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 Mission
The mission of the Computer Science program at Texas A&M University is to prepare intellectual, professional, and ethical graduates, capable of meeting the diverse and changing challenges in the field of computer science.

Program Objectives
1. Graduates who choose to enter the workforce will become productive and valuable professionals in their fields.
2. Graduates who choose to pursue advanced degrees will gain admission to graduate programs and will become successful graduate students.
3. Graduates will understand the importance of life-long learning to adapt to new technologies, tools, and methodologies with the ability to respond to a changing world.

Program Requirements
The freshman year is identical for degrees in aerospace engineering, architectural engineering, civil engineering, computer engineering, computer science, electrical engineering, electronic systems engineering technology, environmental engineering, industrial distribution, industrial engineering, interdisciplinary 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, biomedical engineering and materials science and engineering degrees in that students take CHEM 119 or CHEM 107/CHEM 117 and CHEM 120.

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.

A grade of C or better is required.

1. Entering students will be given a math placement exam. Test results will be used in selecting the appropriate starting course which may be at a higher or lower level.
2. Of the 21 hours shown as University Core Curriculum electives, 3 must be from creative arts, 3 from social and behavioral sciences (see IDIS curriculum for more information), 3 from language, philosophy and culture (see CVEN, EVEN and PETE curriculum for more information), 6 from American history and 6 from government/political science. The required 3 hours of international and cultural diversity and 3 hours of cultural discourse may be met by courses satisfying the creative arts, social and behavioral sciences, language, philosophy and culture, and American history requirements if they are also on the approved list of international and cultural diversity courses and cultural discourse courses (http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/) courses.

BMEN, CHEN and MSEN require 8 hours of freshman chemistry, which may be satisfied by CHEM 119 or CHEM 107/CHEM 117 and CHEM 120; Credit by Examination (CBE) for CHEM 119 plus CHEM 120; or 8 hours of CBE for CHEM 119 and CHEM 120. BMEN, CHEN and MSEN should take CHEM 120 second semester freshman year. CHEM 120 will substitute for CHEM 107/CHEM 117.
For BS-PETE, allocate 3 hours to core communications course (ENGL 210, COMM 203, COMM 205, or COMM 243) and/or 3 hours to UCC elective. For BS-MEEN, allocate 3 hours to core communications course (ENGL 203, ENGL 210, or COMM 205) and/or 3 hours to UCC elective.

## Second Year
### Fall
- **CSCE 121**: Introduction to Program Design and Concepts 1
- **CSCE 181**: Introduction to Computing 1
- **CSCE 222/ECEN 222**: Discrete Structures for Computing 1
- **MATH 304**: Linear Algebra 1
- **CSCE elective**: 5,7
- **General elective**: 6

**Semester Credit Hours**: 16

### Spring
- **CSCE 221**: Data Structures and Algorithms 1
- **CSCE 312**: Computer Organization 1
- **CSCE 314**: Programming Languages 1
- **Select one of the following**: 3
  - **COMM 203**: Public Speaking
  - **COMM 205**: Communication for Technical Professions
  - **ENGL 210**: Technical and Business Writing
- **Concentration area elective**: 8

**Semester Credit Hours**: 17

## Third Year
### Fall
- **CSCE 313**: Introduction to Computer Systems 1
- **CSCE 315**: Programming Studio 1
- **CSCE 481**: Seminar 1
- **STAT 211**: Principles of Statistics I
- **University Core Curriculum**: 3

**Concentration area elective**: 8

**Semester Credit Hours**: 17

### Spring
- **CSCE 411**: Design and Analysis of Algorithms
- **Select one of the following**: 3
  - **MATH 251**: Engineering Mathematics III
  - **MATH 308**: Differential Equations
  - **STAT 212**: Principles of Statistics II
  - **High Impact Experience**: 10
  - **CSCE 399**: High-Impact Experience
- **Computer science elective**: 6
- **Science elective**: 7

**Semester Credit Hours**: 15

## Fourth Year
### Fall
- **University Core Curriculum**: 3
- **Computer science elective**: 9
- **Concentration area elective**: 3

**Semester Credit Hours**: 15

### Spring
- **CSCE 482**: Senior Capstone Design 1
- **University Core Curriculum**: 6
- **Computer science elective**: 3
- **Concentration area elective**: 3

**Semester Credit Hours**: 15

**Total Semester Credit Hours**: 95

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