# COMPUTER SCIENCE, BACHELOR OF SCIENCE

## Overview
## Mission Statement of Computer Science (CS) Program

The mission of the Computer Science program is to support the development of comprehensive computer science education and research programs that will prepare students to acquire relevant marketable skills to solve complex problems in computing, demonstrate professional responsibilities and ethics and work collaboratively in a diverse environment and gain appropriate knowledge for working as computing professionals and/or for graduate studies. The program fosters to increase campus, community and experiential awareness in computing and promote faculty and student research in the fields of computing.

## Requirements
## General Requirements

| Code | Title | Credits |
|------|-------|---------|
| Core Curriculum | | 42 |
| Required Support Courses | | 10 |
| Major (Required) Courses | | 36 |
| Teacher Certification Required Courses | | 31 |
| Electives | | 1 |
| **Total Credits** | | **120** |

- 30 CSCI upper-division hours required for this degree must be completed at A&M-SA to satisfy residency requirement.
- Must complete at least 40 hours of major courses and major electives at A&M-SA.
- Must receive a grade of "C" or better in all MATH, CSCI, and CISA courses and their associated prerequisites for satisfactory passing grade.
- A minimum average GPA of 2.25 must be maintained in all CISA or CSCI core and elective courses to remain in program. Applies to transfer courses also.
- Academic credits transferred as substitution courses must be completed within previous five years of admission to A&M-SA.
- CIP Code: 11.0701

### Department probation and withdrawal:

For all departmental students in the Department of Computing and Cyber Security (CCS), to avoid department probation or withdrawal, the minimum GPA requirement in all CCS department courses (hereby called DCGPA) is 2.25. Courses with prefix CSCI, CISA, CETE, CSEC are departmental courses.

A student majoring in any of these disciplines is a departmental student: BS Computer Science (BSCS), BS Cyber Engineering Technology (BS-CETE), BS Cyber Security (BS-CSEC), BBA-Computer Information Systems (general and IA track) (BBA-CIS), and Bachelor of Applied Arts and Sciences (general and IA track) (BAAS-IT/BAAS-IT-IA).

### Department probation

After a departmental student has completed four departmental courses, if the DCGPA drops below 2.25, the student will be placed on a department probation that term. In order to get off of department probation, a student must bring their DCGPA to 2.25 or higher by the following term. If the student does not bring their DCGPA to a 2.25 in one semester or term, the student will then be placed on a department withdrawal. A student can be on probation a maximum of two times. After that, the student will be placed on department withdrawal instead of department probation.

### Department withdrawal

A student who has been placed on department probation and earns the DCGPA below 2.25 will be placed on department withdrawal. Because it is the first withdrawal, the student will be required to complete a departmental appeal, submit a personal letter, and an academic success plan of action to bring the DCGPA to 2.25 or higher by the following term. The plan has to be approved by the department chair or a designee. If a student is unable to bring the DCGPA to 2.25 or higher in one semester, the student will be required to select another major out of the department. A student can be on withdrawal only once. A second withdrawal will require a student to select a major out of the department.

Mandatory requirements for students on department probation and withdrawal

1. Meet with an Academic Success Coach for coaching on appropriate tutoring, study habits, etc.
2. Meet with their academic advisors and faculty mentors to seek guidance on computing course and careers.
3. Not register for more than 9 hours of departmental courses in the semester following probation/withdrawal.

| Code | Title | Credits |
|------|-------|---------|
| **Core Curriculum** [1] | | |
| ENGL 1301 | Composition I | 3 |
| ENGL 1302 | Composition II | 3 |
| or ENGL 2311 | Technical Writing | |
| MATH 2313 | Calculus I | 3 |
| Select one of the following: | | 3 |
| BIOL 1306 | Gen Biology I-Attr Living Sys | |
| CHEM 1311 | General Chemistry I | |
| GEOL 1301 | Earth Sciences I | |
| PHYS 1301 | General Physics I | |
| PHYS 2325 | University Physics I | |
| Select one of the following: | | 3 |
| BIOL 1307 | Gen Biology II-Biol Organisms | |
| CHEM 1312 | General Chemistry II | |
| GEOL 1302 | Earth Sciences II | |
| PHYS 1302 | General Physics II | |
| PHYS 2326 | University Physics II | |
| Language/Philosophy /Culture | | 3 |
| Creative Arts | | 3 |
| American History | | 3 |
| American History | | 3 |
| Government/Political Science | | 3 |
| Government/Political Science | | 3 |
| Social and Behavioral Science | | 3 |
| MATH 2314 | Calculus II | 3 |

| MATH 1342 | Introductory Statistics | 3 |
|---|---|---|
| MATH 1042 | Intro Statistics Recitation | 0 |
| Subtotal: | | 42 |

**Departmental Requirements**

| Select one of the following: | | 1 |
|---|---|---|
| BIOL 1106 | General Biology I Lab | |
| CHEM 1111 | General Chemistry Lab I | |
| GEOL 1101 | Earth Sciences Lab I | |
| PHYS 1101 | General Physics Lab I | |
| PHYS 2125 | University Physics Lab I | |
| Select one of the following: | | 1 |
| BIOL 1107 | General Biology II - Lab | |
| CHEM 1112 | General Chemistry Lab II | |
| GEOL 1102 | Earth Sciences Lab II | |
| PHYS 1102 | General Physics Lab II | |
| PHYS 2126 | University Physics Lab II | |
| MATH 2113 | Calculus I Lab | 1 |
| MATH 2114 | Calculus II Lab | 1 |
| MATH 3340 | Linear Algebra with Appl | 3 |
| Subtotal: | | 7 |

**University Requirements**

| UNIV 1301 | First Year Seminar | 3 |
|---|---|---|
| CSCI 4101 | Ethical Issues in Computing | 1 |
| Subtotal: | | 4 |

**Required Support Courses**

| 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 2436 | Programming Fundamentals III | 4 |
| Subtotal: | | 18 |

**Major Courses**

| CSCI 3304 | Database Systems | 3 |
|---|---|---|
| CSCI 3321 | Cyber Security | 3 |
| CSCI 3343 | Algorithms | 3 |
| CSCI 3344 | Computer Architecture | 3 |
| CSCI 3362 | Operating Systems | 3 |
| CSCI 3366 | Programming Languages | 3 |
| CSCI 4406 | Computer Networks | 4 |
| CSCI 4316 | Software Engineering I | 3 |
| CSCI 4317 | Software Engineering II | 3 |
| CSCI 4321 | Computer Security | 3 |
| CSCI 4391 | Senior Project | 3 |
| Subtotal: | | 34 |

**Major Electives [2]**

| Upper-Division CSCI Elective or Approved CISA/CETE Elective | 3 |
|---|---|
| Upper-Division CSCI Elective or Approved CISA/CETE Elective | 3 |
| Upper-Division CSCI Elective or Approved CISA/CETE Elective | 3 |
| Upper-Division CSCI Elective or Approved CISA/CETE Elective | 3 |
| Upper-Division CSCI Elective or Approved CISA/CETE Elective | 3 |

| Subtotal: | 15 |
|---|---|
| **Total Credits** | **120** |

1. Other courses may satisfy core curriculum requirements. Courses listed under the core curriculum above are also specific degree requirements, and are recommended in the core to expedite degree completion.
2. Approved upper-division CISA courses that can be used as electives for majors and minors are: CISA 3309 Scripting Languages, CISA 4323 Computer Forensics, CISA 4324 Security Risk Analysis, CISA 4332 Data Science and Analytics.

# Plan of Study

*This suggested plan of study is intended to be used as a guide in conjunction with official degree requirements outlined in the catalog. While this plan demonstrates a course of study that covers eight semesters, each student's academic path is unique and your timeline may look different. Students should regularly consult with academic advisors as they plan their course schedules as course offerings may vary.*

**First Year**

| **First Semester** | | **Credits** |
|---|---|---|
| ENGL 1301 | Composition I [1] | 3 |
| MATH 2313 | Calculus I [1] | 3 |
| MATH 2113 | Calculus I Lab [1] | 1 |
| CSCI 1436 | Programming Fundamentals I | 4 |
| HIST 1301 | US History to 1865 (Replace CCSI 1136, 1336 with CSCI 1436) [1] | 3 |
| UNIV 1301 | First Year Seminar | 3 |
| | **Credits** | **17** |

| **Second Semester** | | |
|---|---|---|
| ENGL 1302 or ENGL 2311 | Composition II [1] or Technical Writing | 3 |
| MATH 2314 | Calculus II [1] | 3 |
| MATH 2114 | Calculus II Lab [1] | 1 |
| Life & Physical Science [1, 3] | | 3 |
| CSCI 1437 | Programming Fundamentals II | 4 |
| Life & Physical Science Lab [1, 3] | | 1 |
| | **Credits** | **15** |

**Second Year**

| **First Semester** | | |
|---|---|---|
| GOVT 2305 | Federal Government [1] | 3 |
| MATH 1342 | Introductory Statistics [1] | 3 |
| MATH 1042 | Intro Statistics Recitation | 0 |
| HIST 1302 | US History from 1865 [1] | 3 |
| CSCI 2325 | Computer Organization [1] | 3 |
| CSCI 2436 | Programming Fundamentals III [1] | 4 |
| | **Credits** | **16** |

| **Second Semester** | | |
|---|---|---|
| GOVT 2306 | Texas Government [1] | 3 |
| Life & Physical Science [1, 3] | | 3 |
| Life & Physical Science Lab [1, 3] | | 1 |
| CSCI 2322 | Discrete Structures for Comput [1] | 3 |
| Creative Arts | | 3 |

| | | |
|---|---|---|
| Language/Philosophy /Culture [1] | | 3 |
| | **Credits** | **16** |
| **Third Year** | | |
| **First Semester** | | |
| MATH 3340 | Linear Algebra with Appl | 3 |
| CSCI 3304 | Database Systems | 3 |
| CSCI 3366 | Programming Languages | 3 |
| Social and Behavioral Science [1] | | 3 |
| Upper Division CSCI Elective or Approved CISA Elective | | 3 |
| | **Credits** | **15** |
| **Second Semester** | | |
| CSCI 3321 | Cyber Security | 3 |
| CSCI 3343 | Algorithms | 3 |
| CSCI 3344 | Computer Architecture | 3 |
| CSCI 3362 | Operating Systems | 3 |
| Upper Division CSCI or Approved CISA Elective | | 3 |
| | **Credits** | **15** |
| **Fourth Year** | | |
| **First Semester** | | |
| CSCI 4406 | Computer Networks | 4 |
| CSCI 4316 | Software Engineering I | 3 |
| Upper Division CSCI Elective or Approve CISA Elective | | 3 |
| Upper Division CSCI Elective or Approve CISA Elective | | 3 |
| CSCI 4101 | Ethical Issues in Computing | 1 |
| | **Credits** | **14** |
| **Second Semester** | | |
| CSCI 4391 | Senior Project | 3 |
| CSCI 4321 | Computer Security | 3 |
| CSCI 4317 | Software Engineering II | 3 |
| Upper Division CSCI Elective or Approve CISA Elective | | 3 |
| | **Credits** | **12** |
| | **Total Credits** | **120** |

[1] Course may be taken at a community college.

[2] Students complete NSA Cyber Certificate must take following electives: CISA 3309 Scripting Languages, CISA 4323 Computer Forensics, CISA 4324 Security Risk Analysis

[3] For transfer students, 40 hours of Major course + Major electives from A&M-SA are required.