

Bachelor of Science (BS)

Cybersecurity

Cybersecurity is a national security issue and an economic concern for the U.S. Southeast was the first university in Missouri and one of fewer than 50 in the country to offer a cybersecurity bachelor's degree. This new, dynamic major prepares students to be leaders in the protection of information systems.



This innovative program includes courses such as telecommunications, computer science and mathematics along with information assurance, computer forensics, network security and cryptography. Students learn to use technology to secure and defend cyber enabled systems.

The cybersecurity program at Southeast aims to educate students in the existing and emerging challenges in security and privacy of cyber infrastructure within ethical boundaries and legal compliances. Cyber infrastructure is an amalgamation of software, hardware and networking to process, transform and communicate digital content. Security for such an infrastructure involves nearly every aspect of software, hardware and networking. This corresponds well with the Department of Labor's description of an information security analyst, whose typical duties are to research security trends, monitor and investigate security breaches to the network, plan and carry out security initiatives, develop standards and best practices, use tools to protect sensitive information, make recommendations for security enhancements, and help users learn and use security products and procedures.

Cybersecurity graduates will be able to...

- Protect an organization's vital information and assets.
- Implement cybersecurity best practices and risk management.
- Understand and develop software to minimize vulnerabilities.
- Integrate stable network monitoring and present real-time security solutions.
- Analyze persistent threats and arrange counter measures.
- Conduct risk and liability assessments of information systems.
- Examine cybercrimes and support recovery of operations.
- Create, revise and communicate organizational cybersecurity strategies.

Career Planning

Career preparation is part of the mission of Southeast. 100% of programs offer our students an internship, study-abroad program, clinical opportunity, student teaching or research internship.

The Office of Career Services in Academic Hall 057 can provide students with professional career counseling and coaching, resume critiques, practice interviews, job search strategies, career events, networking opportunities, and more.

Career Opportunities

- Information Security Crime Investigator/Forensics Expert
- 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.

Professional and Student Organizations

Cyber Defense Club

The purpose of the Cyber Defense Club is to promote the cybersecurity degree in an academic, professional and ethical manner as established by the "Unified Framework of Professional Ethics for Security Professionals", to work toward and establish a team to compete in the Collegiate Cyber Defense Competition, and to assist in promoting the cybersecurity degree program and assist in obtaining accreditation through the National Security Agency (NSA).

In 2017, Southeast Cyber Defense Team won its 5th straight State Championship.

Transfer and Dual Credit Students

If you have dual credit or transfer credit, please visit our transfer course equivalencies guide at semo.edu/transfercredit.

To learn more
Office of Admissions
(573) 651-2590
admissions@semo.edu
semo.edu

To explore
the Harrison College of Business
and Computing online, visit
semo.edu/business-computing

For advising
Center for Academic Advising
semo.edu/advising

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This is a guide based on the 2018-2019 Undergraduate Bulletin and is subject to change. The time it takes to earn a degree will vary based on several factors such as dual enrollment, remediation, and summer enrollment. Students will meet with an academic advisor each semester and use Degree Works to monitor their individual progress.

CURRICULUM CHECKLIST

Cybersecurity Core – 88 Hours – No Minor Required

- ___ CS155 Computer Science I (4)
- ___ CS265 Computer Science II (4)
- ___ CS315 C & the UNIX Environ (3)
- ___ CY201 Introduction to Cybersecurity (3)
- ___ CY310 Information Security & Assurance (3)
- ___ CY320 Information Security in System Administration (3)
- ___ CY410 Web Application Security (3)
- ___ CY420 Computer Forensics (3)
- ___ ET245 Logic Circuits (3)
- ___ ET366 Microcontrollers (3)
- ___ IM300 Technical Communications (3)
- ___ IS245 Web Development & Security (3)
- ___ IS375 Database & Info Systems (3)
- ___ MA116 Precalculus A (3)
- ___ MA117 Precalculus B (3)
- ___ MA223 Elementary Probability & Statistics (3)
- ___ MA464 Mathematical Cryptography (3)
- ___ MN220 Engineering Economic Analysis (3)
- ___ PH120 Introductory Physics I (5)
- ___ SW207 Understanding Culture & Social Diversity (3)
- ___ TN254 Network Communications (3)
- ___ TN255 Microcomputer Maintenance (3)
- ___ TN275 Introduction to Networks (3)
- ___ TN375 Network Routing Protocol & Concepts (3)
- ___ TN395 Server Maintenance and Troubleshooting (3)
- ___ TN425 Wireless Communication & Mobile Data Networks (3)
- ___ TN435 Network Security (3)
- ___ UI410 Manufacturing Research in a Global Society (3)

University Studies Requirements – some requirements may be fulfilled by coursework in major program

- Social and Behavioral Sciences – 3 hours
- Constitution requirement – 3 hours
- US History requirement – 3 hours
- Written Communication – 6 hours
- Oral Communication – 3 hours
- Natural Sciences – 7 hours (from two disciplines, one to include a lab)
- Mathematics – 3 hours
- Humanities & Fine Arts – 9 hours (from at least two disciplines)
- Additional requirements – 5 hours (to include UI100 for native students)

SAMPLE FOUR-YEAR PLAN

	Fall Semester		Spring Semester	
	Course #	Hrs	Course #	Hrs
FIRST YEAR	UI100	3	CS155	4
	EN100	3	IM300	3
	ET245	3	MA117	3
	MA116	3	TN254	3
	TN255	3	University Studies	3
	Total	15	Total	16
SECOND YEAR	CS265	4	CY201	3
	MA223	3	ET366	3
	PH120	5	MA464	3
	TN275	3	TN375	3
	University Studies	3	University Studies	3
	Total	18	Total	15
<i>(summer courses are encouraged to avoid 18 hour semesters)</i>				
THIRD YEAR	CY310	3	CS315	3
	CY320	3	CY410	3
	IS245	3	CY420	3
	TN425	3	IS375	3
	University Studies	3	TN395	3
	Total	15	Total	15
FOURTH YEAR	MN220	3	TN435	3
	SW207	3	UI410	3
	University Studies	3	University Studies	3
	University Studies	3	Elective	3
	University Studies	3		
	Total	15	Total	12

Degree requirements for all students: a minimum of 120 credit hours, completion of University Studies program, Writing Proficiency Exam (WP003), and completion of the Measure of Academic Proficiency and Progress (MAP) at the senior level.

Refer to the Undergraduate Bulletin or Degree Works for additional graduation requirements (i.e. minimum GPA and coursework) for your program of study.

Revised
8/24/2018

Degree Map 2018-2019

To learn more
Office of Admissions
(573) 651-2590
admissions@semo.edu
semo.edu

To explore
the Harrison College of Business
and Computing online, visit
semo.edu/business-computing

For advising
Center for Academic Advising
semo.edu/advising