

# COMPUTER SCIENCE

## PROGRAM OVERVIEW

Capital's computer science program addresses a broad range of topics. Our core courses in software development instill a foundation for more advanced studies in areas such as computer architecture, database systems, software engineering, advanced algorithms, and more. We offer electives in artificial intelligence, computer networking, computer security, iOS development, and other areas. Computing technology changes rapidly and creative new applications of computers are continually being discovered. Consequently, it is critical that computer science students be educated in a way that emphasizes flexibility, adaptability, and an appreciation for the importance of lifelong learning. The department also offers minors in Mathematics, Computational Science, Data Science and Physics.

## CAREERS AND PLACEMENT

Graduates of Capital's computer science program have been very successful, both in graduate school and the work force. Companies, universities, and organizations our graduates have gone on to join include OCLC, Defense Logistic Agency, Columbia Gas, Twitter, IBM, Ohio Arts Council, Nationwide Insurance, Capital University, Apple, Battelle, American Electric Power, Microsoft, University of Texas, the Ohio State University, and others.

## EXPERIENTIAL LEARNING

Our program strives to teach theoretical aspects that form the foundation of in-depth understanding and creativity. This is supplemented by extensive hands-on experience as students write their own small programs and also work on larger projects in upper-level courses. Capital's location in our state capital allows students to take advantage of business and technological opportunities through internships and part-time employment.

## AS A GRADUATE, YOU WILL BE PREPARED TO:

- Implement algorithms in computer programming languages to solve problems
- Analyze the efficiency of algorithmic solutions to problems and discuss potential improvements and trade-offs of different algorithms and data structures
- Describe fundamental concepts of computer architecture and how operating systems abstract access to computer hardware
- Learn new computer science concepts and programming languages and present them both orally and in written form
- Analyze a given problem for potential ethical violations of the IEEE-CS/ACM Code of Ethics

## WHAT ARE OUR GRADS DOING NOW?

- Software Project Director
- Programmer
- Analyst
- Director of Network Services
- Systems Administrator
- Computer Systems Manager
- MIS Technical Analyst

**Capital**  
University

1 College and Main  
Columbus, OH 43209-2394  
[www.capital.edu](http://www.capital.edu)

614-236-6101  
1-866-544-6175  
[admission@capital.edu](mailto:admission@capital.edu)

## Four-Year Sample Schedule of a Computer Science Major

### Freshman Fall

16 credit hours  
Intro to Computer Science - 3  
Calculus I - 4  
College Reading & Writing - 3  
Global Awareness - 3  
Elective - 3

### Sophomore Fall

16 credit hours  
Statistics - 3  
Foundations of Computer  
Architecture - 4  
Religion - 3  
Science & Technology - 3  
Elective - 3

### Junior Fall

15 credit hours  
Intro to Database  
Systems - 3  
Algorithms & Data  
Structures II - 3  
Humanities - 3  
Electives - 6

### Senior Fall

16 credit hours  
Computer Science Elective - 3  
Seminar - 1  
Electives - 12

### Freshman Spring

15 credit hours  
Algorithms & Data  
Structures I - 3  
Discrete Mathematics - 3  
First Year Seminar - 3  
Oral Communication - 3  
Elective - 3

### Sophomore Spring

15 credit hours  
Software Engineering - 3  
Fine Arts - 3  
Social Science - 3  
Cultural Pluralism - 3  
Elective - 3

### Junior Spring

16 credit hours  
Programming  
Languages - 3  
Computer Graphics - 3  
Seminar - 1  
Electives - 9

### Senior Spring

17 credit hours  
Intro to Parallel  
Computing - 2  
Computer Science Elective - 3  
Operating Systems - 2  
Seminar - 1  
Ethics - 3  
Electives - 6

---

All courses subject to availability and advisor approval. All undergraduates must demonstrate that Signature Learning goals have been met.

