

COMPUTER SCIENCE (B.S.)

The Bachelor of Science (B.S.) in Computer Science prepares students with a comprehensive understanding of computing theories and methodologies, spanning from high-level programming languages to the foundational logic gates of computing hardware. The program allows students the option to focus on an area of interest by selecting one of three concentrations: Data Science, Cybersecurity, and Software Engineering.

The discipline of Computer Science is broad and includes the study of algorithms and data structures, computer and network design, modeling data and information processes, and artificial intelligence. Computer Science has application in high interest, cutting edge areas in computing such as artificial intelligence, machine learning, data science, robotics, computer vision, and other contemporary high demand skills. Computer Science majors take on positions as software developers, project managers, business analysts, systems engineers, network engineers, data scientists, and a variety of cybersecurity titles.

The FGCU B.S. in Computer Science degree program will produce graduates who:

- successfully enter chosen careers in traditional and contemporary areas of computer science and/or graduate studies,
- practice life-long learning in their professions, adapting to the rapidly changing technological world.

Concentrations

- Cybersecurity Concentration
- Data Science Concentration
- Software Engineering Concentration

Program Progression and Additional Graduation Requirements

Students admitted to Florida Gulf Coast University as a degree seeking student in good academic standing may declare a major in engineering. All engineering majors must satisfy the academic milestones as described in the student guidebook. Refer to the Computer Science (B.S.) Student Guidebook for further information on milestones.

In addition to the program requirements, students must:

- Complete a minimum of 120 credits.
- Complete a minimum of 48 of the 120 credits at the upper division (3000-4999 level).
- Earn a cumulative GPA of 2.0 for all coursework attempted at FGCU.
- Satisfy College-Level Skills and foreign language entrance requirements.
- Satisfy Service-Learning requirement.
- Satisfy Civic Literacy requirement.
- Satisfy the residency requirement: 30 of the last 60 credits, including 12 credit hours in the major must be completed at FGCU. Also, COP 4951 Senior Comp Sci Project I and COP 4952 Senior Comp Sci Project II must be taken at FGCU.
- Complete the summer course enrollment requirement.
- Submit an Application for Graduation by the deadline listed in the FGCU Academic Calendar.

Code	Title	Credits
FGCU General Education Program (https://www.fgcu.edu/academics/undergraduatestudies/generaleducation/)		

To prevent or minimize excess hours, select general education courses that satisfy common prerequisite requirements for your intended major.

Common Prerequisites

For this major, common prerequisite courses with an asterisk (*) require prior knowledge and skills demonstrated through degree acceleration programs (e.g., the College Board's Advanced Placement Program [AP], International Baccalaureate Program [IB], College-Level Examination Program [CLEP], Advanced International Certificate of Education Program [AICE]); dual enrollment; placement exam; or college coursework.

A minimum grade of C is required in each course

COP 1500	Intro to Computer Science (Acceptable Substitute: COP X500 or COP X000) ^{*,1}	3
COP 2006	Programming I (Acceptable Substitute: COP x006 or COP x250 or COP x253 or COP x800)	3
MAC 2311	Calculus I (Acceptable Substitute: MACX311) ^{*,2}	4
MAC 2312	Calculus II (Acceptable Substitute: MACX312)	4
MAC 2313	Calculus III (Acceptable Substitute: MACX313 or MAPX302 or MADX301 or MADX401)	4
PHY 2048 & 2048L	General Physics I and General Physics I Laboratory (Acceptable Substitute: (PHYX048 and PHYX048L) or PHYX048C)	4
PHY 2049 & 2049L	General Physics II and General Physics II Laboratory (Acceptable Substitute: (PHYX049 and PHYX049L) or PHYX049C)	4
STA 2023	Statistical Methods (Acceptable Substitute: STAX023 or STAX037) ^{*,3,4}	3
or STA 2037		

Note: FGCU is submitting a Common Prerequisites Manual (CPM) Revision Request to establish a new track in the CPM.

Required Courses in the Major (42 credits)

A minimum grade of C is required in each course		
CDA 3104	Comp Org'n & Assem Lang Prog	3
CDA 3200	Digital Systems & Architecture	3
CEN 3031	Software Engng Fundamentals	3
CEN 3078	Computer Security	3
COP 3003	Programming II	3
COP 3530	Data Structures & Algorithms	3
COP 3635	Systems and Networks	3
COP 3710	Intro to Data Engineering	3
COP 4020	Principles of Programming Lang	3
COP 4610	Operating Systems	3
COP 4951	Senior Comp Sci Project I	3
COP 4952	Senior Comp Sci Project II (capstone)	3
COT 4420	Theory of Computation	3
MAD 3107	Discrete Mathematics	3

Restricted Electives/Concentrations (15 credits)

A minimum grade of C is required in each course

Select one of the following groupings:

Cybersecurity Concentration

CIS 3213	Introduction to Cybersecurity	3
CIS 4368	Intro to Database Security	3
CIS 4622	Hands-on Cybersecurity	3
CNT 4403	Network Security	3

Complete 3 credits from the list of electives or from any other concentration.

Data Science Concentration

Complete the following:

IDC 3140	Intro to Data Science	3
STA 3038	Prob & Stat for Data Sci	3

Complete 6 credits from the following:

CAI 4203	Neural Networks & Deep Learn	3
CAI 4313	Applied Natural Language Proc	3
CAP 4767	Exploratory Data Analysis	3
CAP 4770	Knowledge Disc. & Data Mining	3

Complete 3 credits from the list of electives or from any other concentration.

Software Engineering Concentration

Complete the following:

CEN 3073	Requirements Engr & Analysis	3
CEN 4065	Software Architecture & Design	3
CEN 4072	Software Testing	3
CEN 4721	Human Computer Interaction	3

Complete 3 credits from the list of electives or from any other concentration.

No concentration noted on transcript

Complete 15 credits from the following list or from any concentration:

CAI 4105	Machine Learning	3
CAP 4324	Predictive Analysis	3
CAP 4662	Introduction to Robotics	3
CAP 4730	Computer Graphics	3
CDA 4150	Computer Architecture	3
CEN 4026	Software Maint & Evolution	3
CEN 4083	Intro. to Cloud Computing	3
CEN 4216	Cyberphysical Systems	3
CIS 3941	Internship in Computer Science	3
COP 3350	Systems Admin and Programming	3
COP 4908	Independent Study	3
COP 4931	Special Topics in Comp. Sci.	3
COT 3400	Design&Analysis of Algorithms	3

Sustainability Course Graduation Requirement (3 credits)

Select at least 3 credits in sustainability coursework (SCGR Attribute)

Additional Electives

As needed to reach total credits required for the degree

Precalculus minimum grade of C; or relevant accelerated credit; or placement exam

³ For STA 2023 Statistical Methods Prerequisites of MAT 1033 Intermediate Algebra minimum grade of C; or relevant accelerated credit; or placement exam

⁴ For STA 2037 Prerequisites of MAT 1033 Intermediate Algebra minimum grade of C then MAC 1105 College Algebra minimum grade of C then MAC 1147 Precalculus minimum grade of C then MAC 2311 Calculus I minimum grade of C; or relevant accelerated credit; or placement exam

Total Credits Required: 120

¹ Prerequisites of MAT 1033 Intermediate Algebra minimum grade of C then MAC 1105 College Algebra minimum grade of C; or relevant accelerated credit; or placement exam

² Prerequisites of MAT 1033 Intermediate Algebra minimum grade of C then MAC 1105 College Algebra minimum grade of C then MAC 1147