Bachelor of Science in
COMPUTING MATHEMATICS

MAJOR AIMS
The Department of Mathematics offers the Bachelor of Science in Computing Mathematics degree, which aims at equipping students and producing graduates with a strong background in data analysis, mathematical modelling, scientific computing and technical computer software. You will make contributions to finance and industry in the growing technology fields in Hong Kong such as biotechnology, data analysis, environmental science, information technology and intelligent business. The title of “Computing Mathematics” has been chosen as the major will focus on applied areas of mathematics linked to computing and computation.

CURRICULUM STRUCTURE 2020/2021

<table>
<thead>
<tr>
<th>Category</th>
<th>Normative 4-year Degree (Students with Hong Kong Diploma of Secondary Education (HKDSE) or equivalent qualifications)</th>
<th>Advanced Standing I (Students with recognised Advanced Level Examinations or equivalent qualifications)</th>
<th>Advanced Standing II (Graduates of Associate Degree/Higher Diploma)</th>
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</thead>
<tbody>
<tr>
<td>Minimum:</td>
<td>124 Credit Units</td>
<td>94 Credit Units</td>
<td>66 Credit Units</td>
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<tr>
<td>Maximum:</td>
<td>144 Credit Units</td>
<td>114 Credit Units</td>
<td>84 Credit Units</td>
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<tr>
<td>Gateway Education:</td>
<td>30</td>
<td>21</td>
<td>12</td>
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<tr>
<td>College Requirement:</td>
<td>6</td>
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<tr>
<td>Major Requirement:</td>
<td>66 (Core 48 + Electives 18)</td>
<td>66 (Core 48 + Electives 18)</td>
<td>48 (Core 39 + Electives 9)</td>
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<tr>
<td>Free Elective:</td>
<td>22</td>
<td>7</td>
<td>6</td>
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<td>Minor:</td>
<td>Optional</td>
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For current degree requirements, please refer to: [http://www.cityu.edu.hk/ug/current/Major/BSC1_CM-0.htm](http://www.cityu.edu.hk/ug/current/Major/BSC1_CM-0.htm)

Core Courses cover the followings:
- Analysis
- Applied Statistics
- Complex Analysis
- Computing Mathematics Laboratory
- Data Structures and Data Management
- Discrete Mathematics
- Elementary Numerical Methods
- Introduction to Optimization
- Java Programming
- Linear Algebra
- Multi-variable Calculus
- Numerical Methods for Differential Equations
- Ordinary Differential Equations
- Partial Differential Equations
- Probability and Statistics

Electives cover the followings:
- A Mathematical Introduction to Machine Learning for Data Sciences
- Computational Geometry
- Coordinate Geometry
- Introduction to Abstract Algebra
- Introduction to Actuarial Science
- Introduction to Differential Manifolds
- Introduction to Dynamical Systems and Chaos
- Introduction to Functional Analysis
- Introduction to Stochastic Processes
- Introductory Mathematical Finance
- Mathematical Finance
- Project
- Real Analysis
- Sampling Survey Methods for Social and Market Research