

CIS: Computer Science And Information Systems Courses

Courses

CIS 2530 Introduction to Cybersecurity

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

This course introduces students to cybersecurity . It provides information related to cyber threats as well as the basic security design and information assurance fundamentals. In addition the course covers information assurance controlling laws and guidelines. Meets General Education requirement in Natural Sciences.

CIS 3325 Information Technology Infrastructure Analysis and Recommendation

College of Sci and Engineering, Department of Department of Information Tech

3 sh (may not be repeated for credit)

Prerequisite: [COP 2253](#) OR [COP 2334](#) AND [CGS 2920](#)

Students will develop the knowledge, skills and abilities necessary to analyze technology infrastructure needs of various types and sizes of organizations and provide appropriate solution recommendations to solve complex problems.

CIS 3949 Cooperative Education

College of Sci and Engineering, Department of Computer Science

1-2 sh (may be repeated for up to 4 sh of credit)

Alternating full-time or consecutive parallel terms of practical experience in the intended field. Reinforcing academic preparation; confirming educational and career goals; personal and professional development; early start in career; earnings toward self-support; improved employability. (See program description under Cooperative Education). Graded on satisfactory/unsatisfactory basis only. Permission of director of Cooperative Education is required.

CIS 4361C IT Security

College of Sci and Engineering, Department of Department of Information Tech

3 sh (may not be repeated for credit)

Prerequisite: [COP 2253](#) OR [COP 2830](#)

Introduction to skills, knowledge, techniques, and tools required by information-technology security professionals. Topics include security and risk management, physical security, access control, cryptography, security architecture and design, security for networks and telecommunications, application security, and legal considerations.

CIS 4368 Introduction to Database Security

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

Prerequisite: [COP 4710](#)

The Database Security course follows guidelines set forth by the National Security Agency/Department of Homeland Security Centers of Academic Excellence in Information Assurance and Cyber Defense. This course is considered a core knowledge unit for institutions to be considered a Center of Academic Excellence. Database Security is designed to teach students how database systems are used, managed, and issues associated with protecting the associated data assets. This undergraduate course is a requirement for the B.S. in Cybersecurity and will be an elective for all other undergraduate Computer Science programs. Prerequisites: [COP 4710](#), minimum grade of C-.

CIS 4385 Ethical Hacking and Penetration Testing

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

Prerequisite: ([COP 3022](#) OR [COP 3530](#)) AND ([CNT 4007](#))

This course provides a understanding of how to effectively protect computer networks. Students will learn the tools and penetration testing methodologies used by ethical hackers. The tools and methodology will focus on gathering information and identifying flaws and vulnerabilities in documentation, software and computer systems, and exploiting those flaws. In addition, the course provides a thorough discussion of what and who an ethical hacker is and how important they are in protecting corporate and government data from cyber attacks. Students will be provided with an overview of computer crime laws. This course is offered concurrently with [CIS 5396](#); graduate students will be assigned additional work. Credit cannot be received in both [CIS 4385](#) and [CIS 5396](#).

CIS 4592 Capstone Project

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

Prerequisite: [CEN 3031](#) AND [COP 4534](#) AND [COP 4634](#)

This course follows up on Software Engineering I requiring students to apply the developed skills to design, implement, and evaluate a software product that addresses a complex, real-world problem. The course provides additional software engineering concepts and skills that students learned in Software Engineering I focusing on best practices and methods for building software. Students will work individually or as teams to develop a project plan, multiple prototypes, and a final software system for the project topic. Students will be required to prepare a final presentation on their project and a report that describes their achievements and provides a critical assessment of their work and final product.

CIS 4595 Capstone Systems Project

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

Prerequisite: ([CNT 4403](#) OR [CEN 3032](#)) AND (([CEN 4078](#) AND [COP 4610](#) AND [COP 4710](#)))

Develop a software system for a real-world client while working in small teams. Develop and deliver relevant artifacts such as a project proposal, design, test plan, code, user's manual, and project log with metrics as the software system evolves throughout the course. A final presentation and evaluation of the project experience will be prepared.

CIS 4905 Directed Study

College of Sci and Engineering, Department of Computer Science
1-12 sh (may be repeated indefinitely for credit)

CIS 4941 Computer Science Internship

College of Sci and Engineering, Department of Computer Science
1-3 sh (may not be repeated for credit)

Supervised field practicum in computer-related position. May include activities in computer programming, database administration, web-development, systems administration, network security, etc. Graded on satisfactory / unsatisfactory basis only. Juniors or seniors with minimum cumulative GPA of 3.00 will be eligible. Permission is required.

CIS 4947 Internship/Practicum in Information Technology

College of Sci and Engineering, Department of Department of Information Tech

1-3 sh (may be repeated for up to 6 sh of credit)

Practical and significant Information Technology professional work experience under approved industrial supervision.

CIS 5396 Ethical Hacking and Penetration Testing

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

Prerequisite: CDA 6415 AND [COP 6025](#)

This course provides a understanding of how to effectively protect computer networks. Students will learn the tools and penetration testing methodologies used by ethical hackers. The tools and methodology will focus on gathering information and identifying flaws and vulnerabilities in documentation, software and computer systems and exploiting those flaws. In addition, the course provides a thorough discussion of what and who an ethical hacker is and how important they are in protecting corporate and government data from cyber attacks. Students will be provided with an overview of computer crime laws. Offered concurrently with [CIS 4385](#);graduate students will be assigned additional work. Credit may not be received in both [CIS 5396](#) and [CIS 4385](#).

CIS 5775 Cybersecurity Principles

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

This course introduces students to topics in cybersecurity. It provides information related to threat models, vulnerability analysis, and security-policy formation and enforcement. In addition, the course covers information assurance controlling laws and guidelines as well as introduces students to broad topics in network and system security, Internet services, and digital forensics.

CIS 5905 Directed Study

College of Sci and Engineering, Department of Computer Science

1-12 sh (may be repeated indefinitely for credit)

CIS 6376 Database Security

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

Prerequisite: [COP 5725](#)

Database Security is designed to teach students how database systems are used, managed, and issues associated with protecting the associated data assets. This course will cover various methods to ensure information confidentiality, integrity and availability on an assortment of data storage systems. This graduate course is a requirement for the M.S.A. in Cyber Security and will be an elective for all other graduate Computer Science programs. Prerequisites: [COP 5725](#) minimum grade of C.

CIS 6379 Applied Information Security

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

This course covers a variety of topics which range from information security fundamentals to the management and planning aspects of information security. Students in this course will learn to design and create information security policies, disaster recovery and risk analysis & mitigation plans. Students will also learn about security models and various physical and technical security controls.

CIS 6394 Digital Forensics

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

This course will provide a solid foundation for performing a digital forensic examination; introduces tools and techniques required for conducting a forensic analysis on systems and data pertaining to evidences in civil, criminal or administrative cases. It introduces systematic problem-solving techniques and applies them to digital investigations. The techniques directly correlate to methods used to recover/restore data for various requirements, ranging from litigation to fraud-based investigations.

CIS 6415 Advanced Computer Systems and Networks

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

Examines current advancements in computer hardware, operating systems and networks. their relation to each other, and programming practices that takes advantage of them. Topics include pipelined, hyperthreaded, multicore and multiprocessor architectures, scheduling methods, distributed and real-time systems, high-speed networks, routing, congestion and flow control, and quality of service.

CIS 6710 Trends in Information Technology

College of Sci and Engineering, Department of Department of Information Tech

3 sh (may not be repeated for credit)

Trends in Information Technology focuses on leveraging the latest technology to solve existing problems and to propose effective and efficient solutions. Students will also evaluate options and provide rationale for choices made in problem solving related to system performance and security.

CIS 6800 Data Security

College of Sci and Engineering, Department of Computer Science

3 sh (may not be repeated for credit)

Prerequisite: [COP 5725](#)

This course covers concepts of Data Security from a data centric perspective. Challenges faced by today's systems will be studied and the future of data security will be discussed. This course may require completion of graduate foundations courses in computer programming or the equivalent undergraduate coursework if a student has insufficient academic or professional experience in computer science.

CIS 6905 Directed Study

College of Sci and Engineering, Department of Computer Science

1-12 sh (may be repeated indefinitely for credit)

CIS 6950 Information Technology Capstone Seminar

College of Sci and Engineering, Department of Department of Information Tech

3 sh (may be repeated for up to 6 sh of credit)

Prerequisite: Completion of 18 hours of college course work is required prior to taking this course.

Students enrolled in the MSIT degree program are required to complete a two course, six-credit hour, capstone project. Students will work in consultation with their instructor and an identified industry host to identify and complete a complex project related to their program of study. Students synthesize and apply knowledge developed during the academic program to identify, propose and develop solutions to meet the complex networking needs of the host organization. Students must complete 18 graduate hours and obtain department permission to enroll.

CIS 6971 Thesis

College of Sci and Engineering, Department of Computer Science

1-6 sh (may be repeated for up to 12 sh of credit)

Graded on satisfactory / unsatisfactory basis only. Permission is required.