

# DEPARTMENT OF COMPUTATIONAL, ENGINEERING, AND MATHEMATICAL SCIENCES

## Overview

The Department of Computational, Engineering, and Mathematical Sciences at Texas A&M University-San Antonio strives to provide a rich educational experience for undergraduate students interested in computing, cybersecurity, engineering technology, and mathematics. We offer bachelor's degree programs in these disciplines as also support courses in physics for STEM majors. We emphasize hands-on experiential learning and critical thinking, and the participation of students in research under our faculty's mentorship. We strive to provide our students with leadership skills and values to prepare them for the workplace, for advanced study, and for an ever-changing world. Experiential learning in laboratories and internships in local businesses, industry, and the government lay the pathway for rewarding careers in STEM areas.

## Programs

- Computer Science, Bachelor of Science (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/computer-science-bs/>)
- Computer Science, Minor (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/computer-science-minor/>)
- Cyber Engineering Technology, Bachelor of Science (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/cyber-engineering-technology-bs/>)
- Cyber Security, Bachelor of Science (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/cyber-security-bs/>)
- Electronic Systems Engineering Technology, Bachelor of Science (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/electronic-systems-engineering-technology-bs/>)
- Information Technology/Information Assurance and Security Concentration, Bachelor of Applied Arts and Sciences (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/computer-information-systems-assurance-security-concentration-bba/>)
- Mathematical Biology, Minor (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/mathematical-biology-minor/>)
- Mathematics with Teacher Certification, Bachelor of Science (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/mathematics-teacher-certification-bs/>)
- Mathematics, Bachelor of Arts (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/mathematics-ba/>)
- Mathematics, Bachelor of Science (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/mathematics-bs/>)

- Mathematics, Minor (<https://catalog.tamusa.edu/undergraduate/arts-sciences/computational-engineering-mathematical-sciences/mathematics-minor/>)

## Courses Computer Science

Code	Title	Credits
CSCI 1136	Programming Fundamentals I Laboratory	1
CSCI 1137	Programming Fundamentals II La	1
CSCI 1336	Programming Fundamentals I	3
CSCI 1337	Programming Fundamentals II	3
CSCI 1436	Programming Fundamentals I	4
CSCI 1437	Programming Fundamentals II	4
CSCI 2322	Discrete Structures for Comput	3
CSCI 2325	Computer Organization	3
CSCI 2353	Web App Programming	3
CSCI 2436	Data Structures	4
CSCI 3304	Database Systems	3
CSCI 3321	Cyber Security	3
CSCI 3343	Algorithms	3
CSCI 3344	Computer Architecture	3
CSCI 3352	System Programming	3
CSCI 3353	Applications Programming	3
CSCI 3354	Web Application Development	3
CSCI 3362	Operating Systems	3
CSCI 3366	Programming Languages	3
CSCI 4101	Ethical Issues in Computing	1
CSCI 4313	Artificial Intelligence	3
CSCI 4315	Computer Graphics	3
CSCI 4316	Software Engineering I	3
CSCI 4317	Software Engineering II	3
CSCI 4321	Computer Security	3
CSCI 4322	Cyber Intelligence	3
CSCI 4325	Mobile App Development I	3
CSCI 4328	Internship in Computer Science	3
CSCI 4331	Cryptography	3
CSCI 4335	Mobile App Development II	3
CSCI 4359	Advanced Topics in Comp Sci	3
CSCI 4391	Senior Project	3
CSCI 4406	Computer Networks	4

## Cyber Security

Code	Title	Credits
CSEC 1360	Security Tools I	3
CSEC 1436	Python Programming I with Lab	4
CSEC 1437	Cyber Security Prog II + Lab	4
CSEC 2306	Computer Networks	3
CSEC 2325	Hardware Security	3
CSEC 2336	Cyber Security Applications	3
CSEC 2341	Web App Progs for Security	3
CSEC 2356	Systems Analysis and Design	3
CSEC 2360	Security Tools II	3

CSEC 3309	Scripting Languages	3
CSEC 3321	Information Security	3
CSEC 3325	Network Security	3
CSEC 3351	Database Design	3
CSEC 3366	Database Security	3
CSEC 3385	Secure Software Engineering	3
CSEC 4101	Ethical Issues in Computing	1
CSEC 4322	Information Policy Assurance	3
CSEC 4323	Computer Forensics	3
CSEC 4324	Penetration Testing	3
CSEC 4326	Security & Operation Practicum	3
CSEC 4350	Security Research Practicum	3
CSEC 4351	Internship in Cyber Security	3
CSEC 4358	Senior Project and Seminar	3
CSEC 4380	Applied Cryptosystems	3
CSEC 4386	Cloud and Big Data Security	3
CSEC 4391	IoT Security	3
CSEC 4392	Topics in Cyber Security	3
CSEC 4394	Cyber Intelligence	3
CSEC 4483	Advanced Penetration Testing	4

## Electronic Systems Engineering Technology

Code	Title	Credits
ESET 2101	AC and DC Circuits Lab	1
ESET 2102	Analog Circuits Lab	1
ESET 2301	AC and DC Circuits	3
ESET 2302	Analog Circuits	3
ESET 3101	Digital Electronics Lab	1
ESET 3102	Found of Wireless Commun I	1
ESET 3103	Found of Wireless Commun II	1
ESET 3104	Programmable Logic Controllers	1
ESET 3105	Near and Far Field Commu Lab	1
ESET 3205	Near and Far Field Communicati	2
ESET 3301	Digital Electronics	3
ESET 3302	Found of Wireless Commun I	3
ESET 3303	Found of Wireless Commun II	3
ESET 3304	Programmable Logic Controllers	3
ESET 4101	Control Systems Lab	1
ESET 4102	Electronics Testing Lab	1
ESET 4103	Digital Hardware Design Lab	1
ESET 4105	Sensors and Instrumentation La	1
ESET 4106	Embedded & Connected Smart Dev	1
ESET 4107	Electronic Design Smart Card	1
ESET 4108	Unmanned Mobile Sys Architectu	1
ESET 4201	Control Systems	2
ESET 4202	Electronics Testing	2
ESET 4203	Digital Hardware Design	2
ESET 4205	Sensors and Instrumentation	2
ESET 4206	Embedded & Connected Smart Dev	2
ESET 4207	Electronic Design Smart Card	2

ESET 4208	Unmanned Mobile Systems Archit	2
ESET 4304	Electronic Systems Capstone Pr	3

## Mathematics

Code	Title	Credits
MATH 0114	Mathematics Support Course for MATH 1314	1
MATH 0124	Mathematics Support Course for MATH 1324	1
MATH 0132	Mathematics Support Course for MATH 1332	1
MATH 0142	Mathematics Support Course for MATH 1342	1
MATH 0314	Mathematics Support Course for MATH 1314	3
MATH 0324	Mathematics Support Course for MATH 1324	3
MATH 0332	Mathematics Support Course for MATH 1332	3
MATH 0342	Mathematics Support Course for MATH 1342	3
MATH 1014	College Algebra Recitation	0
MATH 1024	Math Bus/Soc Sci I Recitation	0
MATH 1025	Math Bus/Soc Sci II Recitation	0
MATH 1042	Intro Statistics Recitation	0
MATH 1314	College Algebra	3
MATH 1316	Trigonometry	3
MATH 1324	Math for Bus/Soc Sci I	3
MATH 1325	Math for Bus/Soc Sci II	3
MATH 1332	Contemporary Mathematics I	3
MATH 1342	Introductory Statistics	3
MATH 1350	Fundamentals of Mathematics I	3
MATH 1351	Fundamentals of Mathematics II	3
MATH 2113	Calculus I Lab	1
MATH 2114	Calculus II Lab	1
MATH 2190	Topics in Mathematics	1
MATH 2290	Topics in Mathematics	2
MATH 2312	Pre-Calculus	3
MATH 2313	Calculus I	3
MATH 2314	Calculus II	3
MATH 2390	Topics in Mathematics	3
MATH 2490	Topics in Mathematics	4
MATH 3301	Biostatistics	3
MATH 3320	Differential Equations	3
MATH 3321	Applied Partial Differential Equations	3
MATH 3325	Intro to Mathematical Proofs	3
MATH 3340	Linear Algebra with Appl	3
MATH 3350	Probability & Stats for Tchrs	3
MATH 3360	Modern Geometry	3
MATH 3370	Discrete Mathematics	3
MATH 3371	Problem Solving with Computers	3
MATH 3372	Mathematical Biology	3
MATH 3373	Mathematical Physiology	3
MATH 3415	Calculus III	4
MATH 4180	Undergraduate Research in Math	1
MATH 4190	Advanced Topics in Mathematics	1
MATH 4280	Undergraduate Research in Math	2
MATH 4290	Advanced Topics in Mathematics	2
MATH 4303	Statistical Methods	3
MATH 4321	Real Variables	3

MATH 4325	Topology	3
MATH 4330	Number Theory	3
MATH 4340	Modern Algebra	3
MATH 4341	Linear Alg and Matrix Theory	3
MATH 4350	Probability	3
MATH 4360	Introduction to Graph Theory	3
MATH 4370	Vector Analysis	3
MATH 4374	Numerical Analysis	3
MATH 4375	Applied Complex Analysis	3
MATH 4380	Undergraduate Research in Math	1-3
MATH 4390	Advanced Topics in Mathematics	3
MATH 4480	Undergraduate Research in Math	4
MATH 4490	Advanced Topics in Mathematics	4

## Physics

Code	Title	Credits
PHYS 1101	General Physics Lab I	1
PHYS 1102	General Physics Lab II	1
PHYS 1301	General Physics I	3
PHYS 1302	General Physics II	3
PHYS 2125	University Physics Lab I	1
PHYS 2126	University Physics Lab II	1
PHYS 2325	University Physics I	3
PHYS 2326	University Physics II	3
PHYS 2390	Selected Topics-Physics	3
PHYS 4390	Advanced Topics-Physics	3