
An in-depth introduction to the Object-Oriented Programming (OOP) paradigm, including encapsulation, inheritance, and polymorphism. Focuses on designing, implementing, and using objects. Includes an introduction to Graphical User Interface (GUI) design and programming.

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[COSC 110](#)

Introduces the fundamental theory and concepts for cybersecurity including security principles, ethical and professional issues in cybersecurity, attack strategies, risk management, access control, integrity management, cryptography basics, security protocols, and strategies for defending computers and networks. Includes practical hands-on learning activities to enhance understanding and to apply the theory and concepts.

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COSC 110

; MATH 121

or MATH 125

; and MATH 214

or MATH 216

or MATH 217

; or equivalents

Covers data communications, computer network architectures, functions of various network layers, communication protocols, internetworking, emerging high-speed networks.

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[COSC 310](#)

or instructor permission

An introduction to th p

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[COSC 300](#)

, [COSC 310](#)

Introduces the underlying working principles of electronic computers. Discusses the organization and architecture of computer components. Expounds on details of memory hierarchy, I/O organization, computer arithmetic, processor and control unit design, instruction set architecture, instruction-level parallelism, and the ways functional components interact together.

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[COSC 310](#)

or equivalent programming course, junior standing or instructor permission

Takes a detailed, hands-on approach to the use of computer technology in investigating computer crime. From network security breaches to child pornography, the common bridge is the demonstration that particular electronic media contains incriminating evidence. Using modern forensic tools and techniques, students learn how to conduct a structured investigative process to determine exactly what happened and who was responsible, and to perform this investigation in such a way that the results are useful in criminal proceedings. Real-world case studies are used to provide a better understanding of security issues. Unique forensics issues associated with various operating systems including Linux/Windows operating systems and associated applications are covered.

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Grade of "C" or better in [COSC 300](#)

and [COSC 310](#)

or instructor permission

An in-depth introduction to a systems programming, system programming language(s) and application of those language(s) to systems-level problems. The focus is on programming constructs that are closely aligned with the architecture of a digital computer including those providing portability between platforms, dynamic allocation and management of virtual memory, complex in-memory data structures, reading/writing binary data using sequential and random access, pointer arithmetic/manipulation, and interaction between threads/processes.

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Junior standing and department permission

Provides on-the-job experience in computer science with private and government employers. Requirements include periodic consultation with a faculty member and employer evaluations. Requires completion of related academic work in the form of progress reports, final report, and oral presentation. Internship is either 6 credit hours over a minimum of 12 weeks or 12 credit hours over a minimum of 23 weeks. The 6cr option may be taken twice. (Writing-intensive course. As such, internship requires completion of designated writing-intensive components.)