Southern Methodist University 2021-2022 Undergraduate Catalog

Computer Science, B.A.

SMU Degree Requirements

An SMU undergraduate degree requires a minimum of 120 credit hours and must include completion of the University's Common Curriculum, one major and a combination of electives and/or other majors or minors. Completion of certain majors requires more than 120 hours to finish the degree. The credit hours within this curriculum are distributed as follows:

Requirements for the Major

Mathematics and Statistics (15 Credit Hours)

- MATH 1337 - Calculus I and MATH 1338 - Calculus II
  or
- MATH 1340 - Consolidated Calculus

- MATH 3304 - Introduction to Linear Algebra
- CS 2353 - Discrete Computational Structures

- STAT 2331 - Introduction to Statistical Methods
  or
- STAT 4340 - Statistical Methods for Engineers and Applied Scientists

Computer Science Core (17 Credit Hours)

- CS 1341 - Principles of Computer Science
- CS 1342 - Programming Concepts
- CS 2240 - Assembly Language Programming and Machine Organization
- CS 2341 - Data Structures
- CS 3353 - Fundamentals of Algorithms
- CS 5343 - Operating Systems and Systems Software

Tracks (9 Credit Hours)

Artificial Intelligence and Machine Learning

- CS 5320 - Artificial Intelligence
- CS 5324 - Machine Learning in Python
- 3 credit hours of track electives approved by adviser

Cybersecurity

- CS 5339 - Computer System Security
- CS 5349 - Data and Network Security
- 3 credit hours of track electives approved by adviser

Data Engineering

- CS 5330 - File Organization and Database Management
- CS 5337 - Information Retrieval and Web Search
- 3 credit hours of track electives approved by adviser

General

- Three 3-hour, 4000-level or above CS courses approved by adviser

Research

- CS 4397 - Research Experience for Undergraduates
- CS 5350 - Algorithm Engineering
- 3 credit hours of track electives approved by adviser

Software Engineering

- Select two of the following three courses:
  - CS 5314 - Software Testing and Quality Assurance
  - CS 5319 - Software Architecture and Design
  - CS 5340 - Service-Oriented Computing
- 3 credit hours of trac electives approved by adviser

Technical Electives (9 Credit Hours)

9 credit hours of CS courses at the 3000 level or above as approved by the adviser. The advisor may approve other sufficiently technical courses from other departments to satisfy the Technical elective requirements. Technical electives cannot be satisfied by courses that are part of the student's chosen track.

Engineering Leadership (9 Credit Hours)

Choose 9 credit hours from the following:

- CS 3377 - Ethical Issues in Computing
- CS 4360 - Technical Entrepreneurship
- CS 5317 - Leadership for Architecting Software Systems
- CEE 2302 - Authentic Leadership
- CEE 3302 - Engineering Communications
- CEE 5302 - Leadership in Development Sector
- CEE 5303 - Citizen Engineering with Community-Based Design Research
- EMIS 2375 - Cultural and Ethical Implications of Technology
- EMIS 3308 - Engineering Management

  Students who are also enrolled in a major or minor program in the Cox School of Business may request leadership courses from these programs to substitute for the Computer Science leadership courses. These requests must be approved by the Computer Science Department.

Total for the Major Only: 59 Credit Hours