

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

Approved Electives ¹

Select from the following:		12
CPE 315	Computer Architecture	
CPE 316	Microcontrollers and Embedded Applications	
CPE 329	Microcontroller-Based Systems Design	
CPE 333	Computer Hardware Architecture and Design	
CPE 416	Autonomous Mobile Robotics	
CPE 426	Introduction to Hardware Security	
CPE/EE 428	Computer Vision	
CPE 439	Introduction to Real-Time Operating Systems	
CPE/EE 442	Real Time Embedded Systems	
CPE 446	Design of Fault-Tolerant Digital Systems	
CPE 464	Introduction to Computer Networks	
CPE 465	Advanced Computer Networks	
CSC 300	Professional Responsibilities	
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 320	Practical Computer Security for Everyone ²	
CSC/CPE 321	Introduction to Computer Security ²	
CSC 323	Cryptography Engineering	
CSC 325	Introduction to Privacy: Policy and Technology	
CSC 344	Music Programming	
CSC 349	Design and Analysis of Algorithms	
CSC/CPE 357	Systems Programming	
CSC 364	Introduction to Networked, Distributed, and Parallel Computing	
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 ³	

CSC 409	Current Topics in Software Engineering
CSC 410	Software Evaluation
CSC 421	Binary Exploitation: Tools and Techniques
CSC/CPE 422	Network Security
CSC 424	Software Security
CSC/CPE 425	Wireless Security
CSC 429	Current Topics in Computer Security
CSC 430	Programming Languages
CSC/CPE 431	Compiler Construction
CSC 436	Mobile Application Development
CSC 437	Dynamic 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 469	Distributed Systems
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 484	User-Centered Interface Design and Development
CSC 486	Human-Computer Interaction Theory and Design
CSC 487	Deep Learning
CSC 490	Selected Advanced Topics ³
CSC 508	Software Engineering I
CSC 509	Software Engineering II
CSC 513	Computing Education Research and Practice
CSC/CPE 515	Computer Architecture
CSC 521	Computer Security
CSC 524	System Security
CSC 530	Languages and Translators
CSC 540	Theory of Computation II
CSC 549	Advanced Algorithm Design and Analysis
CSC 550	Operating Systems
CSC 560	Database Systems
CSC/CPE 564	Computer Networks: Research Topics

2 Computer Science Minor

CSC 566	Topics in Advanced Data Mining
CSC 569	Distributed Computing
CSC 570	Current Topics in Computer Science ³
CSC 572	Computer Graphics
CSC 580	Artificial Intelligence
CSC 581	Computer Support for Knowledge Management
CSC 582	Computational Linguistics
CSC 587	Advanced Deep Learning
DATA 301	Introduction to Data Science

Total units **24**

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 Cannot take both CSC 320 and CSC 321 as Approved Electives.

³ Must be approved via the CSC minor form, signed by the minor advisor.