Mathematics and Computer Science

This option is available for students who wish to take advantage of the close connections between Computer Science and Mathematics.

Major Requirements

Major: Mathematics & Computer Science

Degree Type: B.A. or B.S.
Minimum Degree Credits to Graduate: 120

General Education Requirements for Baccalaureate Degree

- A list of approved general education courses is available here: [link]
- General education courses may be used to satisfy requirements for both general education and the major, minor, and program emphases, where applicable. Students should carefully review the major, minor, and program emphases requirements for minimum grade restrictions, should they apply.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 110</td>
<td>College Composition I</td>
<td></td>
</tr>
<tr>
<td>ENGL 120</td>
<td>College Composition II</td>
<td></td>
</tr>
<tr>
<td>COMM 110</td>
<td>Fundamentals of Public Speaking</td>
<td></td>
</tr>
</tbody>
</table>

Upper Division Writing

Quantitative Reasoning

Science and Technology

Humanities and Fine Arts

Social and Behavioral Sciences

Wellness

Cultural Diversity

Global Perspectives

Total Credits

* May be satisfied by completing courses in another General Education category.
† May be satisfied with courses required in the major. Review major requirements to determine if a specific upper division writing course is required.

College Requirements

Bachelor of Arts (BA) Degree – An additional 12 credits Humanities and Social Sciences and proficiency at the second year level in a modern foreign language.

Bachelor of Science (BS) Degree – An additional 6 credits in Humanities or Social Sciences

* Humanities and Social Sciences may be fulfilled by any course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GEOG, GERM, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student’s major.

Major Requirements

A grade of ‘C’ or better is required in MATH & CSCI prefix courses used toward the major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 129</td>
<td>Basic Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 165</td>
<td>Calculus I (May satisfy general education category R)</td>
<td></td>
</tr>
<tr>
<td>MATH 166</td>
<td>Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH 265</td>
<td>Calculus III</td>
<td></td>
</tr>
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</table>
### Mathematics and Computer Science

#### Mathematics Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 266</td>
<td>Introduction to Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 270</td>
<td>Introduction to Abstract Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 329</td>
<td>Intermediate Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 420</td>
<td>Abstract Algebra I</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose 6 credits of 300-400 level Math courses (we recommend two of the following):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 421</td>
<td>Abstract Algebra II</td>
<td></td>
</tr>
<tr>
<td>MATH 430</td>
<td>Graph Theory</td>
<td></td>
</tr>
<tr>
<td>MATH 436</td>
<td>Combinatorics</td>
<td></td>
</tr>
<tr>
<td>MATH 488</td>
<td>Numerical Analysis I</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 491</td>
<td>Seminar</td>
<td>2</td>
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</tbody>
</table>

#### Computer Science Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 160</td>
<td>Computer Science I</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 161</td>
<td>Computer Science II</td>
<td>4</td>
</tr>
<tr>
<td>CSCI 189</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>CSCI 213</td>
<td>Modern Software Development</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 313</td>
<td>Software Development for Games</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 336</td>
<td>Theoretical Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 366</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 372</td>
<td>Comparative Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 374</td>
<td>Computer Organization and Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 445</td>
<td>Software Projects Capstone</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 467</td>
<td>Algorithm Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 489</td>
<td>Social Implications of Computers</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Related Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>STAT 367</td>
<td>Probability</td>
<td>3</td>
</tr>
<tr>
<td>STAT 368</td>
<td>Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 418</td>
<td>Simulation Models</td>
<td>3</td>
</tr>
<tr>
<td>CSCI 453</td>
<td>Linear Programming and Network Flows</td>
<td></td>
</tr>
</tbody>
</table>

Any 400 level Mathematics Course not used to satisfy a requirement above

**Total Credits**: 80

### Program Notes

- Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail.