Bachelor of Science in Cybersecurity Management
Undergraduate Day Program

The Bachelor of Science in Cybersecurity Management is designed to prepare undergraduates with the knowledge and hands-on experience to gain employment in the cybersecurity management field or to pursue an advanced degree. Cybersecurity is increasingly important to society at every level–individuals and families, small firms and organizations, large corporations and not-for-profits, and government, both domestically and internationally. To prepare students work in these varied areas, the cybersecurity management program provides a structured curriculum with coursework not only in cybersecurity, but also in business management, computer science, and homeland and international security. Through this multi-disciplinary approach, students will (1) gain analytical and problem-solving skills, (2) become competent professionals through hands-on learning, (3) be able to recognize information security risks and develop threat defenses, and (4) aspire to be leaders in an ever-growing industry of security technologies and their management.

The cybersecurity management program embeds critical thinking skills, decision-making related to technology issues, effective communication skills, and legal, ethical, and social sustainability perspectives. In addition, the program provides a solid foundation in the liberal arts through a general education curriculum, management skills from a core of business courses, and experiential learning opportunities, including internships. The program prepares individuals to enter the workforce in entry-level supervisory roles leading to management.

General Education Requirements (minimum 42 credits)
Major Requirements (66 credits)
Business Core (21 credits)
- BUS 175 - Principles of Management Credits: 3
- BUS 180 - Business Communications Credits: 3
- BUS 220 - Financial Accounting Credits: 3
- BUS 226 - Principles of Project Management Credits:3
- BUS 302 - Organizational Behavior Credits: 3
- BUS 341 - Information Systems Analysis Credits: 3
- BUS 351 - Applied Statistics Credits: 3

Computer Science Required Courses (15 credits)
- CS 245 - Computer Organization Credits: 3
- CS 248 - Programming Fundamentals I Credits: 3
- CS 308 - Computer Networks Credits: 3
- CS 335 - Database Management Systems Credits: 3
- CS 448 - Computer Security Credits: 3

Related Cybersecurity and Courses (21 credits)
- CYM 171 - Introduction to Cybersecurity Credits: 3
- CYM 250 - Cybersecurity Law and Ethics Credits: 3
- CYM 310 - Ethical Hacking and System Defense Credits:3
- CYM 410 - Cybersecurity Risk Assessment Credits:3
- CYM 450 - Cybersecurity Management Competition Credits: 3
- CYM 479 - Senior Capstone Seminar Credits: 3
- CYM 495 - Internship Credits: 3

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Related Homeland/International Security Management Courses (9 credits)
- HLS 231 - Critical Infrastructure Protection Credits:3
- HLS 320 - Strategic Intelligence Credits: 3
- HLS 491 – Post Disaster Response and Recovery Credits:3

Electives (12 credits)

Degree Requirements (minimum 120 credits)

COURSE DESCRIPTIONS:

Computer Science

CS245 Computer Organization
This course is an introduction to the building blocks and organization of modern computers.   Topics include digital logic and its application to understanding central processing unit organization; computer memory and design of a stored-computer program; other basic modules, such as cache memory, coprocessors, peripheral buses, and input/output techniques; general functions of a modern operating system in a computer environment. Credits: 3

CS 248 Programming Fundamentals I
In this course students are introduced to problem solving and algorithmic solutions using a modern object-oriented programming language such as Java. Topics include: primitive types, expressions, control structures, and simple input/output operations. Emphasis is placed on data abstraction, user-defined types, and interacting objects. Credits: 3

CS308 Computer Networks
A survey of the technologies available for network solutions to distributed processing problems. Topics include: layered network architectures, signal transmission analysis, transmission media, data encoding, local and wide area networks, communications architecture and protocols, modeling techniques. Credits: 3

CS335 Database Management Systems
This course introduces students to relational database design architecture. Topics include specifications, tools, procedures, file structures, storage and access, normalization, and relational algebra. Students will design and access databases using simple and complex query structures. Standard SQL language is used for the lab projects. Credits: 3

CS448 Computer Security
This course is an introduction to the methods, algorithms, and tools of computer system security. Topics include both the theoretical and practical aspects of security including cryptography, protocols, and system design. Security standards will also be covered as well as security engineering examples. An important part of the course will be a survey of actual techniques used by hackers to attack systems. Credits: 3

Cybersecurity Management Courses

CYM 171 - Introduction to Cybersecurity
Students will explore the evolution of cybersecurity and learn the different concepts in a fast-paced environment. In this course, some of the main computer-related threats, including protecting systems and data with the most common topics such as identity theft, fraud, cyber terrorism, hacking, and cyber bullying cases will be examined. Credits: 3

CYM250 Cyber Law & Ethics
Students will examine the ethical and legal issues as the impact cybersecurity professionals. Topics will include intellectual property, civil litigation, criminal prosecution, and privacy laws. Ethical frameworks that guide the creation and application of risks and protections in education, the workplace, commerce, and individual rights. Credits: 3

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CYM310 Ethical Hacking & Systems Defense
Students will learn and apply tactics and techniques to attack and defend networks and mobile devices. Topics include network scanning, malware threats, denial of service, and hijacking. Credits: 3

CYM410 Cyber Risk Assessment
This course will provide the framework of the nature of risk and its impact on society, whether large global corporations, small businesses, governments, organizations, or even individuals. The course will focus on the fundamentals and processes of Cyber Risk Assessment aligned from the National Institute of Standards and Technology. Credits: 3

CYM450 Cyber Management Competition
This course will provide cybersecurity students working in teams to secure and maintain information assets to maintain business continuity by working on real-world scenarios. Focus will be on putting together their team's division of labor to cover every aspect of security operations. Credits: 3

CYM479 Senior Capstone Seminar
This faculty facilitated small group seminar provides an opportunity for students to synthesize the reasoning and judgment to protect and recover information systems. Students will identify a current issue in the cybersecurity field, review the current literature, form and test a hypothesis to develop suggestions for future study. Credits: 3

CYM495 Internship
The course is designed to provide the business student with a new learning experience in a specialized work area. The student employee will gain valuable practical experience and training. Prerequisites: a B (3.0) average and permission of the department. Credits: 3

Homeland/International Security Management Courses

HLS 231 - Critical Infrastructure Protection
This course examines the field of critical infrastructure protection, which is one of the cornerstones of homeland security. Focus is placed on the identification and analysis of critical infrastructure systems including security and threat assessments. It includes mitigation of threats as well as evaluation and revision of security measures in order to protect critical infrastructures. Credits: 3

HLS 320 - Strategic Intelligence
This course provides an overview of strategic intelligence, and its role as an instrument of a nation's power. The components of organization administration, clandestine and open-source research methods, program management, intelligence tasking, data collection, analysis, and dissemination are considered. Select domestic and foreign strategic intelligence organizations are examined.   Credits: 3

HLS 491 - Post Disaster Response and Recovery
The purpose of this course is to uncover the principles that promote effective disaster response and recovery operations. The course will review popular myths and realities regarding human behavior in catastrophic events in addition to divergent approaches for disaster management. The importance of addressing the needs of the affected population will be discussed, and will include recommendations to fulfill a variety of important response and recovery functions. Various problems associated with response and recovery operations will be identified. Credits: 3