

Computer Science

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 6

Group A

MAC 1105	College Algebra
MAC 1105C	College Algebra with Lab

MAC 2311	Analytic Geometry and Calculus I
MGF 1106	Mathematics for Liberal Arts I
MGF 1107	Mathematics for Liberal Arts II
STA 2023	Elements of Statistics

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 6

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 6

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

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

Natural Sciences

Choose one course from Group A and one additional course from either Group A or Group B 6

Group A	
AST 1002	Descriptive Astronomy
BSC 1005	General Biology for Non-Majors
BSC 1085	Anatomy and Physiology I
BSC 2010	Biology I
CHM 1020	Concepts in Chemistry *
CHM 2045	General Chemistry I *
ESC 2000	Introduction to Earth Science
EVR 2001	Introduction to Environmental Science
PHY 1020	Introduction to Concepts in Physics *
PHY 2048	Calculus-Based Physics I **
PHY 2048C	University Physics I - Studio
PHY 2053	Algebra-Based Physics I **
Group B	
ANT 2511	Biological Anthropology
BOT 2010	General Botany
BSC 1050	Fundamentals of Ecology
BSC 1086	Anatomy and Physiology II *
BSC 2011	Biology II
BSC 2311	Introduction to Oceanography and Marine Biology *
CGS 2060	Excursions in Computing
CHM 1032	Fundamentals of General Chemistry *
CHM 2046	General Chemistry II *
CIS 2530	Introduction to Cybersecurity
GEO 1200	Physical Geography
GLY 2010	Physical Geology *
MCB 1000	Fundamentals of Microbiology *
PHY 2049	Calculus-Based Physics II **
PHY 2054	Algebra-Based Physics II *

* 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

PHI 2603	Ethics in Contemporary Society	3
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Mathematics

MAC 2311	Analytic Geometry and Calculus I	4
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MAC 2312	Analytic Geometry and Calculus II	4
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Natural Science

PHY 2048+L	Calculus-Based Physics I (+Lab)	4
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PHY 2049+L	Calculus-Based Physics II (+Lab)	4
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Social Science: Socio-political

ECO 2013	Principles of Economics Macro	3
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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.

AML 2010	American Literature I	3
AML 2020	American Literature II	3
AML 3604	African American Literature	3
AML 3624	Black Women Writers	3
AML 4015	Topics in Nineteenth-Century American Literature	3
ANT 2000	Introduction to Anthropology	3
ANT 3212	Peoples and Cultures of the World	3
ANT 3312	North American Indians	3
ANT 3363	Japanese Culture	3
ANT 3403	Cultural Ecology	3

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 3513	Politics of the Far East-Japan and China	3
CPO 4303	Politics of Spain, Portugal, and Latin America	3
CPO 4792	Geopolitics	3
CRW 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
GEB 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

MUH 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:

Assessment	Standard Score
U.S. Citizenship and Immigration Services Naturalization Test	60
Advanced Placement Government and Politics: United States	3
Advanced Placement United States History	4
CLEP American Government	50

*BOG 8.006 (<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://dlss.flvc.org/admin-tools/common-prerequisites-manuals>) for course substitutions from Florida colleges and universities.

COP XXXX	Introductory programming in C, C++, Java, or equivalent language [†]	3
MAC 2311	Analytic Geometry and Calculus I ^{**}	4
MAC 2312	Analytic Geometry and Calculus II ^{**}	4

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
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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 group of courses from the following groupings		6
CAP 4601	Artificial Intelligence ⁺	
CAP 4786	Big Data Analytics ⁺	
or		
CEN 3032	Software Engineering II ⁺	
CEN 4053	Software Engineering Management ⁺	
List of pre-approved elective courses available in the department ^{*,†}		6
Total Hours		54

⁺ Courses included in the major GPA

Major-Related

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	3
Total Hours		6

* Two courses must be selected from Computer Science approved upper-level electives. Students should consult with the CS academic advisor, or their assigned CS faculty advisor, for selecting the upper-level Computer Science electives.

Computer Science Minor

The Computer Science Minor provides students with knowledge of basic software aspects of computer systems. Fundamentals of programming experience utilizing procedural and object-oriented paradigms prepare students in this minor for software development on a variety of computing platforms. Computer Science, CIS, Software Engineering, Cybersecurity, and Software Design & Development majors may not earn this minor.

COT 3100	Discrete Structures	3
CDA 3101	Introduction to Computer Organization	3
COP 3014	Algorithm and Program Design	3
COP 3530	Data Structures and Algorithms I	3
Choose one of the following:		3
COP 4634	Systems & Networks I	
COP 4331	Object Oriented Programming	
COP 4534	Data Structures and Algorithms II	
COT 4420	Theory of Computation	
EEL 3701	Digital Logic and Computer Systems	
Total Hours		15

Plan of Study Computer Science

Course	Title	Hours
Freshman		
Fall		
MAC 1105	College Algebra	3
Gen Ed Humanities		3
ENC 1101	English Composition I	3
Gen Ed Social Sciences		3
Gen Ed Natural Science		3
Credit Hours		15
Spring		
MAC 1147	Precalculus with Trigonometry	4
COP 2334	Programming Using C++	3
ENC 1102	English Composition II	3
Gen Ed Natural Science		3
Gen Ed Soc Sci or Humanities (w/GR)		3
Credit Hours		16
Sophomore		
Fall		
MAC 2311	Analytic Geometry and Calculus I	4
COP 4710	Database Systems	3
COP 3022	Intermediate Computer Programming	3
COT 3100	Discrete Structures	3
COP 3014	Algorithm and Program Design	3
Credit Hours		16
Spring		
MAC 2312	Analytic Geometry and Calculus II	4
COP 4027	Advanced Computer Programming	3
Gen Ed Humanities		3
COP 3530	Data Structures and Algorithms I	3
CDA 3101	Introduction to Computer Organization	3
Credit Hours		16

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.