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 1
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 313 Teaching Computing
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 377 Introduction to Mixed Reality
CSC 378 Interactive Entertainment Engineering
CSC 400 Special Problems 2
CSC 402 Software Requirements Engineering
CSC 405 Software Construction
CSC 406 Senior Project - 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
CSC/CPE 431 Compiler Construction
CSC 435 Introduction to Object Oriented Design Using Graphical User Interfaces
CSC 436 Mobile Application Development
CSC 437 Dynamic Web Development
CSC 445 Theory of Computation I
CSC 448 Bioinformatics Algorithms
CSC 449 Current Topics in Computer Science
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 482 Speech and Language Processing
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 487 Deep Learning
CSC 489 Current Topics in Artificial Intelligence
CSC 490 Selected Advanced Topics 2
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 2
CSC 572 Computer Graphics
CSC 580 Artificial Intelligence
CSC 581 Computer Support for Knowledge Management
## Computer Science Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 582</td>
<td>Computational Linguistics</td>
<td></td>
</tr>
<tr>
<td>DATA 301</td>
<td>Introduction to Data Science</td>
<td></td>
</tr>
</tbody>
</table>

**Total units**: 32

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.