Computer Science and Mathematics

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

Major Requirements

Major: Computer Science & Mathematics

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 (http://bulletin.ndsu.edu/academic-policies/undergraduate-policies/general-education/#gendecoursestext).
- 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>12</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 (R) †

Science and Technology (S) †

Humanities and Fine Arts (A) †

Social and Behavioral Sciences (B) †

Wellness (W) †

Cultural Diversity (D) †

Global Perspectives (G) †

Total Credits: 39

* 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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>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.</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Bachelor of Science (BS) Degree – An additional 6 credits in Humanities or Social Sciences</td>
<td>6</td>
</tr>
</tbody>
</table>

* 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>
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<tbody>
<tr>
<td>MATH 129</td>
<td>Basic Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 165</td>
<td>Calculus I (May satisfy general education category R)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 166</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 265</td>
<td>Calculus III</td>
<td>4</td>
</tr>
</tbody>
</table>
MATH 266  Introduction to Differential Equations  3
MATH 270  Introduction to Abstract Mathematics  3
MATH 329  Intermediate Linear Algebra  3
MATH 420  Abstract Algebra I  3

Choose 6 credits of 300-400 level Math courses (we recommend two of the following):  6
  MATH 421  Abstract Algebra II
  MATH 430  Graph Theory
  MATH 436  Combinatorics
  MATH 488  Numerical Analysis I

MATH 491  Seminar  2

**Computer Science Major Requirements**

CSCI 160  Computer Science I  4
CSCI 161  Computer Science II  4
CSCI 189  Skills for Academic Success 1
CSCI 213  Modern Software Development  3
CSCI 313  Software Development for Games  3
CSCI 336  Theoretical Computer Science  3
CSCI 366  Database Systems  3
CSCI 372  Comparative Programming Languages  3
CSCI 374  Computer Organization and Architecture  3
CSCI 445  Software Projects Capstone  3
CSCI 467  Algorithm Analysis  3
CSCI 489  Social Implications of Computers  3

**Related Required Courses**

STAT 367  Probability  3
STAT 368  Statistics  3

Select one from the following:  3
  CSCI 418  Simulation Models
  CSCI 453  Linear Programming and Network Flows

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

**Total Credits**  80

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1 CSCI 189 is only required for first-time, first-year students—A first-time, first-year student is defined as a student who has not yet completed a college course as a college student. Students that are not first-time, first-year students that either transfer into the university or change their major are not required to take CSCI 189.

**Program Notes**

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