COMPUTER SCIENCE, B.S.C.S.

Degree Requirements (125-128 hours)
See College of Engineering and Computing (https://academicbulletins.sc.edu/undergraduate/engineering-computing/) for progression requirements and special academic opportunities.

Program of Study

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Carolina Core</td>
<td>35-44</td>
</tr>
<tr>
<td>2. College Requirements</td>
<td>0</td>
</tr>
<tr>
<td>3. Program Requirements</td>
<td>60</td>
</tr>
<tr>
<td>4. Major Requirements</td>
<td>30-33</td>
</tr>
</tbody>
</table>

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 States 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.

1. Carolina Core Requirements (35-44 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 (0-3 hours)

• any overlay or stand-alone CC-INF course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

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 (60 hours)
Supporting Courses (60 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>
</tbody>
</table>
ENGL 462 Technical Writing 3
or ENGL 463 Business Writing

Total Credit Hours 16

Laboratory Science Elective (4 hours)
Course Title Credits
ANTH 161 Human Origins: An Introduction to Biological Anthropology 4
ASTR 101 Introduction to Astronomy
BIOL 101 Biological Principles I and Biological Principles I Laboratory
& 101L General Biology
CHEM 111 General Chemistry I and General Chemistry I Lab
& 111L Principles of Chemistry I
ENVR 101 & 101L Introduction to the Environment and Introduction to the Environment Lab
ENVR 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 & 215L Coastal Environments of the Southeastern U.S. and Coastal Environments of the Southeastern U.S. (Laboratory)
GEOL 302 Rocks and Minerals
MSCI 101 The Ocean Environment
MSCI 102 The Living Ocean
& 210L Oceans and Society and Oceans and Society Laboratory
MSCI 215 & 215L Coastal Environments of the Southeastern US and Coastal Environments of the Southeastern U.S. (Laboratory)
PHYS 211 Essentials of Physics I and Essentials of Physics I Lab

Total Credit Hours 4

Liberal Arts Electives (9 hours)
Select 9 hours of the following:
AERO 401, AERO 402
AFAM 201-AFAM 580
ANTH 101-ANTH 499
ARMY 401, ARMY 402
ARTE 101, ARTE 260
ARTH 105-ARTH 366
ARTS 103-ARTS 261
CHIN 103-CHIN 550
CLAS 220-CLAS 598
CPLT 150-CPLT 597
CRJU 101-CRJU 494
DANC 101-DANC 381
ECON 123-ECON 499
ENGL 270-ENGL 499
FAMS 180-FAMS 597
FREN 109-FREN 615
GEOG 103-GEOG 595
GERM 109-GERM 615
HIST 101-HIST 692
ITAL 101-ITAL 615
JAPA 121-JAPA 500
LASP 201-LASP 451
LATN 109-LATN 615
LING 300-LING 301, and LING 600 can be used
MART 110-MART 341
MUSC 110-MUSC 140
NAVY 401, NAVY 402
PHIL 101-PHIL 109, PHIL 112-PHIL 598
POLI 101-POLI 499
PORT 121-PORT 615
PSYC 101-PSYC 499
RELG 101-RELG 552
RUSS 121-RUSS 616
SOCY 101-SOCY 499
SOST 101-SOST 500
SPAN 109-SPAN 615
THEA 170-THEA 565
WGST 112-WGST 555

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

Application Area (9 hours)
An application area consists of three 3-credit courses that display a distinct curricular pattern that is different from computer science. The courses must all have either the same department designator or be part of a defined minor. An application area course may not have the CSCE designator nor be cross listed with a CSCE course. Students may petition the department for approval of other sets of application area courses.

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)**

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select from the following:</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>CSCE 317 or any CSCE course 500 or higher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select any approved CSCE courses, 500 and higher</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours  9

**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)**

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

Total Credit Hours  12

**Cybersecurity Concentration (12 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE 201</td>
<td>Introduction to Computer Security</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 522</td>
<td>Information Security Principles</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 548</td>
<td>Building Secure Software</td>
<td>3</td>
</tr>
<tr>
<td>Select one course from the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>CSCE 520</td>
<td>Database System Design</td>
<td></td>
</tr>
<tr>
<td>CSCE 557</td>
<td>Introduction to Cryptography</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours  12