

Computer Science

Degrees: Bachelor of Science
Specializations: Computer Science, Computer Information Systems
Minors: Computer Science, Computer Information Systems, Information Technology, Internet Technologies
Certificate: Information Technology
Department: Computer Science
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College: Arts and Sciences
Semester Hours Required for Degree: 120

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The Computer Science program is composed of two specializations. The Computer Science (CS) Specialization includes the theoretical foundations of computer science and the study of algorithms, data structures, software engineering, computer architecture, and the concepts of programming languages.

The Computer Information Systems Specialization (CIS) provides the student with a foundation in information systems principles complemented by comprehensive instruction in principles of computer languages, problem solving, database concepts, and software engineering applications.

Contact the department for information concerning the certificate program.

PROGRAM REQUIREMENTS

In addition to general University requirements, students seeking the B.S. in Computer Science must meet the requirements listed below.

A minimum grade of "C-" is required for all courses in the major with a cumulative major GPA of 2.5 or higher.

Students are advised to check prerequisite requirements for all courses. Minimum grade requirements vary among departments.

Students should consult with their academic advisor for courses which may satisfy both the General Studies requirements and common prerequisites.

Electives in both the CS and CIS options may be chosen from the following list, provided the course is not a degree program requirement, and the student has all the specified prerequisites for the course:

CAP	4401	Introduction to Digital Image Processing	3
CAP	4410	Introduction to Computer Vision	3
CAP	4730	Computational Structures in Computer Graphics	3
CEN	4400	Introduction to Operations Research	3
CEN	4540	Computer & Network Security	3
CIS	4327	Systems Project	3

CIS	4340	Software Methods for Remote Databases	3
COP	3813	Internet Programming	3
COP	3835	Web Based Programming	3
COP	4173	Advanced Visual Basic Programming	3
COP	4331	Object Oriented Programming	3
COP	4710	Database Systems	3
COT	4400	Analysis of Algorithms	3
COT	4420	Theory of Computation	3

Cooperative education courses (up to 3 credits) are also acceptable electives.

Advanced topics courses (CAP, CDA, CEN, CIS, COP, and COT prefixes only) may be acceptable electives. In addition, 3000-5000 level electives that further the objectives of an individual program may also be chosen from the offerings of other departments (math, business, engineering, or the natural sciences). However, these additional elective choices require the approval of the Chairperson of the Computer Science Department.

Course descriptions are listed alphabetically by prefix in the back of this *Catalog*.

COMPUTER SCIENCE SPECIALIZATION

General Studies (36 sh)

For additional information see the General Studies section of this Catalog. Students should take MAC 2311 and MAC 2312 to satisfy the mathematics component, PHY 2048/2048L and PHY 2049/2049L to satisfy the natural sciences component, and PHI 2603 to satisfy the humanities/values component of General Studies.

Common Prerequisites (25 sh)

State mandated common prerequisites must be completed prior to graduation, but are not required for admission to the program. Courses in brackets indicate substitutes from Florida public community/junior colleges and universities.

COP	xxxx	Introductory programming in Ada, C, C++, Pascal, or equivalent language	3
+MAC	2311	Analytic Geometry & Calculus I [MAC x311]	4
+MAC	2312	Analytic Geometry & Calculus II [MAC x312]	4
+PHY	2048/L	University Physics I/Lab [PHY x048/x048L]	4
+PHY	2049/L	University Physics II/Lab [PHY x049/x049L or x049C]	4
		Two science courses for science majors	6

+ *Indicates common prerequisites which can be used to satisfy General Studies requirements.*

Lower Division Electives (0-12 sh)

Sufficient 1000/2000 level electives to complete at least 60 semester hours in the lower division. Current UWF students may use elective courses at any level (1000-4999) to meet this elective requirement.

Students should take COP 2253 as part of the common prerequisites or as a lower division elective.

Major (36-39 sh)

CDA	3100	Microprocessor Systems	3
CEN	4516	Computer Networks	3

CIS	3021	Science of Computing	3
COP	3022	Intermediate Computer Programming	3
COP	3530	Data Structures & Algorithms	3
COP	4020	Programming Languages	3
COP	4600	Operating Systems	3
COT	3100	Applications of Discrete Structures	3
COT	4400	Analysis of Algorithms	3
COT	4420	Theory of Computation	3

Choose two:

CEN	3031	Introduction to Software Engineering	3
COP	4601	Software Systems	3
COP	4710	Database Systems	3

If not taken in the lower division:

COP	2253	Programming Using Java	3
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Major-Related (21-24 sh)

ENC	3240	Technical Writing	3
MAD	3107	Discrete Mathematics and Applications	3
MAS	3105	Linear Algebra	3
STA	4321	Introduction to Mathematical Statistics I	3
		3000/4000 level electives chosen in consultation with advisor	9-12

List of pre-approved electives available in department.

Upper Division Electives (0 sh)

COMPUTER INFORMATION SYSTEMS SPECIALIZATION

General Studies (36 sh)

For additional information see the General Studies section of this *Catalog*. Computer Information Systems majors should take STA 2023 and MAC 2233 to satisfy the mathematics component, ECO 2013 to satisfy the social science/socio-political component, and PHI 2603 to satisfy the humanities/values component of General Studies.

Common Prerequisites (27 sh)

State mandated common prerequisites must be completed prior to graduation, but are not required for admission to the program. Courses in brackets indicate substitutes from Florida public community/junior colleges and universities.

ACG	2021	Principles of Financial Accounting [ACG x021]	3
ACG	2071	Principles of Managerial Accounting [ACG x071]	3
CGS	2570	Personal Computer Applications [CGS x060, x100, or x570]	3
COP	2253	Programming Using Java [Equivalent Java Programming Course]	3
COP	2334	Programming Using C++ [Equivalent C++ Programming Course]	3
+ECO	2013	Principles of Economics Macro [ECO x013]	3
ECO	2023	Principles Economics Micro [ECO x023]	3

+MAC	2233	Calculus with Business Applications [MAC x233]	3
+STA	2023	Elements of Statistics [STA x023]	3

+Indicates common prerequisites which can be used to satisfy General Studies requirements.

Lower Division Electives (0-6 sh)

Sufficient 1000/2000 level electives to complete at least 60 semester hours in the lower division. Current UWF students may use elective courses at any level (1000-4999) to meet this elective requirement.

Major (39 sh)

CDA	3100	Microprocessor Systems	3
CEN	3031	Introduction to Software Engineering	3
CEN	4400	Introduction to Operations Research	3
CEN	4516	Computer Networks	3
CIS	3021	Science of Computing	3
CIS	4327	Systems Project	3
COP	3022	Intermediate Computer Programming	3
COP	3530	Data Structures & Algorithms	3
COP	4020	Programming Languages	3
COP	4600	Operating Systems	3
COP	4601	Software Systems	3
COP	4710	Database Systems	3
COT	3100	Applications of Discrete Structures	3

Major-Related (21 sh)

ENC	3240	Technical Writing	3
MAD	3107	Discrete Mathematics and Applications	3
		3000/4000 level advisor-approved electives	15

Upper Division Electives (0 sh)

MINORS

The Department of Computer Science offers four Minors: Computer Science, Computer Information Systems, Information Technology, and Internet Technologies. Students must complete all course work for the minor with a grade of "C-" or higher. Electives in all minor options may be chosen from the following categories, provided the course is not a minor program requirement and the student has all the specified prerequisites for the course:

CAP	3/4xxx	Computer Applications
CDA	3/4xxx	Computer Design/Architecture
CEN	3/4xxx	Computer Engineering
CGS	3/4xxx	Computers, General Studies
CIS	3/4xxx	Computer Science and Information Systems
COP	3/4xxx	Computer Programming
COT	3/4xxx	Computing Theory

Consult the Computer Science Department for a suggested sequence of 3000/4000 level elective courses appropriate for each minor.

Computer Science Minor (24-25 sh)

The Computer Science Minor provides students with knowledge of both basic hardware and software aspects of computer systems. Fundamentals of computer architectures and programming experience utilizing assembly language to high-level languages prepare students in this minor for software development on a variety of computing platforms. CS and CIS majors may not earn this minor.

CDA	3100	Microprocessor Systems	3
CIS	3021	Science of Computing	3
COP	2253	Programming Using Java	3
COP	3022	Intermediate Computer Programming	3
COP	3530	Data Structures & Algorithms	3
COT	3100	Applications of Discrete Structures	3
MAD	3107	Discrete Mathematics and Applications	3

Choose one:

MAC	2233	Calculus with Business Applications	3
MAC	2311	Analytic Geometry and Calculus I	4

Computer Information Systems Minor (18 sh)

The Computer Information Systems Minor provides students with basic knowledge of the software aspects of computer systems. Students will be exposed to the utilization of various software packages and gain programming experience with Active Server Pages (ASP) and database systems that facilitate managing information in business environments. CS and CIS majors may not earn this minor.

CGS	2570	Personal Computer Applications	3
CIS	3021	Science of Computing	3
CIS	4340	Software Methods for Remote Databases	3
COP	2253	Programming Using Java	3
COP	4710	Database Systems	3
		3000/4000 level advisor-approved computer elective	3

Information Technology Minor (21 sh)

The Information Technology Minor will enable students from all majors to acquire basic knowledge and skills in IT and computer applications through the completion of seven courses in the Department of Computer Science. Students will learn the nature and source of electronically stored data. They will have the opportunity to learn and apply a variety of software programs, and they will enhance computer skills appropriate to their fields of study. CS and CIS majors may not earn this minor.

CGS	2570	Personal Computer Applications	3
CGS	3604	Applications of Information Technology	3
		Upper Division Computer Science Courses 3000-4000 level courses taught by the Department of Computer Science for which prerequisites, if any, have been satisfied.	12

Choose one:

CGS	3464	Programming Using Visual Basic for Non-Majors	3
CGS	3823	Web Page Design	3
COP	2253	Programming Using Java	3
COP	2334	Programming Using C++	3

Internet Technologies Minor (18 sh)

The Internet Technologies Minor provides students with the skills necessary to utilize state-of-the-art tools to interface with the Internet. This minor includes courses addressing ecommerce, computer graphics applications, web page design, and the socio-economic impact of these emerging technologies. CS and CIS majors may not earn this minor.

CGS	3172	Web Design for e-Commerce	3
CGS	3523	Computer Graphics Applications	3
CGS	3559	Exploring the Internet	3
CGS	3823	Web Page Design	3

Choose one:

COP	2253	Programming Using Java	3
COP	2334	Programming Using C++	3

Choose one:

COP	3813	Internet Programming	3
COP	3835	Web Based Programming	3