COMPUTER SCIENCE

Overview

Computer Science is a rapidly evolving multi- and interdisciplinary field. Computer scientists use hardware, software, data analysis, and teamwork to understand and solve complex problems in many areas. If you choose to concentrate in Computer Science at New College, you will work closely with faculty who have experience in the classroom and in industry to design a personalized plan of study that combines the fundamentals of computer science with advanced classes in areas like software engineering, machine learning, human-computer interaction, game development, and networks. The program offers workshops, practical projects, research projects, and professional development, and will prepare you for graduate school or a career in computing. Students considering graduate study in computer science are strongly encouraged to consult with a professor to choose electives that will comprise the best preparation for graduate study.

Faculty in Computer Science

Fahmida Hamid (https://www.ncf.edu/directory/fahmida-hamid/), Assistant Professor of Computer Science
David Gillman (https://www.ncf.edu/directory/david-w-gillman/), Associate Professor of Computer Science
Daniel Page (https://www.ncf.edu/directory/daniel-page/), Visiting Assistant Professor of Computer Science
Tania Roy (https://www.ncf.edu/directory/tania-roy/), Associate Professor of Human Centered Computing
Gil Salu, Visiting Assistant Professor of Computer Science

Requirements for the AOC in Computer Science

A minimum of fourteen (14) academic units.

Code	Title
Core Requirements	
CSCI 2200	Introduction to Programming in Python*
or CSCI 2550	Introduction to Programming in C
or CSCI 2100	Functional Programming in Haskell*
CSCI 2400	Object-Oriented Programming
CSCI 2280	Discrete Mathematics for Computer Science
CSCI 3400	Object Oriented Design
CSCI 3160	Data Structures
CSCI 3200	Algorithms
CSCI 3570	Software Engineering
Advanced Electives [1]	
Select **one** course in each of the following **five** categories:	
Applications	
CSCI 2450	Front-End Web Design and Development
CSCI 3100	Foundations of Human Centered Computing
CSCI 4250	Introduction to Augmented Reality
CSCI 4780	Computer Vision
CSCI 3600	Databases for Back-End Development
CSCI 2500	Mobile Application Development
CSCI 2525	Databases and Web Applications
Artificial Intelligence	
CSCI 4200	Artificial Intelligence
CSCI 4210	Artificial Intelligence and Data Mining
CSCI 3450	Natural Language Processing
CSCI 3377	Machine Learning for Visual Thinkers*
CSCI 4240	Artificial Intelligence Through Machine Game Playing
Computer Systems	
CSCI 2300	Introduction to Computer Systems, Architecture and Digital Hardware
CSCI 3575	Embedded Systems
CSCI 3655	Introduction to Virtual Reality Systems
CSCI 4400	Operating Systems
Programming Languages	
CSCI 2100	Functional Programming in Haskell*
CSCI 2600	Functional Problem Solving with Scheme
CSCI 2550	Introduction to Programming in C
CSCI 3250	Intermediate Python
CSCI 3550	Embedded Systems in C++
Theory	
CSCI 3260	Theory of Computation
CSCI 4100	Distributed Computing
CSCI 4525	Cryptography and Data Privacy
CSCI 4750	Topics in Algorithms
Mathematics or Statistics Electives	
Select **two** courses in either Mathematics or Statistics from the following examples:	
MATH 2311	Calculus I*
MATH 2312	Calculus II*
MATH 2313	Calculus III
STAN 2700	Dealing with Data I*
STAN 2800	Dealing with Data II
MATH 2380	Number Theory
MATH 3105	Linear Algebra
MATH 3300	Graph Theory*
Practical Capstone	
Select a technical internship, a community software engineering project, or a Research Experiences for Undergraduates (REU) project	
Thesis	
Senior Thesis in Computer Science and Baccalaureate Exam	

[1] An advanced elective is any non-core course with a programming prerequisite. For a course with no prerequisites, extra work may be required to count as an elective. A visual display of elective areas

and courses can be found here (https://docs.google.com/drawings/d/1yULJyu9ah25pirpaeisFHkeE_FIEorRQnV1A58FnSTI/edit/).

Requirements for a Secondary Field in Computer Science

A minimum of five (5) academic units.

Code	Title
Core Requirements	
CSCI 2200	Introduction to Programming in Python*
or CSCI 2550	Introduction to Programming in C
or CSCI 2100	Functional Programming in Haskell*
CSCI 2400	Object-Oriented Programming
Electives	
Select any three courses in computer science, with at least one of the courses being an intermediate course with a prerequisite [1]	

[1] See courses listed under full AOC requirements for examples.

Computer Science Facilities

New College has a number of servers that support students and faculty in the Computer Science and Data Science programs. These include 5 HP physical servers with NVIDIA graphics processing units (Tesla, Titan X and 1080 Ti); 1 SuperMicro physical server with 4 NVIDIA graphics processing units (Quadro RTX 6000); 1 SuperMicro physical server with 4 NVIDIA graphics processing units (RTX A5000 and 1080 Ti); and 12 virtual servers used in a variety of computer science, data science, and statistics courses.

Representative Senior Theses in Computer Science

- Convo: An Android Application Aimed to Facilitate Social Connectedness on New College of Florida's Campus
- Files in (Cyber) Space: Comparing the Security of BitTorrent with the Inter-Planetary File System
- BTS-Dash: A Multi-Platform Social Media Aggregator
- Information Asymmetry in the U.S. Healthcare Market and Applications of Data Collection Technologies
- Roots: A Subscription Platform for Digital Media
- Dance for the Soul: An AI Choreographer
- Using Sustainable Development to Mitigate and Respond to Climate Change: A Data Analysis of Climate Change in Taiwan Using R
- Using the Bloomberg Terminal to Evaluate Stock Market Trends: An Analysis of Historical EPS Forecast Accuracy for All Firms in the 2019 S&P 500 Index