

BSc in Chemistry and Biological Chemistry with 2nd Major in Sustainability (CHSN)

AY2025 - 2026 Intake onwards

FYP with Professional Internship

Programme	Year of Study	Number of Academic Units (AU)						Total
		Major Requirement		Interdisciplinary Collaborative Core			Broadening and Deepening Electives (BDE)	
		Core (C)	Major PE (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve and Learn (CSL)		
Chemistry and Biological Chemistry with 2nd Major in Sustainability	1	18/19*		8			9	35/36*
	2	22		6	3	3	6	40
	3	18	6		3		12	39
	4		16		10		3	29
	Total	58/59*	22	14	16	3	30	143/144*

BSc in Chemistry and Biological Chemistry with 2nd Major in Sustainability (CHSN)

Category		AU	Total AU
Interdisciplinary Collaborative Core (ICC)	Common Core (University-level)		
	CC0001 Inquiry & Communication in an Interdisciplinary World	2	14
	CC0003 Ethics & Civics in a Multi-Cultural World	2	
	ML0004 Career Design & Workplace Readiness in the V.U.C.A World	2	
	CC0015 Health & Wellbeing	2	
	CC0006 Sustainability: Society, Economy & Environment	3	
	CC0007 Science & Technology for Humanity	3	
	Professional Series (College-level)		
	HW0218 Communication Across the Sciences	2	16
	PS0002 Introduction to Data Science and Artificial Intelligence	3	
	CM4081 Professional Internship	10	
	MLXXXX Profession Preparation	1	
	XXXXXX Care, Serve, Learn (University-level)	3	3
Major Requirement	CHEM Core		
	CM1001 Foundations of Chemistry I	4	58/59*
	CM1002 Foundations of Chemistry II	4	
	CB1102 Introduction to Chemistry, Chemical and Biomedical Engineering	1	
	MH1802 Calculus for the Sciences	4	
	CM1804 Mathematics for Chemistry	2	
	PH1011 Physics <u>or</u> PH1012* Physics A	3/4*	
	CM2021 Inorganic and Bioinorganic Chemistry	3	
	CM2011 Analytical 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	
	CB2002 Introduction to Chemical and Biological Safety	1	
	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	

2nd Major in Sustainability	Sustainability Compulsory Courses <i>Choose 1 Course from EACH of the 5 Knowledge Area</i> 1) PEOPLE EM5109 Environmental Issue & Sustainability (3AU) ES5006 Environmental Sustainability (3AU) HV5001 Introduction to Environmental Humanities (3AU) 2) Planet ES5001 Natural Hazards and Society (3AU) ES5005 Environmental Earth System Science (3AU) ES5007 Climate and Climate Change (3AU) 3) Profit AB0603 Social Entrepreneurship (3AU) HE5091 Principles of Economics (3AU) 4) Practice EM5103 Water Resources Management (3AU) EM5104 Air Quality Management (3AU) EG1001 Engineers in Society (2AU) BM2517 Marketing Sustainability for the Next Generation (3AU) 5) Policy HU1002 Introduction to Urban Planning (3AU) HA1001 Introduction to International Relations and Foreign Policy (3AU) HA1003 Introduction to Public Administration and Public Policy (3AU) Interdisciplinary Project	14 - 15	30
	Sustainability Electives Choose 3- 4 courses from the list of electives (min. 12 AUs) https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00	12 - 13	
		3	
Total		143/144*	

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

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

BSc in Chemistry and Biological Chemistry with 2nd Major in Sustainability (CHSN)			
Suggested Study Plan for AY2025-2026 intake			
FYP with Professional Internship			
Year 1 Semester 1			
Course		Type	AU
CM1001	Foundations of Chemistry I	C	4
MH1802	Calculus for the Sciences	C	4
CB1102	Introduction to Chemistry, Chemical and Biomedical Engineering	C	1
CC0001	Inquiry & Communication in an Interdisciplinary World	CC	2
CC0015	Health & Wellbeing	CC	2
	SN Compulsory 1	BDE	3
HW0001	Introduction to Academic Communication [#]		
			16
[#] for students who have not cleared QET			
Year 2 Semester 1			
Course		Type	AU
CM2011	Analytical and Bioanalytical 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
	SN Compulsory 3	BDE	3
XXXXXX	Care, Serve, Learn	CSL	3
			21
Year 3 Semester 1			
Course		Type	AU
CM3xxx ^{&}	CHEM-Core	C	3
CM3xxx ^{&}	CHEM-Core	C	3
CM3062	Chemistry & Biological Chemistry Laboratory 4	C	3
MLxxxx	Profession Preparation	PS	1
	SN Compulsory 5	BDE	3
	SN Elective 2	BDE	3
	SN Elective 3	BDE	3
			19
Year 4 Semester 1			
Course		Type	AU
CM4081	Professional Internship	PS	10
			10
Year 1 Semester 2			
Course		Type	AU
CM1002	Foundations of Chemistry II	C	4
CM1804	Mathematics for Chemistry	C	2
PH1011/	Physics <u>or</u>	C	3
PH1012*	Physics A (For students without 'A' Level Physics)	C	4
CC0003	Ethics & Civics in a Multi-Cultural World	CC	2
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2
	SN Compulsory 2	BDE	3
	SN Elective 1	BDE	3
			19/20*
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
CB2002	Introduction to Chemical and Biological Safety	C	1
PS0002	Introduction to Data Science and Artificial Intelligence	PS	3
CC0007	Science & Technology for Humanity	CC	3
	SN Compulsory 4	BDE	3
			19
Year 3 Semester 2			
Course		Type	AU
CM3xxx ^{&}	CHEM-Core	C	3
CM3xxx ^{&}	CHEM-Core	C	3
CM3061	Chemistry & Biological Chemistry Laboratory 3	C	3
	SN Elective 4	BDE	3
HW0218	Communication Across the Sciences	PS	2
	CHEM MPE 1	MPE	3
	CHEM MPE 2	MPE	3
			20
Year 4 Semester 2			
Course		Type	AU
CM4080	Honours Project 1	MPE	10
	CHEM MPE 3	MPE	3
	CHEM MPE 4	MPE	3
	Interdisciplinary Project	BDE	3
			19
Total (AU)			143/144*

This study plan is meant as a guide.

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

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

BSc in Chemistry and Biological Chemistry with 2nd Major in Sustainability (CHSN)								
AY2025 - 2026 Intake onwards								
FYP with Professional Attachment								
Programme	Year of Study	Number of Academic Units (AU)						
		Major Requirement		Interdisciplinary Collaborative Core			Broadening and Deepening Electives (BDE)	Total
		Core (C)	Major PE (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve and Learn (CSL)		
Chemistry and Biological Chemistry with 2nd Major in Sustainability	1	18/19*		8			9	35/36*
	2	22		6	3	3	6	40
	3	18			8		13	39
	4		22				3	25
	Total	58/59*	22	14	11	3	31	139/140*
BSc in Chemistry and Biological Chemistry with 2nd Major in Sustainability (CHSN)								
Category							AU	Total AU
Interdisciplinary Collaborative Core (ICC)	Common Core (University-level)							
	CC0001 Inquiry & Communication in an Interdisciplinary World						2	14
	CC0003 Ethics & Civics in a Multi-Cultural World						2	
	ML0004 Career Design & Workplace Readiness in the V.U.C.A World						2	
	CC0015 Health & Wellbeing						2	
	CC0006 Sustainability: Society, Economy & Environment						3	
	CC0007 Science & Technology for Humanity						3	
	Professional Series (College-level)							
	HW0218 Communication Across the Sciences						2	11
	PS0002 Introduction to Data Science and Artificial Intelligence						3	
	CM4082 Professional Attachment						5	
	MLXXXX Profession Preparation						1	
XXXXXX Care, Serve, Learn (University-level)						3	3	
Major Requirement	CHEM Core							
	CM1001 Foundations of Chemistry I						4	58/59*
	CM1002 Foundations of Chemistry II						4	
	CB1102 Introduction to Chemistry, Chemical and Biomedical Engineering						1	
	MH1802 Calculus for the Sciences						4	
	CM1804 Mathematics for Chemistry						2	
	PH1011 Physics or PH1012* Physics A						3/4*	
	CM2021 Inorganic and Bioinorganic Chemistry						3	
	CM2011 Analytical 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	
	CB2002 Introduction to Chemical and Biological Safety						1	
	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	

2nd Major in Sustainability	Sustainability Compulsory Courses <i>Choose 1 Course from EACH of the 5 Knowledge Area</i> 1) People EM5109 Environmental Issue & Sustainability (3AU) ES5006 Environmental Sustainability (3AU) HV5001 Introduction to Environmental Humanities (3AU) 2) Planet ES5001 Natural Hazards and Society (3AU) ES5005 Environmental Earth System Science (3AU) ES5007 Climate and Climate Change (3AU) 3) Profit AB0603 Social Entrepreneurship (3AU) HE5091 Principles of Economics (3AU) 4) Practice EM5103 Water Resources Management (3AU) EM5104 Air Quality Management (3AU) EG1001 Engineers in Society (2AU) BM2517 Marketing Sustainability for the Next Generation (3AU) 5) Policy HU1002 Introduction to Urban Planning (3AU) HA1001 Introduction to International Relations and Foreign Policy (3AU) HA1003 Introduction to Public Administration and Public Policy (3AU) Interdisciplinary Project Sustainability Electives Choose 3- 4 courses from the list of electives (min. 12 AUs) https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00	14 - 15	30
<i>Students are responsible to plan for their 2nd major courses</i>			
BDE	Any 1 BDE	1	1
Total		139/140*	

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

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

BSc in Chemistry and Biological Chemistry with 2nd Major in Sustainability (CHSN)									
Suggested Study Plan for AY2025-2026 intake									
FYP with Professional Attachment									
Year 1 Semester 1					Year 1 Semester 2				
Course		Type	AU		Course		Type	AU	
CM1001	Foundations of Chemistry I	C	4		CM1002	Foundations of Chemistry II	C	4	
MH1802	Calculus for the Sciences	C	4		CM1804	Mathematics for Chemistry	C	2	
CB1102	Introduction to Chemistry, Chemical and Biomedical Engineering	C	1		PH1011/	Physics <u>or</u>	C	3	
CC0001	Inquiry & Communication in an Interdisciplinary World	CC	2		PH1012*	Physics A (<i>For students without 'A' Level Physics</i>)	C	4	
CC0015	Health & Wellbeing	CC	2		CC0003	Ethics & Civics in a Multi-Cultural World	CC	2	
	SN Compulsory 1	BDE	3		ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	
HW0001	Introduction to Academic Communication [#]					SN Compulsory 2	BDE	3	
						SN Elective 1	BDE	3	
			16					19/20*	
[#] for students who have not cleared QET									
Year 2 Semester 1					Year 2 Semester 2				
Course		Type	AU		Course		Type	AU	
CM2011	Analytical and Bioanalytical 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		CB2002	Introduction to Chemical and Biological Safety	C	1	
CC0006	Sustainability: Society, Economy & Environment	CC	3		PS0002	Introduction to Data Science and Artificial Intelligence	PS	3	
	SN Compulsory 3	BDE	3		CC0007	Science & Technology for Humanity	CC	3	
XXXXXX	Care, Serve, Learn	CSL	3			SN Compulsory 4	BDE	3	
			21					19	
Year 3 Semester 1					Year 3 Semester 2				
Course		Type	AU		Course		Type	AU	
CM3xxx ^{&}	CHEM-Core	C	3		CM3xxx ^{&}	CHEM-Core	C	3	
CM3xxx ^{&}	CHEM-Core	C	3		CM3xxx ^{&}	CHEM-Core	C	3	
CM3062	Chemistry & Biological Chemistry Laboratory 4	C	3		CM3061	Chemistry & Biological Chemistry Laboratory 3	C	3	
MLxxxx	Profession Preparation	PS	1			SN Elective 4	BDE	3	
	SN Elective 2	BDE	3		HW0218	Communication Across the Sciences	PS	2	
	SN Elective 3	BDE	3			BDE	BDE	1	
	SN Compulsory 5	BDE	3						
					<u>Year 3 Special Sem</u>				
			19		CM4082	Professional Attachment	PS	5	
			19					20	
Year 4 Semester 1					Year 4 Semester 2				
Course		Type	AU		Course		Type	AU	
	CHEM MPE 1	MPE	3		CM4080	Honours Project 1	MPE	10	
	CHEM MPE 2	MPE	3			Interdisciplinary Project	BDE	3	
	CHEM MPE 3	MPE	3						
	CHEM MPE 4	MPE	3						
			12					13	
							Total (AU)		139/140*

This study plan is meant as a guide.

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

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

AY2025 - 2026 Intake onwards
with Professional Internship

BSc in Chemistry and Biological Chemistry with 2nd Major in Sustainability (CHSN)

Major Requirement	CHEM Core			
	CM1001	Foundations of Chemistry I	4	58/59*
	CM1002	Foundations of Chemistry II	4	
	CB1102	Introduction to Chemistry, Chemical and Biomedical Engineering	1	
	MH1802	Calculus for the Sciences	4	
	CM1804	Mathematics for Chemistry	2	
	PH1011	Physics <u>or</u> PH1012* Physics A	3/4*	
	CM2021	Inorganic and Bioinorganic Chemistry	3	
	CM2011	Analytical 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	
	CB2002	Introduction to Chemical and Biological Safety	1	
	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)				
4 x MPEs			12	

2nd Major in Sustainability	Sustainability Compulsory Courses <i>Choose 1 Course from EACH of the 5 Knowledge Area</i> 1) PEOPLE EM5109 Environmental Issue & Sustainability (3AU) ES5006 Environmental Sustainability (3AU) HV5001 Introduction to Environmental Humanities (3AU) 2) Planet ES5001 Natural Hazards and Society (3AU) ES5005 Environmental Earth System Science (3AU) ES5007 Climate and Climate Change (3AU) 3) Profit AB0603 Social Entrepreneurship (3AU) HE5091 Principles of Economics (3AU) 4) Practice EM5103 Water Resources Management (3AU) EM5104 Air Quality Management (3AU) EG1001 Engineers in Society (2AU) BM2517 Marketing Sustainability for the Next Generation (3AU) 5) Policy HU1002 Introduction to Urban Planning (3AU) HA1001 Introduction to International Relations and Foreign Policy (3AU) HA1003 Introduction to Public Administration and Public Policy (3AU) Interdisciplinary Project Sustainability Electives Choose 3- 4 courses from the list of electives (min. 12 AUs) https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00	14 - 15	30		
		3			
		12 - 13			
	<i>Students are responsible to plan for their 2nd major courses</i>				
	BDE	Any 3 BDE		6	6
	Total				
				139/140*	

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

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

BSc in Chemistry and Biological Chemistry with 2nd Major in Sustainability (CHSN)									
Suggested Study Plan for AY2025-2026 intake									
with Professional Internship									
Year 1 Semester 1					Year 1 Semester 2				
Course		Type	AU		Course		Type	AU	
CM1001	Foundations of Chemistry I	C	4		CM1002	Foundations of Chemistry II	C	4	
MH1802	Calculus for the Sciences	C	4		CM1804	Mathematics for Chemistry	C	2	
CB1102	Introduction to Chemistry, Chemical and Biomedical Engineering	C	1		PH1011/	Physics <u>or</u>	C	3	
CC0001	Inquiry & Communication in an Interdisciplinary World	CC	2		PH1012*	Physics A (<i>For students without 'A' Level Physics</i>)	C	4	
CC0015	Health & Wellbeing	CC	2		CC0003	Ethics & Civics in a Multi-Cultural World	CC	2	
	SN Compulsory 1	BDE	3		ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	
						SN Compulsory 2	BDE	3	
HW0001	Introduction to Academic Communication [#]					SN Elective 1	BDE	3	
			16					19/20*	
[#] for students who have not cleared QET									
Year 2 Semester 1					Year 2 Semester 2				
Course		Type	AU		Course		Type	AU	
CM2011	Analytical and Bioanalytical 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		CB2002	Introduction to Chemical and Biological Safety	C	1	
CC0006	Sustainability: Society, Economy & Environment	CC	3		PS0002	Introduction to Data Science and Artificial Intelligence	PS	3	
	SN Compulsory 3	BDE	3		CC0007	Science & Technology for Humanity	CC	3	
XXXXXX	Care, Serve, Learn	CSL	3			SN Compulsory 4	BDE	3	
			21					19	
Year 3 Semester 1					Year 3 Semester 2				
Course		Type	AU		Course		Type	AU	
CM3xxx ^{&}	CHEM-Core	C	3		CM3xxx ^{&}	CHEM-Core	C	3	
CM3xxx ^{&}	CHEM-Core	C	3		CM3xxx ^{&}	CHEM-Core	C	3	
CM3062	Chemistry & Biological Chemistry Laboratory 4	C	3		CM3061	Chemistry & Biological Chemistry Laboratory 3	C	3	
MLxxxx	Profession Preparation	PS	1			SN Elective 4	BDE	3	
	SN Elective 2	BDE	3		HW0218	Communication Across the Sciences	PS	2	
	SN Elective 3	BDE	3			BDE 1	BDE	3	
	SN Compulsory 5	BDE	3			BDE 2	BDE	3	
			19					20	
Year 4 Semester 1					Year 4 Semester 2				
Course		Type	AU		Course		Type	AU	
CM4081	Professional Internship	PS	10			CHEM MPE 1	MPE	3	
						CHEM MPE 2	MPE	3	
						CHEM MPE 3	MPE	3	
						CHEM MPE 4	MPE	3	
						Interdisciplinary Project	BDE	3	
			10					15	
Total (AU)								139/140*	

This study plan is meant as a guide.

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

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