

# CYBERSECURITY AND SECURE COMPUTING UNDERGRADUATE CERTIFICATE

## Introduction

The goal of the undergraduate certificate of Cybersecurity & Secure Computing program is to reduce vulnerability in the national information infrastructure by promoting higher education and research to help prepare cyber defense professionals for careers in both the public and the private sector. The curriculum of this certificate has been created to meet all criteria of NICE (National Initiative for Cybersecurity Education) undergraduate level of certification.

## Certificate Objectives

This certificate program focuses on both the technical and analytical aspects of advanced cybersecurity and defense.

### Program Objectives

- Master the fundamental concepts of cybersecurity principles and techniques.
- Learn about potentials for cybersecurity threats and attacks.
- Master cyber-defense tools, methods, and components to secure systems.
- Learn how to take appropriate measures should a system compromise occur.
- Learn principles and practices for secure computing

## General Requirements

Students must satisfy all requirements as outlined below and by the department offering the certificate.

- Click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/academic-policies-procedures/>) for information about Academic Policies

## Certificate Requirements

Current students in good standing completing a BS or BA in computer science or a minor in computer science are eligible. Students completing a degree in cybersecurity are ineligible to complete this certificate. Applications from other majors at CU Denver or non-degree students will be evaluated based on their current transcript. The student's application is subject to the approval of the computer science and engineering department chair.

Students who want to complete the Cybersecurity and Secure Computing Undergraduate Certificate must apply using a Cybersecurity and Secure Computing Certificate intent-to-complete form (<https://ucdenverdata.formstack.com/forms/cssc/>).

Students planning to pursue a Cybersecurity & Secure Computing Certificate in Computer Science and Engineering should apply as early as possible to facilitate course planning, and no later than census date of the semester prior to graduation with their undergraduate degree.

## Process to Attain Certificate Objectives

The following classes need to be taken with a grade of C- or better:

Code	Title	Hours
CSCI 3761	Introduction to Computer Networks	3
CSCI 3453	Operating System Concepts	3
CSCI 4034	Theoretical Foundations of Computer Science	3
CSCI 4741	Principles of Cybersecurity	3
CSCI 4743	Cyber and Infrastructure Defense	3
<b>Total Hours</b>		<b>15</b>

Students must take and pass each course with a grade of C- or better. The Cybersecurity & Secure Computing Certificate requires a minimum cumulative GPA of 2.0.

## Learning Outcomes

- Be able to describe and apply the fundamental concepts of cybersecurity principles and techniques.
- Be able to analyze potential cyber threats and attacks.
- Be able to use cyber defense tools, methods, and components to properly secure systems.
- Be able to effectively and quickly evaluate and mitigate if systems are threatened or compromised.