

## Curriculum for BSc in Mathematics - Mathematical Sciences Option in Computer Science

### Major Program Requirements

#### Core courses

MATH 102	Multivariable Vector Calculus	[2-1-0:4]
MATH 111	Linear Algebra	[3-1-0:4]
MATH 202	Introduction to Real Analysis	[2-1-0:4]

#### Required courses

MATH 301	Real Analysis	[3-1-0:4]
(1) MATH 304	Complex Analysis	[3-1-0:4]
COMP 102	Computer and Programming Fundamentals I	[3-0-2:3]
COMP 103	Computer and Programming Fundamentals II	[2-0-1:2]
COMP 151	Object-Oriented Programming	[3-0-2:3]
COMP 171	Data Structures and Algorithms	[3-2-0:3]
COMP 180	Computer Organization	[3-0-1:3]

#### Elective courses

Elective types		Minimum no. of courses	Minimum total credits
(2) MATH	Mathematics Elective	5	15
(3) COMP	Computer Science Elective	4	12
(4) FREE	Free Elective	4	12

Note: Unless otherwise approved by the Department, zero-level mathematics courses cannot be used to fulfill any MATH or FREE elective requirements.

### General Education Requirements

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

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

### 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	English Communication for Science Students III	[0-2-0:1]

**Other Requirement**

(6) HLTH 001 Healthy Life Style [0 credit]

Notes:

- (1) The course can be replaced by MATH 303 or MATH 321 provided that enrolment quota of these courses is available.
- (2) MATH electives must include MATH 132, MATH 231, MATH 311 and one other of 300-level or above.
- (3) Students must select one of the following groups of study:  
*Group 1:* COMP 221, COMP 271, COMP, COMP of 300-level or above  
*Group 2:* COMP 231, COMP 271, COMP, COMP of 300-level or above  
*Group 3:* COMP 251, COMP 252, COMP 271, COMP of 300-level or above  
 Subject to departmental approval, these courses may be replaced by other COMP electives.
- (4) ISOM 111 cannot be used to satisfy any FREE elective requirement as well as the GEE(SB&M) requirement.
- (5) Of these courses, at least one course in Humanities and one in Social Science are required.
- (6) 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 101 credits is required for the BSc program in Mathematics - Mathematical Sciences Option in Computer Science. Students must take additional course(s) and/or elective(s) of higher-than-required credit value to meet this minimum total of 101 credits.

**Recommended Pattern of Study for BSc in Mathematics - Mathematical Sciences Option in Computer Science**

1st year	Fall	C MATH 102, MATH 111, MATH 202 R COMP 102, HLTH 001, LANG 108 E MATH 132	(Total: 11 credits)
	Spring	C MATH 102, MATH 202 R COMP 103, COMP 180, HLTH 001, LANG 108 E GEE(H&SS), FREE	(Total: 21* credits)
2nd year	Fall	R MATH 301, COMP 151, COMP 171, LANG 208 E MATH 231, GEE(H&SS)	(Total: 18 credits)
	Spring	R MATH 304, LANG 209 E MATH, COMP 221/231/271, GEE(SB&M), GEE(H&SS)	(Total: 18 credits)
3rd year	Fall	R LANG 308 E MATH 311, COMP 251/271, COMP 252/COMP, GEE(ENGG), FREE	(Total: 17 credits)
	Spring	E MATH, COMP, GEE(H&SS), two FREE	(Total: 16 credits)

\* LANG 108, MATH 102 and MATH 202 are two-semester courses. The course credits will be earned on completion of the courses at the end of 1st year Spring.

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