BSc in Data Science and Technology

Students taking the BSc Program in Data Science and Technology as their first major are exempted from the School Requirements. However, they are still required to complete the University requirements in addition to the major requirements for graduation. For details please refer to the respective sections on this website.

Some courses used to fulfill Major Requirements can also fulfill University Common Core Requirements. Students may reuse a maximum of 6 credits of these courses to count towards Common Core Requirements.

Students may use no more than 6 credits earned from courses offered in pure online delivery mode to satisfy the graduation requirements of a degree program. This 6-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

For students graduating with an additional major, they must take all the requirements specified for that major, within which they must complete at least 20 single-counted credits. These 20 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement.

Major Requirements

Students MUST take the following courses prior to enrollment into the major

Major Pre-requisite course(s)

<table>
<thead>
<tr>
<th></th>
<th>Credit(s) attained</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH</td>
<td>Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020]</td>
</tr>
<tr>
<td>MATH 1012</td>
<td>Calculus IA</td>
</tr>
<tr>
<td>MATH 1013</td>
<td>Calculus IB</td>
</tr>
<tr>
<td>MATH 1014</td>
<td>Calculus II</td>
</tr>
<tr>
<td>MATH 1020</td>
<td>Accelerated Calculus</td>
</tr>
<tr>
<td>MATH 1023</td>
<td>Honors Calculus I</td>
</tr>
<tr>
<td>MATH 1024</td>
<td>Honors Calculus II</td>
</tr>
<tr>
<td>COMP</td>
<td>Note: COMP 1021 OR COMP 1022P OR COMP 1022Q</td>
</tr>
<tr>
<td>COMP 1021</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 1022P</td>
<td>Introduction to Computing with Java</td>
</tr>
<tr>
<td>COMP 1022Q**</td>
<td>Introduction to Computing with Excel VBA</td>
</tr>
<tr>
<td>SCIE/ENGG</td>
<td>Note: SCIE 1000 OR ENGG 1010</td>
</tr>
<tr>
<td>SCIE 1000</td>
<td>Science School Induction</td>
</tr>
<tr>
<td>ENGG 1010</td>
<td>Academic Orientation</td>
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</table>
## Required Course(s)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit(s) Attained</th>
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</thead>
<tbody>
<tr>
<td>DSCT 4900</td>
<td>Academic and Professional Development</td>
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<tr>
<td>MATH 2023</td>
<td>Multivariable Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 2121</td>
<td>Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 2131</td>
<td>Honors in Linear and Abstract Algebra I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 2411</td>
<td>Applied Statistics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 2421</td>
<td>Probability</td>
<td>4</td>
</tr>
<tr>
<td>MATH 2431</td>
<td>Honors Probability</td>
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</tr>
<tr>
<td>MATH 3322</td>
<td>Matrix Computation</td>
<td>3</td>
</tr>
<tr>
<td>MATH 3332</td>
<td>Data Analytic Tools</td>
<td>3</td>
</tr>
<tr>
<td>MATH 3423</td>
<td>Statistical Inference</td>
<td>3</td>
</tr>
<tr>
<td>MATH 3424</td>
<td>Regression Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH/COMP 4432</td>
<td>Statistical Machine Learning</td>
<td>3</td>
</tr>
<tr>
<td>COMP 4211</td>
<td>Machine Learning</td>
<td>3</td>
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<tr>
<td>MATH 4995</td>
<td>Capstone Project for Data Science</td>
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<tr>
<td>COMP 4981</td>
<td>Final Year Project</td>
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<tr>
<td>COMP 4981H</td>
<td>Final Year Thesis</td>
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<tr>
<td>COMP 2011</td>
<td>Programming with C++</td>
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<tr>
<td>COMP 2012</td>
<td>Object-Oriented Programming and Data Structures</td>
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<tr>
<td>COMP 2012H</td>
<td>Honors Object-Oriented Programming and Data Structures</td>
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<tr>
<td>COMP 2711</td>
<td>Honor's Discrete Mathematical Tools for Computer Science</td>
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<tr>
<td>COMP 2711H</td>
<td>Design and Analysis of Algorithms</td>
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<tr>
<td>COMP 3711</td>
<td>Design and Analysis of Algorithms</td>
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</tr>
<tr>
<td>LANG 2010</td>
<td>English for Science I</td>
<td>3</td>
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<tr>
<td>LANG 2010H</td>
<td>English for Science I</td>
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<tr>
<td>LANG 2030</td>
<td>Technical Communication I</td>
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<tr>
<td>LANG 2030H</td>
<td>Technical Communication I</td>
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<tr>
<td>LANG 3021</td>
<td>Science Communication in English (Mathematics)</td>
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<tr>
<td>LANG 4030</td>
<td>Technical Communication II for CSE &amp; CPEG</td>
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Note: Terms in [brackets] are optional.

**2020-21 DSCT (4Y) (2019-20 intake)**
Elective(s)

<table>
<thead>
<tr>
<th>MATH/COMP</th>
<th>Course</th>
<th>Credit(s)</th>
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<tbody>
<tr>
<td>MATH/COMP</td>
<td>Data Science Electives</td>
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<tr>
<td>COMP</td>
<td>3211</td>
<td>Fundamentals of Artificial Intelligence</td>
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<tr>
<td>COMP</td>
<td>3311</td>
<td>Database Management Systems</td>
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<tr>
<td>COMP</td>
<td>3632</td>
<td>Principles of Cybersecurity</td>
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<tr>
<td>COMP</td>
<td>4021</td>
<td>Internet Computing</td>
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<td>COMP</td>
<td>4221</td>
<td>Introduction to Natural Language Processing</td>
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<tr>
<td>COMP</td>
<td>4331</td>
<td>Data Mining</td>
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<td>COMP</td>
<td>4332</td>
<td>Big Data Mining and Management</td>
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<tr>
<td>COMP</td>
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<td>Image Processing</td>
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<tr>
<td>COMP</td>
<td>4631</td>
<td>Computer and Communication Security</td>
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<tr>
<td>COMP</td>
<td>4651</td>
<td>Cloud Computing and Big Data Systems</td>
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<tr>
<td>MATH</td>
<td>2033</td>
<td>Mathematical Analysis</td>
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<tr>
<td>MATH</td>
<td>3312</td>
<td>Numerical Analysis</td>
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<tr>
<td>MATH</td>
<td>3425</td>
<td>Stochastic Modeling</td>
</tr>
<tr>
<td>MATH</td>
<td>3427</td>
<td>Bayesian Statistics</td>
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<tr>
<td>MATH</td>
<td>4335</td>
<td>Introduction to Optimization</td>
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<tr>
<td>MATH</td>
<td>4336</td>
<td>Introduction to Mathematics of Image Processing</td>
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<tr>
<td>MATH</td>
<td>4424</td>
<td>Multivariate Analysis</td>
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<tr>
<td>MATH</td>
<td>4425</td>
<td>Introductory Time Series</td>
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</table>

**Remarks on course(s):**
- COMP 1022Q: The course was last offered in 2019-20 and was deleted subsequently.