BA in Computer Science [Dual Degree]

The proposed BACS program has been designed to meet the Texas Core Curriculum. The program is designed to prepare students with foundational mathematical and computing knowledge to allow them to tackle challenges of the future. The program allows students to use knowledge of computer science including algorithms, problem solving, and programming to build solutions in a variety of disciplines. Additionally, the new degree will allow students to establish a focus area from other disciplines in education, health science, liberal arts, engineering, science, and business.

Educational Objectives

The program's educational objectives of the proposed degree focus on preparing graduates who will be able to:

1. Be innovative and productive problem-solvers in industry, academia, and government who have the ability to apply theoretical computing knowledge to provide solutions to real-world problems,
2. Contribute to the economic health of the nation, in particular the Paso del Norte region, through technical computing expertise and complementary skills including working with and leading interdisciplinary teams with a global perspective, and
3. Remain at the forefront of technology through research, advanced studies, certification, entrepreneurship, or other means of self-advancement.

Marketable Skills

Graduates of the BACS will have software development principles, mathematical algorithms, and programming skills to:

- Develop new software systems in a variety of domains
- Define computational principles
- Work with mathematical models, data analysis, and security
- Design and analyze algorithms to solve programs
- Study the performance of computer hardware and software

Courses offered by the CS department, particularly those contributing to the BACS degree, allow students to participate in the following EDGE experiences:

- Community engagement through course projects,
- Student employment as Teaching/Research Assistants,
- Student Leadership through student organizations,
- Internship (with possibility to earn course credit), and
- Research and Scholarly activities through enrollment in CS4371 (Computer Science Problems) course.

The BACS students must satisfy all university core requirements and complete all required courses and program requirements. Students must have a cumulative university GPA of at least 2.0 and a cumulative CS GPA of at least 2.0 and have neither missing nor outstanding "I" or 'W' grades.

Degree Plan

Required Credits: 120

Code	Title	Hours
University Core Curriculum		
Complete the University Core Curriculum requirements. (http://catalog.utep.edu/undergrad/college-of-engineering/computer-science/computer-science-bs/#university-core-curriculum)		42
Designated Core (All courses require a grade of "C" or better)		
CS 1310	Intro-Computational Thinking	3
MATH 1411	Calculus I	4
Foundational Computer Science Courses (minimum grade of C required)		
CS 1301 & CS 1101	Intro to Computer Science and Intro to Computer Science Lab	4
CS 2401	Elem. Data Struct./Algorithms	4
CS 2101	Discrete Structures I	1
CS 2202	Discrete Structures II	2
CS 2302	Data Structures	3
STAT 2480 or STAT 3320	Elementary Statistical Methods Probability and Statistics	4

Other CS Requirements		
22-23 hours of CS 1110, CS 1120, CS 2210, CS 3XXX, CS 4XXX, or ECE/EE 2369-2169. At least 6 hours should be CS 4000-level courses as approved by undergraduate program director.		
Secondary Education [8-12] Computer Science Concentration		
BED 4317	Tch & Empwr ELLs in Sec Schls	3
EDPC 3300	Intro to Youth Dev & Spec Ed	3
TED 4355	Found. for Crit Teach & Learn	3
TED 4375		3
SPED 3310	Intro to Inclusive Spec Ed	3
BED 4343	Teaching Academic English	3
EDT 4300	Educational Technology	3
SCED 4380	Secondary Stu Teach Res I	3
SCED 4681	Secondary Stu Teach Res II	6
Open Electives		
Complete additional hours to complete 120 total hours.		
Total Hours		**120**

BACS degree with BSED Concentration

Code	Title	Hours
1st Year - Fall		
MATH 1411	Calculus I *	4
CS 1301 & CS 1101	Intro to Computer Science and Intro to Computer Science Lab	4
CS 2101	Discrete Structures I	1
RWS 1301	Rhetoric & Composition I	3
UNIV 1301	Seminar/Critical Inquiry **	3
1st Year - Spring		
CS 2401	Elem. Data Struct./Algorithms	4
CS 2202	Discrete Structures II	2
CS 1310	Intro-Computational Thinking *	3
RWS 1302	Rhetoric & Composition 2	3
HIST 1301	History of U.S. to 1865	3
2nd Year - Fall		
CS 2302	Data Structures	3
EE 2369 & EE 2169	Digital Systems Design I and Laboratory for EE 2369 ***	4
HIST 1302	History of U.S. Since 1865	3
STAT 2480	Elementary Statistical Methods ****	4
POLS 2310	Introduction to Politics	3
2nd Year- Spring		
CS 3331	Adv. Object-Oriented Programng ***	3
CS 2210	Algo. Thinking in Prob. Solv. ***	2
CS 3350	Automata/Computabi/Formal Lang ***	3
Life & Physical Sciences Lecture/Lab **		4
POLS 2311	American Gover & Politics	3
3rd Year - Fall		
CS 3432	Computer Organization ***	4
RED 3342	Content Area Literacy	3
SCED 3311	Curriculum Plan-Secondary Schl	3
Life & Physical Sciences Lecture **		3
Language, Philosophy and Culture **		3
3rd-Year Spring		
CS 4342	Database Systems ***	3

BED 4317	Tch & Empwr ELLs in Sec Schls	3
SPED 3310	Intro to Inclusive Spec Ed	3
TED 4355	Found. for Crit Teach & Learn	3
Social & Behavioral Sciences **		3
4th Year - Fall		
CS 4390	Special Topics in Computer Sci ***	3
BED 4343	Teaching Academic English	3
EDPC 3300	Intro to Youth Dev & Spec Ed	3
SCED 4380	Secondary Stu Teach Res I	3
Creative Arts **		3
4th Year - Spring		
TED 4375		3
EDT 4300	Educational Technology	3
SCED 4681	Secondary Stu Teach Res II	6
Total Hours		**120**

* Computer Science Designated Core

** University Core Curriculum Required Elective

*** CS Requirements: 22-23 hours of CS 1110, CS 1120, CS 3XXX, CS 4XXX, or ECE/EE 2369/2169. At least 6 hours should be CS 4000-level courses, as approved by undergraduate program director.

**** STAT 2480 can be replaced by STAT 3320 if MATH 1312 has been completed with a C or better.