Cybersecurity
Bachelor of Science (B.S.) – Catalog Year 2026-2027

PROGRAM OVERVIEW

The Cybersecurity professional is an individual that must be prepared to apply his or her knowledge and skills for online security in order to defense computers, servers, mobile devices, electronic systems, networks, users and data from malicious attacks. The Bachelor of Science in cybersecurity at CU Denver will prepare students for careers in security engineering, security analysis, cybersecurity law, security architecture, cybersecurity sales, secure web development, secure system development and many other diverse careers that rely on cybersecurity as a form of protection and preparation.

The Program Educational Objectives of the undergraduate cybersecurity program are to produce graduates who:

- Analyze a complex computing and security problem and apply algorithmic reasoning to identify solutions.
- Design, implement, and evaluate a computing-based solution to meet a given set of computing and security requirements.
- Communicate and function effectively in professional contexts and teams.
- Make informed judgements in computing and security practices based on legal and ethical principles
- Apply security principles and practices to maintain operations in the presence of threats.

ACADEMIC ADVISING

Students admitted to the College of Engineering, Design and Computing (CEDC) are required to meet with their assigned advisor. Students can schedule an appointment through UCDAccess or by contacting the department to schedule an appointment.

Computer Science & Engineering
computerscience@ucdenver.edu
Visit the department website here
Lawrence Street Center, 8th Floor
303-315-1408

GENERAL GRADUATION REQUIREMENTS & POLICIES

All CU Denver CEDC Cybersecurity students are required to complete the following minimum general graduation requirements:

1. Complete a minimum of 120 credit hours.
2. Achieve a minimum 2.0 CU cumulative grade point average (GPA).
3. Complete all college and major requirements.
4. Residency: complete a minimum of 30 credit hours as a declared CEDC student in good standing at CU Denver.
5. Terminal Residency: complete at least the final two semesters as an enrolled CEDC student.

PROGRAM REQUIREMENTS & POLICIES

Students are responsible for meeting with the faculty advisor in their department to confirm major requirements. Students completing the Cybersecurity B.S. Degree are required to complete the following minimum program requirements:

1. Complete 24 credit hours of **CU Denver Core Curriculum coursework**.
2. Complete 7 credit (at minimum) hours of **math**.
3. Complete 8 credit hours of **natural or physical sciences**.
4. Complete 31 credit hours of **core computer science courses**.
5. Complete 32 credit hours of **core cybersecurity courses**.
6. Complete 15 credit hours of **cybersecurity breadth electives**.
7. Complete 3 credit hours of **engineering design**.

Courses	Credits	Notes
Required CU Denver Core Curriculum Coursework	**24**	See requirements here
Required Engineering Design Courses	**3**	
ENGR 1200 Fundamentals of Engineering Design Innovation	3	
Required Computer Science Core Courses	**31**	
CSCI 1410 Fundamentals of Computing	3	*Co-Requisite: CSCI 1411*
CSCI 1411 Fundamentals of Computing Lab	1	*Co-Requisite: CSCI 1410*
CSCI 1510 Logic Design	3	
CSCI 2312 Object Oriented Programming	3	*Prerequisite: CSCI 1410 & 1411*
CSCI 2421 Data Structures & Program Design	3	*Prerequisite: CSCI 2312*
CSCI 2511 Discrete Structures	3	*Prerequisite: MATH 1401*
CSCI 2525 Assembly Language	3	*Prerequisite: CSCI 1510 & 2312*
CSCI 3287 Database Systems	3	*Prerequisite: CSCI 2312, 2421, & ENGL 1020*
CSCI 3412 Algorithms	3	*Prerequisite: CSCI 2312, 2421, & 2511*
CSCI 3453 Operating Systems Concepts	3	*Prerequisite: CSCI 2525 & 3412*
CSCI 3761 Intro to Networks	3	*Prerequisite: CSCI 2312 & 2421*
Required Cybersecurity Core Courses	**32**	
CSCY 2930 Practical System Administration	2	*Prerequisite: CSCI 1410 & 1411*
CSCY 3740 Computer Security	3	*Prerequisite: CSCI 2312 & 2421*
CSCY 3765 Secure Network & Systems Programming	3	*Prerequisite: CSCI 3761*
CSCY 4407 Security & Cryptography	3	*Prerequisite: CSCI 3412*

CSCY 4741 Principles of Cybersecurity	3	*Prerequisite: CSCI 3287 & 3761
CSCY 4742 Cybersecurity Programming & Analysis	3	*Prerequisite: CSCY 3740 & CSCI 3761
CSCY 4743 Cyber & Infrastructure Defense	3	*Prerequisite: CSCI 3761
CSCY 4738 Senior Design Project I	3	*Prerequisite: CSCI 3453 & CSCY 4741, 4742, & 4743
CSCY 4739 Senior Design Project II	3	*Prerequisite: CSCY 4738
CSCY 4772 Mobile & IoT Security	3	*Prerequisite: CSCI 3761 & 3453
CSCY 4950 Cybersecurity Risk Analysis & Management	3	*Prerequisite: CSCY 3740 & CSCI 3761
Required Mathematics	**7**	
MATH 1401 Calculus I	4	*Prerequisite: (MATH 1120 or 1130) or placement exam
MATH 2830 Introductory Statistics	3	*Prerequisite: MATH 1401
Required Science	**8**	
2 Natural or Physical Sciences with lab (for science majors) with ENGR 1130 Chemistry for Engineers as a choice		
Cybersecurity Technical Electives See handbook for additional information	15	*Check individual courses for prerequisites*
Total Program Hours	**120**	

SAMPLE ACADEMIC PLAN OF STUDY

The following academic plan is a *sample* pathway to completing degree requirements for this major. Students should tailor this plan based on previously completed college coursework (e.g., AP, IB, CLEP, dual/concurrent enrollment, and transfer credit), course availability, and individual preferences related to course load, schedules, or add-on programs such as minors or double-majors Please note CS courses that are not part of the BACS core can be counted toward satisfying free electives. This can help with taking systems courses to prepare for the required background for some advanced CS/breadth areas of interest.

Students deviating from this plan must fulfill course prerequisites and must meet with the faculty advisor in their department to confirm degree requirements.

YEAR ONE

Semester 1	CRS
CSCI 1410 FUNDAMENTALS OF COMPUTING	3
CSCI 1411 FUNDAMENTALS OF COMPUTING LAB	1
MATH 1401 CALCULUS I	4
ENGR 1200 FUND. OF ENGINEERING DESIGN INNOVATION	3
ENGL 1020 CORE COMPOSITION I	3

Semester 2	CRS
CSCI 1510 LOGIC DESIGN	3
CSCI 2312 OBJECT ORIENTED PROGRAMMING	3
CSCI 2511 DISCRETE STRUCTURES	3
CSCY 2930 PRACTICAL SYSTEMS ADMINISTRATION	2
ENGL 2030 CORE COMPOSITION II	3

YEAR TWO

Semester 3	CRS
CSCI 2421 DATA STRUCTURES & PROGRAM DESIGN	3
CSCI 2525 ASSEMBLY LANGUAGE	3
MATH 2830 INTRODUCTORY STATISTICS	3
CORE CURRICULUM CHOICE	3
SCIENCE CHOICE	3-4
SCIENCE CHOICE LAB	1

Semester 4	CRS
CSCI 3287 DATABASE SYSTEMS	3
CSCI 3761 INTRODUCTION TO COMPUTER NETWORKS	3
CSCY 3740 COMPUTER SECURITY	3
CORE CURRICULUM CHOICE	3
SCIENCE CHOICE	3-4
SCIENCE CHOICE LAB	1

YEAR THREE

Semester 5	CRS
CSCI 3412 ALGORITHMS	3
CSCY 3765 SECURE NETWORK & SYSTEMS PROGRAMMING	3
CSCY 4741 PRINCIPLES OF CYBERSECURITY	3
CYBERSECURITY TECHNICAL ELECTIVE	3
CORE CURRICULUM CHOICE	3

Semester 6	CRS
CSCI 3453 OPERATING SYSTEMS	3
CSCY 4742 CYBERSECURITY PROG. & ANALYSIS	3
CSCY 4743 CYBER & INFRASTRUCTURE DEFENSE	3
CYBERSECURITY TECHNICAL ELECTIVE	3
CORE CURRICULUM CHOICE	3

YEAR FOUR

Semester 7	CRS
CSCY 4738 SENIOR DESIGN I (Security focused projects)	3
CSCY 4772 MOBILE & IOT SECURITY	3
CYBERSECURITY TECHNICAL ELECTIVE	3
CYBERSECURITY TECHNICAL ELECTIVE	3
CORE CURRICULUM CHOICE	3

Semester 8	CRS
CSCY 4407 SECURITY & CRYPTOGRAPHY	3
CSCY 4739 SENIOR DESIGN II	3
CSCY 4950 CYBERSECURITY RISK ANALYSIS & MANAGEMENT	3
CORE CURRICULUM CHOICE	3
CYBERSECURITY TECHNICAL ELECTIVE	3