

Curriculum for BSc in Biochemistry and Science Education

Major Program Requirements

Core courses

BICH	121	Introduction to Biochemistry	[3-0-0:3]
BICH	122	Intermediary Metabolism	[3-0-0:3]
BICH	172	Introductory Biochemical Laboratory	[0-0-6:2]
BICH	182	Biochemical Laboratory Techniques	[1-0-0:1]
BICH	201	Molecular and Cellular Biochemistry I	[3-0-0:3]
BICH	202	Molecular and Cellular Biochemistry II	[3-0-0:3]
BICH	211	Biochemistry of Nucleic Acids	[0-0-6:2]
BICH	221	Principles of Recombinant DNA Technology	[1-0-0:1]

Required courses

	BICH	323	Advanced Biochemical Laboratory Techniques	[1-0-0:1]
		and		
	BICH	333	Advanced Biochemical Laboratory	[0-0-8:2]
or	BICH	398	Biochemical Research II	[1-0-9:4]
(1)	BICH	366	Biotechnology Seminar	[1-3-0:4]
or	BICH	397	Biochemical Research I	[0-0-9:3]
	BIOL	202	Animal Physiology	[3-0-0:3]
	BIOL	211	General Genetics	[3-1-0:4]
	BIOL	216	Ecology	[3-0-0:3]
or	BISC	207	Introduction to Biophysics	[3-0-0:3]
	BISC	215	Biostatistics	[2-1-0:3]
(2)	CHEM	101	Fundamentals of Organic Chemistry	[3-0-0:3]
	CHEM	102	Physical Chemistry: Fundamentals and Applications	[3-0-0:3]
	CHEM	131	Inorganic Chemistry I	[3-1-0:4]
	CHEM	141	Analytical Chemistry I	[3-0-0:3]
	CHEM	154	Organic Chemistry Laboratory	[0-1-3:2]
	COMP	101	Exploring Multimedia and Internet Computing	[2-0-2:3]
(3)	MATH	006	Calculus and Linear Algebra	[3-1-0:3]
or	MATH	021	Concise Calculus	[3-1-0:4]
(4)	PHYS	111	Physics I	[3-1-2:4]
	PHYS	112	Physics II	[2-0-3:3]
	SCED	213	Foundations and Processes of Learning	[3-0-0:3]
	SCED	214	Managing Diversity in the Classroom	[3-0-0:3]
	SCED	311	Philosophical and Sociological Perspectives in Education	[3-0-0:3]
	SCED	314	Curriculum and Assessment	[3-0-0:3]
	SCED	315	The Professional Teacher in Classroom, School and Community	[3-0-0:3]
	SCED	321	Foundations of Science Education	[3-0-0:3]
	SCED	322	Teaching and Learning Integrated and Applied Science	[3-0-0:3]
	SCED	323	Learning Science in the Community	[3-0-0:3]
	SCED	324	Science, Design and Technology, and Society	[3-0-0:3]
	SCED	325	Field Experience for Science Teaching (I)	[2 credits]
	SCED	326	Field Experience for Science Teaching (II)	[6 credits]
	SCED	331	Foundation Studies in the Teaching and Learning of Biology	[3-0-0:3]
or	SCED	341	Foundation Studies in the Teaching and Learning of Chemistry	[3-0-0:3]
	SCED	332	Advanced Studies in the Teaching and Learning of Biology	[3-0-0:3]
or	SCED	342	Advanced Studies in the Teaching and Learning of Chemistry	[3-0-0:3]

Elective courses

Elective types		Minimum no. of courses	Minimum total credits
(5) BISC	Biological Science Elective	2	6
(6) FREE	Free Elective	2	6

General Education Requirements

Electives must be selected from amongst those general education courses that are listed under the section "Designated General Education Courses".

Elective types		Minimum no. of courses	Minimum total credits
GEE(ENGG)	Engineering General Education Elective	1	6
GEE(SB&M)	Business and Management General Education Elective	1	
(7) GEE(H&SS)	Humanities and Social Science General Education Elective	4	12

Required Courses in English Communication

LANG 108	English for Science Students	[0-2-0:2]
LANG 208	English Communication for Science Students I	[0-2-0:1]
LANG 209	English Communication for Science Students II	[0-2-0:1]
LANG 308	Technical Communication for Science Students III	[0-2-0:1]

Other Requirement:

(8) HLTH 001	Healthy Life Style	[0 credit]
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Notes:

- (1) Normally, students who elect BICH 366 will need to take BICH 323/333, and those who elect BICH 397 will be required to take BICH 398.
- (2) Students can replace CHEM 101 with CHEM 111 plus CHEM 212.
- (3) Students admitted with a grade D or above in either AL Pure Mathematics or AL Applied Mathematics will replace this course with an approved course in the School of Science or a free elective. Other students should elect one of MATH 021 or MATH 006 with respect to their prior mathematics background as follows:

<i>Prior mathematics background</i>	<i>Course to be elected</i>
Grade E in AL Pure Mathematics or AL Applied Mathematics; and/or a passing in HKCEE Additional Mathematics, AS Mathematics and Statistics, and/or AS Applied Mathematics	MATH 021
Grade C or below in HKCEE Additional Mathematics; and/or a passing grade in HKCEE Mathematics; and without a passing grade in AL Pure Mathematics, AL/AS Applied Mathematics, or AS Mathematics and Statistics, Any MATH course below MATH 006	MATH 006

- (4) The pre-requisite of AS/AL Physics or AL Engineering Science will be waived. Students may take PHYS 002/007, plus PHYS 111/112/126 as replacement of PHYS 111 and PHYS 112.
- (5) Students have to elect at least two 300-level BISC courses. Students with satisfactory academic performance are encouraged to select one more 300-level BISC elective course in the Spring semester of Year 3 and also in the Fall semester of Year 4.
- (6) (a) BIOL 108 (Plant Biology) and BIOL 206 (Microbiology) are the recommended free electives, especially for those who choose Foundation Studies in the Teaching and Learning of Biology and Advanced Studies in the Teaching and Learning of Biology (to qualify for teaching AL Biology).
(b) 000- or 100-level biochemistry and biological science course (BICH/BISC) taken in second or upper year of study cannot be used to fulfill the FREE elective requirement.
- (7) Of these courses, at least one course in Humanities and one in Social Science are required.
- (8) Students are required to take and pass this course in their first year of study. Details of the course and its requirements are announced on the course website <http://www.ab.ust.hk/sao/HLTH001> managed by the Student Affairs Office.

A minimum of 143 credits is required for the BSc program in Biochemistry and Science Education.

Recommended Pattern of Study for BSc in Biochemistry and Science Education

1st year	Fall	C BICH 121 R CHEM 101, CHEM 131, COMP 101, LANG 108, MATH 021 [#] /MATH 006 O HLTH 001	(Total: 17/18 [#] credits)
	Spring	C BICH 122, BICH 172, BICH 182 R LANG 108 E GEE(ENGG), GEE(H&SS), FREE O HLTH 001	(Total: 17* credits)
2nd year	Fall	C BICH 201, BICH 211, BICH 221 R PHYS 111, CHEM 102, CHEM 141, CHEM 154, LANG 208	(Total: 19 credits)
	Spring	C BICH 202 R BIOL 202, LANG 209, PHYS 112, SCED 213, SCED 214 E GEE(SB&M), GEE(H&SS)	(Total: 22 credits)
3rd year	Fall	R SCED 311, SCED 321, SCED 323, SCED 324, SCED 325, SCED 331/341	(Total: 17 credits)
	Spring	R BICH 366/397 E two 300-level BISC, GEE(H&SS), FREE	(Total: 15/16 credits)
4th year	Fall	R BICH 398 or BICH 323 & 333, BIOL 211, BIOL 216, BISC 207/215, LANG 308 E GEE(H&SS)	(Total: 17/18 credits)
	Winter	R SCED 314, SCED 315, SCED 322, SCED 332/342	(Total: 12 [@] credits)
	Spring	R SCED 314, SCED 315, SCED 322, SCED 326, SCED 332/342	(Total 18 [@] credits)

Students who are required to take MATH 021, the total credits for these students would become 18 credits.

* LANG 108 is a two-semester course. The course credits will be earned on completion of the course at the end of 1st year Spring.

@ Work in SCED 314, SCED 315, SCED 322 and SCED 332/342 commence in 4th year Winter. The course credits will be earned on completion of the course at the end of 4th year Spring.

C = core course; R = required course; E = elective course