



## Computer and Information Sciences

## Major - Computer Science Cyber Operations

Catalog Year 2020-2021 and Later

### Required Computer Science Courses

34 Units

		Units
_____	CIS 377 Intro to Cybersecurity	3
_____	COSC 236 Intro to Computer Science I	4
_____	COSC 237 Intro to Computer Science II	4
_____	COSC 290 Principles of Computer Organization	4
_____	COSC 336 Data Structures & Algorithm Analysis	4
_____	COSC 350 Data Communications & Networking	3
_____	COSC 412 Software Engineering	3
_____	COSC 439 Operating Systems	3
_____	COSC 455 Programing Languages	3
_____	COSC 457 Database Management Systems	3

### Required Science Courses

8 Units

Select 2 lab science courses from the following:

		Units
_____	ASTR 161 Sky and Solar System	4
_____	ASTR 181 Stars, Galaxies, Universe	4
_____	BIOL 200 + L Intro to Cell Biology	4
_____	BIOL 206 + L Intro to Ecology/Evolution	4
_____	CHEM 131 + L General Chemistry	4
_____	CHEM 132 + L General Chemistry II	4
_____	GEOL 121 Physical Geology	4
_____	PHYS 241 General Physics I	4
_____	PHYS 242 General Physics II	4

### Required Cyber Operation Track Courses

18 Units

		Units
_____	COSC 340 Systems Programming	3
_____	COSC 440 Operating Systems Security	3
_____	COSC 450 Network Security	3
_____	COSC 458 Application Software Security	3
_____	COSC 481 Case Studies	3
_____	COSC 485 Reverse Engineering/Malware Analysis	3

### Required Mathematics Courses

15-16 Units

		Units
_____	MATH 263 Discrete Mathematics <b>OR</b>	3
_____	MATH 267 Intro to Abstract Mathematics	4
_____	MATH 273 Calculus I	4
_____	MATH 274 Calculus II	4
_____	MATH 314 Cryptography	3
_____	MATH 330 Intro to Statistical Methods	4

**Total Units: 87-88**

### Required Core Courses

9 Units

		Units
_____	COMM 131 Public Speaking (Core 5)	3
_____	ENGL 317 Writing for Business & Industry (Core 9)	3
_____	COSC 418 Ethical & Societal Concerns CS (Core 14)	3

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