### 4-Year Program Plan Worksheet – BSc Computing Science (Major)

#### Year 1 – 10 courses (30 units)

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Units</th>
<th>Complete?</th>
<th>Requirements</th>
<th>Units</th>
<th>Complete?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programming 1(^1)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CMPT 120</td>
<td>3</td>
<td></td>
<td>Data Structures &amp; Prog. CMPT 225</td>
<td>3</td>
<td></td>
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<tr>
<td>Calculus 1(^2)</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>MATH 150 (or 151)</td>
<td>3</td>
<td></td>
<td>Software Engineering CMPT 276</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Discrete Math 1 CMPT 101</td>
<td>3</td>
<td></td>
<td>Computer Architecture CMPT 295</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CS Writing 1(^3)</td>
<td>3</td>
<td></td>
<td>Discrete Math II CMPT 276</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CMPT 105W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Programming 2 CMPT 125 + 127</td>
<td>6</td>
<td></td>
<td>Linear Algebra MATH 232 or 240</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Calculus 2 MATH 152</td>
<td>3</td>
<td></td>
<td>Probability &amp; Statistics STAT 270</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Three</strong> breadth-WQB courses(^4)</td>
<td>9</td>
<td></td>
<td><strong>Two</strong> remaining Breadth courses of WQB</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>out of five</strong> required from list:</td>
<td></td>
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<tr>
<td>2 BSoc, 2 BHum, 1 BSci</td>
<td></td>
<td></td>
<td><strong>Two</strong> electives (any lower- or upper-division courses)</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

#### Year 2 – 10 courses (30 units)

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Units</th>
<th>Complete?</th>
<th>Requirements</th>
<th>Units</th>
<th>Complete?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Systems I CMPT 300</td>
<td>3</td>
<td></td>
<td>Four any CMPT 4xx course to satisfy depth requirements</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Algorithms I CMPT 307</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numerical Analysis I MACM 316</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS Writing II CMPT 376W</td>
<td>3</td>
<td></td>
<td>Five electives (any lower- or upper-division courses)</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td><strong>Five</strong> upper-division (3xx or 4xx)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>from Tables I or III (below or on the calendar), with at least <strong>three</strong> from different areas from Table I. <em>ex: CMPT 310 (AI), 361 (CGM), 371 (CS), 354 (any from Table I/III), MACM 316 (any from Table II/III)</em></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One any SFU upper-division course</td>
<td>3</td>
<td></td>
<td>One any SFU upper-division course</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

*Note: We recommend taking CMPT 354, 361, 371, and 383, as they contain all the necessary prerequisites for any CMPT 4xx courses.*

\(^1\) Courses in **RED** are required; courses in **GREEN** are recommended. This document uses shortened course titles.

\(^2\) MATH 150 is a 4-unit course, while MATH 151 is a 3-unit course.

\(^3\) CMPT 105W satisfies "Lower Division W" for WQB.

\(^4\) See the following link for the list of available breadth-WQB courses: [https://bit.ly/394kWPv](https://bit.ly/394kWPv)
Note:
Students are strongly recommended to take three co-op terms in their academic career to better define their area of interest in Computing Science. To find out more about cooperative work experience, please visit the Computing Science cooperative education website.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Complete</th>
<th>In Progress</th>
<th>Total</th>
<th>Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Units (min. 120)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Upper-Division Units (min. 45)</td>
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<td></td>
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<tr>
<td>CS Upper-Division Units (min. 39)</td>
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</tbody>
</table>

Table I – Computing Science Concentrations

**ARTIFICIAL INTELLIGENCE (AI)**
- CMPT 310 - Artificial Intelligence Survey (3)
- CMPT 340 - Biomedical Computing (3)
- CMPT 411 - Knowledge Representation (3)
- CMPT 412 - Computational Vision (3)
- CMPT 413 - Computational Linguistics (3)
- CMPT 414 - Model-Based Computer Vision (3)
- CMPT 417 - Intelligent Systems (3)
- CMPT 419 - Special Topics in Artificial Intelligence (3)

**COMPUTER GRAPHICS AND MULTIMEDIA (CGM)**
- CMPT 361 - Introduction to Computer Graphics (3)
- CMPT 363 - User Interface Design (3)
- CMPT 365 - Multimedia Systems (3)
- CMPT 461 - Image Synthesis (3)
- CMPT 464 - Geometric Modelling in Computer Graphics (3)
- CMPT 466 - Animation (3)
- CMPT 469 - Special Topics in Computer Graphics (3)

**COMPUTING SYSTEMS (CS)**
- CMPT 300 - Operating Systems I (3)
- CMPT 305 - Computer Simulation and Modelling (3)
- CMPT 371 - Data Communications and Networking (3)
- CMPT 379 - Principles of Compiler Design (3)
- CMPT 431 - Distributed Systems (3)
- CMPT 433 - Embedded Systems (3)
- CMPT 471 - Networking II (3)
- CMPT 479 - Special Topics in Computing Systems (3)
- CMPT 499 - Special Topics in Computer Hardware (3)

**INFORMATION SYSTEMS (IS)**
- CMPT 353 - Computational Data Science (3)
- CMPT 354 - Database Systems I (3)
- CMPT 441 - Computational Biology (3)
- CMPT 454 - Database Systems II (3)

**PROGRAMMING LANGUAGES AND SOFTWARE (PLS)**
- CMPT 373 - Software Development Methods (3)
- CMPT 383 - Comparative Programming Languages (3)
- CMPT 384 - Symbolic Computing (3)
- CMPT 473 - Software Testing, Reliability and Security (3)
- CMPT 475 - Requirements Engineering (3)
- CMPT 477 - Introduction to Formal Verification (3)
- CMPT 489 - Special Topics in Programming Language (3)

**THEORETICAL COMPUTING SCIENCE (TCS)**
- CMPT 307 - Data Structures and Algorithms (3)
- CMPT 308 - Computability and Complexity (3)
- CMPT 404 - Cryptography and Cryptographic Protocols (3)
- CMPT 405 - Design and Analysis of Computing Algorithms (3)
- CMPT 407 - Computational Complexity (3)
- CMPT 408 - Theory of Computing Networks/Communications (3)
- CMPT 409 - Special Topics in Theoretical Computing Science (3)
- MACM 300 - Introduction to Formal Languages and Automata with Applications (3)

Table III – Computing Mathematics Courses

- MACM 316 - Numerical Analysis I (3)
- MACM 401 - Introduction to Computer Algebra (3)
- MACM 442 - Cryptography (3)
- MATH 308 - Linear Optimization (3)
- MATH 340 - Algebra II: Rings and Fields (3)
- MATH 343 - Applied Discrete Mathematics (3)