BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Students must complete the Core, a Track, and the Science & Ethics requirements.

**Core Computer Science Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 120</td>
<td>Computer Programming I</td>
<td>4</td>
</tr>
<tr>
<td>CSC 220</td>
<td>Computer Programming II</td>
<td>4</td>
</tr>
<tr>
<td>CSC 314</td>
<td>Computer Organization and Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CSC 317</td>
<td>Data Structures And Algorithm Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CSC 322</td>
<td>System Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSC 427</td>
<td>Theory Of Computing</td>
<td>3</td>
</tr>
<tr>
<td>CSC 431</td>
<td>Introduction To Software Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

**Core Mathematics Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 161</td>
<td>Calculus I (or equivalent - MTH 140 and MTH 141, MTH 151, or MTH 171)</td>
<td>4</td>
</tr>
<tr>
<td>MTH 162</td>
<td>Calculus II (or equivalent - MTH 172)</td>
<td>4</td>
</tr>
<tr>
<td>MTH 210</td>
<td>Introduction to Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MTH 224</td>
<td>Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MTH 309</td>
<td>Discrete Mathematics I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Tracks**

Select one of the following Tracks: 17

**Comprehensive Track:** 1,2

- CSC 419 Programming Languages
- CSC 421 Principles Of Computer Operating Systems
- CSC 423 Database Systems
- CSC 424 Computer Networks
- Select a minimum of 5 credit hours of approved electives

**Flexible Track:** 1

Select a minimum of 17 credit hours of approved electives

**Computational Science Track:** 3

- CSC 210 Computing for Scientists
- CSC 528 Introduction to Parallel Computing
- CSC 547 Computational Geometry
- CSC 548 Bioinformatics Algorithms
- CSC 410 Computer Science Project Planning
  or CSC 411 Computer Science Project Implementation
- MTH 320 Introduction to Numerical Analysis
  or MTH 520 Numerical Linear Algebra
- BIL 150 General Biology 4
  or BIL 151 General Biology Laboratory

**Cryptography and Security Track:** 3

- CSC 421 Principles Of Computer Operating Systems
- CSC 424 Computer Networks
- CSC 507 Data Security and Cryptography
- CSC 410 Computer Science Project Planning
  or CSC 411 Computer Science Project Implementation
- Select one of the following:
  - MTH 461 Survey Of Modern Algebra
  - MTH 505 Theory of Numbers
  - MTH 561 Abstract Algebra I
  - Select a minimum of 2 credit hours of approved electives

**Graphics and Games Track:** 3

- CSC 329 Introduction to Game Programming
- CSC 529 Introduction to Computer Graphics
- CSC 545 Introduction to Artificial Intelligence
- CSC 410 Computer Science Project Planning
  or CSC 411 Computer Science Project Implementation
- Select a minimum of 5 credit hours of approved electives 5
- PHY 101 College Physics I 6
  or PHY 205 University Physics I

**Science & Ethics Requirement**

An approved two semester sequence of courses with laboratory 7

- PHI 115 Social and Ethical Issues in Computing

**Approved Electives**

Any CSC 2XX, CSC 3XX, CSC 4XX, CSC 5XX 8

- BTE 360 Systems Analysis and Design
- BTE 465 Web Application Development
- ECE 414 Computer Organization and Design
- ECE 514 Computer Architecture
- ECE 537 Principles of Artificial Intelligence
- ECE 548 Machine Learning
- ECE 553 Neural Networks
- ECE 572 Object-Oriented and Distributed Database Management Systems
- ECE 574 Agent Technology
- ECE 577 Data Mining
- MTH 320 Introduction to Numerical Analysis
- MTH 505 Theory of Numbers
- MTH 520 Numerical Linear Algebra
- MTH 521 Numerical Methods In Differential Equations
- MTH 524 Introduction to Probability Theory
- MTH 525 Introduction to Mathematical Statistics

**Total Credit Hours** 57

1 Available to all students.
2 The Comprehensive Track provides coverage of the topics in Computer Science prescribed by the Association of Computing Machinery curriculum and the ABET Computing Accreditation Commission.
3 Requires permission of the Director of Undergraduate Studies.
4 The courses used to meet the Science requirement must include BIL 150 and BIL 151.
5 In addition to the generally approved electives, MMI 504 and MMI 505 are approved for the Graphics and Games track.
6 The courses used to meet the Science requirement must include either PHY 101 or PHY 205.
7 Courses may be taken in Biology, Chemistry, or Physics.
Maximally 6 credit hours from CSC 40X Computer Science Practicum, and maximally 6 credit hours from CSC 481.