

# COMPUTER AND INFORMATION SYSTEMS SECURITY (CISS)

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## **CISS 609. Advanced Computational Intelligence. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Enrollment is restricted to students with an undergraduate course in artificial intelligence, or equivalent background with permission of instructor. Exploration of issues related to application of computational intelligence techniques to system security, particularly in the detection of anomalous system behavior. Of particular interest are issues associated with the automated detection of anomalies caused by authorized users through intended malicious behavior or through accidental misuse, and issues associated with automated user authentication.

## **CISS 616. Data Warehousing. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 610. Covers important concepts and techniques in the design and implementation of a data warehouse. Topics include the data warehouse architecture, the logical and physical design issues in the data warehousing development process, technical factors (i.e., hardware, client/server technology, data warehousing and DBMS technologies) and implementation considerations (i.e., data extraction, clean-up and transformation tools). Introduces online analytical processing and data mining. Crosslisted as: INFO 616.

## **CISS 618. Database and Application Security. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Theory and practice of database and software security focusing in particular on some common database software security risks and on the identification of potential threats and vulnerabilities. Crosslisted as: CMSC 618.

## **CISS 622. Network and Operating Systems Security. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Prerequisite: CISS 624. Studies the principles of network security and secure operating systems. Included are topics relating to the use of intrusion detection, intrusion prevention and other related tools. Crosslisted as: CMSC 622.

## **CISS 624. Applied Cryptography. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Provides a comprehensive survey of modern cryptography. Included are techniques of enciphering and deciphering messages using cryptographic algorithms, block ciphers and block cipher modes, hash functions and message authentication codes, public key cryptography and digital signatures, and steganography. Crosslisted as: CMSC 620.

## **CISS 634. Ethical, Social and Legal Issues in Computer and Information Systems Security. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Analyzing socio-political and ethical issues surrounding computer and information systems security. Topics include privacy laws, identity theft, information collection and retention policies, and enforcement.

## **CISS 644. Principles of Computer and Information Systems Security. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 640 or INFO 661. Explores issues related to protecting information resources of a firm. Various tools and techniques useful for assessing CISS security concerns in organizations are introduced. Principles and models for CISS security and security management are presented and selected computer and CISS security topics are introduced. Material is presented and discussed from a management frame of reference. Crosslisted as: INFO 644.

## **CISS 646. Computer and Information Systems Access Control. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Detailed discussion of access control, including administration, identification and authentication techniques, methodologies and implementations, methods of attack, monitoring, and penetration testing.

## **CISS 654. Business Continuity and Disaster Recovery Planning. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Fundamentals of business continuity and disaster recovery planning. Includes risk assessment, physical facility protection, data recovery planning, strategies for network backup, desktop recovery, emergency decision making, and maintenance and testing of the plan and its components.

## **CISS 693. Practice of Computer and Information Systems Security. 3 Hours.**

Semester course; 3 lecture hours. 3 credits. Students will undertake practical research projects. Written reports of the investigations are required. This course is intended to be taken at the end of the program.

## **CISS 697. Guided Study. 1-3 Hours.**

Semester course; variable hours. 1-3 credits. Intended for graduate students in the Computer and Information Systems Security program wishing to do research on problems in computer and information systems security. Approval of proposed work is required by the director of graduate programs of the Department of Information Systems or of the Department of Computer Science no later than the 10th week of the prior semester. Each student will work with an appropriate faculty member on an approved research proposal. The student will submit a written report on the research conducted as the final product for the course. This course is intended to be taken near the end of the student's degree program.