CYBERSECURITY MAJOR

Dr. Vincent Smith, Program Chair

Cybersecurity Major Mission Statement

Our mission is to prepare students with skills in cybersecurity solutions that enable individuals and organizations to work productively and efficiently in a secure environment. Our mission is achieved using cutting-edge technology and industry best practices to deliver reliable and effective cybersecurity services that meet client needs; we seek to empower individuals with the knowledge and skills they need to protect themselves and their communities from cyber threats.

Program Description

Our cybersecurity program is designed to provide students with comprehensive and effective solutions to protect individuals, businesses, and organizations from cyber threats in addition to the core computer science coursework. Students learn a wide variety of topics such as risk assessments, vulnerability testing, incident response planning, and security training. Our program emphasizes a proactive approach to cybersecurity, focusing on prevention as well as response. The program prepares students to implement robust security measures, including firewalls, intrusion detection systems, and encryption, to reduce the risk of cyber-attacks.

The Cybersecurity major is offered as an in-seat residential program on the Charleston campus*. Students complete a 50-credit computer science core and further* coursework in cybersecurity. All CYBR classes will be taken in the online format. Students have the opportunity to double major in Information Technology, Video Game Development, Technology Applications, or Data Analytics.

Cybersecurity Learning Outcomes

In addition to the Applied Computer Science core learning outcomes, the graduate will:

1. Detect, assess, remediate, and communicate ongoing cybersecurity threats and vulnerabilities.

Cybersecurity Major Courses

In addition to the Applied Computer Science core courses, students must complete the following courses:

Cybersecurity Major Courses		
COSC 310	Software Engineering	3
COSC 430	Cryptology	3
CYBR 100	Intro to Computers (A+ Certification)	3
CYBR 110	Intro to Networking (NET + Certification)	3
CYBR 120	Intro to Security (Security+ Certification)	3
CYBR 320	Ethical Hacking & Countermeasures	3
CYBR 330	Incident Handler	3
CYBR 340	Security Analysis	3

Cybersecurity Major Courses		
MATH 201	Calculus I	4
MATH 225	Discrete Mathematics	3
	Hours for Cybersecurity:	**31+ 50 (Core) = 81**

Standard Four-Year Path**

FIRST YEAR			
FALL SEMESTER		**SPRING SEMESTER**	
ENGL 101 Freshman Writing I	3	ENGL 102 Freshman Writing II	3
CYBR 100 Intro to Computers	3	MATH 201 Calculus 1*** (STEM Flex)	4
COSC 110 Computer Science 1 (STEM Flex)	3	COSC 120 Computer Science 2	3
COSC 110L Computer Science 1 Lab	1	COSC 120L Computer Sci. 2 Lab	1
Elective (MATH 123 if needed)	3	SPCH 103 Speech (embedded)	3
UNIV 104 College Motivation & Success	3	UNIV 105 Foundations of Character & Leadership	3
TOTAL CREDITS	**16**	**TOTAL CREDITS**	**17**

SECOND YEAR			
FALL SEMESTER		**SPRING SEMESTER**	
MATH 225 Discrete Math (STEM Flex Elective)	3	CYBR 110 Intro to Networking	3
COSC 280 Data Structures	3	MATH 240 Prob and Stat (STEM Flex)	3
COSC 245 Internet of Things	3	CYBR 120 Intro to Security	3
Elective	3	COSC 250 Comp Arch & Org	3
HUMN Humanities Flex Course	3	SSCI Soc. Sci. Flex Course	3
TOTAL CREDITS	**15**	**TOTAL CREDITS**	**15**

THIRD YEAR			
FALL SEMESTER		**SPRING SEMESTER**	
COCS 395 CS Workshop 1	1	COSC 396 CS Workshop 2	1
Humanities Flex Elective	3	COSC 355 Mobile Computing	3
COSC 360 Web App Development	3	COSC 340 Operating Systems	3
COSC 330 Embedded Systems	3	CYBR 250 Cloud Computing	3
COSC 345 Computer Networks	3	CYBR 330 Incident Handler	3
CYBR 320 Ethical Hacking & Countermeasures	3	COCS 315 Database Systems	3
TOTAL CREDITS	**16**	**TOTAL CREDITS**	**16**

FOURTH YEAR			
FALL SEMESTER		**SPRING SEMESTER**	
COSC 440 Co-op Experience	4	COSC 450. Capstone	3
SSCI Soc. Sci. Flex Course	3	Elective	3
COSC 310 Software Engineering	3	COSC 430 Cryptology	3
Elective	3	CYBR 340 Security Analysis	3
TOTAL CREDITS	**13**	**TOTAL CREDITS**	**12**

Total Credit hours: 120

*Students may be required to complete some courses in online or hybrid formats.

**A low-math path is available for students who are entering below the pre-calculus level.

***MATH 201 requires MATH 123 or Math ACT Score 27.