CYBERSECURITY

Programs

Bachelor

- Cybersecurity / Bachelor of Science (https://catalog.lewisu.edu/undergraduate/aviation-science-technology/cybersecurity/cybersecurity-bachelor-science/)

Minor

- Cybersecurity / Minor (https://catalog.lewisu.edu/undergraduate/aviation-science-technology/cybersecurity/cyber-security-science-minor/)

Courses

CPSC 19600 - Topics in Computer Science (1-3)
This 100-level series of workshops will cover a range of topics in computer science and typically occur on the weekends.
Attributes: Workshop/Seminar

CPSC 20000 - Introduction to Computer Science (3)
This course explores the field of computer science. It provides an overview of computer architecture, networking, data organization, information security, and computational theory. Students will be introduced to fundamental concepts underlying all of computing, such as algorithms, abstractions, and how computers represent numbers, text, images, and sound. Students will learn the basics of programming and computational problem solving.

CPSC 20200 - Fundamentals of Artificial Intelligence (3)
Students will explore how artificial intelligence systems learn, reason, and interact with the world, while critically examining the ethical, legal, and social challenges posed by these technologies. Topics include machine learning, natural language processing, computer vision, and the future of AI, responsible AI and fairness. Through case studies, discussions, and collaborative projects, students will gain the tools to engage thoughtfully with AI in both academic and real-world contexts.

CPSC 21000 - Programming Fundamentals (3)
A study of computer organization, data types, expressions, logical structures, subprograms (subroutines and functions), recursion, structured data types (arrays and records), dynamically allocated data, array-based lists, linked lists, stacks, queues, graphs, trees, sorting, and searching.
Prerequisite: CPSC 20000 or CPSC 31500 or DATA 20000 or ECEN 10000

CPSC 22000 - Introduction to Linux (3)
Students are introduced to the Linux operating system, including installation, configuration, and administration and prepare for LPIC-1 Certification. Students will gain proficiency using the command line interface and become familiar with file permissions, boot, partitioning, package managers, shells, editors, regular expressions, and virtualization.

CPSC 23000 - .NET Programming (3)
This course familiarizes students with using C# and the .NET Framework to create a variety of applications, including console-based, desktop GUI, web apps, and RESTful APIs. Students will develop these various kinds of software using object-oriented design and development best practices.
Prerequisite: CPSC 21000 or DATA 23500

CPSC 24500 - Object-Oriented Programming (3)
Students will learn to design and develop software using the object-oriented approach. Topics include encapsulation, inheritance, polymorphism, abstraction, and patterns. Students will learn how to use an SDK to develop desktop and web applications that provide data processing and visualization services. Students will also learn how to manage threads and networking connections in software they write.
Prerequisite: CPSC 21000

CPSC 24700 - Web and Distributed Programming (3)
Languages and technologies for programming and leveraging web-based computer services securely. Languages include PHP, Perl, JavaScript, Java, Ruby, CSS, and HTML5. Technologies include relational databases, web services, Hadoop, and cloud computing platforms. This course teaches students how to develop useful applications using a variety of distributed data and programming models.
Prerequisite: CPSC 21000

CPSC 25000 - File Systems and Digital Forensics (3)
A study of concepts related to the storage, retrieval, backup, and recovery of data in file systems. Topics include the organization and processing of sequential access files, direct access files, and indexed sequential access files; RAID and disk spanning; the organization of data on a variety of storage devices; the disk boot process; identifying hidden data on a disk's Host Protected Area; analyzing various kinds of partitions; analyzing FAT, NTFS, Ext2, Ext3, UFS1, and UFS2 file systems; recovering data from deleted files and hidden file locations; and using open-source forensics tools to identify drive contents.
Prerequisite: CPSC 20000 or DATA 20000 or ECEN 10000

CPSC 28100 - Introduction to Networks (3)
In this course, students will be introduced to current and emerging internetworking technologies. Topics include Open Systems Interconnect (OSI) reference model, binary numbers, hexadecimal numbers, address classes, Internet Protocol (IP) addressing and subnetting, protocols, standards, and cabling techniques.
Prerequisite: CPSC 20000 or ECEN 10000 or DATA 20000
Attributes: Experiential Learning Gen Ed

CPSC 28200 - Switching, Routing, and Wireless Essentials (3)
Students will be introduced to network architecture and operations of routers and switches in a networked environment. Students will learn to configure and analyze routers and switches. They will contrast and implement routing and switching operations and perform basic network configuration and troubleshooting, identify and mitigate LAN security threats, and configure and secure a basic WLAN.
Prerequisite: CPSC 28100

CPSC 29700 - Special Topic: Computer Science (3)
This course focuses on a specific topic in computer science that typically falls outside the established curriculum. This course enables the student to encounter content that engages an emerging question or subject in computer science. Topics will vary in accordance with areas of intense current interest.

CPSC 30000 - Computer Organization (3)
This study of computer organization covers the central processor unit, memory unit and I/0 unit, number systems, character codes and I/O programming. Programming assignments provide practice working with assembly language techniques, including looping, addressing modes, arrays, subroutines, and macros. Microsoft assembler is discussed and used for programming throughout the course.
Prerequisite: CPSC 21000

CPSC 31500 - Scientific Computing (3)
An introduction to developing computer applications for collecting, analyzing, and visualizing scientific and mathematical data. Students will learn how to use mathematical computing environments like Matlab, Octave, and R as well as to write journal-style papers in LaTeX.
Prerequisite: MATH 20400 or MATH 20600 or MATH 20900

CPSC 32100 - Cybersecurity Essentials (3)
Fundamentals of computer and network security and information assurance. Topics include access control, authentication, trusted computing, software security and vulnerabilities, operating system security models, how various kinds of malware function, network security devices and architecture, computer hacking techniques and countermeasures, intrusion detection, cryptography, wireless security, and network security protocols
Prerequisite: CPSC 28100 and (CPSC 20000 or DATA 20000 or ECEN 10000)

CPSC 33000 - Database Systems (3)
This study of database management systems includes database models, database design, physical implementation and writing code to access data in a database. Topics covered in this course include file storage structure, relational database management systems, entity-relationship diagrams, SQL, database security, concurrency control, distributed and cloud storage solutions and coding database-supported applications.
Prerequisite: CPSC 20000 or DATA 20000 or ECEN 10000

CPSC 34000 - Algorithms and Data Structures (3)
This course is the study of the design and analysis of computer algorithms including the data structures used in these algorithms. Topics include design techniques, such as divide-and-conquer, dynamic programming, the greedy method and backtracking, sorting, searching, graph computations, pattern matching and NP-complete problems.
Prerequisite: CPSC 21000 and MATH 21000

CPSC 35000 - Operating Systems (3)
A survey of concepts, facilities, and characteristics of contemporary computer operating systems that includes topics such as memory management, concurrent process control, multi-threading, security, virtualization, and parallelization.
Prerequisite: CPSC 21000

CPSC 35500 - Cloud Computing and Virtualization (3)
An introduction to the concepts and techniques of implementing cloud computing through the use of virtualization and distributed data processing and storage. Topics include operating system virtualization, distributed network storage, distributed computing, cloud models (IAAS, PAAS, and SAAS), and cloud security.
Prerequisite: CPSC 35000

CPSC 36000 - Programming Tools and Techniques (3)
This course covers industry-standard software development tools and team practices used to build commercial software. Topics include development environments, debugging, source code control, shell scripting, release management, containers, automated test development, issue tracking, linting, tracking race conditions and deadlocks, reverse engineering, and profiling.
Prerequisite: CPSC 24500 or CPSC 23000 or CPSC 24700

CPSC 38200 - Network Security (3)
Provides the knowledge and hands-on skills required to install, troubleshoot, and monitor Cisco security network devices. Students who complete this course will be prepared to sit for the Cisco Certified Networking Associate (CCNA) Security Certification exam which is a stepping stone for job roles such as network security specialist and network security administrator. CCNA security certification is a prerequisite for becoming a Cisco Certified Security Professional (CCSP).
Prerequisite: CPSC 28200

CPSC 40100 - Introduction to Transformer Models (3)
This course provides a comprehensive introduction to transformer-based foundation models which underpin modern artificial intelligence. Students will explore the core transformer mechanics, including self-attention, and the processes of pre-training and fine-tuning. The course has a strong practical emphasis, providing hands-on experience with industry-standard libraries and frameworks. Students will learn to deploy, customize, and optimize models using techniques like quantization to improve efficiency. This includes working with tools like the Hugging Face ecosystem, Ollama, and other open-source platforms to build applications for text generation, classification, and summarization.
Prerequisite: DATA 36000

CPSC 40200 - Emerging Trends in Artificial Intelligence (3)
This course explores the latest developments, innovations, and research directions in artificial intelligence (AI). Students will engage with recent academic literature, industry case studies, and hands-on projects to critically evaluate and apply emerging AI technologies.
Prerequisite: CPSC 47000 or DATA 36000

CPSC 41000 - Video Game Programming 1 (3)
Video game design is an inherently interdisciplinary and technically challenging activity that requires proficiency in a broad range of topics and skills in the computer science curriculum. Video game developers must be excellent programmers, have a firm grasp of how to render and animate shapes and scenes, understand mathematical modeling of physical systems, be able to design and implement artificial intelligence systems, understand enough about hardware to optimize code for a variety of platforms, be able to plan and document complicated team projects, and appreciate the human factors issues involved in game design. And, of course, game developers must be creative and have an eye and ear for what makes for impactful game content. This course will cover each of these issues in an applied manner as the class builds basic but professional-looking video games from scratch. Students will work both individually and in teams and will be expected to document their work.
Prerequisite: CPSC 24500 or CPSC 23000 or CPSC 24700

CPSC 41500 - Video Game Programming 2 (3)
This course will expand on CPSC 41000 Students will learn how to write 2D games for a variety of platforms and 3D games for PCs and popular consoles They willuse APIs and modeling tools for developing games in 3D and games for portable and other non-PC platforms In addition, they will simulate physical systems and intelligent thought processes using vector math, mechanics and artificial intelligence Work will be done in teams.
Prerequisite: CPSC 41000

CPSC 41700 - Mobile Application Development (3)
There are many widely used computing platforms. Writing applications that run on all of them is challenging. This course covers technologies and frameworks that simplify and improve cross-platform application development. Topics include cross-platform frameworks, programming languages, development environments, code management tools, and data sources. Work will be done both individually and in teams and will culminate in a term project: a data-driven application that can run of a variety of devices.
Prerequisite: CPSC 24500 or CPSC 23000 or CPSC 24700

CPSC 42100 - Advanced Cybersecurity (3)
This second course in computer security explores techniques for performing encryption and authentication of data, operating system and application security, malware operation and analysis, code-level exploits, reverse engineering, security design principles, techniques for reducing complexity, and formal security models.
Prerequisite: CPSC 42000 and CPSC 21000

CPSC 42200 - Wireless Security (3)
This course provides students with practical exposure to setup and operate a wireless network. Common threats to wireless networks will be explained, network attackers will be demonstrated and steps to control attacks will be discussed. Students will be able to detect and prevent wireless attacks by gaining an understanding of various security technologies and common attacks and vulnerabilities.
Prerequisite: INSY 33500 or CPSC 42000

CPSC 42300 - Ethical Hacking (3)
An introduction to some of the most popular and useful tools cyber security professionals use to ensure the security of computers, networks, and mobile devices. Examples from several different categories of security applications are discussed and practiced: password crackers, traffic sniffers, vulnerability scanners, web scanners, wireless security scanners, exploitation, packet crafters, fuzzers, and computer and mobile forensics. Students will learn how to use these tools and, just as importantly, how they work from a Computer Science perspective, so that they can improve them and code their own.
Prerequisite: CPSC 20000 or DATA 20000 or ECEN 10000

CPSC 42500 - Encryption and Authentication Systems (3)
This is a one-semester course focusing on cryptography and network security Three areas of emphasis include: symmetric key encryption, public key encryption, and network security practices The mathematical concepts underlying encryption algorithms will also be presented.
Prerequisite: MATH 21000 and (CPSC 20000 or DATA 20000 or ECEN 10000)

CPSC 42600 - Mobile Device Forensics (3)
This course presents hands-on techniques for recovering evidence for mobile phones such as iPhones, and windows and android phones. Mobile devices such as iPads, Tablet PCs and iPods will also be covered in this course. Students will learn how to recover passwords, deleted voicemails, photos, and text messages and data from various apps on mobile devices.
Prerequisite: CPSC 20000 or DATA 20000 or ECEN 10000

CPSC 42700 - Programming for Penetration Testing (3)
The best way to defeat a hacker is to code like one. That means being able to build, extend, and manipulate scripts and applications that compromise systems. This course presents a number of techniques for exploiting vulnerabilities in a variety of computer systems. Students will build port scanners, construct botnets, write exploits, create their own forensic analysis and network traffic analysis tools, develop web reconnaissance applications, implement scripts for examining and exploiting a wireless network, and craft malware that evade antivirus tools.
Prerequisite: CPSC 21000

CPSC 42800 - Programming for Digital Forensics (3)
While many tools exist for examining digital systems, the frenetic pace at which the cyber threat evolves means that hackers are constantly discovering new ways to hide their tracks. Digital forensics specialists who lack a programmer's understanding of how data are stored and hidden and how tools are written to examine these systems will forever be limited to using the tools others create. This course prepares digital forensics experts who can write their own digital forensics tools.
Prerequisite: CPSC 21000

CPSC 43000 - Computer Graphics Programming (3)
This course involves the study of both 2D and 3D graphical programming techniques for applications in real-time simulations such as video games and virtual reality. Concepts covered include graphical transformations for scaling, rotation, and translation. Data structures for vector objects are discussed and implemented in code. In addition, students learn to apply compound geometric transformations to vector lists. The core concepts of transformations, window to viewport mapping, and projection are discussed and implemented in code.
Prerequisite: CPSC 21000

CPSC 44000 - Software Engineering (3)
Methods, strategies, and tools for implementing software systems, particularly as part of a development team. Topics include the software development life cycle, Unified Modeling Language, software testing techniques, software security, open-source development, requirements gathering and documentation, maintenance, and basic software project management.
Prerequisite: CPSC 24500 or CPSC 23000 or CPSC 24700

CPSC 44500 - Application Frameworks (3)
This course covers modern programming languages and development frameworks. Topics include JAMStack (React), service-oriented architectures, microsevices architecture, cloud-native architectures, containers, serverless functions, map-reduce, distributed authentication, internationalization, and functional programming.
Prerequisite: CPSC 33000 and (CPSC 23000 or CPSC 24500 or CPSC 24700)

CPSC 44800 - Introduction to Malware Analysis and Reverse Engineering (3)
This course will introduce students to malware analysis and malware reverse engineering. It provides an overview of the various types of malware, how they are used, and the role malware analysis and reverse engineering plays in information security. Students will reverse engineer and analyze malicious code to gain a better understanding of how it works and more importantly, how to defend against it. This course is geared towards computer science and cybersecurity students with some knowledge of computer programming. Prior cyber security or malware analysis experience is not required.

CPSC 46000 - Programming Languages (3)
This course provides a study of the structures of selected programming languages related to ALGOL 60 and LISP. Emphasis is placed on semantics rather than syntax of the programming languages. Backus-Naur Form, recursion, parameter transmitting techniques, and an introduction to formal language theory is covered. Functional programming is also discussed. A term project is required.
Prerequisite: CPSC 24500 or CPSC 23000 or CPSC 24700

CPSC 46500 - Theory of Algorithms and Computation (3)
This course examines undecidability, computational complexity, and models of computations. Topics include languages and automata, Turing machines, reductions, time and space complexity classes, and completeness.
Prerequisite: CPSC 34000

CPSC 47000 - Artificial Intelligence (3)
Introduction to the field of artificial intelligence. This course covers the study of intelligent agent design and rational decision making. Topics include: goal-driven agents, search techniques, optimization, constraint satisfaction problems, logic, knowledge-based agents, probability and utility theory, Bayesian networks, and the basics of machine learning.
Prerequisite: CPSC 21000 and (MATH 31000 or MATH 21000)

CPSC 48000 - Client-Server Computing (3)
This course reviews computer networking protocols, including TCP/IP, and then builds upon that to describe how modern networks use such protocols to implement client-server systems. The course discusses servers, the services they provide, and the clients that request and utilize those services. Students learn to identify the range of services provided by modern networks, the fundamentals of configuring those services, and how to implement a variety of clients that access those services.
Prerequisite: CPSC 21000

CPSC 48500 - Enterprise Networking, Security and Automation (3)
In this course, students will explore in depth network architecture and infrastructure and considerations related to designing, securing operating and troubleshooting enterprise networks. Topics include wide area network (WAN) technologies and quality of service (QoS) mechanisms used for secure remote access along with the introduction of software-defined networking, virtualization, and automation concepts that support the digitalization of networks.
Prerequisite: CPSC 28100

CPSC 49000 - Compiler Construction (3)
Students a analyze formal language theory and finite state automaton, finite automaton-based lexical analysis, Wirth-Weber relations and simple precedence grammar, recursive descent parsing, symbol table organization, semantic routine and semantic models, and code generation techniques.
Prerequisite: CPSC 46000

CPSC 49200 - Software Systems Capstone Project (3)
In this course students will participate, as part of a team, in the design, implementation and testing of a medium-to-large software project. Additionally, this course will cover topics in professional ethics, intellectual properties, privacy, and professional communication.
Prerequisite: CPSC 44000 or CPSC 36000 or CPSC 44500
Attributes: Advanced Writing, Experiential Learning Gen Ed

CPSC 49300 - Computer Infrastructure Capstone Project (3)
In this course students will participate, as part of a team, in the design, implementation and testing of a medium-to-large networked computer system. Additionally, this course will cover topics in professional ethics, intellectual properties, privacy and professional communication.
Prerequisite: CPSC 28100 or CPSC 42000 or CPSC 48000
Attributes: Advanced Writing, Experiential Learning Gen Ed

CPSC 49400 - CS+X Capstone (3)
This course serves as the capstone experience for students enrolled in a CS+X program. Students will pursue a research or development project using the tools and concepts of computer Science to solve or explore problems in the student's other field of interest. Depending on the scope of the project, it may involve working as a team. Each section of the course will relate to a particular CS+X program and will be team-taught by one faculty member in Computer Science and one faculty member from the partnering discipline. The student will pursue a project with the guidance of both faculty members. The student will present their work as a scholarly paper and as a presentation to faculty and peers.

CPSC 49500 - Artificial Intelligence Capstone Project (3)
In this course students will participate, as part of a team, in the design and implementation of a project that incorporates artificial intelligence in the solution. Students will document their work in a scholarly report and present their methodology and results to peers.
Prerequisite: CPSC 40200 or CPSC 47000 or DATA 36000

CPSC 49600 - Topics in Computer Science (1-3)
This series of 400-level seminars focuses on various topics related to computer science;these seminars are usually offered on weekends.

CPSC 49700 - Research in Computer Science (3)
This course allows senior computer science students to engage in a scholarly research project in the field of computer science. Under the close guidance of their faculty advisor, students will select a research problem in a particular computer science area. They will survey the current literature in the chosen area and formulate a specific research question. Students will then attempt to address the research question using techniques from Computer Science, document their work, and present the results and conclusions. Students will write a well-researched final paper and give a presentation of their project and findings.
Prerequisite: CPSC 34000 (may be taken concurrently)

CPSC 49800 - Computer Science Internship (1-3)
Students acquire practical related experience through placement in selected settings. Students submit an internship proposal in advance for approval, maintain a daily task log and submit a five-page written summary report at the conclusion of the internship. A minimum of 210 clock hours and an interview with the on-site supervisor are required.
Program Restrictions: Must be enrolled in the following Program: Computer Science .
Class Restrictions: Must be enrolled in one of the following Classes: Junior or Senior.
Attributes: Experiential Learning Gen Ed

CPSC 49900 - Independent Study in Computer Science (1-3)
This course is designed to meet the needs of Computer Science majors wishing to study an advanced topic not found in the curriculum.
Class Restrictions: Must be enrolled in one of the following Classes: Junior or Senior.

INSY 13000 - Microcomputer Hardware Systems (3)
This course introduces the major computer hardware components, I/O devices, and peripheral devices. The course will concentrate on the newest hardware and operating system and on older technology still in use. Students will gain experience in hardware installation, maintenance, troubleshooting, and system performance optimization. Additionally, students will be introduced to operating system installation, administration and troubleshooting, and basic network concepts.

INSY 19000 - Computer Applications (3)
This course offers an overview of computer systems, including how to interact with an operating system, and teaches students how to use productivity applications such as Word, Excel, PowerPoint, and Access.

INSY 19403 - Workshop: Presentations Software (1)
This workshop is intended to give the student a working knowledge of Microsoft Office PowerPoint for Windows and Mac. The student will be introduced to the PowerPoint presentation software and will understand the software at an introductory level, be able to create and edit PowerPoint software presentations, and research and obtain web-based content and integrate it into their PowerPoint presentations.

INSY 20100 - Workshop:ISC2 Certified Cybersecurity (CC) Certification (1)
This seminar prepares the student for an entry level cybersecurity certification demonstrating that the student has the foundational knowledge, skills, and abilities to enter the cybersecurity workforce in an entry- or junior- level role. The student will validate their experience in: security principles, business continuity, disaster recovery, incident response, access control concepts, network security and security operations. This certification preparation seminar will follow the ISC2 Certification Exam and Training materials and will be taught by an ISC2 certified and trained faculty member.
Attributes: Workshop/Seminar

INSY 23000 - Legal and Ethical Issues in Computing (3)
This course provides a detailed description of various cybercrime techniques employed by attackers and organization-wide solutions available to information security personnel. Additionally, American laws and Computer and Information Security laws will be discussed. Students will also learn about ethical challenges in a technological environment as well as the social and economic implications of policy.

INSY 25100 - ECommerce (3)
This course presents the information required to understand e-commerce from an information systems perspective. Focus on all parts of electronic commerce and describe how companies use it to create new products and services, reduce the cost of existing business processes, and improve the efficiency and effectiveness of their operations. Recognize the regulations, language, monetary exchange, and ethical issues of the international environment in which electronic commerce exists. In a team environment, students will create an e-commerce application.
Prerequisite: CPSC 24700

INSY 28000 - Multimedia Design (3)
Building websites with multimedia applications such as audio and streaming video with Flash and Dreamweaver.

INSY 29000 - Management Information Systems Capstone (3)
This course presents computer-based information systems from a managerial perspective and emphasizes the vital role that information technology plays in achieving business objectives and the tools that are needed to accomplish these objectives. Students will learn technology that provides effective business foundations, the importance of technological advances and how this technology provides a business with a competitive advantage. The course will illustrate the different roles of a DBA and a Network Administrator in information systems and web development environments. In addition, students will examine the ethical issues involved in the use of these technologies. As part of the course capstone project, students will be required to work in teams to design, create, and implement a computer information system to meet customer needs, assume a leadership role, manage a budget, and oversee time-on-task operations.
Prerequisite: CPSC 21000 or CPSC 33000

INSY 30100 - ISC2 Systems Security Certified Practitioner (SSCP) (1)
This seminar prepares the student for an early-career (1 year) cybersecurity certification confirming that the student has the knowledge and skills to implement, monitor and administer an IT infrastructure using cybersecurity best practices. The student will demonstrate their experience in: security operations & administration; access controls; risk identification, monitoring & analysis; incident response & recovery; cryptology; network & communication security; and systems & application security. This certification preparation seminar will follow the ISC2 Exam and Training materials and be taught by an ISC2 certified and trained faculty member.

INSY 30500 - Cloud Computing Strategies (3)
This course provides an exposure to Applications of Cloud technologies currently utilized in business and academic places. Students will gain an understanding of both the technical architecture of a Cloud platform and the Value Proposition gained from utilizing Cloud strategies by enterprises. The course will study different Cloud Service models, Cloud Development models, and different capabilities offered by a typical Cloud ecosystem. Amazon Web Services (AWS) Cloud offering will be used as an example Cloud platform during the course.

INSY 33500 - Introduction to Information Security (3)
This course provides a broad overview of the threats to the security of information systems, the responsibilities and basic tools for information security, and the levels of training and expertise needed in organizations to reach and maintain a state of acceptable security. Students will also learn about contemporary management theories and concepts applied to information security.

INSY 33600 - Computer Forensics for Business Applications (3)
This course covers hands-on, practical and industry-used tools related to conducting a computer forensics investigation for business and organizations. Specifically, students will learn analysis of computer evidence related to business data such as emails, documents, and internet files. Students will learn how to use software tools for password recovery, decryption and analysis of registry files.

INSY 34000 - Survey of Operating Systems (3)
This course provides a detailed description and high level understanding of various operating systems to comprehend the techniques employed by attackers to compromise information systems. All current operating systems used for physical and virtual machines will be discussed in this course. The course will provide hands-on opportunity to students to install, optimize, and compromise various operating systems.

INSY 35000 - Cybersecurity Policy and Strategy (3)
This course combines the exciting and emerging fields of cybersecurity, information technology, policy and cyber warfare. Students examine the process for development of strategy based on policy by analyzing emerging threats, current security posture and available information security controls.
Attributes: Experiential Learning Gen Ed

INSY 35100 - Security Assessment and Risk Management (3)
This course provides an overview of information security strategies, procedures and policies necessary to manage and mitigate an organization's risk in information systems. Students will learn to conduct enterprise-wide information security risk assessment using qualitative and quantitative techniques. Security assessment techniques and the information security blueprint will be discussed in detail.
Attributes: Experiential Learning Gen Ed

INSY 39001 - Wksp: Quality Improvement using Six Sigma (1)
In this seminar, students will learn the basic concepts of Six Sigma and the tools and techniques necessary to implement a six sigma project successfully. This seminar will cover the different phases (DMAIC) of this methodology: define, measure, analyze, improve and control.
Attributes: College of Business Seminar, Workshop/Seminar

INSY 39002 - Wksp: Technology Innovations (1)
This seminar will discuss some of the major technological innovations in the market. class participants are expected to identify and develop a plan for launching a new technological innovation. The different phases of the innovation process will be covered including investigation, preparation incubation, illumination, verification and application.
Attributes: College of Business Seminar, Workshop/Seminar

INSY 39200 - Wksp: Project Management Tools (1)
This seminar will briefly review sound project management practices by focusing on the basics of project management Our discussions will include managing time, cost, scope, and the people side of project management We will learn step by step how to manage project resources, schedules, and scope with Microsoft Project 2019 Professional which is currently the industry standard project management tool.
Attributes: College of Business Seminar, Workshop/Seminar

INSY 39300 - Wksp: Project Management Certificate: Basic Prep (1)
This seminar is designed to cover the project management body of knowledge (PMBOK) areas tested in the Project Management Professional (PMP) certification exam administered by the Project Management Institute (PMI) The nine PMBOK areas are:Scope, Time, Cost, HR, Risk, Integration, Quality, Communication, and Procurement Management The focus is going to be on preparing students to pass the PMP certification exam.
Attributes: College of Business Seminar, Workshop/Seminar

INSY 40500 - Search Engine Optimization (3)
Search Engine Optimization is a core need for today's businesses. Integrating search and social media into the marketing plan boosts visibility and relevance. This class will review guidelines and techniques to plan and executive a comprehensive SEO strategy.

INSY 41500 - Web Design Applications (3)
This course teaches students how to design, create, maintain, and manage a web site. Students will use a number of tools and programming languages to build the site including: HTML, XML, JavaScript, FrontPage, and Dreamweaver.

INSY 41600 - Web Site Project (3)
Project based course curriculum to give students a practical exposure to the processes involved in design of a website. A fully functional intranet or Internet website will be developed. Students will collect requirements by interviewing users, analyze data for defining end-user requirements, design, test and implement the website. This course will stress user and task analysis for interface design.
Prerequisite: INSY 28000 (may be taken concurrently) and INSY 30500 (may be taken concurrently) and INSY 41500 (may be taken concurrently)

INSY 43000 - Business Data Networking (3)
Students examine principles of telecommunications and networking as applied in a business environment; communication parameters, protocol, and hardware, including modems, multiplexors, common carriers and microwave and satellite systems; and design and implementation of distributed data processing and network systems.

INSY 45000 - Enterprise Security (3)
This course provides a broad overview of security in an enterprise. Students will learn about the threats to the security of information systems, what makes an organization's resources secure, basic technologies for information security, and the levels of training and expertise needed in organizations to reach and maintain a state of acceptable security. This course covers the technical and managerial aspects of securing your enterprise resources.

INSY 45400 - Mac Forensics (3)
This course presents hands-on methods to conduct a forensics investigation of a Macintosh computer. Students will learn how to analyze and recover digital evidence from files, documents, pictures, video and emails on a Mac. Recovery of User log on passwords and encrypted files will also be covered in this course.

INSY 46000 - Cybercrime Prevention Tools (3)
This course presents a hands-on and practical approach for securing a business' digital assets (data, intellectual property, etc.) by exploring tools that are commonly used by hackers to attack businesses and their digital infrastructure. Students will learn how to manage a business' defensive controls by analyzing offensive tools that are used by cybercriminals. Policies and effective management of cybersecurity are also discussed in this course.
Prerequisite: CPSC 28100

INSY 47000 - Special Topics (3)
Special Topics courses are offered periodically, both in the fall and spring, to upper-division students who wish to expand their knowledge on a particular subject. Such courses are often presented in an independent study format and require significant student participation. These courses are designed to encourage a greater understanding of topics covered in earlier courses so as to prepare Pre-Professional students for future challenges.

INSY 47200 - MIS Internship (3)
This internship is designed to provide students with controlled on-the-job experience with participating businesses, industries and governmental organizations. Students may be eligible for an internship with jobs they currently have. A limited number of internships/jobs are also available through the internship coordinator.
Class Restrictions: Must be enrolled in one of the following Classes: Junior or Senior.

INSY 47300 - International MIS Internship (3)
This internship is designed to provide students with controlled on-the-job experience with participating businesses, industries and governmental organizations. Students may be eligible for an internship with their current position if it has an international emphasis and is approved by the Internship Coordinator. A limited number of internships/jobs are also available through the internship coordinator. MIS major, Junior or Senior status, 2.75 GPA or above and consent of internship coordinator and the director of the International Business program.
Class Restrictions: Must be enrolled in one of the following Classes: Junior or Senior.

INSY 48000 - Systems Implementation (3)
This is a hands-on continuation and wrap-up of the MIS project, and an introduction to the last two phases in the system development lifecycle: 1) implementation, and 2) operations, support, and security. Students will complete their projects and e-portfolios by integrating, testing, and documenting all system components developed in INSY 41500 and INSY 43000. Students will also create comprehensive user training plans and materials, as well as documentation for system operation and support. Must be taken in final semester.
Prerequisite: INSY 41500 (may be taken concurrently) and INSY 43000 (may be taken concurrently)

INSY 48100 - Security + Certification (3)
This course will help students to analyze the major concepts learned in other courses of the program. The course is designed to help students prepare for Comptia's Security + Certification Exam. This course is designed for students who are nearing the completion of the designated coursework for the B.S. in Information Security and Risk Management Program.
Prerequisite: INSY 23000 (may be taken concurrently) and INSY 35100 (may be taken concurrently) and INSY 43000 (may be taken concurrently)

INSY 48800 - Information Security Project (3)
Students are required to conduct a capstone project suited to their individual needs. The capstone project provides an opportunity for students to demonstrate what they have learned from the Information Security degree program.

INSY 49200 - Independent Study/IS (3)
Students undertake independent reading and research in information systems.
Class Restrictions: Must be in the following Class: Senior.

INSY 49700 - Systems Methodology and Design (3)
This course is a hands-on introduction to the first three phases of the system development lifecycle: 1) planning/initiation, 2) analysis, and 3) design. Students will learn how to analyze a business case, conduct a preliminary investigation, model business requirements using various tools, select a development strategy, and create a requirements document. Students will use the logical models and documentation created in this course as blueprints for the system development in other courses.

INSY 49800 - Sec Assess and Rsk Mgmt (3)
This course provides an overview of information security strategies, procedures and policies necessary to manage and mitigate an organization's risk in information systems. Students will learn to conduct enterprise-wide information security risk assessment using qualitative and quantitative techniques. Security assessment techniques and the information security blueprint will be discussed in detail.
Prerequisite: INSY 23000 (may be taken concurrently) and INSY 33500 (may be taken concurrently) and INSY 43000 (may be taken concurrently)