COMPUTER SCIENCE, B.S.C.S.

Accreditation

Learning Outcomes
At the time of graduation students should satisfy the following Learning Outcomes.

• Students will demonstrate an ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
• Students will demonstrate an ability to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program’s discipline.
• Students will demonstrate an ability to communicate effectively in a variety of professional contexts.
• Students will recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
• Students will demonstrate the ability to function effectively as a member or leader of a team engaged in activities appropriate to the program’s discipline.
• Students will demonstrate the ability to apply computer science theory and software development fundamentals to produce computing-based solutions.

Academic Standards

Program GPA
Program GPA requirement policies are described in the College of Engineering and Computing section of this bulletin. For the purpose of these policies, the following courses are used to determine the Program GPA for the Computer Science B.S.C.S. program: all Lower Division Computing, Computer Science Major, and Computer Science Elective courses, and CSCE 390.

Exclusions
No Lower Division Computing, Computer Engineering Major, or Computer Engineering Elective course may be counted toward a minor. All other required courses and electives may be used for a minor as appropriate. CSCE 101 and CSCE 102 are not major courses and may not be used for degree credit.

Minimum Course Grades
The Computer Science B.S.C.S. program requires that a grade of "C" or better be earned in each of the following courses: ENGL 101, ENGL 102, MATH 141, MATH 142, MATH 374, CHEM 111 or PHYS 211, and all CSCE courses applied to the degree.

Admissions

Entrance Requirements
Admission requirements and processes for freshman, transfer students, and former students seeking readmission are managed by the Office of Undergraduate Admissions (http://sc.edu/about/offices_and_divisions/undergraduate_admissions/).

Transfer applicants from regionally accredited colleges and universities must have a cumulative 2.75 GPA on a 4.00 scale to enter the College of Engineering and Computing. In addition, transfer applicants for the Aerospace Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, or Mechanical Engineering majors must also have completed a four semester-hour calculus course equivalent to MATH 141 with a grade of "C" or better.

Current University of South Carolina students who wish to enter the College of Engineering and Computing, and former students seeking readmission, must have an institutional GPA of 2.50 or better on at least 15 hours earned at UofSC. In addition, such applicants for the Aerospace Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, or Mechanical Engineering majors must also have completed a four semester-hour calculus course equivalent to MATH 141 with a grade of "C" or better.

All engineering and computing students must earn a minimum of 30 semester hours, including at least half of the hours of work in the major, in residence.

Degree Requirements (125 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</td>
</tr>
</tbody>
</table>

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 (both not approved for CC-SCI)
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)**

- SPCH 140 or SPCH 230

**INF – Information Literacy ¹ (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

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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.

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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>
</tbody>
</table>

**Laboratory Science Elective (4 hours)**

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 161</td>
<td>Human Origins: An Introduction to Biological Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>ASTR 101</td>
<td>Introduction to Astronomy</td>
<td></td>
</tr>
<tr>
<td>BIOL 101</td>
<td>Biological Principles I &amp; Biological Principles I Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 110</td>
<td>General Biology</td>
<td></td>
</tr>
<tr>
<td>CHEM 111</td>
<td>General Chemistry I &amp; General Chemistry I Lab</td>
<td></td>
</tr>
<tr>
<td>CHEM 141</td>
<td>Principles of Chemistry I</td>
<td></td>
</tr>
<tr>
<td>ENVR 101</td>
<td>Introduction to the Environment &amp; Introduction to the Environment Lab</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 101</td>
<td>Introduction to the Earth</td>
<td></td>
</tr>
<tr>
<td>GEOL 103</td>
<td>Environment of the Earth</td>
<td></td>
</tr>
<tr>
<td>GEOL 201</td>
<td>Observing the Earth</td>
<td></td>
</tr>
<tr>
<td>GEOL 215</td>
<td>Coastal Environments of the Southeast U.S. &amp; Coastal Environments of the Southeast U.S. (Laboratory)</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 302</td>
<td>Rocks and Minerals</td>
<td></td>
</tr>
<tr>
<td>MSCI 101</td>
<td>The Ocean Environment</td>
<td></td>
</tr>
<tr>
<td>MSCI 102</td>
<td>The Living Ocean</td>
<td></td>
</tr>
<tr>
<td>MSCI 210</td>
<td>Oceans and Society &amp; Oceans and Society Laboratory</td>
<td></td>
</tr>
<tr>
<td>MSCI 215</td>
<td>Coastal Environments of the Southeast U.S. &amp; Coastal Environments of the Southeast U.S. (Laboratory)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 211 &amp; 211L</td>
<td>Essentials of Physics I &amp; Essentials of Physics I Lab</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credit Hours**

**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 600
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:

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

Total Credit Hours 22

Application Area (9 hours)
An application area consists of three courses (9 hours) that display a distinct curricular pattern that is different from computer science. Any three non-CSCE courses that are from one department or are a subset of a defined minor, and that are each 3 credit hours or more, may satisfy this requirement. Students may petition the department for approval of other sets of application area courses.

4. Major Requirements (30 hours)
Must be passed with a grade of C or higher.

Major Courses (21 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE 311</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 330</td>
<td>Programming Language Structures</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 350</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 355</td>
<td>Foundations of Computation</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 416</td>
<td>Introduction to Computer Networks</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 21

Major Electives (9 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE 490</td>
<td>Capstone Computing Project I</td>
<td>3</td>
</tr>
<tr>
<td>CSCE 492</td>
<td>Capstone Computing Project II</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours 9

Major Map

A major map is a layout of required courses in a given program of study, including critical courses and suggested course sequences to ensure a clear path to graduation.

Major maps are only a suggested or recommended sequence of courses required in a program of study. Please contact your academic advisor for assistance in the application of specific coursework to a program of study and course selection and planning for upcoming semesters.

Computer Science, B.S.C.S.