Cybersecurity

Bachelor of Science (BS)

SOUTHEAST MISSOURI
STATE UNIVERSITY · 1873

Cybersecurity

Cybersecurity is a national security issue and an economic concern for the U.S. Southeast is the only 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. In fact, more than 90% of Southeast students participate in internships, clinical opportunities, student teaching, research assistantships, and study abroad. Professional career counselors are available for all students. The Office of Career Services in Academic Hall 057 can provide students with professional career counseling, resume critiques, practice interviews, job search strategies, career events, networking opportunities, and more.

Demonstrated Career Proficiency is a Requirement of all Southeast Students		
CL001/CL002	First Semester	Complete the FOCUS2 assessment and develop a Career Action Plan.
CL003	Junior Year	Students gain information about career planning and job searching resources.
CL004	Senior Year	Students demonstrate advanced proficiency by identifying a position in their field, developing a cover letter, and tailoring a resume for the position. Materials are critiqued to ensure preparedness for a successful job search.

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).

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

To explore the College of Science, Technology and Agriculture online, visit
www.semo.edu/costa

For advising
Center for Academic Advising - North
(573) 651-5090
www.semo.edu/advising
advisingnorth@semo.edu

Cybersecurity

Bachelor of Science (BS)

SOUTHEAST MISSOURI STATE UNIVERSITY · 1873

Degree Map 2016-2017

This is a guide based on the 2016-2017 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 DegreeWorks 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)
- ___ IM102 Technical Communications (3)
- ___ IS245 Web Development & Security (3)
- ___ IS375 Database & Info Systems (3)
- ___ MA133 Plane Trigonometry (3)
- ___ MA134 College Algebra (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 (not already listed above):

UI100 First Year Seminar, EN100 English Composition, Artistic Expression, Written Expression, Oral Expression, Literary Expression, Behavioral Systems, Living Systems, Development of a Major Civilization, Political Systems, and two IU/UI3XXs

SAMPLE FOUR-YEAR PLAN

	Fall Semester		Spring Semester	
	Course #	Hrs	Course #	Hrs
FIRST YEAR	UI100	3	CS155	4
	EN100	3	IM102	3
	ET245	3	MA133	3
	MA134	3	TN254	3
	TN255	3	Behavioral Systems	3
	Total	15	Total	16
SECOND YEAR	CS265	4	CY201	3
	MA223	3	ET366	3
	PH120	5	MA464	3
	TN275	3	TN375	3
	Artistic Expression	3	Written Expression	3
	Total	18	Total	15

(summer courses are encouraged to avoid 18 hour semesters)

	Fall Semester		Spring Semester	
THIRD YEAR	CY310	3	CS315	3
	IS245	3	CY320	3
	SW207	3	IS375	3
	TN425	3	TN395	3
	Living Systems	3	Oral Expression	3
	Total	15	Total	15
FOURTH YEAR	CY410	3	CY420	3
	MN220	3	TN435	3
	Develop of a Major Civ	3	UI410	3
	Literary Expression	3	IU/UI3XX	3
	Political Systems	3	IU/UI3XX	3
	Total	15	Total	15

Degree requirements for all students: a minimum of 120 credit hours, completion of University Studies program, career proficiencies (CL001-004), Writing Proficiency Exam (WP003), and completion of the Measure of Academic Proficiency and Progress (MAPP) at the senior level.

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

Revised 4/12/2016

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

To explore the College of Science, Technology and Agriculture online, visit www.semo.edu/costa

For advising
Center for Academic Advising - North
(573) 651-5090
www.semo.edu/advising
advisingnorth@semo.edu