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, software engineering, and cybersecurity.

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" 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 1147	Precalculus with Trigonometry	
MAC 2233	Calculus with Business Applications	
MAC 2312	Analytic Geometry and Calculus II	
STA 2360	Introduction to Data Science	

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	
SYG 2000	Introduction to Sociology	
Group B		
AMH 2010	United States to 1877	
ANT 2100	Introduction to Archaeology	
ANT 2400	Current Cultural Issues	
CCJ 2002	Survey of Crime and Justice	
COM 2023	Death and Communication	
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	
HIS 2050	Explore Gender and Diversity	
IDH 1041	Honors Core: Social Sciences	
INR 2002	International Politics	
MMC 2000	Principles of Mass Communication	
PLA 2013	Survey of American Law	
SOW 2192	Understanding Relationships in the 21st Century	
SPM 2010	Sport in Global Society	
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	The Self, Creativity, Your Career and Visual Culture
CRW 2001	Introduction to Creative Writing
ENL 2010	History of English Literature I
ENL 2020	History of English Literature II
IDH 1040	Honors Core: Humanities
LIT 2030	Introduction to Poetry
MUH 2930	The Music Experience: Special Topics
PHI 2103	Critical Thinking
PHI 2603	Ethics in Contemporary Society
REL 1300	World Religions
SPC 2608	Public Speaking
THE 2300	Survey of Dramatic Literature

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	Conceptual Physics	
PHY 2048	Calculus-Based Physics I *, **	
PHY 2048C	Calculus-Based Physics I Studio ***	
PHY 2053	Algebra-Based Physics I *, **	
Group B		
ANT 2511	Biological Anthropology *	
AST 2037	Life in the Universe	
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 2020	Introduction to Machine Learning	
CHM 2046	General Chemistry II *	
CIS 2530	Introduction to Cybersecurity	
GLY 2010	Physical Geology *	
MCB 1000	Fundamentals of Microbiology *	
PHC 2082	Informatics and Your Health	
PHY 2049	Calculus-Based Physics II *, **	
PHY 2054	Algebra-Based Physics II *, **	

* May be taken with or without lab.

** Algebra-Based Physics is usually recommended for non-science majors, while Calculus-Based Physics is 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
Mathematics		
MAC 2311	Analytic Geometry and Calculus I	4
MAC 2312	Analytic Geometry and Calculus II	4
Natural Science		
PHY 2048+L	Calculus-Based Physics I (+Lab)	4
PHY 2049+L	Calculus-Based Physics II (+Lab)	4
Social Science: Socio-political		
ECO 2013	Principles of Economics Macro	3

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.

***Passed by UWF Faculty Senate on 11/08/2002*

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
AML 4640	Topics in Native American Literature	3
ANT 1001	Anthropology as a Profession	1

ANT 2000	Introduction to Anthropology	3
ANT 2301	Human Sexuality and Culture	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
ANT 4025	Ritual Use of Human Remains	3
ANT 4516	Modern Human Physical Variation	3
ARH 1000	Art Appreciation	3
ARH 2050	Western Survey I: Prehistory to the Medieval Period	3
ARH 3201	Art and Culture in The Global Middle Ages	3
ARH 2051	Western Survey II: Renaissance to Contemporary	3
ARH 3590	Non-Western Art	3
ARH 3607	Native American Art	3
ARH 4302	Late Renaissance Art in Italy	3
ARH 4412	The Age of Revolution to Romanticism in Europe: 1750-1850	3
ARH 4450	Modern Art: 1850-1980	3
ARH 4470	Contemporary Art	3
ARH 4563	Art of Japan	3
CCJ 3678	Race, Gender, Ethnicity, and Crime	3
COM 3014	Gender Communication	3
COM 3461	Intercultural Communication	3
COM 4242	Communication and Christianity	3
CPO 2002	Comparative Politics	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 3334	Emperors, Sultans, Dictators, and Democrats: The Balkans	3
EUH 3411	Rome and the Mediterranean World	3
EUH 3576	Soviet Union since 1917	3
FRE 4955	Supervised Foreign Language Field Experience Abroad	1-3
GEA 2000	Nations and Regions of the World	3
GEB 4361	International Business	3
GEO 3421	Cultural Geography	3
GEO 3471	Geography of World Affairs	3
HSC 2622	Introduction to Global Health Sciences	3
HIS 2050	Explore Gender and Diversity	3
HIS 4262	Rise and Fall of the Portuguese Empire	3
IDH 1040	Honors Core: Humanities	3
IDH 1041	Honors Core: Social Sciences	3
INR 2002	International Politics	3
LAH 4135	Spanish Conquest of the Americas	3
LAH 4131	'Atlantic Indians': How Indigenous and African Peoples Shaped Europe & the Americas	3
LAH 4451	Greater Mexico: Central America from Conquest to the 20th Century	3
LAH 4728	Gender and Sexuality in Latin America from Colonization to Today	3
LIT 2000	Introduction to Literature	3
LIT 2030	Introduction to Poetry	3
LIT 3233	Postcolonial Literature	3
LIT 4036	Topics in Poetry and Poetics	3
LIT 4385	Feminist Theory	3
MAN 4102	Management of Diversity	3
MAR 4156	Seminar in International Marketing	3
MMC 3743	Communicating Fear: Horror Films and Popular Culture	3
MMC 3745	Communicating Fear Abroad: International Horror Films & Popular Culture	3
MMC 4601	Minorities and the Mass Media	3
MUH 2930	The Music Experience: Special Topics	3
MUL 2010	Music Appreciation	3
NUR 4615	Community and Public Health Nursing	3
NUR 4636	Population-based Public Health Nursing	3
PHI 3790	African Philosophy	3
PUR 3404	International Public Relations	3
PSY 3860	Positive Psychology	3
SOP 3730	Psychology, Culture, and Society	3
SOW 4233	Human Diversity and Social Justice	3
SPN 3400	Advanced Stylistics	3
SPN 4520	Latin American Culture and Civilization	3
SYO 4421	Sociology of Health, Illness and Health Care	3
SYO 4530	Inequality in America	3

Civic Literacy Requirement

The 2017 Florida Legislature amended Section 1007.25, Florida Statutes, to require students ***initially entering*** **a State University System (SUS) and/or Florida College System (FCS) institution in 2018-2019** and thereafter to demonstrate competency in civic literacy. The 2021 Legislature further amended Florida Statutes, requiring students to complete both a civic literacy course and an exam. As a result, there are three cohorts of students currently matriculating at Florida public institutions subject to varying requirements. As demonstrated in the table below, the exact civic literacy requirements are based on the academic term in which a student first enrolled in a Florida public institution.

Students Included in Cohort	**Civic Literacy Competency Requirement**
Cohort 1: Students first entering the SUS or FCS prior to fall 2018	None
Cohort 2: Students first entering the SUS or FCS in fall 2018 – summer A 2021	Complete a course **or** exam

Cohort 3: Students first entering the SUS or FCS in summer B 2021 (on or after July 1, 2021) and thereafter	Complete both a course **and** exam

Additionally, the 2021 Legislature made two additional exceptions: approving the use of accelerated mechanisms for meeting the course competency requirement and exempting high school students who pass the Florida Civic Literacy Exam in high school from the postsecondary exam requirement. These two changes are in effect for Cohort 3.

There are multiple ways to satisfy this requirement. Students should work with their academic advisor to determine which option is best for their degree requirements/degree plan.

Additional information can be found on our Civic Literacy website.

*BOG 8.006; s.1007.25(4,a-b)

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 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, please choose from the list below *		6
ANT 2511	Biological Anthropology	
AST 1002	Descriptive Astronomy	
BOT 2010	General Botany	
BSC 1050	Fundamentals of Ecology	
BSC 1085	Anatomy and Physiology I	
BSC 1086	Anatomy and Physiology II	
BSC 2010	Biology I	
BSC 2011	Biology II	
BSC 2311	Introduction to Oceanography and Marine Biology	
CHM 2045	General Chemistry I	
CHM 2046	General Chemistry II	
ESC 2000	Introduction to Earth Science	
EVR 2001	Introduction to Environmental Science	
GLY 2010	Physical Geology	
MCB 1000	Fundamentals of Microbiology	
Total Hours		**25**

+ Indicates common prerequisites which can be used to satisfy General Education requirements.
* A minimum grade of C- is required for COP XXXX, MAC 2311, MAC 2312, PHY 2048/L, and PHY 2049/L, and the two science courses for science majors.

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.	0-12
Total Hours	**0-12**

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
Intelligent Systems:		
CAP 4601	Introduction to Artificial Intelligence +	
CAP 4786	Introduction to Big Data Analytics +	
or		
Software Engineering:		
CEN 3032	Software Engineering II +	
CEN 4053	Software Engineering Management +	
or		
Cybersecurity:		
CAP 4136	Malware Analysis +	
CEN 4078	Secure Software Development +	
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 majors may not earn this minor.

COT 3100	Discrete Structures	3
COP 3014	Algorithm and Program Design	3
COP 3530	Data Structures and Algorithms I	3
Choose one of the following:		3
CDA 3101	Introduction to Computer Organization	
EEL 4744	Microprocessor Applications	
Choose one of the following:		3
COP 3022	Intermediate Computer Programming	
COP 4534	Data Structures and Algorithms II	
COP 4634	Systems & Networks I	
COT 4420	Theory of Computation	
EEL 3701	Digital Logic and Computer Systems	
Total Hours		**15**