

Cybersecurity BS, Information Systems Emphasis

Bachelor of Science (B.S.) in Cybersecurity

Degree Requirements

Students must choose one of the following emphasis areas at the time of application for admission.

- Computer Science (CS) Emphasis (total 120 credit hours)
- Information Systems (IS) Emphasis (total 123 credit hours)

Degree requirements vary depending on the chosen emphasis area (see common and emphasis area required courses and credit hours below).

General Education Requirements

Students must satisfy the university general education requirements. Many of the courses for the degree may be used to fulfill general education requirements. There is no foreign language requirement for this degree.

Satisfactory/Unsatisfactory Option

Courses required for the major may not be taken on a satisfactory/unsatisfactory basis.

Required Courses

The degree requires 33 credit hours of core coursework applicable to both emphasis areas. Emphasis specific required courses are listed below. Please see 4-year degree plans for recommend course sequences within each emphasis.

Required Core Courses

ENGL 3120 or ENGL 3130	Business Writing Technical Writing	3
CMP SCI 1250	Introduction to Computing	3
CMP SCI 2250	Programming and Data Structures	3
CMP SCI 2261	Object-Oriented Programming	3
CMP SCI 2700	Computer Organization and Architecture	3
CMP SCI 2750	Linux Environment and Programming	3
INFSYS 3848 or CMP SCI 3702	Introduction to Information Security Introduction to Cyber Threats and Defense	3
INFSYS 3868	Secure Software Development	3
INFSYS 3878	Information Security Risk Management and Business Continuity	3
CMP SCI 4700	Computer Forensics	3
CMP SCI 4732	Introduction to Cryptography for Computer Security	3

Total Hours 33

Computer Science Emphasis

In addition to the 33 credit hours of core required coursework, the B.S. Cybersecurity degree with Computer Science emphasis requires 42-44 credit hours of emphasis specific course work. Thus, candidates for the B.S. in Cybersecurity degree with Computer Science emphasis must complete a major program of 75-77 (33 core + 42-44 emphasis specific) credit hours of required courses.

For the Computer Science emphasis all general degree requirements from the College of Arts and Science apply.

MATH 1320	Introduction to Probability and Statistics	3
MATH 1100 or MATH 1800	Basic Calculus Analytic Geometry and Calculus I	3-5
MATH 3000	Discrete Structures	3
CMP SCI 3010	Web Programming	3
CMP SCI 3130	Design and Analysis of Algorithms	3
CMP SCI 3780	Software Security	3
CMP SCI 4730	Computer Networks and Communications	3
CMP SCI 4750	Introduction to Cloud Computing	3
CMP SCI 4760	Operating Systems	3
CMP SCI 4782	Information Security	3
CMP SCI 4794	Introduction to Security of IoT Systems	3

Electives (choose 3 from following) 9

PHIL 1160	Critical Thinking (MOTR PHIL 101)	
PHIL 2254	Business Ethics	
CRIMIN 1100	Introduction to Criminology and Criminal Justice	
CRIMIN 3310	Computers in Criminal Justice	
CMP SCI 3990	Undergraduate Internship	
CMP SCI 4020	Introduction to Android Apps: Android Fundamentals	
CMP SCI 4220	Introduction to iOS Programming and Apps	
CMP SCI 4222	iOS Apps	
CMP SCI 4300	Introduction to Artificial Intelligence	
CMP SCI 4500	Introduction to the Software Profession	
CMP SCI 4610	Database Management Systems	
CMP SCI 4792	Introduction to Mobile Computing, Networking, and Security	
INFSYS 3858	Advanced Security and Information Systems	
INFSYS 3898	Seminar in Information Systems	
Other electives upon approval of Computer Science department chair		

Total Hours 42-44

Information Systems Emphasis

In addition to the 33 credit hours of core required coursework, the B.S. Cybersecurity degree with Information Systems emphasis requires 75 credit hours of emphasis specific coursework (48 general business + 27 program specific). Thus, candidates for the B.S. in Cybersecurity degree

with Information Systems emphasis must complete a program of 108 (33 core + 75 emphasis specific) credit hours of required courses.

For the Information Systems emphasis all general degree requirements from the College of Business Administration apply.

INFSYS 3820	Introduction to Systems Administration	3
INFSYS 3842	Data Networks and Security	3
INFSYS 3806	Managerial Applications of Object-Oriented Programming I	3
INFSYS 3815	Object-Oriented Applications in Business	3
INFSYS 3845	Database Management Systems	3
INFSYS 3858	Advanced Security and Information Systems	3
SCMA 4347	Introduction to Project Management	3
Major Specific Electives (choose 2 from following)		6
BUS AD 3090	Internship in Business Administration	
INFSYS 3830	Data Programming	
INFSYS 3862	Artificial Intelligence Applications for Business	
INFSYS 3864	Applied Cryptography for Business	
INFSYS 3898	Seminar in Information Systems ¹	
CMP SCI 4782	Information Security	
CMP SCI 4750	Introduction to Cloud Computing	
SCMA 3345	Predictive Analytics and Data Mining	
SCMA 4350	Prescriptive Analytics and Optimization	
SCMA 3376/MKTG 3776		
Other electives upon approval of Information Systems department chair		
Total Hours		27

¹ If course is offered and topic is approved by the Information Systems department chair

Learning Outcomes

Upon completion of the program, graduates will be able to:

- Analyze a complex cybersecurity problem and apply principles of cybersecurity and business decision making to identify potential solutions.
- Design, implement, and evaluate a cybersecurity-based solution to meet a given set of cybersecurity and business requirements.
- Communicate cybersecurity issues effectively in a variety of professional contexts.
- Recognize professional responsibilities and make informed judgments in cybersecurity practice based on legal and ethical principles.
- Function effectively as a member of a team engaged in activities appropriate to the cybersecurity discipline.
- Apply security principles and practices to maintain business operations in the presence of risks and threats.

Sample Four Year Plan

First Year					
Fall	Hours	Spring	Hours	Summer	Hours
INTDSC 1003 ¹		1 MATH 1100		3 MATH 1105	3
MATH 1030	3	ECON 1001		3	
ENGL 1100	3	PHIL 1160		3	
CRIMIN 1100	3	EXPLORE - Humanities and Fine Arts (non-Philosophy course)		3	
INFSYS 2800	3	CMP SCI 1250		3	
PHIL 2254	3				
		16			15
					3
Second Year					
Fall	Hours	Spring	Hours	Summer	Hours
ACCTNG 2400		3 ACCTNG 2410		3 ENGL 3120	3
ECON 1002	3	BUS AD 2900		3	
INFSYS 3806	3	CMP SCI 2261		3	
SCMA 3300	3	COMM 2240		3	
CMP SCI 2250	3	INFSYS 3820		3	
		15			15
					3
Third Year					
Fall	Hours	Spring	Hours	Summer	Hours
SCMA 3301		3 FINANCE 3500		3	
MGMT 3600	3	MKTG 3700		3	
CMP SCI 2700	3	MATH 3000		3	
CMP SCI 2750	3	INFSYS 3845		3	
INFSYS 3842	3	INFSYS 3848		3	
		15			15
Fourth Year					
Fall	Hours	Spring	Hours	Summer	Hours
INFSYS 3868	3	MGMT 4219		3	
INFSYS 3815	3	CMP SCI 4700		3	
CMP SCI 4732	3	SCMA 4347		3	
INFSYS 3858	3	INFSYS 3878		3	
Cybersecurity elective	3	Cybersecurity elective		3	
		15			15
					3
Total Hours: 127					

¹ INTDSC 1003 is required only for first-time freshmen and transfer students with less than 24 college credits.

Please Note: This is an example of what a four year plan could look like for a typical student. Placement exam scores in math as well as the completion of coursework may change the plan. It should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor each semester. All requirements are subject to change.