

COMPUTER SCIENCE

Degrees: Bachelor of Science
 Specializations: Computer Science,
 Computer Information Systems,
 Minors: Computer Science,
 Computer Information Systems,
 Internet Technologies
 Certificate: Information Technology
 Department: Computer Science
 Building 79, Room 102
 (850) 474-2542
 csadvisor@cs.uwf.edu
 College: Arts and Sciences
 Semester Hours Required for Degree: 120

Faculty: E.G. Rodgers (Chairperson), J.R. Arthur, S. Bagui, J.C. Bezdek, A.J. Cañas, J.W. Coffey, D. Edwards, T. Elbert (Emeritus), E. El-Sheikh, K.M. Ford, R. Harbor (Emeritus), J.M. Huband, L. Kerr, J.F. Kolen, G. LaForte, J.D. Lewis, A. Pinto, L. Prayaga, M.S. Reyenga, S. Simmons, L. White, N.W. Wilde

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 firm foundation of basic course work 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 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 | Introduction to Computational Structures in Computer Graphics | 3 |
| CAP 4731 | Advanced 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 | 4 |
| | [MAC x311] | |
| + MAC 2312 | Analytic Geometry & Calculus II | 4 |
| | [MAC x312] | |
| + PHY 2048/L | University Physics I/Lab | 4 |
| | [PHY x048/x048L] | |
| + PHY 2049/L | University Physics II/Lab | 4 |
| | [PHY x049/x049L or x049C] | |
| | 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 |
|----------|------------------------------|---|

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 | 3 |
| | [ACG x021] | |
| ACG 2071 | Principles of Managerial Accounting | 3 |
| | [ACG x071] | |
| CGS 2570 | Personal Computer Applications | 3 |
| | [CGS x060, x100, or x570] | |
| COP 2253 | Programming Using Java | 3 |
| | [Equivalent Java Programming Course] | |
| COP 2334 | Programming Using C++ | 3 |
| | [Equivalent C++ Programming Course] | |
| + ECO 2013 | Principles of Economics Macro | 3 |
| | [ECO x013] | |
| ECO 2023 | Principles Economics Micro | 3 |
| | [ECO x023] | |
| + MAC 2233 | Calculus with Business Applications | 3 |
| | [MAC x233] | |
| + STA 2023 | Elements of Statistics | 3 |
| | [STA x023] | |

+ 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 three Minors: Computer Science, Computer Information Systems, 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 |

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 e-commerce, 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 3523 | Computer Graphics Applications | 3 |
| CGS 3559 | Exploring the Internet | 3 |
| CGS 3823 | Web Page Design | 3 |
| COP 2334 | Programming Using C++ | 3 |
| | 3000/4000 level advisor-approved computer electives | 6 |