## Computer Science Breadth Areas

### CS Breadth: Capstone Project (take two)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 4738</td>
<td>Senior Design I – Fall only</td>
<td>3</td>
<td>Pre=CSCI 3287, CSCI 3415, CSCI 3453, CSCI 3508</td>
</tr>
<tr>
<td>CSCI 4739</td>
<td>Senior Design II – Spring only</td>
<td>3</td>
<td>Pre=CSCI 4738</td>
</tr>
</tbody>
</table>

### CS Breadth: Data Science (take one)

#### Courses offered rotationally

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 4455</td>
<td>Data Mining</td>
<td>3</td>
<td>Pre=MATH 3195, CSCI 3287 &amp; CSCI 3412</td>
</tr>
<tr>
<td>CSCI 4580</td>
<td>Data Science</td>
<td>3</td>
<td>Pre=MATH 3195, CSCI 3287 &amp; CSCI 3412</td>
</tr>
<tr>
<td>CSCI 4930</td>
<td>Machine Learning</td>
<td>3</td>
<td>Pre=MATH 3195 &amp; CSCI 3412</td>
</tr>
<tr>
<td>CSCI 4931</td>
<td>Deep Learning</td>
<td>3</td>
<td>Pre=MATH 3195 &amp; CSCI 3412</td>
</tr>
<tr>
<td>CSCI 4951</td>
<td>Big Data Systems</td>
<td>3</td>
<td>Pre=MATH 3195, CSCI 3287 &amp; CSCI 3412</td>
</tr>
</tbody>
</table>

### CS Breadth: Scientific Computing (take one)

#### Courses offered rotationally

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 3560</td>
<td>Probability and Computing</td>
<td>3</td>
<td>Pre=Math 2411 &amp; CSCI 2511</td>
</tr>
<tr>
<td>CSCI 4650</td>
<td>Numerical Analysis I</td>
<td>3</td>
<td>Pre=Math 2411, Math 3191 or 3195</td>
</tr>
<tr>
<td>CSCI 4110</td>
<td>Applied Number Theory</td>
<td>3</td>
<td>Pre=2511 or MATH 3000</td>
</tr>
</tbody>
</table>

### CS Breadth: Secure Computing (take one)

#### Courses offered rotationally

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 4741</td>
<td>Principles of Cyber Security</td>
<td>3</td>
<td>Pre=CSCI 3287 &amp; 3761</td>
</tr>
<tr>
<td>CSCI 4742</td>
<td>Cybersecurity Programming</td>
<td>3</td>
<td>Pre=CSCI 3415</td>
</tr>
<tr>
<td>CSCI 4743</td>
<td>Cyber and Infrastructure Defense</td>
<td>3</td>
<td>Pre=CSCI 3761</td>
</tr>
</tbody>
</table>

### CS Breadth: System Software (take two)

<table>
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<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 4287</td>
<td>Embedded Systems Programming</td>
<td>3</td>
<td>Pre=CSCI 3453</td>
</tr>
<tr>
<td>CSCI 4565</td>
<td>Introduction to Computer Graphics</td>
<td>3</td>
<td>Pre=CSCI 3412 &amp; Math 3191 or 3195</td>
</tr>
</tbody>
</table>

Course prerequisites change regularly. Students are responsible for consulting advisors & the class schedule in the student portal for prerequisite information.

## Science Choices

Choice 1 and 2 will require additional credits to meet the 10 required credits. Please see handbook for more information.

- **Choice 1:** BIOL 2051 & 2071; BIOL 2061 & 2081
- **Choice 2:** CHEM 2031 & 2038; CHEM 2061 & 2068
- **Choice 3:** PHYS 2311 & 2321; PHYS 2331 & 2341