

Computer Science

[BA or BS in Computer Science Degree](#)

[BAS in Computer Networking](#)

This major combines professional preparation with a liberal education. A student completing this major is qualified for employment in business or industry in entry-level positions requiring application programming, working knowledge of computing systems, and use of commercial software packages. The student has the option of graduating with a Bachelor of Science degree or with a Bachelor of Arts degree. Additionally, graduates will possess a solid foundation for success in a graduate program in Computer Science.

Computer Science Minor

CS172 .NET 1 (formerly Structured Programming I) (3)

Fourteen (14) hours in Computer Science

Computer Science Courses

CS121 Introduction to MS Office. 1 hour. Introduction to Windows. MS Word, MS Excel and MS PowerPoint, along with MS Outlook. This course is project-oriented with an eye towards outcomes-based objectives.

CS122AW Computers in the Academic World. 1 hour. In depth coverage of Word, Excel and PowerPoint. Document integration between the software will be integral. Also, document sharing, index creation, outline creation, etc. CS122 may be taken in more than one content area, but only two hours will count towards a degree.

CS122SC Computers in Science. 1 hour. The use of computers and programmable/graphing calculator operation and their interfacing with scientific instrumentation. Students are introduced to writing and using Quick Basic programs. Significant attention is given to the use of Excel, Word, and PowerPoint in the collection, manipulation and presentation of scientific information. CS121 is a prerequisite (or a high school microcomputer applications course). CS122 may be taken in more than one content area, but only two hours will count towards a degree.

CS130 Introduction to Computer Science. 3 hours. This course is an introductory course in Computer Science. All the major topics of computer science are surveyed: History of Computers and Computing, Data Representation, Data Manipulation, Operating Systems, Networking, Algorithms, Programming Languages, Application Development, Data Structures, and Databases. The purpose of this course is to give the student a good grounding in Computer Science in preparation for higher level courses. Prerequisite: None.

CS172 .NET 1 (formerly Structured Programming I). 3 hours. A study of structured programming using C++ #.NET including: introduction to the programming environment, algorithmic development, problem solving, and an introduction to data abstraction. Emphasis is placed on program design and documentation.

CS190 Special Topics. 1-5 hours. Introductory course on a topic not included in the regular curriculum. Prerequisite: Instructor's permission.

CS214 Web Page Design. 3 hours. An introduction to the fundamentals of web page design. Use of HTML and CSS to plan and create web pages that combine text, images, and other multimedia to design clean, easy-to-use pages that support the content.

CS216 Web Programming. 3 hours. Students will learn the basics of web communication protocols and HTML file formats. Then students will write programs to submit web requests and process responses automatically. Several different web programs and web bots will be created during this class to illustrate the different techniques of web programming. Prerequisite: CS172.

CS231 Scientific Computer Programming. 3 hours. Introduction to the FORTRAN programming language and other languages with examples chosen from science and mathematics. Prerequisite: One programming course or division chair's permission.

CS236 Programming in Visual Basic. 3 hours. Program development using Visual Basic.NET Topics include: language statements, Visual Basic objects in forms, menus, dialog boxes, multiple forms, file management, and accessing databases. A toolkit of objects such as buttons, text boxes, and labels are used to build programs.

CS237 Programming with Java. 3 hours. Students will learn to program using the Java language. They will explore the strengths and weaknesses of Java. Students will examine how to do input and output, branching and iteration, make calculations, save and execute Java programs. At the end of the course, students should be able to create various Java applications.

CS271 .NET II (formerly Structured Programming II). 3 hours. Continuing the study of structured programming using C#.NET including: algorithmic development, problem solving, interfacing with databases, and an introduction to graphics. Emphasis is placed on program design and documentation. Prerequisite: CS172.

CS272 Survey of Programming Languages. 3 hours. This course will briefly look at six to eight languages, comparing and contrasting their strengths and weaknesses. Several structured languages like C++, Pascal, Java, and C# will be surveyed along with assembler, and AI languages like LISP or Prolog, and COBOL. Because of the brief treatment of each language, students are not expected to be proficient at any of the languages but should be able to recognize and understand code and the strengths and weaknesses of each language.

CS275 Mobile Application Development. 3 hours. A study of the process by which applications are developed for handheld devices such as smart phones, pads, or tablets.

CS290 Special Topics. 1-5 hours. Intermediate-level course on a topic not included in the regular curriculum. Prerequisite: Instructor's permission.

CS320 Computers in the Mathematics Classroom. 3 hours. This course is designed to prepare mathematics educators to write mathematical documents that are of publishable quality. Students will also be instructed in the use of current mathematical software that includes, but may not be limited to, Geogebra and Desmos. Prerequisites: MA118 and MA209 or equivalent, or by instructor's permission.

CS360 Special Problems. 1-5 hours. Independent study or research on a subject of interest to an individual student. Prerequisite: Instructor's permission.

CS362 Database Systems and SQL. 3 hours. An introduction to database concepts, data models, database normalization, data description languages, query facilities, database security, data integrity and reliability, and SQL. Prerequisite: One programming course.

CS363 Digital Communications/Networking. 3 hours. A study of data communications, network structure design and architecture network standards and services using the OSI model. Emphasis in NOVELL and NT architectures. Prerequisite: CS377.

CS368 Internship and Field Experience. 1-6 hours.

CS371 Concepts of MIS. 3 hours. This course will investigate the system development cycle. Stress will be placed on system documentation describing process flow, data flows, data structures, file design, input and output, and program specification. A significant class project will illustrate concepts. Prerequisite: One programming course.

CS375 Game Programming. 3 hours. This course builds on content from prior computer science courses and incorporates programming fundamentals with the topics of graphics, animation, data structures, and web programming. Several game projects, from simple to more complex, will be examined and coded. Issues like player input, calculations, and presentation, along with real-time versus turn-based, will be discussed. Prerequisite: CS271.

CS377 Computer Architecture and Operating Systems. 3 hours. A study of computer structure and machine language, assembly language, addressing techniques, File I/O, program segmentation, linkage, and operating systems. Prerequisite: CS271.

CS378 Data Structures and Algorithms. 3 hours. A study of algorithms and data structures. Topics will include the following: data structures, abstract data types, recursion, algorithm analysis, sorting and searching.

CS379 Computer and Information Security. 3 hours. An introduction to Computer and Information Security. Major threats, vulnerabilities and countermeasures in the area of Information security are explored. Management strategies and challenges to addressing security issues are also explored. Prerequisite: CS363 and CS377.

CS480 Senior Thesis. 3 hours. (Capstone) A course tailored to the individual student's needs. Special projects will be used to extend the areas of interest. Prerequisite: Computer Science major with Senior standing.