

# CERTIFICATE IN CYBER DEFENSE AND OPERATIONS

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Units required for Certificate: 12

## Program Description

The Cyber Defense and Operations certificate includes the same courses as the Information Assurance and Security certificate, but additional requires advanced study in operating systems. An understanding of operating system pragmatics better prepares students for the technical work needed in defending and hardening networked computer systems. Students will not be awarded the Information Assurance and Security certificate if they complete the requirements for the Cyber Defense and Operations certificate.

## Academic Certificates

In addition to completing the requirements for the Bachelor of Sciences in Computer Science degree program, students enrolled in the major may also complete one of the (optional) 9-12 unit Academic Certificate programs. Each certificate includes 9 required units which can overlap with elective coursework taken to satisfy the major requirements, with some of the certificates requiring 3 additional units (1 additional course) beyond the degree requirements. Students interested in earning a certificate in addition to their degrees should meet with an academic advisor.

## Requirements for Certificates

Certain combinations of courses gives students a deeper understanding of specialized areas in Computer Science. Completion of any of the following course lists entitles the student to receive a certificate indicating that they concentrated their elective study in the particular area. The Computer Science Department will try and offer on a regular basis all courses required for each certificate, but course cancellations and scheduling conflicts do sometimes occur causing students difficulty in completing their desired course study. In such situations, students may need to forgo completion of their certificate. Printed certificates must be requested directly from the Computer Science Department office after a student graduates.

## Program Requirements

Code	Title	Units
CSC 152	Cryptography	3
CSC 153	Computer Forensics Principles and Practices	3
CSC 154	Computer System Attacks and Countermeasures	3
CSC/CPE 159	Operating System Pragmatics	3
<b>Total Units</b>		<b>12</b>