COMPUTER SCIENCE - BS

The four-year undergraduate curriculum in computer science at Texas A&M provides a sound preparation in computing, as well as in science, mathematics, English, and statistics. Students take a broad set of core computer science courses in the early semesters, which exposes them to the main concepts in computing. During the later semesters, students take elective computer science courses drawn from four tracks (algorithms and theory, computer systems, software, and information and intelligent systems) to provide both breadth and depth. The electives can be used to tailor the curriculum to match the student’s interests. Graduate courses may be taken by qualified students for some of the electives.

A major in computer science includes a 12-hour area of concentration. This allows students to design a course of study that complements their computer science coursework and takes advantage of opportunities offered by other departments across the University.

Program Requirements

The freshman year is identical for degrees in aerospace engineering, biomedical engineering, civil engineering, computer engineering, computer science, electrical engineering, electronic systems engineering technology, industrial distribution, industrial engineering, manufacturing and mechanical engineering technology, mechanical engineering, multidisciplinary engineering technology, nuclear engineering, ocean engineering, and petroleum engineering (Note: not all programs listed are offered in Qatar). The freshman year is slightly different for chemical engineering in that students take CHEM 101/CHEM 111 or CHEM 107/CHEM 117 and CHEM 102/CHEM 112. Biomedical Engineering also requires a two semester sequence of chemistry courses consisting of CHEM 101/CHEM 111 or CHEM 107/CHEM 117 and CHEM 102/CHEM 112. Students pursuing degrees in biological and agricultural engineering should refer to the specific curriculum for this major. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

### First Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credit Hours</th>
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<tbody>
<tr>
<td>Fall</td>
<td>CHEM 107</td>
<td>General Chemistry for Engineering Students</td>
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<td>CHEM 117</td>
<td>General Chemistry for Engineering Students Laboratory</td>
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<td>ENGL 103 or ENGL 104</td>
<td>Introduction to Rhetoric and Composition</td>
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<td>ENGR 102</td>
<td>Engineering Lab I - Computation</td>
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<td>MATH 151</td>
<td>Engineering Mathematics I</td>
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<td>CHEM 102 &amp; CHEM 112</td>
<td>Fundamentals of Chemistry II and Fundamentals of Chemistry Laboratory II</td>
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### Second Year

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<td>Introduction to Program Design and Concepts</td>
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<td>CSCE 181</td>
<td>Introduction to Computing</td>
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<td>CSCE 222/ECEN 222</td>
<td>Discrete Structures for Computing</td>
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<td>MATH 304</td>
<td>Linear Algebra</td>
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<td>Fall</td>
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<td>Spring</td>
<td>CSCE 221</td>
<td>Data Structures and Algorithms</td>
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<tr>
<td>Spring</td>
<td>CSCE 312</td>
<td>Computer Organization</td>
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<td>Spring</td>
<td>CSCE 314</td>
<td>Programming Languages</td>
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Select one from:
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<th>Course Title</th>
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<tbody>
<tr>
<td>COMM 203</td>
<td>Public Speaking</td>
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<td>COMM 205</td>
<td>Communication for Technical Professions</td>
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<td>ENGL 210</td>
<td>Technical and Business Writing</td>
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<td>Semester Credit Hours</td>
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### Third Year

#### Fall

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<tbody>
<tr>
<td>CSCE 313</td>
<td>Introduction to Computer Systems</td>
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<tr>
<td>CSCE 315</td>
<td>Programming Studio</td>
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<td>CSCE 481</td>
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<td>STAT 211</td>
<td>Principles of Statistics I</td>
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#### Spring

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<tr>
<td>CSCE 411</td>
<td>Design and Analysis of Algorithms</td>
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<td>MATH 251</td>
<td>Engineering Mathematics III</td>
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<td>MATH 302</td>
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<td>MATH 308</td>
<td>Differential Equations</td>
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<td>High Impact Experience</td>
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### Fourth Year

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#### Spring

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<tr>
<td>CSCE 482</td>
<td>Senior Capstone Design</td>
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<td>ENGR 482/</td>
<td>Ethics and Engineering</td>
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<td>PHIL 482</td>
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6 If the student takes ENGR 217/PHYS 217 and PHYS 207, the 3 hours of PHYS 207 go towards the science requirement along with 1 hour of ENGR 217/PHYS 217. The other hour of ENGR 217/PHYS 217 can be used as general elective.

7 See advisor for list of acceptable science courses.

8 The concentration area should be chosen only after consultation with a departmental advisor who will help the student arrange a program appropriate to his or her plans following graduation. Students should file a degree plan before taking minor courses to ensure their use in the degree plan.

9 Computer science electives are to be selected from tracks. See advisor for list of acceptable course choices.

10 All students are required to complete a high-impact experience in order to graduate. The list of possible high-impact experiences is available in the CSCE advising office.

Total Program Hours 126