

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 | Cyber Security Prog I + 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 |

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| 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 |

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| 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 |

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| 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 |