Bachelor of Science in Chemistry and Biology Double Major Programme
Applicable to students admitted in 2022-23

Chemistry and Biology Double Major Programme

Major Programme Requirement

Students are required to complete a minimum of 89 units of courses as follows:

		Units
1.	Faculty Package: Group A: LSCI1002 Group B: CHEM1070 Group D: PHYS1002 (preferred) or 1001 or 1111	9
2.	Required Courses:	
(a)	1st Major: Chemistry CHEM1300, 2110, 2120, 2200, 2300, 2400, 2868, 2878, 3130, 3220, 3320, 3410	29
(b)	2nd Major: Biology BCHE2030, BIOL2120#, 2210#, 2410#, 2420#, 3012, 3022, 3560#, 3570#, 3610#, 3620#, 4010, LSCI1012, 2002	32
3.	Elective Courses:	
(a)	1st Major: Chemistry i) Two laboratory courses from CHEM3810, 3830, 3860, 3870 ii) At least 5 units chosen from the following, of which at most one CHEM course at 3000 level: CHEM3230, 3340, 3420, 4100, 4110, 4200, 4300, 4303, 4400, 4440, 4630, 4640, 4710, 4780, 4784, 4785, 4788, ENSC4525#, 4535#	9
(b)	2nd Major: Biology i) One laboratory course from BIOL2213, 2313 ii) At least 5 units chosen from the following: BIOL3310, 3410, 3420, 3510, 3530, 3630, 3710, 4120, 4230, 4240, 4260, 4310, 4420, 4510, 4520, 4610, 4901, LSCI3520	6
4.	Research Component/ Capstone Course/ Final Year Project: CHEM4030, 4040	4
	Total:	**89**

Explanatory Note:
1. CHEM courses at 2000 and above level as well as those labeled as # will be included in the calculation of Major GPA for honours classification.

	Recommended Course Pattern	Units
First Year of Attendance	1st term Faculty Package: CHEM1070, LSCI1002, PHYS1002/1111 Major Required: Major Elective(s):	6-9
	2nd term Faculty Package: PHYS1001 (if not taken PHYS1002/1111) Major Required: CHEM1300, LSCI1012 Major Elective(s):	0-3 5
Second Year of Attendance	1st term Major Required: CHEM2120, 2200, 2300, 2868, LSCI2002 Major Elective(s):	12
	2nd term Major Required: BIOL2210, CHEM2110, 2400, 2878, LSCI1012 (if not taken) Major Elective(s): BIOL2213[a]	9-11 0-1
Third Year of Attendance	1st term Major Required: BCHE2030, BIOL2120, CHEM3220, 3320, 3410 Major Elective(s): CHEM3810/3830/3870[b]	14 2-4
	2nd term Major Required: BIOL2410, 2420, CHEM3130 Major Elective(s): BIOL2313[a], CHEM3860[b] one BIOL course one CHEM course	6 0-3 2-3 2-3
Fourth Year of Attendance	1st term Major Required: BIOL3012, 3560, 3610, 4010, CHEM4030 Major Elective(s): one BIOL course one CHEM course	9 2-3 2-3
	2nd term Major Required: BIOL3022, 3570, 3620, CHEM4040 Major Elective(s): 0-1 BIOL course 0-1 CHEM course	10 0-3 0-3
	Total (including Faculty Package):	**89**

[a] Choose one course from the two laboratory courses.
[b] Choose two courses from the four laboratory courses.

Course List		
Course Code	*Course Title*	*Unit(s)*
CHEM1070	Principles of Modern Chemistry	3
CHEM1072	General Chemistry	3
CHEM1280	Introduction to Organic Chemistry and Biomolecules	3
CHEM1300	Fundamentals in Physical Chemistry	2
CHEM1380	Basic Chemistry for Engineers	3
CHEM1870	General Chemistry Laboratory	2
CHEM2110	Fundamentals of Spectroscopic Analysis	2
CHEM2120	Main Group Chemistry	2
CHEM2200	Organic Functional Groups: Structure and Reactivity	3
CHEM2270	Student Oriented Teaching	1
CHEM2300	Thermodynamics and Chemical Equilibrium	3
CHEM2310	Atoms and Molecules	3
CHEM2382	Chemistry of Life	2
CHEM2400	Analytical Chemistry	2
CHEM2860	Integrated Chemistry Laboratory I	4
CHEM2868	Basic Integrated Chemistry Laboratory I	2
CHEM2870	Integrated Chemistry Laboratory II	4
CHEM2878	Basic Integrated Chemistry Laboratory II	2
CHEM3130	Transition Metal Chemistry	3
CHEM3220	Organic Reactions: Reactivity and Selectivity	2
CHEM3230	Conjugated Molecules and Synthetic Polymers	2
CHEM3320	Chemical Kinetics	3
CHEM3340	Materials Chemistry	2
CHEM3410	Instrumental Analysis	3
CHEM3420	Accreditation of Laboratory Tests	2
CHEM3810	Organic Chemistry Laboratory	2
CHEM3820	Advanced Organic Chemistry Laboratory	2
CHEM3830	Physical Chemistry Laboratory I	2
CHEM3840	Physical Chemistry Laboratory II	2
CHEM3860	Transition Metal Chemistry Laboratory	2
CHEM3870	Instrumental Analysis Laboratory	2
CHEM3880	Quality Testing Laboratory	2
CHEM4010	Problem-based Learning in Testing and Accreditation I	0
CHEM4020	Problem-based Learning in Testing and Accreditation II	4
CHEM4030	Problem-based Learning in Chemistry I	0
CHEM4040	Problem-based Learning in Chemistry II	4
CHEM4100	Advanced Inorganic Chemistry	3
CHEM4200	Bioorganic Chemistry and Chemical Biology	2
CHEM4280	Chemistry in Biofuel	2
CHEM4300	Advanced Physical Chemistry	2
CHEM4303	Introduction to Nanoscience and Nanotechnology	2
CHEM4400	Advanced Analytical Chemistry	2
CHEM4440	Food Testing and Environmental Analysis	3
CHEM4470	Internship in Accredited Laboratory	2
CHEM4471	Internship	1
CHEM4480	Undergraduate Special Project I	1
CHEM4490	Undergraduate Special Project II	1
CHEM4630	Asymmetric Organic Synthesis	2
CHEM4640	Pharmaceutical Chemistry	2
CHEM4710	Quantum Chemistry	2

CHEM4730	Special Topics in Chemistry	2
CHEM4780	Mass Spectrometry	2
CHEM4784	Bioanalytical Methods	2
CHEM4785	Industrial Chemistry	2
CHEM4786	Principles and Applications of Coating Chemistry	2
CHEM4788	Chemical Applications in Forensic Science	2
CHEM4960	Research in Chemical Science I	2
CHEM4970	Research in Chemical Science II	2
CHEM4980	Undergraduate Thesis I	0
CHEM4990	Undergraduate Thesis II	4
CHEM5301	Colloids and Surface Chemistry	2
CHEM5303	Recent Development of Nanoscience and Nanotechnology	2
CHEM5540	Bioinorganic Chemistry	2
CHEM5550	Organometallic Chemistry of f-Block Elements	2
CHEM5560	Organometallic Chemistry & Catalysis of d-Block Elements	2
CHEM5620	Synthetic Methods in Organic Chemistry	2
CHEM5642	Supramolecular Chemistry	2
CHEM5680	Advanced Chemical Biology	3
CHEM5780	Mass Spectrometry of Biomolecules	2
CHEM5784	Instrumental Analysis of Biomolecules	2
CHEM5785	Electrochemical Energy Conversion and Storage	2
CHEM5910	Current Topics in Chemistry	2
CHEM5920	Computational Chemistry	2
BCHE2030	Fundamentals of Biochemistry	3
BIOL2120	Cell Biology	3
BIOL2210	Ecology	3
BIOL2213	Ecology Laboratory	1
BIOL2313	Genetics Laboratory	1
BIOL2410	General Genetics	2
BIOL2420	Population Genetics	1
BIOL3012	Biodiversity Laboratory I	2
BIOL3022	Biodiversity Laboratory II	2
BIOL3310	Human Biology	3
BIOL3410	General Microbiology	3
BIOL3413	Microbiology Laboratory	1
BIOL3420	Advanced Genetics and Epigenetics	3
BIOL3510	Palaeobiology	2
BIOL3530	Plant Physiology	3
BIOL3560	Biology of Fungi and Non-Vascular Plants	2
BIOL3570	Biology of Vascular Plants	2
BIOL3610	Invertebrate Form and Function	2
BIOL3620	Vertebrate Life	2
BIOL3630	Animal Physiology	3
BIOL3710	Marine Biology	3
BIOL4010	Evolutionary Biology	3
BIOL4012	Field and Environmental Biology	2
BIOL4032	Physiological Investigations	2
BIOL4120	Developmental Biology	3
BIOL4230	Global Change Biology	3
BIOL4240	Environmental Impact Assessment	3
BIOL4242	Environmental Impact Assessment Laboratory	2

BIOL4260	Conservation Biology	3
BIOL4310	Human Genetics	3
BIOL4420	Marine Microbial Ecology	2
BIOL4510	Hong Kong Flora and Vegetation	3
BIOL4520	Plant Metabolism and Metabolic Engineering	2
BIOL4610	Foundation for Secondary School Biology Teaching	3
BIOL4901	Senior Experimental Project I	2
BIOL4902	Senior Experimental Project II	2
BIOL4903	Senior Experimental Project III	2
BIOL4906	Internship	2
BIOL4907	Field Study	2
ENSC4525	Advanced Environmental Chemistry	3
ENSC4535	Chemical Treatment Processes	3
LSCI1012	Introduction to Life Forms in the Biosphere	3
LSCI2002	Basic Lab Tech in Life Science	3
LSCI3520	Environmental and Biochemical Toxicology	3