

MS CSIS Graduate Student Handbook



June 2009



*Dr. Ron Vetter
MS CSIS Director*

Welcome new and returning CSIS Graduate Students! We are looking forward to having you in the Computer Science and Information Systems Graduate Program. We hope the information in this handbook will help you prepare for your studies and answer questions regarding the CSIS Graduate Program.

If you are new to the program, please stop by the Graduate Programs Office (CIS 1020) to introduce yourself and find out who your academic advisor will be when you arrive on campus. All new students need to attend the MS CSIS Graduate Student Orientation Meeting scheduled for August 14, 2009 from 12:30-6:00pm. Specific information on the orientation meeting will be sent to each of you shortly.

Please refer to the information in this handbook to help you understand the mechanics of the MS CSIS program. The CSIS Handbook will be an important document for your tenure as a student here, please keep a copy for your reference (an electronic copy is also available online at the program web site at <http://www.uncw.edu/mcscsis>).

The MS CSIS program is a unique degree program in that it is offered as a joint program between the College of Arts and Sciences (CAS) and the Cameron School of Business (CSB). Thus, you will be able to take courses from the sciences, technology, and business. The MS CSIS program is one of only a few graduate programs in the country that is jointly offered between a college and school within a single institution. We believe this interdisciplinary approach will serve you well as you develop the workplace skills so highly valued by employers.

As always, if you have questions or need information, please stop in my office (CIS 2044). I am looking forward to getting to know you and trust that your stay here will be a rewarding one.

Sincerely,

A handwritten signature in black ink that reads "Ron Vetter". The signature is written in a cursive, slightly slanted style.

*Ron Vetter, PhD
MS CSIS Director*

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I. Program Overview

The Master of Science program in Computer Science and Information Systems (MS CSIS) is a combined effort by the Department of Computer Science in the College of Arts and Sciences and the Department of Information Systems and Operations Management in the Cameron School of Business. This interdisciplinary graduate program primarily targets students who majored in computer science or information systems and computer professionals with equivalent academic preparation. A secondary audience for the MS CSIS program includes students whose background is in related areas such as business, mathematics, or electrical engineering, or working professionals seeking to migrate to the CSIS arena.

The MS CSIS program is part of the Professional Science Master's (PSM) initiative (<http://www.sciencemasters.com>). PSM programs are innovative graduate degree programs designed to allow students to pursue advanced training in a science or mathematics, while simultaneously developing workplace skills highly valued by employers.

The interdisciplinary nature of this program provides a unique balance of advanced scientific knowledge, more commonly found in the computer science field, and the development of systems and solutions, applied in a business environment, more commonly considered the focus of the information systems field. This unique blend will provide a foundation for information technology (IT) professionals to have a broader perspective of the rapidly expanding and evolving science of technology and how it can be managed and leveraged to support and further commerce and trade activities. Only a select group of other graduate schools currently offer this unique mix of education and training.

The program requires 36 semester hours of graduate-level study that prepares the student to take on leadership roles in the development and implementation of computer and information systems. It includes six required core courses (18 hours) providing a mix of theoretical underpinning, technical skills, and information technology perspectives. Elective courses (12-15 hours) provide the opportunity for additional study in a variety of areas to be determined by the student and his/her academic advisor. Students choose elective courses based on their own interests (e.g., artificial intelligence, web development, information management, network security, etc.) Many students take a directed independent study course which involves individual investigation under faculty supervision beyond what is offered in existing courses. An integrative project (3 to 6 hours), or a thesis (6 hours), serves as the capstone experience.

Finally, the MS CSIS program encourages student internships with local and regional businesses. Most of our students complete an internship before graduation. Recent internship sites include GE-Hitachi Nuclear Energy, Corning, Wave Transit, VisionAir, PPD Inc., Construction Imaging Systems, DAK Americas, and UNCW's Information Technology Systems Division.

II. Facilities

The MS CSIS Graduate Program is housed in a new, state-of-the-art computer information systems classroom building that was designed to enable and foster interdisciplinary collaboration in information sciences and other technology areas across the university.

Highlights of the new facility include:

- An interior that reflects technology is student-centered, and teamwork-oriented
- Opportunity maximized for collaboration between academic departments
- Space for industry outreach and research collaboration
- Multidisciplinary, hands-on laboratories equipped with the latest information technologies
- Student "sandboxes" to facilitate team-based, collaborative learning
- High-speed wired and wireless network connectivity



III. Admission Requirements

- An application for graduate admission.
- Official transcripts of all college work (undergraduate and graduate).
- Certificates of training in computer science/information systems if applicable.
- Official scores on the Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE). Scores more than five years old will not be accepted.
- Three recommendations from individuals in professionally relevant fields.
- Additional materials may be required by the UNCW Graduate School (e.g., TOEFL or IELTS scores for international students).
- Resume and letter of interest (i.e., why do you want to pursue the MS CSIS degree?)

Applications can be completed and submitted online at:

http://www.uncw.edu/grad_info/application-download.htm

Supplemental materials should be submitted to:

Graduate School
University of North Carolina Wilmington
601 South College Road
Wilmington, NC 28403-5955

Application deadline is May 1st for fall and November 1st for spring.

IV. Financial Support

A variety of funds are available to MS CSIS students for financial support. Students are encouraged to apply for support during the application process. Granting of support is based on merit and financial need. You should also complete the FAFSA form that is available at <http://www.uncw.edu/finaid/forms.html>.

The University of North Carolina Wilmington provides three ways primarily for students to gain financial support while in the graduate program.

1. **Graduate Assistantships:** A limited number of graduate assistantships are available. Students typically work either 20 hours per week (a full-time assistantship) or 10 hours per week (a half-time assistantship). Graduate assistantships currently pay \$10,000 and \$5,000 per academic year respectively. Assistantship interest should be indicated on the application form. When the application package is reviewed, a faculty committee will also decide on assistantship awards. Students who are accepted into the MS CSIS program and offered an award will have several weeks to either accept or decline the award. Students who are awarded assistantships are notified of their work assignments prior to the beginning of the fall and spring semesters by the MS CSIS Graduate Coordinator.
2. **Tuition Remissions:** Limited out-of-state tuition remission funds are available. Out-of-state tuition remission reduces tuition and fees to in-state rates for fall and spring semesters. Students awarded an out-of-state tuition remission are expected to begin the process to claim in-state residency for their second year in the program. Consult the Graduate Programs Office for clarification.
3. **Scholarships:** A variety of scholarships based on need and merit are also available.
 - a) A small number of direct scholarships are available from both the Department of Computer Science and the Cameron School of Business. The amounts vary annually and allocation is based on student credit hours and merit. Applications are requested early in the spring semester. Contact the MS CSIS Graduate Coordinator for more information.
 - b) Scholarship opportunities offered by the UNCW Graduate School can be found at: http://www.uncw.edu/grad_info/UniversityofNorthCarolinaWilmington-Scholarships.htm

V. Degree Requirements

Total required hours for graduation: 36.

Grades required: A student must have no less than a 3.0 GPA on all graduate-level courses. Grades of A, B, C, F, S, U and W are permanent grades and can be changed only by the instructor with the approval of the appropriate dean in cases of arithmetical or clerical error or as a result of protest of grade. Plus (+) or minus (-) grades may be awarded at the discretion of the faculty.

Transfer of grades: Up to 6 hours of graduate-level credit can be transferred from another accredited institution. Grades earned on transfer work must be equivalent to a "B" or better, and courses must be acceptable to the student's advisory committee.

Prerequisites: Applicants to the MS CSIS must have a strong overall academic record and have successfully completed the undergraduate level prerequisites in computer science and information systems courses or their equivalent: two programming courses and a course in each of data structures, database, software engineering or analysis and design, data communications or networking, accounting, marketing, finance, and management.

There are three ways to satisfy prerequisite courses:

1. Register and successfully complete the required undergraduate course at UNCW or another accredited institution, whether a community college or four-year program (don't forget to consider courses offered through Web-based offerings). Courses taken for undergraduate credit do not compute in the graduate GPA. However, a graduate student who is required to take undergraduate courses, whether as a prerequisite for admission or for other reasons, or who takes such courses in the field of his or her graduate major, **must make grades of at least "B"** on all such courses in order to maintain eligibility as a graduate student.
2. Students may choose to "pass out" of a required undergraduate course by taking the standardized College-Level Examination Program (CLEP) exam. CLEP exams are currently available for marketing, management, and accounting.
3. Professional experience may be accepted in lieu of the prerequisite coursework. Professional experience and/or technical certifications will be evaluated on a case-by-case basis for any prerequisite substitution.

To request that professional experience be accepted in lieu of an undergraduate prerequisite, please submit a formal written request via the "Request for Waiver of Undergraduate Prerequisite Form" to the MS CSIS Graduate Coordinator. The written request should include:

- A resume that contains relevant work experience and a description of the tasks assigned and projects completed.
- Using a recent syllabus for the relevant undergraduate course, perform a topic-by-topic comparison and describe how related professional experience fulfills the subject matter.

The following courses are the UNCW equivalents for the prerequisites listed above. You will need to meet with your advisor to determine if you need any of these prerequisites.

Programming:

CSC 121 - Introduction to Computer Science I (Introduction to Java Programming)
MIS 216 - Introduction to Business Application Programming (Visual Basic.Net)

Advanced Programming: (select one)

CSC 221 - Introduction to Computer Science II (Advanced Java Programming)
MIS 316 - Computer Applications and Concepts (Visual Basic.Net)

Data Structures:

CSC 332 - Data Structures

Database: (select one)

CSC 455 - Database Management Systems
MIS 315 - Management of Databases

Software Engineering or Systems Analysis: (select CSC 450 or (MIS 411 & 413))

CSC 450 - Software Engineering
MIS 411 - Software Analysis & MIS 413 Software Design

Communications: (select one)

CSC 344 - Computer Networks
MIS 323 - Business Telecommunications

Business Foundation Courses:

ACG 201 - Financial Accounting
MKT 340 - Principles of Marketing
MGT 350 - Principles of Management
FIN 335 - Financial Management

Required Core Courses:

CSC 532 - Design and Analysis of Algorithms I
MIS 534 - Information Security Management
CSC 544 - Network Programming
CSC 550 - Software Engineering
MIS 555 - Database Management Systems
MIS 565 - Analysis, Modeling, and Design

Course Descriptions:

CSC 500. Concepts in Computer Science (6) Prerequisite: consent of instructor. An accelerated introduction to fundamental concepts in computer science. Topics include object-oriented programming; data structures; program control structures; introduction to algorithm design and analysis and software engineering concepts.

CSC 515. (415) Artificial Intelligence (3) Prerequisite: CSC 332 or equivalent. Introduction to key concepts and applications of artificial intelligence. Knowledge representation; state space

searching; heuristic search; expert systems. Biologically – inspired computing techniques such as neural networks, fuzzy logic and genetic algorithms. Implementation of concepts and techniques.

CSC 516. Introduction to Biologically Inspired Computing (3) Prerequisite: CSC 415, CSC 515 or consent of instructor. Theory and application of computing paradigms that operate analogously to biological systems. Topics such as machine learning, artificial neural networks, genetic algorithms, fuzzy systems, swarm intelligent systems, and hybrids of these systems. Attention will be given to problem representation and emerging models of computation.

CSC 517. Symbolic Artificial Intelligence (3) Exploration of key concepts and applications of symbolic artificial intelligence such as knowledge representation, search strategies, game theory, heuristic search, knowledge engineering, expert systems, reasoning, learning, natural language processing. Implementation of concepts and techniques.

CSC 520. Digital Image Processing (3) Prerequisite: CSC 340 or equivalent. This course introduces the methods and theory of digital image processing beginning with image representations, storage formats, and data structures. Students develop tools for reading image data, determining image properties and performing common point, local, and global transforms. The course also covers data compression, digital watermarking, morphological processing, and steganography.

CSC 521. (421) Computer Gaming (3) Prerequisites: ART/CSC/FST 320, CSC 340, and CSC 370. Topics related to the design and implementation of computer games are covered, including design, modeling, and animation of meshes for game characters and environments, scene and object representation, graphics pipeline, collision detections, picking, graphics optimization, and other issues such as basic game physics and artificial intelligence for games. Animations are created using advanced 3D software and code modifications to a game engine will be made.

CSC 522. Performance Evaluation of Computer Systems (3) Prerequisite: STT 215, MAT 162, and CSC 221. Modeling and evaluation of computer systems. Probability spaces and probability calculus, random variables and their distribution functions, the calculus of expectations. Markov chains; birth-death processes; Poisson processes; single queue; network of queues and their simulation. System simulation for performance prediction. Modeling concurrent processes and the resources they share.

CSC 525. (425) (MAT 525/425) Numerical Analysis (3) Prerequisite: Undergraduate linear algebra, differential equations, and elementary numerical methods. Introduction to the theoretical foundations of numerical algorithms. Solution of linear systems by direct methods; least squares, minimax, and spline approximation; polynomial interpolation; numerical integration and differentiation; solution of nonlinear equations; initial value problems in ordinary differential equations; error analysis. Certain algorithms are selected for programming.

CSC 532. Design and Analysis of Algorithms I (3) Prerequisite: CSC 332 or equivalent. Theory of the design of efficient computer algorithms. Algorithms for sorting, searching, pattern matching, and polynomial arithmetic, cryptography, as well as study of greedy algorithms, graph algorithms.

CSC 533. Design and Analysis of Algorithms II (3) Prerequisite: CSC 532. Theory of the design of efficient computer algorithms. Amortized analysis, sorting networks, matrix operations. Polynomials and FFT, number-theoretic algorithms, and computational geometry.

CSC 537 (437) Parallel Computing (3) Prerequisite: CSC 340. Implementation of scientific algorithms in parallel. Use of shared-memory, distributed-memory, and multicore technologies. Study of techniques for improved performance and issues related to speedup and slowdown.

CSC 540. Advanced Scientific Computing (3) Prerequisite: CSC 340 or equivalent. This course introduces the underlying theory, design, implementation, application, and analysis of numerical algorithms fundamental to scientific computation. Topics include Fourier and wavelet transforms spectral analysis, energy distributions, convolution, correlation, windowed transforms, and filtering. Other topics include constrained nonlinear and combinatorial optimization, curve fitting, data mining, clustering, and fuzzy logic.

CSC 544. Network Programming (3) Prerequisite: CSC 344 or MIS 416 or equivalent. Implementation of network and distributed programming concepts using C, C++, or JAVA on Unix or Windows platforms. Networking programming interfaces, security, management, design and applications. Hands on experience with network components. Students plan, configure, install, diagnose, performance tune, operate and manage state-of-the-art computer networks, internetworking devices and protocols.

CSC 546 (446) Grid Computing (3) Prerequisite: CSC 344 or CSC 332. Grid computing software components, standards, web services, security mechanisms, schedules and resources brokers, workflow editors, grid portals, grid computing applications.

CSC 550. Software Engineering (3) Prerequisite: CSC 450 or equivalent. An introduction to software life cycle models; size estimation; cost and schedule estimation; project management; risk management; formal technical reviews; analysis, design, coding and testing methods; configuration management and change control; and software reliability estimation. Emphasis on large development projects. Individual project following good software engineering practices required during the semester.

CSC 553. Object-Oriented Analysis and Design (3) Prerequisite: CSC 332 or equivalent. An exploration of object-oriented design and software construction. Topics in object-oriented analysis and programming: classes, methods, messages, inheritance, static and dynamic binding, polymorphism, templates, design methodologies, class libraries, and software reuse. Substantial object-oriented software project required.

CSC 564. (MIS 564) Computer and Network Security (3) Prerequisite: CSC 544. An in-depth coverage of network security technologies, network design implications, and security planning for an organization's computer network. Procedures for the identification, preservation and extraction of electronic evidence. Auditing and investigation of network and host intrusions. Forensic tools and resources for systems administrators and information system security officers.

CSC 570. Real-Time Graphics (3) Prerequisites: CSC 370 or equivalent. Theory and implementation of high-performance computer graphics. Applications from virtual reality, training,

and entertainment. Graphics hardware. High-fidelity graphics. Introduction to computational geometry.

CSC 572. Scientific Visualization (3) Prerequisite: CSC 332 or equivalent, senior or graduate standing in a science program, or permission of instructor. The application of computer graphics techniques to scientific, medical, engineering, and business data. Understanding the requirements placed on data display by physics, physiology, and psychology.

CSC 577. Pattern Recognition (3) Prerequisite: CSC 340 or equivalent. This course introduces pattern recognition methods and theory using conventional statistical approaches, neural networks, fuzzy logic, support vectors, and linear principal component analysis (PCA). The course also presents methods for non-linear PCA, clustering, and feature extraction. Students implement algorithms; apply methods to selected problems, and to document findings.

CSC 587. (MIS 587) Systems Simulation (3) Prerequisite: QMM 280, STT 215, or equivalent. Study of the techniques and applications of computer simulation of systems. Students will learn to plan simulation studies, program them in a simulation language, perform the study, and analyze the results with statistical rigor. Also covered are random number generation, input distribution selection, generating random variables, and variance reduction techniques.

CSC 591. (MIS 591) Directed Independent Study (1-6) Prerequisite: Permission of instructor. Involves investigation under faculty supervision beyond what is offered in existing courses.

CSC 592. (MIS 592) Topics in Computing (1-6) Prerequisite: Permission of instructor. Topics in computing of current interest not covered in existing courses.

CSC 594. (MIS 594) Research Project (1-6) Prerequisite: Permission of instructor. Focused study of a research topic in the practical application of computer science or information systems under the guidance of a faculty member. Topics are selected by the student with faculty and graduate coordinator approval. Written analysis and oral presentation of the project is required.

CSC 595. (MIS 595) Research Seminar (1-6) Prerequisite: Permission of instructor. Research and discussion of selected topics in computer science or information systems. Oral presentation required.

CSC 598. (MIS 598) Internship (1-6) Prerequisite: Overall GPA of at least 3.0. Academic training and practical experience through work in a private company or public agency. Faculty supervision and evaluation of all study and on-site activity. Students must secure permission of the graduate coordinator.

CSC 599. (MIS 599) Thesis (1-6)

MIS 513. Information Analysis and Management (3) Strategic and tactical issues of information systems and technology are addressed as they support and lead the operations of the organization. Models of the organization and its operations are designed. Multifaceted evaluations of organizational information systems are performed.

MIS 532. Network Services Administration (3) Prerequisite: CSC 344 or MIS 323 or equivalent. The study of fundamental network services in organizations. Hands on configuration and administration of network-based services. Special emphasis is placed on security and organizational policy with regard to these services.

MIS 534. Information Security Management (3) Prerequisite: CSC 344 or MIS 323; ACG 201; MGT 350; or equivalent. An examination of the principles and processes of security management in networked computerbased systems, including hands-on implementation in a laboratory environment. Risk assessment, planning, protection, and incident and disaster response measures, as well as emerging privacy, legal and ethical issues will be covered in detail.

MIS 555. Database Management Systems (3) Prerequisite: CSC 455 or MIS 315; MGT 350; MKT 340 or equivalent. Study of the design and administration of database systems in a business environment. Topics include relational modeling, normalization, data integrity, data standards, indexing, performance monitoring and tuning, and general administration of an enterprise level relational database management system.

MIS 560. Data Mining (3) Prerequisite: QMM 280, STT 215, or equivalent. This course covers the major techniques of data mining and their application to business. Data mining is an interdisciplinary, computer-based process for finding patterns within data. This course provides an introduction and a hands-on experience with data mining software.

MIS 564. (CSC 564) Computer and Network Security (3) Prerequisite: CSC 544. An in-depth coverage of network security technologies, network design implications, and security planning for an organization's computer network. Procedures for the identification, preservation and extraction of electronic evidence. Auditing and investigation of network and host intrusions. Forensic tools and resources for systems administrators and information system security officers.

MIS 565. Analysis, Modeling and Design (3) Prerequisite: CSC 450 or MIS 411 and MIS 413; ACG 201; FIN 335 or equivalent. Analysis and modeling of information systems. Topics include project estimation and management, logical design methodologies and techniques, make or buy decisions, risk analysis, implementation issues, and training.

MIS 567. Software Architecture and Development Practices (3) Prerequisite: CSC 550, MIS 565, and MIS 555, or permission of instructor. Study of current development practices for creating high quality software. Topics include current software design practices, coding practices, testing practices, version and configuration control practices, and error-tracking practices. The particular techniques will change with the industry view of best practices.

MIS 575. E-Business Strategies and Implementation (3) Prerequisite: CSC 221, MIS 316, or equivalent. Global businesses recognize the need for an external as well as internal web presence. Intranets and Extranets are commonplace and are necessary to remain competitive. This course provides the strategic and technical essentials of what IT professionals should know in order to manage, lead and implement internal and external internet initiatives.

MIS 585. Copyright, Privacy, and Cyber Law (3) The legal aspects of managing technology, such as intellectual property, e-commerce, contracting, cybertorts, and technology policy are primary issues covered. Intellectual property law is of particular importance to managers of technology, as well as online contracting, privacy, employment law, and the scope of governmental regulation of technology.

MIS 587. (CSC 587) Systems Simulation (3) Prerequisite: QMM 280, STT 215, or equivalent. Study of the techniques and applications of computer simulation of systems. Students will learn to plan simulation studies, program them in a simulation language, perform the study, and analyze the results with statistical rigor. Also covered are random number generation, input distribution selection, generating random variables, and variance reduction techniques.

MIS 590. Research Methods (3) Prerequisite: QMM 280, STT 215, or equivalent. Review of descriptive and inferential statistics. Advanced inferential techniques including multiple regression, correlation analysis, non-parametric techniques, and sampling techniques.

MIS 591. (CSC 591) Directed Independent Study (1-6) Prerequisite: Permission of instructor. Involves investigation under faculty supervision beyond what is offered in existing courses.

MIS 592. (CSC 592) Topics in Computing (1-6) Prerequisite: Permission of instructor. Topics in computing of current interest not covered in existing courses.

MIS 594. (CSC 594) Research Project (1-6) Prerequisite: Permission of instructor. Focused study of a research topic in the practical application of computer science or information systems under the guidance of a faculty member. Topics are selected by the student with faculty and graduate coordinator approval. Written analysis and oral presentation of the project is required.

MIS 595. (CSC 595) Research Seminar (1-6) Prerequisite: Permission of instructor. Research and discussion of selected topics in computer science or information systems. Oral presentation required.

MIS 598. (CSC 598) Internship (1-6) Prerequisite: Overall GPA of at least 3.0. Academic training and practical experience through work in a private company or public agency. Faculty supervision and evaluation of all study and on-site activity. Students must secure permission of the graduate coordinator.

MIS 599. (CSC 599) Thesis (1-6)

OPS 572. Project Management (2-3) This course introduces the problems of managing a project with the purpose of achieving a specific objective. There will be an in-depth coverage of the operational and conceptual issues faced by modern project managers in all organizational settings. Students will learn techniques, terms and guidelines that are used to manage costs, schedules, risk, group dynamics and technical aspects throughout the life cycle of the project. Special emphasis will be on the use of current P.M. software.

Course Waiver or Substitution: A student may request a waiver of a required course if a good reason exists. You may also request a substitution of a course for another degree requirement. These requests must be approved by the MS CSIS Graduate Coordinator and the Dean of the Graduate School.

Graduate Regular Term: Full-time status requires a minimum enrollment of nine credit hours. However, a student may also be considered full-time when enrolled for fewer than nine hours if the student holds a teaching or research assistantship, or is enrolled for one to three hours of thesis work. Half-time status begins with at least three credit hours. Summer counts as one regular term.

Graduate Summer Term: Full-time status requires a minimum enrollment of four credit hours. However, a student may also be considered full-time when enrolled for fewer than four hours if the student holds a teaching or research assistantship, or is enrolled for one to three hours of thesis work. Half-time enrollment status begins with three credit hours. One to three hours of thesis work may also qualify the student as half-time if approved in writing by the graduate dean. Summer counts as one regular term.

Adding and Dropping Courses: Courses may be added or dropped only during the official drop-add period, which is noted on the Office of the Registrar Web site <http://www.uncw.edu/reg/>.

Withdrawal from a Course: A student may withdraw from a course with no grade during the first week of the semester. From the second through week twelve of any semester, a student who withdraws will receive a grade of “W” which does not affect the grade point average. After that deadline, a grade of “F” is assigned.

Degree Time Limit: You have five years from the date of your initial acceptance as a full-time student in the Graduate School to complete your degree. When extenuating circumstances warrant, the Graduate School may grant you an extension. You will not be permitted to register beyond five years without prior approval of the Dean of the Graduate School.

Non-degree Credit: Graduate courses taken at UNCW as a non-degree student before formal admission to graduate studies will meet course requirements for a graduate degree only if offered and approved by the graduate coordinator and the dean of the graduate school. A maximum of 10 hours may be applied toward the degree.

Retention: Graduate students in good standing (maintaining satisfactory grades and making substantial progress toward the completion of their degree) may be continuously eligible to enroll for a period up to five (5) years of the date of their first registration for graduate study at UNC Wilmington. Under exceptional circumstances, students may address an appeal to the Dean of the Graduate School for an extension of time up to one year.

Three grades of “C” or one grade of “F” results in your dismissal from the graduate program. Further, if you fall below a 3.0 GPA anytime, you are placed on academic probation and have three subsequent courses to bring your GPA up to at least 3.0. In addition, you must have at least 3.0 GPA to begin any capstone project and/or thesis work.

You must have no less than a 3.0 GPA on all graduate-level courses. Grades of A, B, C, F, S and W are permanent grades and can be changed only by the dean of the Graduate School in cases of arithmetical or clerical error or because of a protest of grade.

Re-enrollment: Should you have a break in enrollment of either a fall or spring semester (not summer), you must file a re-enrollment form with the dean of the Graduate School. The re-enrollment form is available in the UNCW Graduate School Office.

Graduate Catalog: The graduate catalog can be found on-line: <http://www.uncw.edu/catalogue/graduate/index.html>. The Graduate Catalog is the governing guide for all UNCW graduate programs and any discrepancies between this handbook and the graduate catalog will be decided in favor of the catalog.

VI. Advising

Your Adviser: During your first semester in the program, you will be assigned an academic adviser by the MS CSIS Graduate Coordinator, based on your expressed research, professional, or academic interests. You should meet with your adviser soon after beginning the program, and he or she will help you get answers to questions you might have about the program. Throughout your studies, your adviser helps develop your academic schedule, gives advice about when you should take certain classes, your options and responsibilities, and about classes outside the CSIS area that might be relevant to your program, and provides support for your decisions concerning course choices. In general, your academic adviser is there to guide you to successful completion of your degree program. See your adviser at least once per term.

Changing advisers: Within two terms (or three at the most), you should decide whether to stay with your original academic adviser through completion of your thesis or project or to change advisers. You might have found someone more compatible, or whose research interests more closely parallel your own, or perhaps your own research interests may have evolved. You are free to change your adviser at any time. Be sure that the faculty member you choose to work with agrees to be your new adviser and that the original adviser is notified of any changes in writing. Also, notify the MS CSIS Graduate Coordinator when you change advisers.

Your thesis/project adviser is the chair of your thesis/project committee and will help guide your proposal and see you through completion of your work. Your thesis/project advisor must be a graduate faculty member from either the CSC area or the MIS area. Select someone with whom you have a mutually respectful relationship, someone who is interested in your area of study and can contribute to your work. Your adviser does not have to be experienced in every aspect of your work; other committee members can contribute expertise in some areas.

You will always have an academic adviser, who can also be (but need not also be) your thesis/project adviser. The role of each of your advisers is different. The qualities that make a good academic adviser are not necessarily those that make a good thesis/project adviser, and vice versa. In many cases, it can be beneficial to have separate advisers: one to facilitate your thesis/project and one to facilitate your completion of the degree program.

VII. Thesis vs. Capstone Project ¹

Students in the MS CSIS program may choose to complete a master's thesis or a capstone project. One of the most common questions students have is, “what is the difference between a thesis and a capstone project?”

A capstone project requires background analysis and involves an applied project that results in solving a specific business or scientific problem. These projects may include software applications as part of their solution. A capstone project often addresses practical questions (such as how best to solve a real-world business problem). While projects may not constitute original research, they nonetheless require significant background analysis. This background analysis may include, but is not limited to, conducting library research, exploring comparable technologies, reviewing best practices and models, examining similar projects, exploring costs and benefits, and an analysis of findings. Therefore, each project must be accompanied by a technical report that describes or documents the background analysis performed, the methodologies used in the background analysis, references to work that was reviewed through the analysis, and lessons learned in the process.

A thesis requires an extensive literature survey on existing works and has the potential to generate new knowledge or improve upon existing techniques. One of the primary goals of masters-level thesis work is to teach students how to do research. Two definitions of a thesis include:

- “...[a thesis] give[s] the student training in planning, carrying out and presenting an independent piece of work and to provide contact with research and development.”
- “...[a] thesis is a scholarly treatment of a subject or an investigative treatment of a problem, which is sufficiently limited in scope to ensure thoroughness.”

The primary difference between the thesis option and the project option is that a thesis is a “scholarly treatment”. The literature review is more thorough, the experimental design and analysis is more complete.

In summary, a capstone project differs from a thesis in one significant way: A thesis presents research that contributes to the scholarly literature of computer science and/or information systems. A project, in contrast, contributes to the computer science and information systems professions via applied research and/or creative accomplishment. With a capstone project, the student spends the vast bulk of his/her time investigating solution(s) to real world problems. With a thesis option, the student spends more time on 1) experimental design and implementation and 2) crafting a thesis document.

¹ All prerequisite courses must be completed prior to beginning the thesis and/or project capstone experience.

VIII. Additional Academic Policies and Procedures

Policy Statement on Illegal Drugs: In accordance with policy adopted by the Board of Governors of the University of North Carolina and the Board of Trustees of UNCW, disciplinary proceedings against a student, faculty member, administrator, or other employee will be initiated when the alleged conduct is deemed to affect the interest of UNCW. The penalties that may be imposed range from written warnings with probationary status to expulsion from enrollment and discharge from employment.

The full text of the policy appears in both the electronic and print forms of the Code of Student Life (<http://www.uncw.edu/stuaff/doso/code/>).

Release of “Directory Information”: The University of North Carolina Wilmington routinely has made public certain information about its students. Typically, UNCW releases the names of students who are selected by the various honorary societies, receive scholarships, make the Dean’s List, hold offices, or are members of athletic teams. The annual commencement program publishes the names of persons who have received degrees from UNCW during the year.

The Family Educational Rights and Privacy Act defines the term “directory information” to include the following information: the student’s name, address, telephone listing, date and place of birth, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended by the student. The university will make public information about each student limited to these categories in ways such as those described above. Of course, information from all these categories is not made public in every listing.

Students who do not wish to have any or all of such “directory information” made public without their prior consent must notify the Office of the Registrar of this fact in a signed and dated statement specifying items not to be published. This notice must be received by the Office of the Registrar by the end of the registration period for the semester or session of first enrollment or, after an absence, of re-enrollment and by the end of each fall registration thereafter.

Family Educational Rights and Privacy Act (FERPA): Certain personally identifiable information about students (“education records”) may be maintained at The University of North Carolina General Administration, which serves the Board of Governors of the University system. This student information may be the same as, or derivative of, information maintained by a constituent institution of the university; or it may be additional information. Whatever their origins, education records maintained at General Administration are subject to the federal Family Educational Rights and Privacy Act of 1974 (FERPA).

FERPA provides that a student may inspect his or her education records. If the student finds the records to be inaccurate, misleading, or otherwise in violation of the student’s privacy rights, the student may request amendment to the record. FERPA also provides that a student’s personally identifiable information may not be released to someone else unless (1) the student had given a

proper consent for disclosure or (2) provisions of FERPA or federal regulations issued pursuant to FERPA permit the information to be released without the student's consent.

A student may file with the U.S. Department of Education a complaint concerning failure of General Administration or an institution to comply with FERPA.

The policies of the University of North Carolina General Administration concerning FERPA may be inspected in the office at each constituent institution designated to maintain the FERPA policies of the institution. Policies of General Administration may also be accessed in the Office of the Secretary of The University of North Carolina, General Administration, 910 Raleigh Road, Chapel Hill, NC.

Further details about FERPA and FERPA procedures at General Administration are to be found in the referenced policies. Questions about the policies may be directed to Legal Section, Office of the President, The University of North Carolina, General Administration, Annex Building, 910 Raleigh Road, Chapel Hill, NC (mailing address P.O. Box 2688, Chapel Hill, NC 27515-2688; Telephone: 919-962-4588).

Student Conduct: The filing of an application of admission shall be construed as both an evidence and pledge that the applicant accepts the standards and regulations of the University of North Carolina Wilmington and agrees to abide by them. Each student, by the act of registering, is obligated to obey all rules and regulations of the university as stated in the Code of Student Life, the university catalogue and other university publications. The university reserves the right to ask for the withdrawal of any student who refuses to adhere to the standards of the institution.

Academic Honor Code: The University of North Carolina Wilmington is committed to the proposition that the pursuit of truth requires the presence of honesty among all involved. It is therefore this institution's stated policy that no form of dishonesty among its faculty or students will be tolerated. Although all members of the university community are encouraged to report occurrences of dishonesty, honesty is principally the responsibility of each individual.

Academic dishonesty takes many forms, from blatant acts of cheating, stealing, or similar misdeeds to the more subtle forms of plagiarism, all of which are totally out of place in an institution of higher learning. Reporting and adjudication procedures have been developed to enforce the policy of academic integrity, to ensure justice, and to protect individual rights. Complete details may be found in the current Code of Student Life.

Class Attendance: Students are expected to be present at all regular class meetings and examinations for the courses in which they are registered. All faculty members are responsible for setting policy concerning the role of attendance in determining grades for their classes. It is the responsibility of the students to learn and comply with the policies set for each class in which they are registered.

IX. GENERAL INFORMATION

Parking: Auxiliary Services is located in the Warwick Center. Students are given parking permit information during orientation. The cost of the parking permit is added to the student's tuition bill.

Orientation: Prior to the start of classes, all MS CSIS students are required to complete MS CSIS orientation. The orientation is held on campus in various UNCW facilities. The primary objective of orientation is to introduce you to the MS CSIS program and begin team building with your peers.

Team-Building Activities: During orientation, you will participate in team-building activities either in the UNCW on-campus outdoor course or in the team-building exercises in the Student Recreation Center. These team-building exercises build self-confidence, trust, collaborative skills, and an understanding of team concepts. This is the first stage of student team development in the program.

E-Mail Accounts and Listservs: UNCW strongly encourages the use of campus e-mail for all communication. A class distribution list, or e-mail listserv, is maintained by the Graduate Programs Office. When students enroll for the MS CSIS program, they are assigned an e-mail account by UNCW. Students, faculty and administrators of the MS CSIS program are on the listserv. Anyone who is subscribed to the listserv may post a message. The listserv is intended to facilitate classes, MS CSIS study groups and administration of the MS CIS program. To use the listserv visit the Web page at <http://lists.uncw.edu/mailman/listinfo/MSCSIS>. To send an e-mail to the listserv, use the following address: MSCSIS_grad@lists.uncw.edu. You can access an e-mail archive at <http://lists.uncw.edu/mailman/listinfo/MSCSIS>.

Study Rooms: Your UNCW I.D. will allow you 24/7 access to the Computer Information Systems building. This building contains a computer lab, iPrint center, and three "sandbox" study rooms equipped with plasma screens and white boards. To use these rooms, you must make a reservation. Reservations can be made by e-mailing or calling the Graduate Programs Office (hoppeb@uncw.edu).

Establishing North Carolina Residency: Under North Carolina law, legal residence means more than simply living in the state. More specifically, it means maintaining a domicile (permanent home of indefinite duration) as opposed to a temporary residence incident to enrollment in a college, university or technical institute of the state. As a starting point, if you have living parents, your domicile is presumed to be that of your parents but it may be changed to qualify you for in-state tuition if your legal residence can be demonstrated. Marriage does not prevent you from becoming a legal resident for tuition purposes, nor does marriage ensure that you will become a resident. To determine whether you can become a legal resident of North Carolina for tuition purposes, you must demonstrate intent to make North Carolina your permanent dwelling place of indefinite duration by performing residentiary acts. These acts should be undertaken immediately upon your arrival to campus and North Carolina (preferably within the first month).

Some important residency acts are:

1. Convert your automobile registration to North Carolina
2. Obtain a North Carolina Driver's License (or NC Identification Card from the Driver's License office)
3. Register to vote in North Carolina and vote when possible
4. List your personal property at the New Hanover County Tax Office for taxation
5. File a North Carolina tax return as a resident at the next appropriate time
6. Convert your banking, club/organization membership, etc., to North Carolina

These actions **begin** the one-year (12 month) waiting period to attain residency.

To become a North Carolina resident you must demonstrate that you are financially independent of your parents or guardian if your parents or guardian are non-residents of North Carolina and demonstrate a visible means of support substantiating the claim of financial independence. If you have not been entirely self-supporting during the last 12 months, a completed affidavit will be required from your parent(s) to indicate the amount of support provided. Further and equally important, once you have clearly established the residency intent and financial independence, you must maintain a North Carolina residence for **12 months** immediately before the semester the in-state status can be made effective. The **only exceptions** to the required 12-month residency period apply in some, but not all, cases to individuals marrying a North Carolina resident who has maintained residency 12 months or longer and to individuals whose parents have been North Carolina residents 12 months or longer and who are legal dependents of their parents. If you desire a residence change, you must complete a Residence and Tuition Status Application and submit it to the dean of the Graduate School. Applications can be obtained from the Graduate School. **No status change can be made without submission of this application.**

The 12-month residency waiting period must be completed before the first day of the semester in which in-state residency is being requested. You must submit your application up to 60 days **before** the start of the semester in which your in-state status can become effective, although the entire 12-month residency period may not have been satisfied at the time your application is filed. To avoid being billed as an out-of-state resident, you should file a status change before the tuition bills are due so that the Graduate School will have time to process the application and notify Student Accounts as to your status change. A decision on your residency status will be mailed to you approximately 10 days after the application is reviewed by the Graduate School. If you are denied North Carolina residency for tuition purposes, you may appeal the decision. You can, and should, appeal to clarify points and to present additional arguments in your favor.