Computer Science

The B.S. in Computer Science (CS) degree program emphasizes analytical thinking and problem solving involving scientific applications. The degree includes the theoretical foundations of computer science in the study of algorithms, data structures, computer architecture, programming languages, and net-centric computing. Concentration areas include intelligent systems and software engineering.

Program Requirements

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

A minimum grade of “C-” is required for all major and major-related courses 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.

Graduates of the Computer Science degree program will be known for their accomplishments in the early stages on their careers and they should:

• Develop computerized solutions to important problems either individually or through interdisciplinary teams within a global and societal context.
• Professionally and ethically engage in technical or business activity through computer science ability, communication skills and knowledge.
• Engage in continuing professional growth through post-graduate education, continuing education, or professional activity.
• Contribute to the economic development of the Northwest Florida region and the state of Florida.

Computer Science

General Education

In addition to the General Education requirements listed on this page, students must satisfy all additional University requirements, including the Gordon Rule, multicultural, and foreign language requirements. With appropriate planning and coordination with an academic advisor, students may satisfy some of the general University requirements through the General Education curriculum. For a complete listing of general degree requirements, refer to the “University Requirements” (http://catalog.uwf.edu/undergraduate/universityrequirements) section of this catalog.

General Education Curriculum:

Communication

ENC 1101  English Composition I  3
ENC 1102  English Composition II  3

Mathematics

Choose one course from Group A and one Additional course from either Group A or Group B

Group A

MAC 1105  College Algebra
MAC 1105C  College Algebra with Lab

Group B

MAC 1114  Trigonometry
MAC 1140  Precalculus Algebra
MAC 2233  Calculus with Business Applications
MAC 2312  Analytic Geometry and Calculus II

Social Sciences

Choose one course from Group A and one additional course from either Group A or Group B

Group A

AMH 2020  United States since 1877
ANT 2000  Introduction to Anthropology
ECO 2013  Principles of Economics Macro
POS 2041  American Politics
PSY 2012  General Psychology
SPM 2010  Sport in Global Society
SYG 2000  Introduction to Sociology

Group B

AMH 2010  United States to 1877
ANT 2400  Current Cultural Issues
ANT 2100  Introduction to Archaeology
CCJ 2002  Survey of Crime and Justice
CPO 2002  Comparative Politics
DEP 2004  Human Development Across the Lifespan
EUH 1000  Western Perspectives I
EUH 1001  Western Perspectives II
FIN 2104  Personal Financial Planning
GEA 2000  Nations and Regions of the World
GEB 1011  Introduction to Business
IDH 1041  Honors Core 2
INR 2002  International Politics
MMC 2000  Principles of Mass Communication
PLA 2013  Survey of American Law
SOW 2192  Understanding Relationships in the 21st Century
SYG 2010  Current Social Problems

Humanities

Choose one course from Group A and one additional course from either Group A or Group B

Group A

ARH 1000  Art Appreciation
LIT 2000  Introduction to Literature
MUL 2010  Music Appreciation
PHI 2010  Introduction to Philosophy
THE 2000  Theatre Appreciation

Group B

AML 2010  American Literature I
AML 2020  American Literature II
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AML 2072</td>
<td>Sex, Money, and Power in American Literature</td>
<td></td>
</tr>
<tr>
<td>ARH 2050</td>
<td>Western Survey I: Prehistory to the Medieval Period</td>
<td></td>
</tr>
<tr>
<td>ARH 2051</td>
<td>Western Survey II: Renaissance to Contemporary</td>
<td></td>
</tr>
<tr>
<td>ART 1015C</td>
<td>Exploring Artistic Vision</td>
<td></td>
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<tr>
<td>ART 2821</td>
<td>Art and Visual Culture Today</td>
<td></td>
</tr>
<tr>
<td>CRW 2001</td>
<td>Introduction to Creative Writing</td>
<td></td>
</tr>
<tr>
<td>ENL 2010</td>
<td>History of English Literature I</td>
<td></td>
</tr>
<tr>
<td>ENL 2020</td>
<td>History of English Literature II</td>
<td></td>
</tr>
<tr>
<td>IDH 1040</td>
<td>Honors Core 1</td>
<td></td>
</tr>
<tr>
<td>MUH 2930</td>
<td>The Music Experience: Special Topics</td>
<td></td>
</tr>
<tr>
<td>PHI 2103</td>
<td>Critical Thinking</td>
<td></td>
</tr>
<tr>
<td>PHI 2603</td>
<td>Ethics in Contemporary Society</td>
<td></td>
</tr>
<tr>
<td>REL 1300</td>
<td>World Religions</td>
<td></td>
</tr>
<tr>
<td>THE 2300</td>
<td>Survey of Dramatic Literature</td>
<td></td>
</tr>
<tr>
<td>SPC 2608</td>
<td>Basic Communication Skills</td>
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</tbody>
</table>

**Natural Sciences**

Choose one course from Group A and one additional course from either Group A or Group B

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AST 1002</td>
<td>Descriptive Astronomy</td>
<td></td>
</tr>
<tr>
<td>BSC 1005</td>
<td>General Biology for Non-Majors</td>
<td></td>
</tr>
<tr>
<td>BSC 1085</td>
<td>Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>BSC 2010</td>
<td>Biology I</td>
<td></td>
</tr>
<tr>
<td>CHM 1020</td>
<td>Concepts in Chemistry *</td>
<td></td>
</tr>
<tr>
<td>CHM 2045</td>
<td>General Chemistry I *</td>
<td></td>
</tr>
<tr>
<td>ESC 2000</td>
<td>Introduction to Earth Science</td>
<td></td>
</tr>
<tr>
<td>EVR 2001</td>
<td>Introduction to Environmental Science</td>
<td></td>
</tr>
<tr>
<td>PHY 1020</td>
<td>Introduction to Concepts in Physics</td>
<td></td>
</tr>
<tr>
<td>PHY 2048</td>
<td>Calculus-Based Physics I **</td>
<td></td>
</tr>
<tr>
<td>PHY 2048C</td>
<td>University Physics I - Studio</td>
<td></td>
</tr>
<tr>
<td>PHY 2053</td>
<td>Algebra-Based Physics I **</td>
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</table>

**Group B**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANT 2511</td>
<td>Biological Anthropology</td>
<td></td>
</tr>
<tr>
<td>BOT 2010</td>
<td>General Botany</td>
<td></td>
</tr>
<tr>
<td>BSC 1050</td>
<td>Fundamentals of Ecology</td>
<td></td>
</tr>
<tr>
<td>BSC 1086</td>
<td>Anatomy and Physiology II</td>
<td></td>
</tr>
<tr>
<td>BSC 2011</td>
<td>Biology II</td>
<td></td>
</tr>
<tr>
<td>BSC 2311</td>
<td>Introduction to Oceanography and Marine Biology</td>
<td></td>
</tr>
<tr>
<td>CGS 2060</td>
<td>Excursions in Computing</td>
<td></td>
</tr>
<tr>
<td>CHM 1032</td>
<td>Fundamentals of General Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHM 2046</td>
<td>General Chemistry II *</td>
<td></td>
</tr>
<tr>
<td>CIS 2530</td>
<td>Introduction to Cybersecurity</td>
<td></td>
</tr>
<tr>
<td>GEO 1200</td>
<td>Physical Geography</td>
<td></td>
</tr>
<tr>
<td>GLY 2010</td>
<td>Physical Geology</td>
<td></td>
</tr>
<tr>
<td>MCB 1000</td>
<td>Fundamentals of Microbiology</td>
<td></td>
</tr>
<tr>
<td>PHY 2049</td>
<td>Calculus-Based Physics II</td>
<td></td>
</tr>
<tr>
<td>PHY 2054</td>
<td>Algebra-Based Physics II</td>
<td></td>
</tr>
</tbody>
</table>

* May be taken with or without lab.
** General Physics is non-calculus based and is usually recommended for non-science majors. University Physics is calculus based and is usually recommended for science majors.
*** Although students receive 5 semester hours credit for PHY 2048C, an additional 3 semester science course will be needed to meet General Education requirements.

**General Education Electives**

Choose an additional course from two of the three areas of Humanities, Social Sciences and Natural Sciences

The following courses are recommended to complete general education requirements:

**Humanities/Contemporary Values**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHI 2603</td>
<td>Ethics in Contemporary Society</td>
<td></td>
</tr>
</tbody>
</table>

**Mathematics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MAC 2311</td>
<td>Analytic Geometry and Calculus I</td>
<td></td>
</tr>
<tr>
<td>MAC 2312</td>
<td>Analytic Geometry and Calculus II</td>
<td></td>
</tr>
</tbody>
</table>

**Natural Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 2048+L</td>
<td>Calculus-Based Physics I (+Lab)</td>
<td></td>
</tr>
<tr>
<td>PHY 2049+L</td>
<td>Calculus-Based Physics II (+Lab)</td>
<td></td>
</tr>
</tbody>
</table>

**Social Science: Socio-political**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 2013</td>
<td>Principles of Economics Macro</td>
<td></td>
</tr>
</tbody>
</table>

**Multicultural Requirement**

**Multicultural Courses**

An important component of a liberal education is the study of cultures other than one's own. As such, multiculturalism encompasses the appreciation of the values, expressions, and modes of organization of diverse cultural communities. To further such study, the University of West Florida requires all students pursuing a bachelor's degree to complete at least one course that explores one or more of the dimensions of another culture (language, religion, socio-economic structures, etc.). Students are exempt from this requirement if they have completed an A.A. degree, the general education program at a Florida public institution, or a baccalaureate degree.

The requirement is satisfied by the successful completion of a multicultural course designated on the following list. Several of the selections are General Education courses, and students may enroll in these to meet both the General Education and the multicultural requirements.

*Faculty Senate 11/8/2002*

This list is continually updated and students are encouraged to check with their advisors for alternative options.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AML 2010</td>
<td>American Literature I</td>
<td></td>
</tr>
<tr>
<td>AML 2020</td>
<td>American Literature II</td>
<td></td>
</tr>
<tr>
<td>AML 3604</td>
<td>African American Literature</td>
<td></td>
</tr>
<tr>
<td>AML 3624</td>
<td>Black Women Writers</td>
<td></td>
</tr>
<tr>
<td>AML 4015</td>
<td>Topics in Nineteenth-Century American Literature</td>
<td></td>
</tr>
<tr>
<td>ANT 2000</td>
<td>Introduction to Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANT 3212</td>
<td>Peoples and Cultures of the World</td>
<td></td>
</tr>
<tr>
<td>ANT 3312</td>
<td>North American Indians</td>
<td></td>
</tr>
<tr>
<td>ANT 3363</td>
<td>Japanese Culture</td>
<td></td>
</tr>
<tr>
<td>ANT 3403</td>
<td>Cultural Ecology</td>
<td></td>
</tr>
</tbody>
</table>
ANT 4006  Anthropology of Human Rights 3
ARH 1000  Art Appreciation 3
ARH 2050  Western Survey I: Prehistory to the Medieval Period 3
ARH 2051  Western Survey II: Renaissance to Contemporary 3
ARH 3590  Non-Western Art 3
ARH 4302  Late Renaissance Art in Italy 3
ARH 4305  Early Italian Renaissance Art 3
ARH 4412  The Age of Revolution to Romanticism 3
ARH 4450  Modern Art: 1850-1980 3
ARH 4470  Contemporary Art 3
ARH 4653  Art and Archaeology of Mesoamerica 3
CCJ 3678  Race, Gender, Ethnicity, and Crime 3
COM 3014  Gender Communication 3
COM 3461  Intercultural Communication 3
CPO 2002  Comparative Politics 3
CPO 3055  Dictatorships 3
CPO 3103  Politics of Western Europe 3
CPO 3322  Cuba, Castro and the USA 3
CPO 3851  Politics of the Far East-Japan and China 3
CPO 4303  Politics of Spain, Portugal, and Latin America 3
CPO 4792  Geopolitics 3
CWE 2001  Introduction to Creative Writing 3
EDF 2085  Teaching Diverse Populations 3
ENG 4013  Introduction to Literary Theory 3
ENL 2020  History of English Literature II 3
EUH 1000  Western Perspectives I 3
EUH 1001  Western Perspectives II 3
EUH 3203  Modern Europe 3
EUH 3411  Rome and the Mediterranean World 3
EUH 3576  Soviet Union since 1917 3
EUH 4239  Age of Empires 3
FRE 4955  Supervised Foreign Language Field Experience Abroad 1-3
GEA 2000  Nations and Regions of the World 3
GEA 4405  Geography of Latin America 3
GBS 4361  International Business 3
GEO 3421  Cultural Geography 3
GEO 3471  Geography of World Affairs 3
HIS 4316  Women in the Atlantic World 3
IDH 1041  Honors Core 2 3
INR 2002  International Politics 3
JPN 3270  Supervised Language Experience Abroad 3
LIT 2000  Introduction to Literature 3
LIT 2030  Introduction to Poetry 3
LIT 3233  Postcolonial Literature 3
LIT 4385  Feminist Theory 3
MAN 4102  Management of Diversity 3
MAR 4156  Seminar in International Marketing 3
MMC 3601  Minorities and the Mass Media 3
MMC 4300  Global Communication 3
MUM 2930  The Music Experience: Special Topics 3
NUR 4615  Community and Public Health Nursing 3
PSY 3680  Positive Psychology 3
REL 3142  New Perspectives on the Religious Self 3
REL 4420  Contemporary Theology 3
REL 3310  Philosophies of the East 3
REL 4592  Development of Christian Thought 3
SOP 3730  Psychology, Culture, and Society 3
SOW 4233  Human Diversity and Social Justice 3
SOW 4941  Immersive Experiences in Social Work 3
SPN 3400  Advanced Stylistics 3
SPN 4500  Spanish Civilization 3
SPN 4520  Latin American Culture and Civilization 3
SPN 4955  Intensive Spanish Abroad 1-5
SYO 4530  Inequality in America 3

**Civic Literacy Requirement**

1. Baccalaureate degree-seeking students initially entering a state university fall semester 2018 and thereafter must demonstrate competency in civic literacy through one of the following options prior to graduation:
   a. Successfully passing either POSX041 American Government or AMHX020 Introductory Survey Since 1877. Each of the courses must include the following competencies:
      i. Understanding of the basic principles and practices of American democracy and how they are applied in our republican form of government;
      ii. An understanding of the United States Constitution and its application;
      iii. Knowledge of the founding documents and how they have shaped the nature and functions of our institutions of self-government; and
      iv. An understanding of landmark Supreme Court cases, landmark legislation and landmark executive actions and their impact on law and society.

2. Achieving the standard score on one of the following assessments:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Standard Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Citizenship and Immigration Services Naturalization Test</td>
<td>60</td>
</tr>
<tr>
<td>Advanced Placement Government and Politics: United States</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Placement United States History</td>
<td>4</td>
</tr>
<tr>
<td>CLEP American Government</td>
<td>50</td>
</tr>
</tbody>
</table>

*BOG 8.006 ([http://www.flbog.edu/board/regulations/regulations.php](http://www.flbog.edu/board/regulations/regulations.php))

**Common Prerequisites**

State mandated common prerequisites must be completed prior to graduation, but are not required for admission to the program. See the Common Prerequisite Manual ([https://diss.flvc.org/admin-tools/common-prerequisites-manuals](https://diss.flvc.org/admin-tools/common-prerequisites-manuals)) for course substitutions from Florida colleges and universities.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COP XXXX</td>
<td>Introductory programming in C, C++, Java, or equivalent language</td>
<td>3</td>
</tr>
<tr>
<td>MAC 2311</td>
<td>Analytic Geometry and Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MAC 2312</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>
PHY 2048+L  Calculus-Based Physics I (+Lab) **  4
PHY 2049+L  Calculus-Based Physics II (+Lab) *  4
Two science courses for science majors  6
Total Hours  25

* Indicates common prerequisites which can be used to satisfy General Education requirements.
** A minimum grade of C is required for MAC2311, MAC2312 and PHY2048/L.
† A minimum grade of C- is required for COP XXXX

Lower Division Electives
Students must complete sufficient 1000/2000 level electives to satisfy at least 57 sh in the lower division. Current UWF students may use elective courses at any level (1000-4000) to meet this elective requirement.

Total Hours  0-12

If not taken as a general education course, CGS 2060 Excursions in Computing is recommended as a lower-division elective.

Major
CDA 3101  Introduction to Computer Organization *  3
COT 3100  Discrete Structures 3
CEN 3031  Software Engineering I *  3
CIS 4592  Capstone Project *  3
COP 4710  Database Systems *  3
COP 3014  Algorithm and Program Design *  3
COP 3530  Data Structures and Algorithms I *  3
COP 4534  Data Structures and Algorithms II *  3
COP 3022  Intermediate Computer Programming *  3
COP 4027  Advanced Computer Programming *  3
COP 4020  Programming Languages *  3
COP 4634  Systems & Networks I *  3
COP 4635  Systems & Networks II *  3
COT 4420  Theory of Computation *  3
Choose one of the following: 6
CAP 4601  Artificial Intelligence *
CAP 4786  Big Data Analytics *
CEN 3032  Software Engineering II *
CEN 4053  Software Engineering Management *
Total Hours  15

Choose one course from the following course list: 3
MAS 3105  Linear Algebra
MHF 3202  Set Theory and Mathematical Logic
STA 4321  Introduction to Mathematical Statistics I
Total Hours  6
### Junior

#### Fall
- CEN 3031: Software Engineering I (3)
- COP 4534: Data Structures and Algorithms II (3)
- PHY 2048+L: Calculus-Based Physics I (+Lab) (4)
- Gen Ed Social Science (w/Multi) (3)

| Credit Hours | 13 |

#### Spring
- PHY 2049+L: Calculus-Based Physics II (+Lab) (4)
- STA 4321: Introduction to Mathematical Statistics I (3)
- COT 4420: Theory of Computation (3)
- Elective Track Course/CS Elective (3)
- Elective (3)

| Credit Hours | 16 |

### Senior

#### Fall
- COP 4634: Systems & Networks I (3)
- Gen Ed Social Science (w/Multi) (3)
- Elective Track Course (3)
- Elective CS Elective (3)
- Elective (3)

| Credit Hours | 15 |

#### Spring
- COP 4020: Programming Languages (3)
- CIS 4592: Capstone Project (3)
- COP 4635: Systems & Networks II (3)
- Track Course/CS Elective (3)
- Free Elective (1)

| Credit Hours | 13 |

| Total Credit Hours | 120 |

This semester plan represents an example of progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply. For an individualized plan of study please consult your advisor.