## COMPUTER SCIENCE MINOR

### Required Courses
- **CSC/CPE 101** Fundamentals of Computer Science 4
- **CSC/CPE 202** Data Structures 4
- **CSC/CPE 203** Project-Based Object-Oriented Programming and Design 4
- **CSC 225** Introduction to Computer Organization 4
- **CSC/CPE 357** Systems Programming 4

### Approved Electives
Select from the following: 12
- **CPE 315** Computer Architecture
- **CPE 416** Autonomous Mobile Robotics
- **CPE 419** Applied Parallel Computing
- **CPE 464** Introduction to Computer Networks
- **CPE 465** Advanced Computer Networks
- **CPE 482** Advanced Topics in Systems for Computer Engineering
- **CPE 485** Autonomous Robot Navigation
- **CSC 300** Professional Responsibilities
- **CSC 301** Personal Software Process
- **CSC 305** Individual Software Design and Development
- **CSC 307** Introduction to Software Engineering
- **CSC 308** Software Engineering I
- **CSC 309** Software Engineering II
- **CSC/CPE 321** Introduction to Computer Security
- **CSC 323** Cryptography Engineering
- **CSC 325** Introduction to Privacy: Policy and Technology
- **CSC 344** Music Programming
- **CSC 348** Discrete Structures
- **CSC 349** Design and Analysis of Algorithms
- **CSC 365** Introduction to Database Systems
- **CSC 366** Database Modeling, Design and Implementation
- **CSC 369** Introduction to Distributed Computing
- **CSC 371** Game Design
- **CSC 378** Interactive Entertainment Engineering
- **CSC 400** Special Problems
- **CSC 402** Software Requirements Engineering
- **CSC 405** Software Construction
- **CSC 406** Software Deployment
- **CSC 409** Current Topics in Software Engineering
- **CSC 410** Software Evaluation
- **CSC/CPE 422** Network and Web Security
- **CSC 424** Software Security
- **CSC 429** Current Topics in Computer Security
- **CSC 430** Programming Languages I
- **CSC/CPE 431** Programming Languages II
- **CSC 435** Introduction to Object Oriented Design Using Graphical User Interfaces
- **CSC 436** Mobile Application Development
- **CSC 437** Web Development
- **CSC 445** Theory of Computation I
- **CSC 448** Bioinformatics Algorithms
- **CSC/CPE 453** Introduction to Operating Systems
- **CSC/CPE 454** Implementation of Operating Systems
- **CSC/CPE 458** Current Topics in Computer Systems
- **CSC 466** Knowledge Discovery from Data
- **CSC 468** Database Management Systems Implementation
- **CSC/CPE 471** Introduction to Computer Graphics
- **CSC 473** Advanced Rendering Techniques
- **CSC 474** Computer Animation
- **CSC/CPE 476** Real-Time 3D Computer Graphics Software
- **CSC 477** Scientific and Information Visualization
- **CSC 478** Current Topics in Computer Graphics
- **CSC 480** Artificial Intelligence
- **CSC 481** Knowledge Based Systems
- **CSC 483** Current Topics in Human-Computer Interaction
- **CSC 484** User-Centered Interface Design and Development
- **CSC 486** Human-Computer Interaction Theory and Design
- **CSC 489** Current Topics in Artificial Intelligence
- **CSC 490** Selected Advanced Topics
- **CSC 508** Software Engineering I
- **CSC 509** Software Engineering II
- **CSC/CPE 515** Computer Architecture
- **CSC 521** Computer Security
- **CSC 530** Languages and Translators
- **CSC 540** Theory of Computation II
- **CSC 550** Operating Systems
- **CSC 560** Database Systems
- **CSC/CPE 564** Computer Networks: Research Topics
- **CSC 566** Topics in Advanced Data Mining
- **CSC/CPE 569** Distributed Computing
- **CSC 570** Current Topics in Computer Science
- **CSC 572** Computer Graphics
- **CSC 580** Artificial Intelligence
- **CSC 581** Computer Support for Knowledge Management
- **CSC 582** Introduction to Natural Language Processing
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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Total units</th>
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<tbody>
<tr>
<td>DATA 301</td>
<td>Introduction to Data Science</td>
<td>32</td>
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1. Choose from CSC/CPE upper-division courses open to CSC majors. Must be approved via the CSC minor form upon acceptance to the minor.

2. Must be approved via the CSC minor form, signed by the minor advisor.