Academic Program: (334 new curriculum) B.Sc. in Biochemistry
Academic Year: 2020

Select Language: English

Study Scheme Learning Outcomes

Study Scheme

Biochemistry
Applicable to students admitted in 2020-21

Major Programme Requirement

Students are required to complete a minimum of 60[a] units of courses as follows:

		Units
1.	Faculty Package: Group A: LSCI1002 Group B: CHEM1280 (preferred) or 1070 A course from the following Group C: MATH1520 (preferred) or 1010 Group D: (PHYS1001 or 1002) (preferred) or 1111 Group E: STAT1012 (preferred) or 1011	9
2.	Required Courses:	
(a)	BCHE2000, 2030, 3030/3730, 3040, 3050, 3070, 3080, 3090 (or 3092), 3650	23
(b)	BIOL2120#, 2313#, 2410#, LSCI2002#	8
3.	Elective Courses:	
(a)	Capstone Courses: One of the 6 options (at least 3 units, with a maximum of 6 units) (i) BCHE4901 and 4902 and 4903 (ii) BCHE4902 and 4903 (iii) BCHE4910 (iv) LSCI4911# and LSCI4912# and LSCI4913# (v) LSCI4912# and LSCI4913# (vi) LSCI4000#	3
(b)	Of the 17 units of elective courses, at least 9 units, with one laboratory course should be taken from List A. List A: BCHE4030/4830^, 4040/4640^, 4060/4760^, 4070, 4080, 4090, 4130/4830^ List B: BIOL2420#, ENSC3520#/3820#, 4250#, 4310#/4510#, FNSC3010#, 4150#, MBTE3510, 4520# List C: BCHE2070, 3110, BIOL3410#, 3630#, 4310#, BMEG3101, 4010, CMBI4001#, 4002#, 4003#, 4101#, 4102#, 4103#, 4201#, 4202#, 4203#, LSCI2003#, STAT3210	17
	Total:	**60**[a]

In addition to fulfilling the above Major Programme Requirement, students meeting the criteria as specified by the Faculty can take the following stream offered by the Faculty:

Science, Technology And Research Stream

Students are required to complete a minimum of 12 units of courses as follows:

		Units
1.	Required Courses:	
(a)	One Faculty Package Course: Choose from the two remaining groups of the Faculty Package that have not been used to fulfill the Faculty Package Requirement	3
(b)	Research Courses: STAR2000, 3000, 4000[b]	6

(c)	Seminar Courses: STAR2050, 3050, 4050	3
2.	Experiential Learning: At least 4 consecutive weeks of outside Hong Kong exposure[c]	---
	Total:	**12**

Explanatory Notes:

1. BCHE courses at 2000 and above level as well as those labeled as # will be included in the calculation of Major GPA for honours classification.
2. Courses labeled as ^ are laboratory courses.

[a] Study Option: Berkeley Biosciences Study Abroad Programme
Students who undergo one term of studies at the University of California, Berkeley, USA will take courses offered by the Berkeley Biosciences Study Abroad Programme. Units obtained from the Programme will be recognized as up to 12 units of Major Programme requirement. This option will be recorded on transcript.

[b] Students may select research-oriented course(s), as approved by the Major Programme, to substitute up to 4 units for fulfillment of Research Courses requirement.

[c] Students must complete any exchange/research/internship programme(s) offered by the University, Colleges, the Faculty of Science or Major Programme, as approved by the Major Programme, to fulfill the Experiential Learning requirement. Students are responsible for the extra costs incurred in the exchange/research/ internship programme(s).

Biochemistry

	Recommended Course Pattern	Units
First Year of Attendance	1st term Faculty Package: one to two courses Major Required: Major Elective(s):	3-6
	2nd term Faculty Package: one to two courses Major Required: Major Elective(s):	3-6
Second Year of Attendance	1st term Major Required: BCHE2030, BIOL2120, LSCI2002 Major Elective(s):	8
	2nd term Major Required: BCHE2000, 3050, 3070, 3650, BIOL2313, 2410 Major Elective(s):	10
Third Year of Attendance	1st term Major Required: BCHE3040, 3080, 3090 (or 3092) Major Elective(s): one to two courses	8 3-6
	2nd term Major Required: BCHE3030/3730 Major Elective(s): one to two courses	5 3-6
Fourth Year of Attendance	1st term Major Required: Major Elective(s) one to two courses	3-6
	2nd term Major Required: Major Elective(s): two to three courses	5-8
	Total (including Faculty Package):	**60**

Biochemistry — Science, Technology And Research Stream (STARS)

	Recommended Course Pattern	Units
First Year of Attendance	1st term Faculty Package: two courses Major Required: Major Elective(s):	6
	2nd term Faculty Package: two courses	6

	Major Required: Major Elective(s):	
	Summer session STARS: STAR2050	1
Second Year of Attendance	1st term Major Required: BCHE2030, BIOL2120, LSCI2002 Major Elective(s): STARS: STAR2000	8 1
	2nd term Major Required: BCHE2000, 3050, 3070, 3650, BIOL2313, 2410 Major Elective(s): STARS: STAR3050	10 1
Third Year of Attendance	1st term Major Required: BCHE3040, 3080, 3090 (or 3092) Major Elective(s): one to two courses STARS: STAR3000	8 3-6 2
	2nd term Major Required: BCHE3030/3730 Major Elective(s): one to two courses STARS: STAR4050	5 3-6 1
Fourth Year of Attendance	1st term Major Required: Major Elective(s): BCHE4902@ and one course	5-6
	2nd term Major Required: Major Elective(s): BCHE4903@ and one to two courses	5-8
	Total (including Faculty Package):	**69**

@ Students may take BCHE4902 and 4903 as a substitute for STAR4000.

Minor Programme Title
Biochemistry

Minor Programme Requirement

Students are required to complete a minimum of 21 units of courses as follows:

		Units
1.	Required Courses: BCHE2030, 3030/3730, 3080	11
2.	Elective Courses: BCHE3050/3070/3650^, 3110, 4030/4830^, 4040/4640^, 4060/4760^, 4070, 4080, 4090, 4130/4830^	10
	Total:	**21**

Explanatory Note:
1. Courses labeled as ^ are laboratory courses.

Course List

Course Code	*Course Title*	*Unit (s)*
BCHE2000	Frontiers in Biochemistry	2
BCHE2030	Fundamentals of Biochemistry	3
BCHE2070	Research Internship	2
BCHE3030	Methods in Biochemistry	3
BCHE3040	Proteins and Enzymes	3
BCHE3050	Molecular Biology	2
BCHE3070	Recombinant DNA Techniques	1
BCHE3080	Bioenergetics and Metabolism	3
BCHE3090	Self-study Modules in Biochemistry	2
BCHE3092	Self-study Modules in Biochemistry and Professional Development	3
BCHE3110	Chemical Biology	3
BCHE3650	Molecular Biology and Recombinant DNA Laboratory	2

BCHE3730	Analytical Biochemistry Laboratory	2
BCHE4030	Clinical Biochemistry	3
BCHE4040	Aspects of Neuroscience	3
BCHE4060	Basic and Applied Immunology	3
BCHE4070	Management and Accreditation of Biochemical Laboratory	3
BCHE4080	Biochemistry for Forensic Sciences	2
BCHE4090	Biochemistry for Sport and Exercise	2
BCHE4130	Molecular Endocrinology	3
BCHE4640	Aspects of Neuroscience Laboratory	2
BCHE4760	Immunology and Haematology Laboratory	2
BCHE4830	Medical Biochemistry Laboratory	2
BCHE4901	Senior Experimental Project I	2
BCHE4902	Senior Experimental Project II	2
BCHE4903	Senior Experimental Project III	2
BCHE4910	Group Research in Biochemistry	3
STAR2000	Undergraduate Research in Science I	1
STAR2050	Seminar I	1
STAR3000	Undergraduate Research in Science II	2
STAR3050	Seminar II	1
STAR4000	Undergraduate Research in Science III	3
STAR4050	Seminar III	1

Study Scheme Learning Outcomes

Learning Outcomes

1. Major Programme:

Students will be trained in the latest biochemical technology and prepared to perform research work. At the end of the course of their studies, students will have possessed a sense of professionalism to work independently with good communication, analytical, research and technical skills and adapted to the changing social and research environments to stay competitive in the job market and for further study. For knowledge outcomes, students will have acquired knowledge of a broadly-based core covering biomolecules, molecular biology, cellular biochemistry, metabolism, bioinformatics, proteins and enzymes. They will have learnt the basic principles and methodologies of recombinant DNA, characterization of biomolecules and study of sub-cellular components. They will also have gained in-depth understanding of selected advance areas, such as clinical biochemistry, immunology, neurosciences, biotechnology, endocrinology, genomics and proteomics, etc. For professional skills, students will have acquired skills in quantitative analyses of biochemical reactions and sub-cellular components, design experiments to test hypothesis, write research report, apply their knowledge to daily life, and develop self-learning capability. They will also have possessed a basket of skills: communication, oral and writing skills, creativity, independence and innovation, use of information technology and analytical skills for problem solving, perform quantitative analyses, and critical thinking.

2. Minor Programme:

Upon the completion of the Minor Programme in Biochemistry, students will have demonstrated basic understanding of fundamental issues related to the subject of biochemistry, acquired knowledge of some aspects of the subject with exposure at a suitable level to allow further study in this subject, life science or biomedically related subjects or to develop a related career.