Computer Science

Bachelor of Science, Bachelor of Arts, Teaching Endorsement, Minor

The computer science curriculum promotes the development of skills in problem solving using a computer. The major is designed to prepare students for either careers in the information technology field or for graduate study.

Upon graduation, students majoring in computer science will be able to use common algorithms and data structures and apply them to new problems, demonstrate fluency in object-oriented programming in both desktop and Internet applications, use relational database technology, understand basic computer architecture, and understand the basic concepts of operating systems and data communications.

First-year students who intend to major in computer science should take the CSCI 201-202 Computer Programming sequence in the fall and spring terms of their first year.

First-year students who intend to major in a field other than computer science are encouraged to take CSCI 100 Introduction to Computers. CSCI 100 is an introductory course recommended for students in all disciplines and is not part of the major or minor sequence. This class meets all of the requirements of the Information Technology competency for general education.

Bachelor of Science
Requirements: Ten to 13 courses numbered above 200 including CSCI 201, 202, 280, 325, 345, 360, 380 and 425 and four credit hours of Intensive Study. Required supporting courses: MATH 200 or 324, MATH 225, and PHIL 210 or 212. No more than 3 credit hours of C- or lower in CSCI courses.

Bachelor of Arts, Teaching Endorsement
Requirements: Ten to 13 courses numbered above 200 including CSCI 201, 202, 280, 325, 345, 360, 380 and 425 and four credit hours of Intensive Study. Required supporting courses: MATH 200 or 324, PHIL 210 or 212, ACCT 203 and 204, BUAD 225, ECON 210 and 211. No more than 3 credit hours of C- or lower in CSCI courses.

Minor
Requirements: Any six CSCI classes numbered above 200.

Faculty
Dr. Sonu Jose, Assistant Professor of Computer Science
Mr. Tom Kleen, Professor of Computer Science, *Emeritus*

Computer Science Courses (CSCI)

CSCI 100 Introduction to Computers   2 sem. hrs. (IT)
An introduction to common computer applications. All sessions will be held in one of the university's computer labs. Students will become proficient with Windows, Word (word processor), Excel (spreadsheet), PowerPoint (presentation graphics), and use of the Internet.   • Fall/Spring

CSCI 201 Computer Programming I   3 sem. hrs. (QR)
An introduction to problem solving and object-oriented programming. Students will learn the basic concepts of programming using the Python programming language. Topics covered include basic data types, control structures and subprograms. Students will learn how to design, code, debug, document, and execute programs using techniques of good programming style. Lab included.
Prerequisite: high school algebra and previous computer experience   • Fall

CSCI 202 Computer Programming II   **3 sem. hrs.**
A continuation of CSCI 201. Topics to be covered include arrays, structures, strings, files, classes, and objects. Students will be expected to write and run a number of larger programs using the C# programming language. Lab included.
Prerequisite: Grade of C or better in CSCI 201   • Spring

CSCI 280 Computer Organization   **3 sem. hrs.**
An introduction to computer hardware and software. Topics covered include basic hardware components of computer systems, machine and assembly language, data representation, mass storage devices, input and output devices. Lab included.
Prerequisite: CSCI 201   • Fall (even years)

CSCI 321 Management Information Systems   **3 sem. hrs.**
See MIS 321   • Fall

CSCI 322 Systems Analysis   **3 sem. hrs.**
See MIS 322   • Spring (even years)

CSCI 325 Data Structures and Algorithms   **3 sem. hrs. (QR)**
Students will study the construction, manipulation, use and efficiency of complex data structures and algorithms using the Java programming language.
Prerequisite: Grade of C or better in CSCI 202   • Fall (odd years)

CSCI 345 Database Management   **3 sem. hrs.**
A study of database concepts and database management systems. Topics covered include database design, relational models, normalization, and queries. Hands-on experience with a database management system is provided.
Prerequisite: Grade of C or better in CSCI 202   • Spring (even years)

CSCI 360 Networking/Communications   **3 sem. hrs.**
Students will study network design and management, and implementation of local area networks.
Prerequisite: CSCI 280   • Fall (odd years)

CSCI 380 Operating Systems   **3 sem. hrs.**
Students will study various operating systems and how they operate. Windows client and server systems, UNIX/Linux systems, and Mac systems will all be discussed. Hands-on experience with various systems will be provided via virtual machines.
Prerequisite: CSCI 280   • Spring (odd years)

CSCI 425 Internet Programming   **3 sem. hrs.**
This class is an introduction to writing programs for Web pages. Topics covered include HTML 5, CSS, client-side programming with JavaScript, and server-side programming. Students will learn to create a database driven interactive web site. This is a hands-on project-oriented class and each student will write a number of programs.
Prerequisite: Grade of C or better in CSCI 202 and CSCI 345   • Spring (odd years)

CSCI 390, 490 Internships   **3 sem. hrs. each**
On-the-job experience at a local business.
Prerequisite: Senior status, GPA of 3.00 in computer science courses and the consent of the department.

CSCI 375, 475 Independent Study   **3 sem. hrs.**
With departmental approval

CSCI 450 Machine Learning   **3 sem. hrs.**
This course introduces machine learning concepts and algorithms. By the end of the course, students will have the ability to create data models from real-word problems, implement algorithms to perform inferences and predictions, and evaluate the performance of the models. Students will use Python to gain hands-on experience with building machine learning models.
Prerequisite: Grade of C or better in CSCI 201 and Math 225   • Fall

CSCI 01IS Data Visualization   **1 sem. hr. (WI)(RI)**
Students will become acquainted with principles and tools for data visualization.
Prerequisite: Junior status or the consent of the department.   • Fall

CSCI 02IS Artificial Intelligence   **1 sem. hr. (WI)(RI)**
Students will gain a basic understanding of artificial intelligence.
Prerequisite: Junior status or the consent of the department.   • Spring

CSCI 25IS Intensive Study   **1 sem. hr. (WI)(RI)**
Independent research on an advanced topic in computer science. Required of all junior and senior computer science majors.
Prerequisite: Junior status or the consent of the department.   • Fall/Spring

CSCI 67IS Programming in C   **1 sem. hr. (WI)(RI)**
C is a general-purpose programming language. This language is still actively used for embedded systems. Students will learn about the C language, specifically pointers, by taking this course.
Prerequisite: Grade of C or better in CSCI 202.   • Spring

CSCI 84IS Geographic Information Systems   **1 sem. hr. (WI)(RI)**
The course provides a fundamental understanding of computer software used to map the geographic distribution of a variety of social and physical variables and social indicators.
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