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NATIONAL UNIVERSITY

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Earn a Master of Science in Cyber Security and Information Assurance

WHO SHOULD ENROLL?

You will benefit from this program if you:

- Seek exciting opportunities on the front lines of cyber security
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- Wish to teach cyber security at the college level

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MASTER OF SCIENCE IN CYBER SECURITY AND INFORMATION ASSURANCE HELP PROTECT THE WORLD'S COMPUTING AND INFORMATION SYSTEMS INFRASTRUCTURE

From cyber-terrorism and identity theft to simple operator error, the computer networks we rely on are at risk. It takes a specially trained expert to ensure the security, confidentiality, integrity, authenticity, availability, and utility of today's computing infrastructure. National University's Master of Science in Cyber Security and Information Assurance will give you the knowledge to identify, evaluate, and mitigate threats of many kinds. You can specialize in health information assurance, forensics, information assurance and security, cryptography, or security software engineering.

The program has a required core and a required specialization, which can be selected from among these alternatives:

- **Specialization in Health Information Assurance**, safeguarding the privacy of healthcare records;
- **Specialization in Computer Forensics**, identifying and characterizing event origins and chronologies;
- **Specialization in Information Assurance and Security**, learning how to design and implement disaster recovery and business continuity plans;
- **Specialization in Cryptography Engineering**, using encoding technologies to defend against threats;
- **Specialization in Security Software Engineering**, developing the next generation of security applications.

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■ MASTER OF SCIENCE IN CYBER SECURITY AND INFORMATION ASSURANCE

Faculty Advisor: Ronald Gonzales; (858) 309-3435; rgonzales@nu.edu

The Master of Science in Cyber Security and Information Assurance is a professional degree for those who endeavor through technical and managerial measures to ensure the security, confidentiality, integrity, authenticity, control, availability and utility of the world's computing and information systems infrastructure. The program has a required core and a required specialization which can be selected from some alternatives. The core is designed to provide a means of supporting the variety of backgrounds (both education and work experience) that those who wish to study this area may bring to the program. The core is also a statement of the knowledge domain that is common to most efforts in this area. The specializations provide for study in particular domains of knowledge within the field - which are also tied to communities of effort within the field.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Evaluate the interaction and relative impact of human factors, processes and technology in CSIA infrastructures.
- Devise a mitigation plan against both external and internal vulnerabilities to enterprise computer infrastructures and sensitive digital assets.
- Support multiple risk assessment strategies and processes to maximize effectiveness and minimize costs of CSIA in a high assurance information system.
- Integrate systems-level-infrastructure thinking into CSIA problem identification and resolution, and effectively communicate the solution.
- Differentiate among the models, architectures, challenges and global legal constraints of secure electronic commerce technologies used to ensure transmission, processing and storage of sensitive information.
- Prescribe how to provide message privacy, integrity, authentication and non-repudiation using network security practices and infrastructure hardening techniques.
- Evaluate and contrast the impact of diverse ethical perspectives, cultural customs and organizational political dynamics on CSIA.
- Assess, from both a national and global perspective, the relative demands of Internet-openness, legislation and law-enforcement, and individual right-to-privacy.
- Forecast the impact of continually advancing technology and national and international cyber-legislation on CSIA.
- Conduct in-depth research into a specific CSIA topic, including finding and integrating relevant research results of others.
- Generate critical thinking in analysis and synthesis of enterprise and global CSIA issues through effective individual and team graduate-level written and oral assignments.
- Produce a successful project using project development skills.

Degree Requirements

To obtain the Master of Science in Cyber Security and Information Assurance, students must complete 54 graduate units. A total of 13.5 quarter units of graduate credit may be granted for equivalent graduate work completed at another regionally accredited institution, as it applies to this degree, and provided the units were not used in earning another advanced degree. All students must complete the 8 core requirements and choose an Area of Specialization. Please refer to the graduate admissions requirements for specific information regarding application and evaluation.

Core Requirements

(8 courses, 36 quarter units)

CYB 600	Cyber Security Technology
CYB 601	Cyber Sec. Toolkit Utilization <i>Prerequisite: CYB 600 with a minimum grade of B</i>
CYB 602	Threat Mitigation Policy/Audit <i>Prerequisite: CYB 601</i>

CYB 603	Cyber Security Ethical Issues <i>Prerequisite: CYB 602</i>
CYB 604	Wireless and Mobile Security <i>Prerequisite: CYB 603</i>
CYB 605	Information Assurance Part I <i>Prerequisite: CYB 604</i>
CYB 606	Net Defense & Countermeasures <i>Prerequisite: CYB 605</i>
CYB 699	Cyber Policy Project <i>Prerequisite: CYB 606 and completion of one specialization area</i>

Requirements for the Specializations (4 courses; 18 quarter units)
All students must choose one Specialization defined below:

Specialization in Health Information Assurance

The specialization in Health Information Assurance provides study in the professional domain of Cyber Security and Information Assurance that seeks to apply the concepts and practices of this field to a specific industry domain - Health. This domain has sensitive information on individuals and depends on this information for its practice so security in this industry is particularly important.

Program Requirements (4 courses; 18 quarter units)

CYB 611	Cyber Sec. Mgmt & Cryptography <i>Prerequisite: CYB 606</i>
CYB 613	Information Assurance Part II <i>Prerequisite: CYB 605</i>
CYB 614	Privacy of Information <i>Prerequisite: CYB 611</i>
CYB 615	Info Assurance of Med. Records <i>Prerequisite: CYB 614</i>

Specialization in Computer Forensics

The specialization in Computer Forensics provides study in the professional domain of Cyber Security and Information Assurance that seeks to build and present facts about computer and network usage generally for the purposes of explaining what has happened and holding those responsible to account. This requires particular attention to servers as well as clients, and particularly data servers.

Program Requirements (4 courses; 18 quarter units)

CYB 611	Cyber Sec. Mgmt & Cryptography <i>Prerequisite: CYB 606</i>
CYB 621	Computer Forensics Principles <i>Prerequisite: CYB 611</i>
CYB 622	Computer Forensics Technology <i>Prerequisite: CYB 621</i>
CYB 623	SQL Serv. Forensics Principles <i>Prerequisite: CYB 622</i>

Specialization in Information Assurance and Security Policy

The specialization in Information Assurance and Security Policy provides study in the professional domain of Cyber Security and Information Assurance that focuses on the organizational and informational portion of the field. This arena particularly involves larger organizations, often in government, that have codified standards, policies and practices for this field.

Program Requirements (4 courses; 18 quarter units)

CYB 611	Cyber Sec. Mgmt & Cryptography <i>Prerequisite: CYB 606</i>
CYB 612	Disaster Rec./Bus. Continuity <i>Prerequisite: CYB 611</i>
CYB 613	Information Assurance Part II <i>Prerequisite: CYB 605</i>
CYB 616	Info Assurance INFOSEC Posture <i>Prerequisite: CYB 613</i>

📄 Entire program can be completed online.

For more complete information, see the National University General Catalog 75, published 8/29/11