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

AY2021 - 2022 Intake

FYP with Professional Attachment

		Number of Academic Units (AU)								
Programme	Year of	Major Requirement			sciplinary	Broadening				
riogramme	Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)	and Deepening Electives (BDE)	Total			
	1	24		11			35			
Chemistry and	2	21		6	3	8	38			
Biological	3	18			7	18	43			
Chemistry	4		22			8	30			
	Total	63	22	17	10	34	146			

BSc in Chemistry	and Biolog	ical Chemistry with 2nd Major in Food Science and Tech	nology (FST)	
Category			AU	Total AU
	Common C	ore (University-level)		
	CC0001 Inc	uiry and Communication in the Interdisciplinary World	2	
	CC0002 Na	vigating the Digital World	2	
	CC0003 Eth	nics & Civics in a Multi-Cultural World	2	
	CC0005 He	althy Living & Wellbeing	3	17
		stainability: Society, Economy & Environment	3	
Interdisciplinary	CC0007 Sci	ence & Technology for Humanity	3	
Collaborative	ML0004 Ca	reer and Entrepreneurial Development for the Future		
Core (ICC)	World	2		
			•	
	Foundation	nal Core (College-level)		
	HW0218 C	ommunication Across the Sciences	2	
				10
	PS0002 Int	roduction to Data Science and Artificial Intelligence	3	10
	CM4082 Pr	ofessional Attachment	5	
	CHEM Core			
	CM1021	Basic Inorganic Chemistry with Laboratory	4	
	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	63
Major	PS0001	Introduction to Computational Thinking	3	
Requirement	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	
	-	or Prescribed Electives (MPE)		
	CM4080	Honours Project 1	10	22
	4 x MPEs		12	

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

Suggested	mistry and Biological Chemistry with 2nd N Study Plan for AY2021-2022 intake rofessional Attachment Option	lajor in Fo	ood Science a	and Technology (CHFS)		
Year 1 Sem		_		Year 1 Sen	nester 2	_	
Course	Basic Inorganic Chemistry with	Туре	AU	Course		Туре	AU
CM1021	Laboratory	С	4	CM1041	Basic Physical Chemistry with Laboratory	С	4
CM1031	Basic Organic Chemistry with Laboratory	С	4	CM1051	Basic Biological Chemistry	С	3
MH1802	Calculus for the Sciences	С	4	MH1804	Mathematics for Chemistry	С	2
CC0001	Inquiry and Communication in an	СС	2	PH1801	Foundation of Physics 1	С	3
CC0002	Interdisciplinary World Navigating the Digital World	CC	2	CC0003	Ethics & Civics in a Multicultural World	CC	2
					Career & Entrepreneurial Development		
CC0005	Healthy Living and Wellbeing	CC	3	ML0004	for the Future World	CC	2
HW0001	Introduction to Academic Communication)*	19				16
*for studer	nts who have not cleared QET		19				10
Year 2 Sem	nester 1			Year 2 Sen	nester 2		
Course	A 11: 101	Туре	AU	Course	0 . 18:	Туре	AU
CM2011 CM2021	Analytical Chemistry Inorganic and Bioinorganic Chemistry	C C	3 3	CM2031 CM2041	Organic and Bioorganic Chemistry Physical and Biophysical Chemistry 1	C C	3 3
CM2061	Chemistry & Biological Chemistry Laboratory 1	С	3	CM2062	Chemistry & Biological Chemistry Laboratory 2	С	3
PS0001	Introduction to Computational Thinking	С	3	CC0007	Science & Technology for Humanity	CC	3
CC0006	Sustainability: Society, Economy & Environment	СС	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 Sem Course	nester 1	Туре	AU	Year 3 Sen Course	nester 2	Туре	AU
CM3011	Chemical Spectroscopy and Applications	C	3	CM3021	Organometallic Chemistry	C	3
CM3041	Physical and Biophysical Chemistry 2	С	3	CM3031	Organic Reaction Mechanisms and	С	3
CM3062	Chemistry & Biological Chemistry	С	3	CM3061	Synthesis Chemistry & Biological Chemistry	С	3
	Laboratory 4				Laboratory 3		
CH9203	Food Process Engineering NTU-FST Prescribed Elective	BDE BDE	5 3	HW0218 CH9202	Effective Communication 2 Food Physics	FC BDE	2 3
	Broadening and Deepening Elective 1	BDE	2	CH9204	Quality Systems Operations	BDE	2
					NTU-FST Prescribed Elective	BDE	3
				<u>Year 3 Spe</u> CM4082	r <mark>cial Sem</mark> Professional Attachment	FC	5
			19				24
Year 4 Sem	nester 1			Year 4 Sen	nester 2		
Course	CHEMANDE	Type	AU	Course	Hanaura Drainet 1	Type	AU
CM4XXX CM4XXX	CHEM MPE CHEM MPE	MPE MPE	3 3	CM4080	Honours Project 1 Broadening and Deepening Electives 2	MPE BDE	10 2
CM4XXX	CHEM MPE	MPE	3		5. Sauching and Deepening Lieutives 2	DDL	۷
CM4XXX	CHEM MPE	MPE	3				
	NTU-FST Prescribed Elective	BDE	3				
	NTU-FST Prescribed Elective	BDE	3				
			18		T : 1/AU)		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

		Number of Academic Units (AU)							
Programme	V	Major Requirement		Interdis	ciplinary				
	Year of Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)	Broadening and Deepening Electives (BDE)	Total		
	1	24		11		6	41		
Chemistry and	2	21		6	3	8	38		
Biological	3	18			2	19	39		
Chemistry	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
	Common C	Core (University-level)		
	CC0001 Ind	quiry and Communication in the Interdisciplinary World	2	
	CC0002 Na	avigating the Digital World	2	
	CC0003 Etl	hics & Civics in a Multi-Cultural World	2	
	CC0005 He	ealthy Living & Wellbeing	3	17
Interdisciplinary	CC0006 Su	stainability: Society, Economy & Environment	3	
Collaborative	CC0007 Sc	ience & Technology for Humanity	3	
Core (ICC)	ML0004 Ca	areer and Entrepreneurial Development for the Future	2	
core (icc)				
		10 /0 !! 1 !!		
		nal Core (College-level)	2	
		Communication Across the Sciences	2	15
		roduction to Data Science and Artificial Intelligence	3	
	CM4081 P	rofessional Internship	10	<u> </u>
	CHEM Core			
	CM1021	Basic Inorganic Chemistry with Laboratory	4	
	CM1021 CM1031	Basic Organic Chemistry with Laboratory	4	
	MH1802	Calculus for the Sciences	4	
	CM1041	Basic Physical Chemistry with Laboratory	4	
	CM1041	Basic Biological Chemistry	3	
	MH1804	Mathematics for Chemistry	2	
	PH1801	Foundation of Physics 1	3	
	CM2011	Analytical Chemistry	3	
	CM2011	Inorganic and Bioinorganic Chemistry	3	
	CM2021	Chemistry & Biological Chemistry Laboratory 1	3	63
Major	PS0001	Introduction to Computational Thinking	3	03
Requirement	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	
ĺ	CM3061	Chemistry & Biological Chemistry Laboratory 3	3	
		or Prescribed Electives (MPE)		
	4 x MPEs	` '	12	12

	6) NTU-FST MPE x 4	12	<u> </u>
(131)	5) CH9204 Quality Systems Operations	2	
and Technology (FST)	4) CH9202 FOOD Physics	3	30
	3) CH9203 Food Process Engineering	5	30
2nd Major in Food Science	2) CH9200 Food Microbiology	3	
and Major in	1) CH9201 Food Chemistry	5	

Cummantani	mistry and Biological Chemistry with 2nd M	ajor in Fo	od Science a	and Technology (CHFS)		
	Study Plan for AY2021-2022 intake ssional Internship						
Year 1 Sen Course	nester 1	Typo	AU	Year 1 Semester 2 Course			AU
	Basic Inorganic Chemistry with	Туре		-		Туре	
CM1021	Laboratory	С	4	CM1041	Basic Physical Chemistry with Laboratory	С	4
CM1031	Basic Organic Chemistry with Laboratory	С	4	CM1051	Basic Biological Chemistry	С	3
MH1802	Calculus for the Sciences	С	4	MH1804	Mathematics for Chemistry	С	2
CC0001	Inquiry and Communication in an	СС	2	PH1801	Foundation of Physics 1	С	3
	Interdisciplinary World				•		
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
					Broadening and Deepening Elective 1	BDE	3
HW0001	Introduction to Academic Communication	*			Broadening and Deepening Elective 2	BDE	3
			19				22
*for stude	nts who have not cleared QET						
Year 2 Sen	nester 1			Year 2 Sen	nester 2		
Course		Туре	AU	Course		Туре	AU
CM2011	Analytical 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	CC0007	Science & Technology for Humanity	CC	3
CC0006	Sustainability: Society, Economy &	СС	3	PS0002	Introduction to Data Science and	FC	3
	Environment				Artificial Intelligence		
CH9201	Food Chemistry	BDE	5	CH9200	Food Microbiology	BDE	3
			20				18
			20				10
Year 3 Sem	nester 1			Year 3 Sen	nester 2		
Course		Туре	AU	Course		Туре	AU
CM3011	Chemical Spectroscopy and Applications	С	3	CM3021	Organometallic Chemistry	С	3
CM3041	Physical and Biophysical Chamistry 2		3	CM3031	Organic Reaction Mechanisms and	С	3
CIVI3041	Physical and Biophysical Chemistry 2	С	3	CIVISUST	Synthesis	C	3
CM3062	Chemistry & Biological Chemistry	С	3	CM3061	Chemistry & Biological Chemistry	С	3
CH9203	Laboratory 4 Food Process Engineering	BDE	5	HW0218	Laboratory 3 Effective Communication 2	FC	2
C113203	NTU-FST Prescribed Elective			11000210			2
		BDF	3	CH9202	Food Physics	FC BDF	3
		BDE BDE	3 3	CH9202 CH9204	Food Physics Ouality Systems Operations	BDE	3 2
	Broadening and Deepening Elective 3	BDE BDE	3	CH9202 CH9204	Food Physics Quality Systems Operations NTU-FST Prescribed Elective		3 2 3
			3		Quality Systems Operations	BDE BDE	2
					Quality Systems Operations	BDE BDE	2
Year 4 Sen	Broadening and Deepening Elective 3		3		Quality Systems Operations NTU-FST Prescribed Elective	BDE BDE	2
Course	Broadening and Deepening Elective 3	BDE Type	20 AU	CH9204 Year 4 Sen Course	Quality Systems Operations NTU-FST Prescribed Elective	BDE BDE BDE	2 3 19
	Broadening and Deepening Elective 3	BDE	20	Year 4 Sen Course CM4XXX	Quality Systems Operations NTU-FST Prescribed Elective mester 2 CHEM MPE	BDE BDE BDE	2 3 19 AU 3
Course	Broadening and Deepening Elective 3	BDE Type	20 AU	Year 4 Sen Course CM4XXX CM4XXX	Quality Systems Operations NTU-FST Prescribed Elective nester 2 CHEM MPE CHEM MPE	BDE BDE BDE Type MPE MPE	2 3 19 AU 3 3
Course	Broadening and Deepening Elective 3	BDE Type	20 AU	Year 4 Sen Course CM4XXX CM4XXX CM4XXX	Quality Systems Operations NTU-FST Prescribed Elective nester 2 CHEM MPE CHEM MPE CHEM MPE CHEM MPE	BDE BDE BDE Type MPE MPE MPE	2 3 19 AU 3 3 3
Course	Broadening and Deepening Elective 3	BDE Type	20 AU	Year 4 Sen Course CM4XXX CM4XXX	Quality Systems Operations NTU-FST Prescribed Elective nester 2 CHEM MPE	BDE BDE BDE Type MPE MPE MPE	2 3 19 AU 3 3 3 3
Course	Broadening and Deepening Elective 3	BDE Type	20 AU	Year 4 Sen Course CM4XXX CM4XXX CM4XXX	Quality Systems Operations NTU-FST Prescribed Elective nester 2 CHEM MPE CHEM MPE CHEM MPE CHEM MPE CHEM MPE CHEM MPE NTU-FST Prescribed Elective	BDE BDE BDE Type MPE MPE MPE BDE	2 3 19 AU 3 3 3 3 3
Course	Broadening and Deepening Elective 3	BDE Type	20 AU	Year 4 Sen Course CM4XXX CM4XXX CM4XXX	Quality Systems Operations NTU-FST Prescribed Elective nester 2 CHEM MPE	BDE BDE BDE Type MPE MPE MPE	2 3 19 AU 3 3 3 3
Course	Broadening and Deepening Elective 3	BDE Type	20 AU	Year 4 Sen Course CM4XXX CM4XXX CM4XXX	Quality Systems Operations NTU-FST Prescribed Elective nester 2 CHEM MPE CHEM MPE CHEM MPE CHEM MPE CHEM MPE CHEM MPE NTU-FST Prescribed Elective	BDE BDE BDE Type MPE MPE MPE BDE	2 3 19 AU 3 3 3 3 3

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

AY2021 - 2022 Intake

with Professional Internship and FYP

		Number of Academic Units (AU)								
	Voor of	Major Requirement		Interdisc	ciplinary	Broadening				
Programme	Year of Study	Core (C)	Major PE (MPE)	Common Core (CC)	Foundational Core (FC)	and Deepening Electives (BDE)	Total			
	1	24		11			35			
Chemistry and	2	21		6	3	8	38			
Biological	3	18	3		2	19	42			
Chemistry	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
	Common (Core (University-level)		
	CC0001 Inc	quiry and Communication in the Interdisciplinary	2	
	CC0002 Na	ovigating the Digital World	2	
	CC0003 Etl	hics & Civics in a Multi-Cultural World	2	17
	CC0005 He	3	17	
Interdisciplinary	CC0006 Su	stainability: Society, Economy & Environment	3	
Collaborative	CC0007 Sc	ience & Technology for Humanity	3	
Core (ICC)	ML0004 Ca	areer and Entrepreneurial Development for the	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
	CM4081 P	rofessional Internship	10	
	CHEM Core	•		
	CM1021	Basic Inorganic Chemistry with Laboratory	4	
	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	63
Major	PS0001	Introduction to Computational Thinking	3	
Requirement	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	
	_	or Prescribed Electives (MPE)		
	CM4080	Honours Project 1	10	22
	4 x MPEs		12	

	Food Science and Technology Compulsory Courses		
and Major in	1) CH9201 Food Chemistry	5	
2nd Major in	12) CH9200 Food Microbiology		
Food Science	3) CH9203 Food Process Engineering	5	20
and Technology	4) CH9202 Food Physics	3	30
(FST)	5) CH9204 Quality Systems Operations	2	
	6) NTU-FST MPE x 4	12	
Total			147

Suggested	mistry and Biological Chemistry with 2nd M Study Plan for AY2021-2022 intake ssional Internship and FYP	ajor in Fo	od Science a	nd Technology (CHFS)		
Year 1 Sem Course	nester 1	Туре	AU	Year 1 Sen Course	nester 2	Туре	AU
CM1021	Basic Inorganic Chemistry with Laboratory	С	4	CM1041	Basic Physical Chemistry with Laboratory	С	4
CM1031	Basic Organic Chemistry with Laboratory	С	4	CM1051	Basic Biological Chemistry	С	3
MH1802	Calculus for the Sciences	С	4	MH1804	Mathematics for Chemistry	С	2
CC0001	Inquiry and Communication in an	CC	2	PH1801	Foundation of Physics 1	С	3
CC0002	Interdisciplinary World 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	CC	2
HW0001	Introduction to Academic Communication	*			for the Future World		
***			19				16
*for studer	nts who have not cleared QET						
Year 2 Sem	nester 1	T		Year 2 Sen	nester 2	T	
Course CM2011	Analytical Chemistry	Type C	AU 3	Course CM2031	Organic and Bioorganic Chemistry	Type C	AU 3
CM2021	2021 Inorganic and Bioinorganic Chemistry		3	CM2041	Physical and Biophysical Chemistry 1	C	3
CM2061	Chemistry & Biological Chemistry Laboratory 1	С	3	CM2062	Chemistry & Biological Chemistry Laboratory 2	С	3
PS0001	Introduction to Computational Thinking	С	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 Sem Course	nester 1	Туре	AU	Year 3 Sen Course	nester 2	Туре	AU
CM3011	Chemical Spectroscopy and Applications	С	3	CM3031	Organic Reaction Mechanisms and	С	3
CM3021	Organometallic Chemistry	С	3	CM3061	Synthesis Chemistry & Biological Chemistry	С	3
CM3041	Physical and Biophysical Chemistry 2	С	3	HW0218	Laboratory 3 Effective Communication 2	FC	2
CM3062	Chemistry & Biological Chemistry	С	3	CH9202	Food Physics	BDE	3
CH9203	Laboratory 4 Food Process Engineering	BDE	5	CH9204	Quality Systems Operations	BDE	2
C119203	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 Sem	nester 1	T	A	Year 4 Sen	nester 2	T	A11
Course CM4081	Professional Internship	Type FC	10	Course CM4080	Honours Project 1	Type MPE	AU 10
	-			CM4XXX	CHEM MPE	MPE	3
				CM4XXX CM4XXX	CHEM MPE CHEM MPE	MPE MPE	3 3
				CIVI+AAA	NTU-FST Prescribed Elective	BDE	3
			10				22
					Total (AU)		147
					- / //		