COMPUTER SCIENCE MAJOR

Department: Computer Science and Information Systems (https://catalog.bradley.edu/undergraduate/liberal-arts-sciences/computer-science-information-systems/)

The department has course offerings of sufficient breadth to allow specialization in a number of areas including software engineering, intelligent systems, database concepts, computer systems and architecture, net-centric computing, and Web development. Majors are encouraged to choose an area of specialization based upon their career goals and to select electives, with guidance from their advisor, to support that choice.

Available concentrations are Computer Game Technology (https://catalog.bradley.edu/undergraduate/programs/computer-game-technology-concentration/); Data Science (https://catalog.bradley.edu/undergraduate/programs/computer-science-data-science-concentration/); Mobile Computing (https://catalog.bradley.edu/undergraduate/programs/mobile-computing-concentration/); and Software, Web, and Computer Security (https://catalog.bradley.edu/undergraduate/programs/computer-science-software-web-computer-security-concentration/).

The general requirements for the computer science major are:

Code	Title	Hours
Computer Science		
45 semester hours including: [1]		
CS 101	Introduction to Programming	4.0
CS 102	Data Structures	3.0
CS 200	Advanced Programming Concepts and Languages	3.0
CS 210	Advanced Data Structures and Algorithms	3.0
CS 215	Computability, Formal Languages, and Heuristics	3.0
CS 220	Computer Architecture	3.0
CS 321	Operating Systems	3.0
CS 330	Net-Centric Computing	3.0
CS 370	Database Management Systems	3.0
CS 390	Introduction to Software Engineering	3.0
CS 480	Social and Professional Issues in Computing	2.0
CS 490	Capstone Project I	3.0
CS 491	Capstone Project II	3.0
Mathematics and Science		
12 semester hours of mathematics, including:		
MTH 120	Discrete Mathematics	3.0
MTH 121	Calculus I	4.0
MTH 122	Calculus II	4.0
One elective at the 200 level or higher		3.0
Select one of the following:		3.0
MTH 325	Probability and Statistics I	
IME 311	Introduction to Engineering Statistical Methods	
Q M 262	Quantitative Analysis I	
Select two of the following: [2]		8.0
BIO 111 & BIO 113	Introduction to Cell Biology and Introduction to Cell Biology Laboratory	
BIO 112 & BIO 114	Introduction to Ecology and Evolution and Introduction to Ecology and Evolution Laboratory	
BIO 151 & BIO 152	Molecules to Cells and Molecules to Cells Laboratory	
BIO 251 & BIO 252	Ecology, Evolution and Biodiversity and Ecology, Evolution and Biodiversity Laboratory	
BIO 202	Microbiology and Immunology	
GES 101 & GES 102	Principles of Earth Science and Principles of Earth Science Laboratory	
GES 110 & GES 111	Principles of Historical Geology and Principles of Historical Geology Laboratory	
CHM 100 & CHM 101	Fundamentals of General Chemistry and Fundamentals of General Chemistry Lab	
CHM 110 & CHM 111	General Chemistry I and General Chemistry I Lab	
CHM 116 & CHM 117	General Chemistry II and General Chemistry II Laboratory	
PHY 100	Fundamental Physics Concepts	
PHY 107	General Physics I	
PHY 108	General Physics II	
PHY 110	University Physics I	
PHY 201	University Physics II	
Total Hours		**64**

[1]
- At least 24 semester hours must be 300 level or higher.
- A grade of C or better is required in all computer science courses submitted in fulfillment of the major requirements.

[2] 8 semester hours of science: two courses, with laboratories