**The Graduate Certificate in Enterprise Systems Development**

Develop and manage web-based or legacy information systems.

Enterprise software systems support business processes within complex organizations. Enterprise system development involves aspects of web-based and legacy information systems development including the interface with contemporary programming languages, frameworks, platforms, testing methodologies and security standards. Today’s organizations must develop and integrate their business applications into logical and efficient information systems that combine computational power with massive data storage and transmission capabilities. Application development is thus one of the most in-demand skills of the current decade, according to the Bureau of Labor Statistics.

What is it?

The Graduate Certificate in Enterprise Systems Development is a 12-credit-hour program that can be completed in as few as two semesters (taking 6 credit hours per semester) or up to four semesters (taking 3 credit hours per semester). It is designed for students from all backgrounds who have an interest in software development and want to be able to analyze existing systems, modernize legacy systems and integrate IT platforms into new solutions.

This program will help those aspiring to become or those who are experienced software developers or business analysts. In addition, this certificate program fulfills 4 course requirements for the MS in Information Systems and Technology, thus the program provides for a great way to build knowledge and credentials while considering further graduate studies.

Throughout the program, students will interpret and write better system requirements as well as understand program logic and secure software development. Students can choose between full stack web application development or legacy systems development utilizing COBOL, the z/OS operating system, and mainframe files, programs, utilities and reports. Students will further enhance their ability to analyze, modernize and integrate systems for current projects. Students will become proficient with modern and legacy technologies and understand how they interact together.

**One Required Course:**

**INFSYS 6806:**Managerial Applications of Object-Oriented Technologies

**Choose One of the Following Sequences of Courses:**

**INFSYS 6807:**Contemporary z/OS COBOL & Advanced COBOL

**& INFSYS 6817:** Modern z/OS System Tools

**INFSYS 6814:** Web Applications for Business

**& INFSYS 6815:** Advanced Web Applications for Business

**Choose One of the Following Courses:**

**INFSYS 6818:** Management of Software Testing

**INFSYS 6868:** Software Assurance

**The Graduate Certificate in Information Security Management and Auditing**

The Graduate Certificate in Information Security Management and Auditing is a 12-credit- hour program that can be completed in as few as two semesters (taking 6 credit hours per semester) or up to four semesters (taking 3 credit hours per semester). It is designed for working professionals with backgrounds in business administration, accounting, and information systems. The program helps students prepare for CISA and CISM industry certifications. Additionally, this certificate program fulfills 4 course requirements for the MS in Information Systems and Technology, and for the MS in Cybersecurity with Information Systems and Technology emphasis making it a great way to gain expertise and credentials while considering further graduate studies.

Upon completing the certificate, students will be able to develop, maintain and update an organization’s information security policies to meet security and compliance requirements; select and execute appropriate security mechanisms to implement security policies; evaluate and maintain information systems for secure and reliable operations by employing appropriate risk management strategies; and communicate effectively with internal and external stakeholders about cybersecurity.

Four Required Classes:

INFSYS 6820: Systems and IT Infrastructure

INFSYS 6828: Principles of Information Security

INFSYS 6878: Management of Information Security

ACCTNG 5436: Systems Auditing

The Graduate Certificate in Cybersecurity

Protect and secure data.

Cybersecurity affects everyone—including individuals, organizations, governments and society at large. Despite this, industry reports indicate a shortage of qualified professionals to fill cybersecurity-related roles. Demand for professionals who can help secure data, information technology assets and the nation’s critical infrastructure continues to grow. As a result, current or aspiring employees from all business functions will increasingly be expected to play a role in securing their organizations. Those with training in modern cybersecurity techniques and methods are highly sought after by employers in all industries.

This innovative program is designed to provide specialized knowledge, skills and training in a flexible format, and in a short amount of time. Completing the program will help set you apart, sharpen your competitive edge, boost your earning power and advance in your profession.

What is it?

The Graduate Certificate in Cybersecurity is a 12-credit-hour multidisciplinary program that can be completed in as few as two semesters (taking 6 credit hours per semester) or up to four semesters (taking 3 credit hours per semester). It is designed for students of all backgrounds who want a foundation in information security and for a broad group of managers, technical specialists and entry level professionals with a bachelor’s degree. It provides students the flexibility to focus on technical and/or managerial aspects of information security. In addition, this certificate program fulfills 4 course requirements for the MS in Cybersecurity, so it’s a great way to build knowledge and credentials while considering further graduate studies.

Throughout the program, students gain skills in the principles of cybersecurity, security of data networks, penetration testing and risk management. Upon completing the certificate, students will be able to apply fundamental security principles and formal security models to solve problems in cybersecurity; develop, maintain and implement information security policies; and communicate effectively with internal and external stakeholders about cybersecurity issues.

Required Courses

INFSYS 6828 Principles of Information Security 3

or CMP SCI 5702 Cyber Threats and Defense

CMP SCI 4730 Computer Networks and Communications 3

or INFSYS 6836 Management of Data Networks and Security

CMP SCI 5782 Advanced Information Security 3

or INFSYS 6858 Advanced Cybersecurity Concepts

Electives

Choose one of the following: 3

CMP SCI 4700

Computer Forensics

CMP SCI 5020

Android Apps: Android Fundamentals

CMP SCI 5222

Advanced iOS Apps

CMP SCI 5732

Cryptography for Computer Security

CMP SCI 5750

Cloud Computing

CMP SCI 5792

Mobile Computing, Networking, and Security

CMP SCI 5794

Security of IoT Systems

INFSYS 6830

Data Programming for Business Intelligence

INFSYS 6862

Artificial Intelligence Applications for Business and Cybersecurity

INFSYS 6864

Applied Cryptography for Business Applications

INFSYS 6866

Cloud Security Management

INFSYS 6868

Software Assurance

INFSYS 6878

Management of Information Security

**Business Intelligence Graduate Certificate**

Business Intelligence skills are ranked among the top technology skills that will be in demand over the next decade. The Graduate Certificate in Business Intelligence (BI) prepares students to support better business decision-making by providing internal data and external data in a useful and usable format. Using BI, decision makers are able to examine the value of business processes and products while watching for competitive opportunities in the marketplace. BI technologies provide historical, descriptive, predictive, and prescriptive views of business operations. The BI Certificate blends analytics and information technology in a unique program during which students work on industry datasets and learn to appreciate the difficulties of large-scale, unstructured data as well as the need for nuanced solutions.

Stackable

This 12 credit hour certificate program also counts toward the 30 credit hour Master of Science in Information Systems and Technology degree program requirements. Students may choose to combine this certificate with other courses and/or certificates to obtain the Master of Science in Information Systems and Technology degree.

This certificate requires completion of a total of 12-credit hours. The list of required courses follows:

Course Number Course Title

INFSYS 6830 Dataprogramming for Business Intelligence

INSFYS 6833 Decision Support Systems for Business Intelligence

Choose 2

INFSYS 6849 Data Warehouse Design and Implementation

INFSYS 6860 Data Integration

INFSYS 6862 Artificial Intelligence Applications for Business and Cybersecurity

SCMA 6345 Business Analytics and Data Mining

SCMA 6350 Management Science Methods

INFSYS 6851 Practicum in Business Intelligence