

BSc in Chemistry and Biological Chemistry with 2nd Major in Food Science and Technology (CHFS)

AY2021 - 2022 Intake

FYP with Professional Attachment

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		11			35
	2	21		6	3	8	38
	3	18			7	18	43
	4		22			8	30
	Total	63	22	17	10	34	146

BSc in Chemistry and Biological Chemistry with 2nd Major in Food Science and Technology (FST)

Category	AU	Total AU
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		

2nd Major in Food Science and Technology (FST)	Food Science and Technology Compulsory Courses			
	1) CH9201 Food Chemistry		5	30
	2) CH9200 Food Microbiology		3	
	3) CH9203 Food Process Engineering		5	
	4) CH9202 Food Physics		3	
	5) CH9204 Quality Systems Operations		2	
	6) NTU-FST MPE x 4		12	
BDE	Any 2 BDE	4	4	
Total			146	

BSc in Chemistry and Biological Chemistry with 2nd Major in Food Science and Technology (CHFS)							
Suggested Study Plan for AY2021-2022 intake							
<i>FYP with Professional Attachment Option</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
CC0005	Healthy Living and Wellbeing	CC	3	ML0004	Career & Entrepreneurial Development for the Future World	CC	2
HW0001	<i>Introduction to Academic Communication*</i>						
			19				16
<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	CC0007	Science & Technology for Humanity	CC	3
CC0006	Sustainability: Society, Economy & Environment	CC	3	PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
CH9201	Food Chemistry	BDE	5	CH9200	Food Microbiology	BDE	3
			20				18
Year 3 Semester 1				Year 3 Semester 2			
Course		Type	AU	Course		Type	AU
CM3011	Chemical Spectroscopy and Applications	C	3	CM3021	Organometallic Chemistry	C	3
CM3041	Physical and Biophysical Chemistry 2	C	3	CM3031	Organic Reaction Mechanisms and Synthesis	C	3
CM3062	Chemistry & Biological Chemistry Laboratory 4	C	3	CM3061	Chemistry & Biological Chemistry Laboratory 3	C	3
CH9203	Food Process Engineering	BDE	5	HW0218	Effective Communication 2	FC	2
	NTU-FST Prescribed Elective	BDE	3	CH9202	Food Physics	BDE	3
	Broadening and Deepening Elective 1	BDE	2	CH9204	Quality Systems Operations	BDE	2
					NTU-FST Prescribed Elective	BDE	3
			19				24
Year 3 Special Sem							
	CM4082	Professional Attachment			FC		5
Year 4 Semester 1				Year 4 Semester 2			
Course		Type	AU	Course		Type	AU
CM4XXX	CHEM MPE	MPE	3	CM4080	Honours Project 1	MPE	10
CM4XXX	CHEM MPE	MPE	3		Broadening and Deepening Electives 2	BDE	2
CM4XXX	CHEM MPE	MPE	3				
CM4XXX	CHEM MPE	MPE	3				
	NTU-FST Prescribed Elective	BDE	3				
	NTU-FST Prescribed Elective	BDE	3				
			18				12
Total (AU)							146

BSc in Chemistry and Biological Chemistry with 2nd Major in Food Science and Technology (CHFS)							
AY2021 - 2022 Intake with Professional Internship							
Programme	Year of Study	Number of Academic Units (AU)					
		Major Requirement		Interdisciplinary		Broadening and Deepening Electives (BDE)	Total
		Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)		
Chemistry and Biological Chemistry	1	24		11		6	41
	2	21		6	3	8	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 Food Science and Technology (FST)							
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					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)							
4 x MPEs					12	12	

	Food Science and Technology Compulsory Courses		
2nd Major in Food Science and Technology (FST)	1) CH9201 Food Chemistry	5	30
	2) CH9200 Food Microbiology	3	
	3) CH9203 Food Process Engineering	5	
	4) CH9202 Food Physics	3	
	5) CH9204 Quality Systems Operations	2	
	6) NTU-FST MPE x 4	12	
BDE	Any 3 BDE	9	9
Total			146

BSc in Chemistry and Biological Chemistry with 2nd Major in Food Science and Technology (CHFS)
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
CC0005	Healthy Living and Wellbeing	CC	3
HW0001	Introduction to Academic Communication*		

19
**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
CH9201	Food Chemistry	BDE	5

20
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
CH9203	Food Process Engineering	BDE	5
	NTU-FST Prescribed Elective	BDE	3
	Broadening and Deepening Elective 3	BDE	3

20
Year 4 Semester 1

Course		Type	AU
CM4081	Professional Internship	FC	10

10
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
ML0004	Career & Entrepreneurial Development for the Future World	CC	2
	Broadening and Deepening Elective 1	BDE	3
	Broadening and Deepening Elective 2	BDE	3

22
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
CC0007	Science & Technology for Humanity	CC	3
PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
CH9200	Food Microbiology	BDE	3

18
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
CH9202	Food Physics	BDE	3
CH9204	Quality Systems Operations	BDE	2
	NTU-FST Prescribed Elective	BDE	3

19
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
	NTU-FST Prescribed Elective	BDE	3
	NTU-FST Prescribed Elective	BDE	3

18
Total (AU)
146

BSc in Chemistry and Biological Chemistry with 2nd Major in Food Science and Technology (CHFS)								
AY2021 - 2022 Intake								
<i>with Professional Internship and FYP</i>								
Programme	Year of Study	Number of Academic Units (AU)						
		Major Requirement		Interdisciplinary		Broadening and Deepening Electives (BDE)	Total	
		Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)			
Chemistry and Biological Chemistry	1	24		11			35	
	2	21		6	3	8	38	
	3	18	3		2	19	42	
	4		19		10	3	32	
	Total	63	22	17	15	30	147	
BSc in Chemistry and Biological Chemistry with 2nd Major in Food Science and Technology (FST)								
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	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		

Food Science and Technology Compulsory Courses			
2nd Major in Food Science and Technology (FST)	1) CH9201 Food Chemistry	5	30
	2) CH9200 Food Microbiology	3	
	3) CH9203 Food Process Engineering	5	
	4) CH9202 Food Physics	3	
	5) CH9204 Quality Systems Operations	2	
	6) NTU-FST MPE x 4	12	
Total			147

BSc in Chemistry and Biological Chemistry with 2nd Major in Food Science and Technology (CHFS)							
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
CC0005	Healthy Living and Wellbeing	CC	3	ML0004	Career & Entrepreneurial Development for the Future World	CC	2
HW0001	<i>Introduction to Academic Communication*</i>						
			19				16
<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	CC0007	Science & Technology for Humanity	CC	3
CC0006	Sustainability: Society, Economy & Environment	CC	3	PS0002	Introduction to Data Science and Artificial Intelligence	FC	3
CH9201	Food Chemistry	BDE	5	CH9200	Food Microbiology	BDE	3
			20				18
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	CH9202	Food Physics	BDE	3
CH9203	Food Process Engineering	BDE	5	CH9204	Quality Systems Operations	BDE	2
	NTU-FST Prescribed Elective	BDE	3	CM4XXX	CHEM MPE	MPE	3
					NTU-FST Prescribed Elective	BDE	3
					NTU-FST Prescribed Elective	BDE	3
			20				22
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
					NTU-FST Prescribed Elective	BDE	3
			10				22
						Total (AU)	147