

Cybersecurity

Master of Science (MS)

The Master's in Cybersecurity degree at Southeast focuses on developing a highly skilled Cybersecurity workforce with specialization in the area of critical infrastructure as defined by the Department of Homeland Security (DHS).

The Department of Homeland Security (DHS) designated 18 industries as critical infrastructure. This categorization reflects the fact that the compromise of any of these industries could pose significant threats to the well-being of the nation or human life. Critical infrastructure therefore forms the backbone of the nation's economy. DHS recognizes a major shortfall in highly trained Cybersecurity professionals this area of critical infrastructure.

The Master's program at Southeast thereby addresses this need of training new graduates, as well as retrain existing practitioners with the skills required to protect the nation's critical infrastructure. From classroom lectures to hands-on experience in the world of cybersecurity, we will prepare students for careers in the industry. Students will have an opportunity to take courses in computational cryptography, introduction of cybersecurity, information security in system administration, and security of critical infrastructure.

The program requires 30 credit hours and offers the flexibility for students to choose from a wide range of electives. The thesis and project options are available.

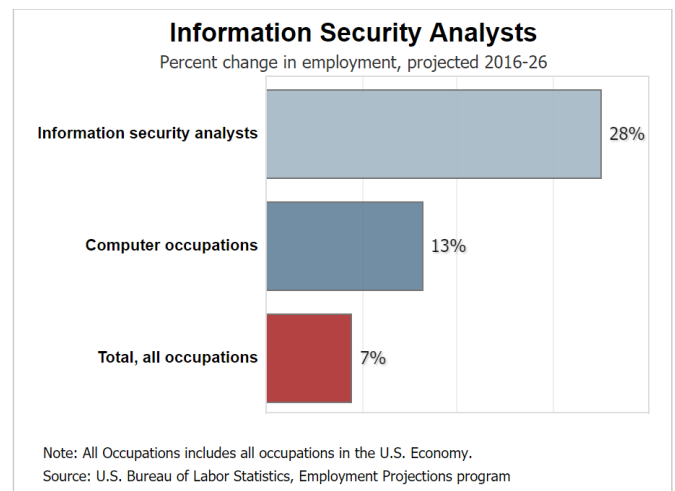
Becoming Career Ready...

- / The program open doors to better cybersecurity employment opportunities.
- / Students master the most up-to-date cybersecurity technologies.
- / Students receive focused attention from faculty advisors.
- / Students develop critical reasoning and technical writing skills.
- / Students develop professional presentation skills.
- / Students have the opportunity to enter the field without a BS in Computer Science, Cyber Security or a similar degree.
- / Students have increased job security and salary.
- / Students increase confidence, maturity and influence in the workplace.

Career Planning

Graduates from our master's in cybersecurity program will enter the most demanding and rewarding careers in the cybersecurity field.

- /New cybersecurity graduates enjoy a hefty salary with a median base pay of \$75,000 per year. ~glassdoor.com
- /The job outlook for software developers is expected to grow 28% from 2016 to 2026. ~U.S. Bureau of Labor Statistics
- /New report from Cybersecurity Ventures estimates there will be 3.5 million unfilled cybersecurity jobs by 2021



Admission Requirements

1. A Bachelor's degree in Cybersecurity or related field*
2. An undergraduate GPA of 3.0 on a 4.0 scale
3. Six complete hours of science and six hours of mathematics in the undergraduate degree

* Students with bachelor's degrees from other fields will be required to take up to two prerequisites related to Fundamentals of Computing and Programming.

MS: Cybersecurity

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This is a guide based on the 2021-2022 Graduate Bulletin and is subject to change. The time it takes to earn a degree will vary based on factors such as dual enrollment, remediation, and summer enrollment. Students meet with an academic advisor each semester and use Degree Works to monitor their progress

CURRICULUM CHECKLIST

Cybersecurity – 30 Hours Required

Core Requirements

- CY501 Introduction to Cybersecurity (3)
- CY510 Information Security and Assurance (3)
- CY520 Info Security in System Admin (3)
- CY530 Computer Network Security and Defense (3)
- MA664 Computational Cryptography (3)

Choose one thesis option:

Thesis option

- CY655 Research Methods in Cybersecurity (3)
- CY691 Thesis Research I (3)
- CY692 Thesis Research II (3)
- GR699 Master's Oral Examination (0)
- Choose 6 hours of electives from the list below; at least 3 hours must be at the 600 level (6)

Non-Thesis option

- CY690 Graduate Project (3)
- GR698 Master's Final Comprehensive Examination (0)
- Choose 15 hours of electives from the list below; at least 12 hours must be at the 600 level (15)

Electives may be chosen from the following:

- CS506 Distributed Cloud Computing (3)
- CY610 Web Application Security (3)
- CY620 Advanced Computer Forensics (3)
- CY643 Independent Study (3)*
- CY650 Legal, Risk and Compliance for Security (3)
- CY653 Special Topics in Cybersecurity (3)*
- CY660 Cyber Operations (3)
- CY662 Ethical Hacking (3)
- CY670 Secure Operating Environments (3)
- CY699 Internship (3)*
- MA510 Mathematical Foundations (3)
- TN562 Introduction to Networks (3)
- TN564 Routing and Switching Essentials (3)

*May be taken once for credit on program

Career Opportunities

- Cybersecurity consultant
- Cybersecurity manager
- Information Security Crime Investigator/Forensics Expert
- Cybersecurity analyst
- System, Network and/or Web Penetration Tester
- Security Architect
- Malware Analyst
- Network Security Engineer
- Vulnerability Researcher/Exploit Developer
- Security Auditor
- Embedded Security Engineer
- Software Security Engineer

Internship Opportunities and Employment of Recent Graduates

- Emerson Electric Company, St. Louis, Mo.
- Enterprise Holding, St. Louis, Mo.
- Accretive Health, Cape Girardeau, Mo.
- Big-River Communications, Cape Girardeau, Mo.
- Sword and Shield, Knoxville, Tenn.