

Computational Science and Engineering Certificate

The Cockrell School sponsors the transcript-recognized Certificate in Computational Science and Engineering along with the Jackson School of Geosciences, the College of Liberal Arts, and the College of Natural Sciences.

The foundations of science and engineering are under rapid, dramatic, and irreversible change brought on by the advent of the computer. Steady growth in computer capabilities, and enormous expansion in the scope and sophistication of computational modeling and simulation, have added computation as the third pillar of scientific discovery and have revolutionized engineering practice. Computational science and engineering can affect virtually every aspect of human existence, including the health, security, productivity, and competitiveness of nations.

The Computational Science and Engineering Certificate program is sponsored by the Cockrell School of Engineering, the Jackson School of Geosciences, the College of Liberal Arts, and the College of Natural Sciences; it is administered by the Oden Institute for Computational Engineering and Sciences. The program offers highly qualified upper-division students an opportunity for in-depth study and research in computational science and engineering, including computational and applied mathematics, numerical simulation, scientific computation, and visualization. A student who completes the general requirements listed on [Transcript-Recognized Programs](#) and the specific requirements below receives recognition on his or her University transcript and a letter from the director of the Oden Institute that describes the program and the work completed. Along with supporting letters from supervising faculty and graduate mentors, these are valuable assets for students applying to graduate school and pursuing competitive job opportunities.

Total Hours Required: 18

Requirements

Requirements are listed in the table below. Additional requirements may follow the table, so be sure to read the entire page. Some required courses listed below may also satisfy [General Education](#) requirements, including [Core Curriculum](#). Students should also review the [University's Undergraduate Minor and Certificate Requirements and Policies](#).

Code	Title	Hours
Students must take at least one course in each of the following areas:		18
	Upper Division Mathematics	
	Basic Programming	
	Numerical Applications	
	Advanced Computing	
	Electives	
	Scientific Computing Project (to be supervised by a member of the computational science, engineering, and mathematics (CSEM) graduate program faculty. The research project is completed in a three-semester-hour research methods or individual instruction course, which the student should take during the senior year. The research project may include mentoring by Oden Institute postdoctoral fellows and CSEM graduate students as part of a vertical instructional research team)	

College Requirements - Engineering

Undergraduate Minor and Certificate Requirements and Policies

Total Hours

18

Additional Requirements and Policy

- With the approval of the certificate program's faculty advisor, course substitutions may be made within the broad area of computational science and engineering.
- Some courses on the approved course list may be restricted by the department offering the course. Please note that the CSE Certificate Program cannot ask the department to waive prerequisites or force the department to lift restrictions on their courses.
- A list of approved courses is available at <https://www.odn.utexas.edu/programs/cse-certificate/> and in the Oden Institute for Computational Engineering and Sciences, POB 4.110
- Students must complete 18 semester hours of approved coursework with a grade of at least C- in each course. A student's overall GPA in certificate courses must be 3.00 or greater.

Admissions

To apply for admission, students must have completed 60 semester hours of coursework, must have a grade point average of at least 3.00, and must have taken coursework in calculus.