



## CYBERSECURITY

Would you like to help secure our nation's information technology (IT) infrastructure? If so, the study of Cybersecurity will prepare you for a challenging and rewarding career. Today more than ever there's a strong need for professionals interested in finding ways to make our information technology safer.

### THE CYBERSECURITY PROFESSION

#### What do Cybersecurity Professionals do?

- Find out "whodunit"!
- Build new tools
- Search for clues
- Take a different approach
- Apply problem solving skills
- Protect and serve
- Affect people's lives
- Change the future
- Keep people safe online

#### How do they do it?

- By building cases against people who have used technology for criminal endeavors, from hacking to phishing and everything in between
- By working closely with law enforcement and computer scientists to create new tools to help crack the most difficult computer crimes
- By using detective skills to analyze non-invasive copies of hard drives to search for evidence to be used in prosecuting criminals
- By staying up-to-date with tomorrow's technology in the quest to beat cyber-criminals at their own game
- By utilizing skills in computer science, mathematics, and psychology to break down a suspect system's defenses to find evidence
- By using skills to detect, capture, and convict criminals to help the 10 million annual victims of identity theft
- By protecting user information for businesses, health care, government, the military, schools, and online games in an electronic world with no borders
- By facing challenges and blazing new trails in cybersecurity as computer technology improves
- By taking up the challenge of combating those who misuse technology to prey upon the vulnerable

#### Example Job Titles

- Systems Security Analyst
- Information Security Specialist
- Secure Project Manager
- Cybersecurity Specialist
- IT Assurance Manager
- Chief Information Officer
- Database Administrator
- Cybersecurity Architect
- Secure Applications Developer
- Network Security Administrator
- Security Consultant
- Secure Systems Integrator
- Cybersecurity Vulnerability Analyst
- IT Security Manager
- Cybersecurity Engineer
- Secure Telecommunications Specialist
- Cybersecurity Lead Programmer
- E-commerce Security Specialist

#### Resources

- Association for Computing Machinery | [acm.org](http://acm.org)
- Computer Security Resource Center (CSRC) | [csrc.nist.gov](http://csrc.nist.gov)
- Common Criteria Project (CCP) | [commoncriteriaportal.org](http://commoncriteriaportal.org)
- National Information Assurance Partnership (NIAP) | [niap-ccevs.org](http://niap-ccevs.org)
- Project Management Institute (PMI) | [pmi.org](http://pmi.org)
- National Institute of Standards and Technology (NIST) | [nist.gov](http://nist.gov)
- National Security Agency (NSA) | [nsa.gov/ia](http://nsa.gov/ia)
- [iase.disa.mil/index2.html](http://iase.disa.mil/index2.html)

# BACHELOR OF SCIENCE IN CYBERSECURITY

## What courses do I need?

The College of Information Science & Technology requires completion of a minimum of 120 credit hours which include the following courses:

### General Education Requirements

English	9 credit hours
Public Speaking	3 credit hours
College Algebra or test out	3 credit hours
Natural Science	7 credit hours
Humanities	9 credit hours
Social Sciences	9 credit hours
US and Global Diversity	6 credit hours*

### Math Requirements - 8 hours

MATH 1950	Calculus I
CSCI 2030	Math Foundations of Computer Science

### IS&T Requirements – 9 hours

CIST 1400	Intro to Computer Science I
CIST 2100	Organizations, Applications & Technology**
CIST 3110	IT Ethics***

### Computer Science Core - 21 hours

CSCI1620	Intro to Computer Science II
CYBR 2250	Low-Level Programming
CSCI 3320	Data Structures
CSCI 3550	Communication Networks
CSCI 3710	Intro to Digital Design
CSCI 4350	Computer Architecture
CSCI 4500	Operating Systems

### Cybersecurity Core - 30 hours

CYBR 1100	Intro to Information Security <sup>1</sup>
CYBR 3350	Security Administration - Linux
CYBR 3370	Security Administration - Windows

\* US and Global Diversity courses can also satisfy Humanities and Social Science requirements.

\*\* CIST 2100 also applies toward a Social Science requirement.

\*\*\* CIST 3110 also applies toward a Humanities requirement.

<sup>1</sup> CYBR 1100 also counts toward the global diversity requirement.

<sup>2</sup> CSCI 3660, PSCI 4250 & PSCI 4260 also applies towards the NSA Cyber Operations Track Certificate. Additional courses are required for the NSA Cyber Operations Track Certificate. Contact an advisor for more detailed information.

CYBR 3570	Cryptography
CYBR 3600	Info Security Policy & Awareness
CYBR 4360	Foundations of Information Assurance
CYBR 4380	Computer & Network Forensics
CYBR 4450	Host Vulnerability Discovery
CYBR 4460	Network Vulnerability Discovery
CYBR 4580	IA Capstone

### Cybersecurity Electives - 15 hours

ISQA 3310	Managing the Database Environment
ISQA 3910	Intro to Project Management
ISQA 4380	Distributed Technologies and Systems
CSCI 3660	Theory of Computation <sup>2</sup>
CSCI 4220	Programming Languages
CSCI 4830	Intro to Software Engineering
CSCI 4560	Number Theory & Cryptography
CYBR 4430	Quantum Computing & Cryptography
CYBR 4440	Industrial Control Security
CYBR 4540	Computer Security Management
CYBR 4950	Internship in Information Assurance
CYBR 2980/4980	Special Topics in Info Assurance
CYBR 4990	Independent Study in Information Assurance

PSCI 4250 Intelligence and National Security<sup>2</sup>

PSCI 4260 International Law<sup>2</sup>

### Other Electives – 6 hours