

Curriculum for BSc in Mathematics - Pure Mathematics Option- Advanced Stream

Major Program Requirements

Core courses

| | | |
|----------|--------------------------------|-----------|
| MATH 203 | Analysis I | [3-1-0:4] |
| MATH 204 | Analysis II | [3-1-0:4] |
| MATH 217 | Linear and Abstract Algebra I | [3-1-0:4] |
| MATH 218 | Linear and Abstract Algebra II | [3-1-0:4] |
| MATH 305 | Calculus on Manifolds | [3-1-0:4] |

Required courses

| | | | |
|-----|----------|---|-----------|
| (1) | MATH 303 | Theory of Ordinary Differential Equations | [3-1-0:4] |
| (1) | MATH 304 | Complex Analysis | [3-1-0:4] |
| (1) | MATH 315 | Number Theory and Applications | [3-1-0:4] |
| (1) | MATH 321 | Differential Geometry | [3-1-0:4] |
| (1) | MATH 323 | Topology | [3-1-0:4] |
| | COMP 102 | Computer and Programming Fundamentals I | [3-0-2:3] |
| (2) | PHYS 111 | Physics I | [3-1-2:4] |

Elective courses

| Elective types | | Minimum no. of courses | Minimum total credits |
|----------------|---------------------------|---------------------------|--------------------------|
| (3) | MATH Mathematics 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".

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

Other Requirement

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

Notes:

- These courses do not have to be taken in the indicated order. However, students are required to take at least two out of the five in the second year.
- This course can be replaced by PHYS 121 provided that enrolment quota is available.
- At least two of MATH electives must be 300-level or above.
- ISMT 111 cannot be used to satisfy any FREE elective requirement as well as the GEE(SB&M) requirement.
- Of these courses, at least one course in Humanities and one in Social Science are required.
- 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 (Pure Mathematics Option - Advanced Stream). 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 the Pure Mathematics Option - Advanced Stream

| | | | |
|----------|--------|---|----------------------|
| 1st year | Fall | C MATH 203, MATH 217 R COMP 102, HLTH 001, LANG 108 E GEE(H&SS), FREE | (Total: 17 credits) |
| | Spring | C MATH 204, MATH 218 R HLTH 001, LANG 108 E GEE(SB&M), FREE | (Total: 17* credits) |
| 2nd year | Fall | C MATH 305 R MATH 315, LANG 208, PHYS 111 E MATH | (Total: 17 credits) |

| | | | | |
|----------|--------|---|--|---------------------|
| | Spring | R | MATH 303, MATH 304, MATH 323, LANG 209 | |
| | | E | GEE(H&SS) | (Total: 16 credits) |
| <hr/> | | | | |
| 3rd year | Fall | R | MATH 321, LANG 308 | |
| | | E | MATH, GEE(H&SS), FREE | (Total: 16 credits) |
| <hr/> | | | | |
| | Spring | E | two MATH, GEE(ENGG), GEE(H&SS), FREE | (Total: 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.

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