COMPUTER SCIENCE, B.S.C.S.

Degree Requirements (120 hours)
See College of Engineering and Computing (https://academicbulletins.sc.edu/undergraduate/engineering-computing/) for progression requirements and special academic opportunities.

Program of Study

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<th>Requirements</th>
<th>Credit Hours</th>
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<td>2. College Requirements</td>
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Founding Documents Requirement
All undergraduate students must take a 3-credit course or its equivalent with a passing grade in the subject areas of History, Political Science, or African American Studies that covers the founding documents including the United State Constitution, the Declaration of Independence, the Emancipation Proclamation and one or more documents that are foundational to the African American Freedom struggle, and a minimum of five essays from the Federalist papers. This course may count as a requirement in any part of the program of study including the Carolina Core, the major, minor or cognate, or as a general elective. Courses that meet this requirement are listed here (https://academicbulletins.sc.edu/undergraduate/founding-document-courses/).

1. Carolina Core Requirements (35-41 hours)

CMW – Effective, Engaged, and Persuasive Communication: Written (6 hours)
Must be passed with a grade of C or higher.

• ENGL 101
• ENGL 102

ARP – Analytical Reasoning and Problem Solving (8 hours)
Must be passed with a grade of C or higher.

• MATH 141
• MATH 142

SCI – Scientific Literacy (8 hours)
Select all of one of the following:

Either

• CHEM 111 & CHEM 111L - both must be passed with a grade of C or higher
• CHEM 112 & CHEM 112L

or

• PHYS 211 & PHYS 211L - both must be passed with a grade of C or higher
• PHYS 212 & PHYS 212L

GFL – Global Citizenship and Multicultural Understanding: Foreign Language (0-6 hours)
Score two or better on foreign language placement test; or complete the 109 and 110 courses in FREN, GERM, LATN or SPAN; or complete the 121 course in another foreign language.

• CC-GFL courses (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

GHS – Global Citizenship and Multicultural Understanding: Historical Thinking (3 hours)

• any CC-GHS course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

GSS – Global Citizenship and Multicultural Understanding: Social Sciences (3 hours)

• any CC-GSS course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

AIU – Aesthetic and Interpretive Understanding (3 hours)

• any CC-AIU course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

CMS – Effective, Engaged, and Persuasive Communication: Spoken Component 1 (3 hours)

• any CC-CMS course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

INF – Information Literacy1 (0 hours)

• ENGL 102

VSR – Values, Ethics, and Social Responsibility 1 (1 hour)

• CSCE 390 - must be passed with a grade of C or higher

1 Carolina Core Stand Alone or Overlay Eligible Requirements — Overlay-approved courses offer students the option of meeting two Carolina Core components in a single course. A maximum of two overlays is allowed. The total Carolina Core credit hours for this program must add up to a minimum of 35 hours.

2. College Requirements (0 hours)
No college-required courses for this program.

3. Program Requirements (46-55 hours)

Supporting Courses (42 hours)

Foundational Courses (16 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 241</td>
<td>Vector Calculus</td>
<td>3</td>
</tr>
<tr>
<td>MATH 344</td>
<td>Applied Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 344L</td>
<td>Applied Linear Algebra Lab</td>
<td>1</td>
</tr>
<tr>
<td>MATH 374</td>
<td>Discrete Structures (must be passed with a grade of C or higher)</td>
<td>3</td>
</tr>
<tr>
<td>STAT 509</td>
<td>Statistics for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 462</td>
<td>Technical Writing</td>
<td>3</td>
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Computer Science, B.S.C.S.

Laboratory Science Requirement (4 hours)

Select one of the following: 4

- ANTH 161 Human Origins: An Introduction to Biological Anthropology
- ASTR 101 Introduction to Astronomy
- BIOL 101 Biological Principles I
- BIOL 101L and Biological Principles I Laboratory
- BIOL 110 General Biology
- CHEM 111 General Chemistry I
- CHEM 111L and General Chemistry I Lab
- CHEM 141 Principles of Chemistry I
- ENVR 101 Introduction to the Environment
- ENVR 101L and Introduction to the Environment Lab
- ENV 200 Natural History of South Carolina
- GEOG 201 Landform Geography
- GEOG 202 Weather and Climate
- GEOL 101 Introduction to the Earth
- GEOL 103 Environment of the Earth
- GEOL 201 Observing the Earth
- GEOL 215 Coastal Environments of the Southeastern U.S.
- GEOL 215L and Coastal Environments of the Southeastern U.S. (Laboratory)
- GEOL 302 Rocks and Minerals
- MSCI 101 The Ocean Environment
- MSCI 102 The Living Ocean
- MSCI 210 Oceans and Society
- MSCI 210L and Oceans and Society Laboratory
- MSCI 215 Coastal Environments of the Southeastern US
- MSCI 215L and Coastal Environments of the Southeastern US (Laboratory)
- PHYS 211 Essentials of Physics I
- PHYS 211L and Essentials of Physics I Lab

Total Credit Hours 4

Lower Division Computing (22 hours)

Must be passed with a grade of C or higher:

Course Title Credits
CSCE 145 Algorithmic Design I 4
CSCE 146 Algorithmic Design II 4
CSCE 190 Computing in the Modern World 1
CSCE 211 Digital Logic Design 3
CSCE 212 Introduction to Computer Architecture 3
CSCE 215 UNIX/Linux Fundamentals 1
CSCE 240 Advanced Programming Techniques 3
CSCE 247 Software Engineering 3

Total Credit Hours 22

Electives (4-13)

At least 120 degree applicable credits are required to complete the BSCS in Computer Science. The CS curriculum includes 4-13 hours of electives depending on how students fulfill the Carolina Core requirements and their choice of Concentration. Any course in the university can be used to satisfy the elective requirement, including additional electives in the major.

4. Major Requirements (30-33 hours)

Must be passed with a grade of C or higher.

Major Courses (21 hours)

Course Title Credits
CSCE 311 Operating Systems 3
CSCE 330 Programming Language Structures 3
CSCE 350 Data Structures and Algorithms 3
CSCE 355 Foundations of Computation 3
CSCE 416 Introduction to Computer Networks 3
CSCE 490 Capstone Computing Project I 3
CSCE 492 Capstone Computing Project II 3

Total Credit Hours 21

Major Electives (9 hours)

Any CSCE course 500 or higher. Students may choose to complete a 12-hour concentration in Artificial Intelligence or Cybersecurity in place of the Major Electives.

Concentrations (12 hours)

Students may choose to complete a 12-hour concentration below in place of the 9 hours of Major Electives.

Artificial Intelligence Concentration (12 hours)

Course Title Credits
CSCE 580 Artificial Intelligence 3
Select three courses from the following: 9
- CSCE 555 Algorithms in Bioinformatics
- CSCE 567 Visualization Tools
- CSCE 574 Robotics
- CSCE 578 Text Processing
- CSCE 582 Bayesian Networks and Decision Graphs
- CSCE 585 Machine Learning Systems
- CSCE 587 Big Data Analytics

Total Credit Hours 12

Cybersecurity Concentration (12 hours)

Course Title Credits
CSCE 201 Introduction to Computer Security 3
CSCE 522 Information Security Principles 3
CSCE 548 Building Secure Software 3
Select one course from the following: 3
- CSCE 520 Database System Design
- CSCE 557 Introduction to Cryptography

Total Credit Hours 12