inorganic and Bioinorganic Chemistry		3				
	CM2061	Chemistry & Biological Chemistry Laboratory 1		3				
	PS0001	Introduction to Computational Thinking		3				
	CM2031	Organic and Bioorganic Chemistry		3				
	CM2041	Physical and Biophysical Chemistry 1		3				
	CM2062	Chemistry & Biological Chemistry Laboratory 2		3				
	CM3011	Chemical Spectroscopy and Applications		3				
	CM3041	Physical and Biophysical Chemistry 2		3				
	CM3062	Chemistry & Biological Chemistry Laboratory 4		3				
	CM3021	Organometallic Chemistry		3				
	CM3031	Organic Reaction Mechanisms and Synthesis		3				
	CM3061	Chemistry & Biological Chemistry Laboratory 3		3				
	CHEM Major Prescribed Electives (MPE)							
	CM4080	Honours Project 1		10				22
4 x MPEs			12					

2nd Major in Environmental Science (CHES)	Environmental Science Compulsory Courses			
	1) ES1001 E2S2 Environment and Society	4	30	
	2) ES2003 E2S2 Biosphere	4		
	3) ES3009 Introduction to Geochemistry	4		
	4) ES5001 Natural Hazards, Climate Change and Society	3		
	5) ES5006 Environmental Sustainability	3		
	Choose 4 Courses from the following list			
	1) ES1007 Climate Change	3		
	2) ES3801 Biogeochemistry	3		
	3) ES3802 The Urban Environment: Issue, Assessment, and Management	3		
	4) ES5002 Emergent Life	3		
	5) ES5003 Blue Planet: How the Oceans Work	3		
	6) ES5005 (ES8005) Environmental Earth Systems Science	3		
	7) ES9003 The Genome and Society	3		
8) EM5101 (EM9101) Environmental Quality	3			
9) EM5103 Water Resource Management	3			
10) EM5104 (EM9104) Air Quality Management	3			
11) EM5105 (EM9105) Energy Resources Management	3			
12) EM 5107 (EM9107) Environmental Health and Safety Management	3			
13) EM5109 Environmental Issues and Sustainability	3			
<i>Students are responsible to plan for their 2nd major courses</i>				
Total		147		

BSc in Chemistry and Biological Chemistry with 2nd Major in Environmental Science (CHES)							
Suggested Study Plan for AY2021-2022 intake							
<i>with Professional Internship and FYP</i>							
Year 1 Semester 1			Year 1 Semester 2				
Course		Type	AU	Course	Type	AU	
CM1021	Basic Inorganic Chemistry with Laboratory	C	4	CM1041	Basic Physical Chemistry with Laboratory	C	4
CM1031	Basic Organic Chemistry with Laboratory	C	4	CM1051	Basic Biological Chemistry	C	3
MH1802	Calculus for the Sciences	C	4	MH1804	Mathematics for Chemistry	C	2
CC0001	Inquiry and Communication in an Interdisciplinary World	CC	2	PH1801	Foundation of Physics 1	C	3
CC0002	Navigating the Digital World	CC	2	CC0003	Ethics & Civics in a Multicultural World	CC	2
ES1001	Environment and Society	BDE	4	CC0005	Healthy Living and Wellbeing	CC	3
HW0001	Introduction to Academic Communication*			ES2003	E2S2 Biosphere	BDE	4
			20				21
<i>*for students who have not cleared QET</i>							
Year 2 Semester 1			Year 2 Semester 2				
Course		Type	AU	Course	Type	AU	
CM2011	Analytical Chemistry	C	3	CM2031	Organic and Bioorganic Chemistry	C	3
CM2021	Inorganic and Bioinorganic Chemistry	C	3	CM2041	Physical and Biophysical Chemistry 1	C	3
CM2061	Chemistry & Biological Chemistry Laboratory 1	C	3	CM2062	Chemistry & Biological Chemistry Laboratory 2	C	3
PS0001	Introduction to Computational Thinking	C	3	ML0004	Career & Entrepreneurial Development for the Future World	CC	2
CC0006	Sustainability: Society, Economy & Environment	CC	3	PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
CC0007	Science & Technology for Humanity	CC	3	ES5006 (ES8006)	Environmental Sustainability	BDE	3
ES5001 (ES8001)	Natural Hazards and Society	BDE	3				
			21				17
Year 3 Semester 1			Year 3 Semester 2				
Course		Type	AU	Course	Type	AU	
CM3011	Chemical Spectroscopy and Applications	C	3	CM3031	Organic Reaction Mechanisms and Synthesis	C	3
CM3021	Organometallic Chemistry	C	3	CM3061	Chemistry & Biological Chemistry Laboratory 3	C	3
CM3041	Physical and Biophysical Chemistry 2	C	3	HW0218	Effective Communication 2	FC	2
CM3062	Chemistry & Biological Chemistry Laboratory 4	C	3		ES Prescribe Elective 2	BDE	3
ES3009	Introduction to Geochemistry	BDE	4		ES Prescribe Elective 3	BDE	3
	ES Prescribe Elective 1	BDE	3		ES Prescribe Elective 4	BDE	3
			19	CM4XXX	CHEM MPE	MPE	3
						20	
Year 4 Semester 1			Year 4 Semester 2				
Course		Type	AU	Course	Type	AU	
CM4081	Professional Internship	FC	10	CM4080	Honours Project 1	MPE	10
				CM4XXX	CHEM MPE	MPE	3
				CM4XXX	CHEM MPE	MPE	3
				CM4XXX	CHEM MPE	MPE	3
			10				19
						147	
Total (AU)						147	