Bachelor of Science in Computer Science

About This Program

UTA's Bachelor of Science in Computer Science (BCBS) degree program is designed to expose students to the intellectual and practical aspects of modern software-intensive computing systems, including software development at various levels involving operating systems, database systems, programming languages, networks, security issues, user interfaces, and artificial intelligence.

Our students gain fundamental knowledge and practical skills in the design of computer-based systems, as well as demonstrating leadership for a changing profession and world. They will also apply the knowledge and skills gained in the classroom in real-world settings through internships or cooperative education programs and course projects, including a capstone project.

ABET ACCREDITATION

The BSCS program has been accredited since 2002 by the Computing Accreditation Commission of ABET (http://www.abet.org/), under the commission's General Criteria and the Program Criteria for Computer Science.

PROGRAM EDUCATIONAL OBJECTIVES

The program is designed so that a few years following graduation students will be able to:

1. Be technically competent and have commenced a computing career or advanced studies.
2. Advance in the profession, especially in responsibility for the design of computer-based systems.
3. Demonstrate leadership to advance the growing computer science profession globally.

STUDENT OUTCOMES

Upon completion of the degree, students will be able to:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Admissions Criteria

All entering students majoring in this program are permitted to enroll in general education and pre-professional courses for which they are qualified. Students completing pre-professional courses must meet the academic requirements specified by the College of Engineering prior to applying for admission to the professional program. The Computer Science and Engineering Department requires a 2.5 overall grade point average on a 4.0 scale in each of three categories: (1) overall, (2) required science, mathematics, and engineering courses, and (3) required CSE courses. Additionally, they must have a total of no more than four unsuccessful attempts in engineering courses. Students not in the professional program must have permission from the department chairperson to receive credit for courses listed in the professional program category. Application for admission to the professional program is made to the Department of Computer Science and Engineering.

PRIOR PREPARATION

This is a four-year program, and requirements for the degree are based upon prior high school preparation through either an honors or college track. More specifically, entering students are expected to have a background in mathematics through precalculus, high school chemistry, and programming in a high-level language such as C, C++, Java or Python.

Students who have not had the appropriate preparation should contact the departmental advising office for assistance in structuring a degree plan that will include leveling courses. Students requiring leveling courses may require a longer period of time to complete their undergraduate program.

READINESS EXAMINATIONS

Students that have prior programming experience without having course credit for a programming course will have the option to take readiness examinations before enrolling in CSE courses at UTA. Students not passing the readiness examination must take these courses at UTA. A readiness examination may be taken only once per course and only before enrolling in any CSE courses. Additional information is available in the departmental office.

Curriculum

Foundations		
General Core Requirements (https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/)		42
Students are required to complete specific courses in certain core areas. Those included in the pre-professional program are identified with a footnote.		
In addition to the specified courses, students must choose 6 hours of U.S. History, 6 hours of Political Science, 3 hours of Language, Philosophy, Culture, and 3 hours of Creative Arts in the general education core.		
For Communication select:		
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
ENGL 1301	RHETORIC AND COMPOSITION I [1]	
For Mathematics select:		
MATH 1426	CALCULUS I [1]	
MATH 2425	CALCULUS II [1]	
For Life & Physical Sciences select:		
PHYS 1443	GENERAL TECHNICAL PHYSICS I [1]	
PHYS 1444	GENERAL TECHNICAL PHYSICS II [1]	
For Social & Behavioral Sciences select:		
IE 2308	ECONOMICS FOR ENGINEERS	
or ECON 2305	PRINCIPLES OF MACROECONOMICS	
For Component Area Option select:		
MATH 2326	CALCULUS III	
BSCS Foundations		
Additional hours required in core		4
UNIV 1131	STUDENT SUCCESS	1
or ENGR 1101	ENTRANCE TO ENGINEERING FOR TRANSFER STUDENTS	
CSE 1106	INTRODUCTION TO COMPUTER SCIENCE AND ENGINEERING	1
CSE 1310	INTRODUCTION TO COMPUTERS & PROGRAMMING	3
CSE 1320	INTERMEDIATE PROGRAMMING	3
CSE 1325	OBJECT-ORIENTED PROGRAMMING	3
CSE 2312	COMPUTER ORGANIZATION & ASSEMBLY LANGUAGE PROGRAMMING	3
CSE 2315	DISCRETE STRUCTURES	3
CSE 3318	ALGORITHMS & DATA STRUCTURES	3
BSCS Specialization (Professional Program) [2]		
IE 3301	ENGINEERING PROBABILITY	3
or MATH 3313	INTRODUCTION TO PROBABILITY	
CSE 3302	PROGRAMMING LANGUAGES	3
CSE 3310	FUNDAMENTALS OF SOFTWARE ENGINEERING	3
CSE 3314	PROFESSIONAL PRACTICES	3
CSE 3315	THEORETICAL CONCEPTS IN COMPUTER SCIENCE AND ENGINEERING	3
CSE 3320	OPERATING SYSTEMS	3
CSE 3330	DATABASE SYSTEMS AND FILE STRUCTURES	3
CSE 3380	LINEAR ALGEBRA FOR CSE	3
or MATH 3330	INTRODUCTION TO LINEAR ALGEBRA AND VECTOR SPACES	

CSE 4308	ARTIFICIAL INTELLIGENCE	3
CSE 4316	COMPUTER SYSTEM DESIGN PROJECT I	3
CSE 4317	COMPUTER SYSTEM DESIGN PROJECT II	3
CSE 4344	COMPUTER NETWORK ORGANIZATION	3
Select one of the following:		3
CSE 4303	COMPUTER GRAPHICS	
CSE 4305	COMPILERS FOR ALGORITHMIC LANGUAGES	
CSE 4360	AUTONOMOUS ROBOT DESIGN AND PROGRAMMING	
Select one of the following:		3
CSE 4380	INFORMATION SECURITY	
CSE 4381	INFORMATION SECURITY II	
CSE 4382	SECURE PROGRAMMING	
Technical Electives		
Select five computer science courses numbered 3000 or higher with advance approval of advisor.		15
Total Hours		**123**

1 Core course included in the pre-professional program.
2 All pre-requisites for professional courses must be completed with a C or better.

Total hours will depend upon prior preparation and academic qualifications.

Program Completion

Refer to the College of Engineering section (https://catalog.uta.edu/engineering/) of this catalog for information concerning the following topics: Preparation in High School for Admission to the College of Engineering, Admission to the College of Engineering, Admission to the Professional Program, Counseling, College of Engineering Academic Regulations, Transfer Policies, College of Engineering Probation, Repeating Course Policy and Academic Honesty.

Advising Resources

First time in college students meet with engineering advisors in the UAEC (UAECengineering@uta.edu). Transfer students are advised prior to New Maverick Orientation by the department. Students, please read all student emails carefully and consult the department advising webpage for additional contact information and answers to common questions.

Location:

ERB 6th Floor: ERB 643, ERB 644, ERB 645, ERB 646, ERB 622A

Email:

cseugadvising@uta.edu

Phone:

817-272-3785

Web:

Find our contact information, walk-in advising schedule, and virtual appointment links here (https://www.uta.edu/academics/schools-colleges/engineering/academics/departments/cse/students/undergraduate-advising/)