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NOVA SOUTHEASTERN UNIVERSITY

School of Computer and Information Sciences

Doctoral Degree Programs

Computer Science (Ph.D.)

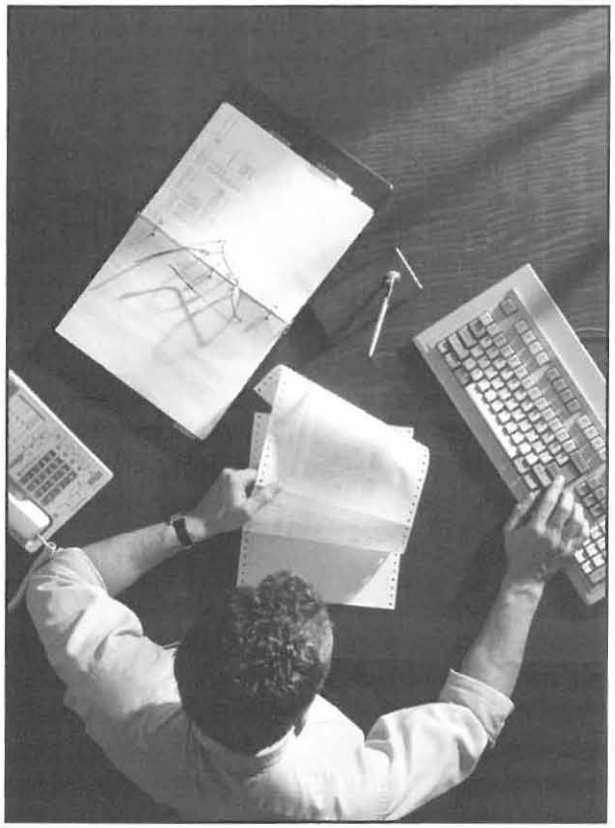
Computer Information Systems (Ph.D.)

Computing Technology in Education (Ph.D. or Ed.D.)

Information Science (Ph.D.)

Information Systems (Ph.D.)

Programs, Course Descriptions, and Application



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Academic Calendar, Doctoral Programs

(Doctoral programs have rolling admissions)

Summer 2000 Institute Term

May 29–Jun 25 00	Registration period (no late fees)
Jun 26–Jul 9 00	Late registration period (late fees)
Jul 8 00	New student orientation
Jul 9 00	First day of term
Jul 9–14 00	Meeting dates
Jul 10 00	Drop/add deadline
Dec 8 00	Last day to withdraw from a course with a final grade of W
Dec 8 00	Last day of term

Fall 2000 Cluster Term

Jul 28–Aug 25 00	Registration period (no late fees)
Aug 26–Sep 8 00	Late registration period (late fees)
Sep 7 00	New student orientation
Sep 8 00	First day of term
Sep 8–10 00	First meeting dates
Sep 9 00	Drop/add deadline
Dec 1–3 00	Second meeting dates
Feb 7 01	Last day to withdraw from a course with a final grade of W
Feb 7 01	Last day of term

Winter 2001 Institute Term

Nov 27–Dec 21 01	Registration period (no late fees)
Dec 22–Jan 7 01	Late registration period (late fees)
Jan 6 01	New student orientation
Jan 7 01	First day of term
Jan 7–12 01	Meeting dates
Jan 8 01	Drop/add deadline
Jun 7 01	Last day to withdraw from a course with a final grade of W
Jun 7 01	Last day of term

Spring 2001 Cluster Term

Jan 22–Feb 15 01	Registration period (no late fees)
Feb 16–Mar 2 01	Late registration period (late fees)
Mar 1 01	New student orientation
Mar 2 01	First day of term
Mar 2–4 01	First meeting dates
Mar 3 01	Drop/add deadline
Jun 1–3 01	Second meeting dates
Aug 1 01	Last day to withdraw from a course with a final grade of W
Aug 1 01	Last day of term

Summer 2001 Institute Term

May 28–Jun 21 01	Registration period (no late fees)
Jun 22–Jul 8 01	Late registration period (late fees)
Jul 7 01	New student orientation
Jul 8 01	First day of term
Jul 8–13 01	Meeting dates
Jul 9 01	Drop/add deadline
Dec 6 01	Last day to withdraw from a course with a final grade of W
Dec 6 01	Last day of term

Fall 2001 Cluster Term

Jul 30–Aug 23 01	Registration period (no late fees)
Aug 24–Sep 7 01	Late registration period (late fees)
Sep 6 01	New student orientation
Sep 7 01	First day of term
Sep 7–9 01	First meeting dates
Sep 8 01	Drop/add deadline
Nov 30–Dec 2 01	Second meeting dates
Feb 6 02	Last day to withdraw from a course with a final grade of W
Feb 6 02	Last day of term

A major force in educational innovation, the School of Computer and Information Sciences provides educational programs of distinction to prepare students for leadership roles in computer science, information systems, information science, and computing technology in education. It is distinguished by its ability to offer on-campus, online (via the Internet and World Wide Web), and combined on-campus/online formats that enable professionals to pursue M.S., Ed.D., and Ph.D. degrees without career interruption. The school also welcomes students who wish to earn the M.S. or Ph.D. on a full-time basis.

Ranked by *Forbes* magazine as one of the nation's top 20 cyber-universities, and listed in the Princeton Review's *The Best Distance Learning Graduate Schools,* SCIS pioneered online graduate education with its creation of the electronic classroom, and has been offering online graduate programs and programs with an online component since 1983. All four online M.S. programs are now part of the Southern Regional Electronic Campus (SREC). The school, which has more than 1,100 students, has been awarding graduate degrees since 1980. Its research advances knowledge, improves professional practice, and contributes to understanding in the computer and information sciences.

The school offers programs leading to the M.S. in computer science, computer information systems, management information systems, and computing technology in education; the Ph.D. in computer science, information systems, computer information systems, and information science; and the Ph.D. or Ed.D. in computing technology in education.

The M.S., which is offered on-campus or online, requires 36 credit hours and may be completed in 18 months. To earn the M.S. in 18 months, the student must enroll in two courses each term. Terms are 12 weeks long and there are four terms each year. Master's terms start in September, January, April, and July. SCIS master's students may apply for early admission into the doctoral program. Early admission provides the student the opportunity to earn the Ph.D. or Ed.D. in a shorter time.

Depending on the program, doctoral students may take one of two formats: *cluster* or *institute*. Clusters and institutes bring together students and faculty for participation in courses, seminars, and dissertation counseling. Between meetings, students work on assignments and projects, and participate in online activities that facilitate frequent interaction with the faculty and with other students. Cluster students attend four cluster sessions per year, held quarterly over an extended weekend at the university, during the first two years of their programs. Cluster terms start in March and September. Institute students attend weeklong sessions at the university twice a year at the start of each term. Institute terms start in January and July. Cluster and institute terms are five months long.

Online activities require a computer and an Internet service provider. Online learning methods involve Web pages to access course materials, announcements, the electronic library, and other information, plus a range of activities that facilitate frequent student–professor and student–student interaction. Faculty members and students interact via online forums using threaded bulletin boards, chatrooms, email, electronic classroom sessions, and online submission of assignments in multimedia formats.

Located on a beautiful 232-acre campus in Fort Lauderdale, NSU has approximately 18,000 students and is the largest independent institution of higher education in Florida. It ranks 25th in the size of its graduate programs among the 1,560 universities in the United States with graduate programs and 10th among independent universities. NSU awards bachelor's, master's, educational specialist, doctoral, and first-professional degrees in a wide range of fields. It has an undergraduate college and graduate schools of medicine, dentistry, pharmacy, allied health, optometry, law, computer and information sciences, psychology, education, business, oceanography, and social and systemic studies. To date, the institution has produced approximately 63,000 graduates. Since 1971, NSU has enjoyed full accreditation by the Commission on Colleges of the Southern Association of Colleges and Schools, the regional accrediting body for this region of the United States.

The success of NSU's programs is reflected in the accomplishments of its graduates, among whom are:

- 39 college presidents and chancellors
- more than 100 college vice presidents, provosts, deans, and department chairs
- 65 school superintendents in 16 states, including nine of the nation's largest school districts
- hundreds of college and university faculty members nationwide
- more than 100 high-ranking U.S. military officers, including admirals and generals; business presidents, vice presidents, executives, middle managers, and researchers at companies such as American Express, Ameri-First Bank, AT&T, Bellcore, General Electric, GTE, Harris Corporation, IBM, Lenox China, Motorola, Nortel, Racal Datacom, BellSouth, Westinghouse, and William Penn Bank

September 8, 2000

Degrees and Programs of the School of Computer and Information Sciences

Master of Science (M.S.)
- Computer Information Systems
- Computer Science
- Computing Technology in Education
- Management Information Systems

Doctor of Philosophy (Ph.D.) or Doctor of Education (Ed.D.)
- Computer Information Systems (Ph.D.)
- Computer Science (Ph.D.)
- Computing Technology in Education (Ph.D. or Ed.D.)
- Information Science (Ph.D.)
- Information Systems (Ph.D.)

Application for Admission to the Doctoral Degree Program (U.S. Citizens or Permanent Residents)

Admission decisions are made on a rolling basis. Before an application can be considered reviewable by the Admissions Committee, the following items must be received by the admissions office: application form, application fee, essay, summary of professional experience, at least two evaluation forms, and transcripts (unofficial copies are acceptable pending receipt of official transcripts). To ensure evaluation for the desired starting term, reviewable applications must be received at least one month prior to the start of that term. Late applications that cannot be processed in time for the desired starting term will be considered for the next term. Applicants may be granted **provisional admission** status pending completion of the application process. Applicants who do not meet all admission requirements may be given **conditional admission** pending removal of deficiencies.

Applicants must meet the general requirements and submit the items specified below, **and must also satisfy the program-specific admission requirements contained in the individual program sections of this brochure.** Detailed instructions for the preparation and mailing of admissions materials are contained in the school's admission forms, which are at the back of this brochure. Admission forms, brochures, and the *SCIS Graduate Catalog* may be downloaded from the school's Web site: *www.scis.nova.edu.*

1. An earned master's degree from a regionally accredited institution with an appropriate major (see program-specific admission requirements). Alternatively, SCIS master's students may apply for early admission into the doctoral program in the same program major (see description in the *SCIS Graduate Catalog*).
2. Application form, application fee, and essay.
3. Official transcripts of all graduate and undergraduate education. The graduate GPA must be at least 3.25.
4. Evaluation forms from three individuals who are familiar with your academic and/or professional capabilities and are able to assess your intellectual abilities, maturity, and motivation. Forms from family members or individuals who are unable to evaluate your academic or professional background are unacceptable.
5. Summary of Professional Experience.
6. Proficiency in the English language is a prerequisite for graduate study at the School of Computer and Information Sciences. Doctoral students are expected to write numerous papers and a dissertation. It is very important to note that grammatical errors, spelling errors, and writing that does not express ideas clearly will affect a student's grades and the completion of his or her degree. The faculty will not provide remedial help concerning grammatical errors or other writing problems. Applicants who are unable to write correctly and clearly are urged to seek remedial help before enrolling in any of the school's programs.

Additional Admission Requirements for International Doctoral Students

1. The application fee must be in U.S. dollars.
2. International students who do not live in the United States but only travel to the United States to attend four cluster weekends a year, or two institute weeks a year, can travel to the U.S. on tourist visas and need not apply for an I-20.
3. Requirements for campus-based students: The university will not enroll any campus-based student who has not been approved initially, or approved for transfer, by the Immigration and Naturalization Services (INS) to attend Nova Southeastern University. The INS requires that all students on an F-1 student visa must enroll full time and attend the main campus only. All students holding J-1 or F-1 visas are required to carry medical insurance. Students on J-1 visas are required to secure an affidavit of support, from an agency or government who will be the financial sponsor, stating that they have a sufficient amount of money to support themselves for the duration of their study. Students on F-1 visas need an affidavit of support and a notarized/attested financial statement proving that they have a sufficient amount of money to support themselves for one academic year (generally nine months). For additional information regarding international students, contact the university's International Student Advising Service at (954) 262-7240 or 800-541-6682, ext. 7240; fax: (954) 262-7265.
4. Applicants whose native language is not English must take the Test of English as a Foreign Language (TOEFL). A minimum test score of 550 is required for applicants taking the written examination. A minimum test score of 213 is required for applicants taking the computer-based examination. (Scores must be no more than two years

old.) Test results must be sent directly to the School of Computer and Information Sciences from TOEFL/TSE Services, P.O. Box 6153, Princeton, NJ, 08541; (609) 771-7100; fax: (609) 771-7500, Web site: *www.toefl.org*.

5. The applicant must have a university-level education at least equivalent to an American master's degree in a related field (see specific requirements). Official transcripts must show an equivalent graduate GPA of at least 3.25. Official documents must be certified by an officer of the institution attended and must show all post–high-school work including grades in each course and standing in examinations and classes. Documents issued in a language other than English must be accompanied by a certified English translation from an NSU-approved agency. Translations made by applicants are not acceptable. In cases where the original academic records do not state that a degree has been awarded, certified copies of the original diploma and certificate of graduation must be submitted.
6. Provisional admission status is not considered a basis for the issuance of an I-20. After applicants receive a written offer of admission, the I-20 will be provided, upon request, to those who have verified financial support and require an F-1 student visa. International students must enter the United States on a valid student or other visa. Nonresident aliens currently in the United States must have a valid student or nonimmigrant visa (except B1/B2 visa) for enrollment in the university. Students sponsored by the United States government or their home government are required to enter the United States on an exchange visitor's visa (J-1).

Provisional or Conditional Admission

A degree-seeking applicant who has missing documents but appears to be acceptable based on documents received by SCIS may be offered **provisional admission**. Official admission will be granted upon receipt and acceptability of the remaining required documents. All missing documents must be submitted prior to the student's second registration. Examples of missing documents are an official transcript and an evaluation form. An applicant who has not met all admission requirements may be given **conditional admission** if sufficient evidence exists to suggest the ability to perform successfully in the program. A student with conditional status must remove stated deficiencies as specified in the acceptance letter.

Early Admission into the Doctoral Program

This option provides the school's M.S. students the opportunity to earn the doctorate in a shorter time. Consult the master's program brochure or the *SCIS Graduate Catalog* for requirements.

Orientation and Advisement Program

New doctoral students must attend an orientation day on the campus in Fort Lauderdale at their first cluster or institute meeting. The orientation includes introductions to the program office staff, computer requirements, online access, software tools that enhance the educational process, library services, registration support, and financial aid counseling. The school's Web site provides an extensive online "help" system including downloadable software and documents. Students are offered dissertation counseling throughout the program. Advisement is provided by the program office and the faculty.

Program Formats and Term Dates

Terms for the doctoral program are five months long. During the first two years of the program, most students complete two three–credit core courses and one four–credit project course each term. After the completion of all core courses and 40 credit hours with a GPA of at least 3.0, the student registers for the dissertation at 12 credits per term. Students who have not completed the dissertation during registrations for Dissertation I and Dissertation II must register for Continuing Dissertation until they have satisfied the dissertation requirement. Doctoral residence is defined as continuous enrollment for two consecutive terms at a minimum of 10 credit hours per term.

Depending on the program, students may select one of two formats: cluster or institute. Computer information systems and computer science are offered in cluster format only. Computing technology in education, information science, and information systems are offered in both cluster and institute formats. Cluster students attend four cluster meetings per year, held quarterly over an extended weekend (Friday, Saturday, and half-day Sunday) at the university. Cluster terms start in March and September. Cluster weekends are held in March, June, September, and December. Institute students attend a weeklong institute twice a year at the university. Institutes are held in January and July at the start of each five–month term. Clusters and institutes bring together students, faculty, and staff members for participation in courses, workshops, and dissertation counseling. Between on-campus meetings, students work on assignments and projects, and participate in online activities that facilitate interaction with faculty members, classmates, and colleagues. **Students are required to attend all of their scheduled cluster or institute class sessions.**

The online component involves use of World Wide Web pages to access course materials, announcements, email, the electronic library, and other information, plus a range of activities that facilitate frequent student–professor and student–student interaction. These may include online forums using threaded bulletin boards, and chatrooms. In addition, the school provides a system that enables students to submit assignments online in multimedia formats and to receive their professors' online reviews of assignments in the same multimedia formats. Some online courses may include electronic classroom sessions. Students are provided NSU computer accounts but must obtain their own Internet service providers and use their own computer systems.

Independent Study and Directed Independent Study

A student wishing to take an existing course or project on an independent-study basis must obtain written approval from the faculty member responsible for the course and then forward a request to the program office for final approval. A student interested in conducting study or research under the supervision of a faculty member in areas not normally covered in regular courses may request approval by a faculty member and the program office to register for directed independent study. A contract for independent or directed independent study must be prepared by the student and must include an assignment timeline. The contract must be approved by the mentoring faculty member and the program director. See the course description for directed independent study for more information.

The Dissertation

The dissertation is the most important requirement for the doctoral degree. Each student is expected, with the approval of a faculty adviser, to select an appropriate topic of sufficient scope to satisfy the requirements for the dissertation. Although registration for dissertation credits typically occurs at or near the end of completion of the course requirements, students are encouraged to learn about the dissertation process as early as possible and to begin talking with faculty members about potential research topics early in the program. The dissertation must be an original work and must represent a significant extrapolation from a base of solid experience or knowledge in the student's area of concentration. Dissertation results must, in a significant way, advance knowledge, improve professional practice, or contribute to understanding in the field of study. Results must be of sufficient strength to distill from the work a paper worthy of publication in a journal or conference proceedings, or to use the work as the basis of a textbook or monograph. Although publication is not a requirement for completing the doctorate, students are encouraged to submit their dissertation research for publication. Doctoral students must follow the policies, procedures, and formatting requirements contained in the *SCIS Dissertation Guide*. Students may attend campus presentations on the dissertation process, research methodology, and writing for publication.

Grade Requirements and Time Limitations

Each student must maintain a cumulative grade point average of at least 3.0 for the duration of his or her program to remain in good academic standing. Failure to do so will result in probation and possible dismissal. Students must complete requirements for the doctorate within seven years from the date of their first registration.

Library Resources

Students must be registered in order to use the university's library services. The catalogs of all NSU libraries are accessible for remote searching (as are catalogs of other university libraries) to online students via the Electronic Library. Online and CD-ROM databases complement the paper-based holdings and provide full-text resources. Interlibrary loan arrangements through networked organizations such as the Online Computer Library Center (OCLC), the Southeast Florida Library Information Network (SEFLIN), the Consortium of Southeastern Law Libraries (COSELL), and the National Library of Medicine provide broad access to a wide range of materials. The library also has lending agreements with large research libraries in the Midwest, which provide priority document delivery services to students. The Einstein Library is a cooperating library of the Foundation Center in New York, giving students access to collections for grants and foundation research. Online students have access to books, journal articles, microfiche, dissertations, index searches, catalog searches, and reference librarians. Distance students may request library materials using fax, mail, or online forms. To contact Distance Library Services (DLS) by phone, call 800-541-6682, ext. 4602, or (954) 262-4602. Use the toll-free fax to order library materials: 888-347-3627 (in Broward County, fax 262-3947). Students can send email to DLS: *library@nova.edu*, or can reach DLS via the Web: *www.nova.edu/library*. All materials mailed by the DLS office are sent by first-class mail. When books are borrowed, the student will have to pay a small charge for third-class postage to return the books. Books are loaned for one month. Periodical copies or ERIC documents need not be returned.

Financial Aid

The Office of Student Financial Assistance administers the university's financial aid programs of grants, loans, scholarships, and student employment, and provides professional financial advisers to help students plan for the most efficient use of their financial resources for education. In order to participate in financial aid programs, a

student must be admitted into a university program, and must be a citizen, a national, or a permanent resident of the United States, or be in the United States for other than a temporary purpose. **A prospective student who requires financial assistance must apply for financial aid while he or she is a candidate for admission. Students/applicants may apply for financial aid online at *www.nova.edu/cwis/finaid.* Students must work directly with the university's Office of Student Financial Assistance because the school's program office does not administer or manage the financial aid process.** For information or application forms call (954) 262-3380, 800-806-3680, or send email to *lordcarl@nova.edu* or *finaid@nova.edu.* To continue financial aid, at a minimum, enrolled students must demonstrate satisfactory academic progress toward a stated educational objective in accordance with the university's policy on satisfactory progress for financial aid recipients.

Tuition and Fees (Rates are subject to change.)

Tuition for Course Work	$4,450 per term (10 credit hours)
Tuition for Dissertation I or II	$4,860 per term
Tuition for Continuing Dissertation	$2,430 per term
Tuition for Continuing Services (Incompletes)	$445 per incomplete (I) grade per term
Application Fee	$50 nonrefundable
Registration Fee	$30 nonrefundable
Late Registration Fee	$100 nonrefundable
Materials Fee	$20 per 700-level course
Reinstatement Fee	$50 nonrefundable
Program Change Fee	$100 nonrefundable
Deferment Fee for Installment Payment	$50
Graduation Fee	$75

Tuition Payment Policy

Tuition and fees may be satisfied with payment by check, money order, credit card, or official financial aid award letter with associated financial aid documentation. Cash will not be accepted as payment for tuition and fees unless paid at the Office of the University Bursar. All postdated checks or credit card authorizations will be held by the university for processing until the due dates specified in this policy. The tuition payment policy is subject to change at any time at the discretion of the administration of Nova Southeastern University. There are five options available for the payment of tuition. These options are described below:

1. *Full payment by the student*: Full payment of tuition and fees is to be made at the time of registration. Registration after the registration period, when permitted, will involve payment of a late registration fee.
2. *Installment payment by the student (students attending on an I-20 are not eligible for this option)*: This plan requires three payments spread over the first 90 days of the term. The first payment must be made by check, money order, or credit card. At the time of registration, the student must submit postdated checks or credit card authorizations for the second and third installments. The first payment, due at registration, includes all fees, 50 percent of the tuition, plus a $50 deferment fee. The second payment, due 60 days from the beginning of the term, shall equal 25 percent of the tuition. The third payment, due 90 days from the beginning of the term, shall equal 25 percent of the tuition. **Registrations received without the three payments cannot be processed.**
3. *Direct payment by the student's employer*: If a letter of commitment or a voucher from the student's employer accompanies the registration form, then the student will not be required to make a payment at registration time. The letter of commitment or the voucher must indicate that the employer will remit full payment of tuition and fees to Nova Southeastern University upon receipt of the invoice from the university's accounts receivable office.
4. *Tuition reimbursement by the student's employer*: If the student submits a letter from the employer at registration time that establishes eligibility for tuition reimbursement, the student may choose a two-payment plan. The first payment, due at registration, shall include all fees, 50 percent of the tuition, plus a $50 deferment fee. The second payment, due five weeks after the end of the term, shall equal 50 percent of the tuition. To secure this plan, the student must provide, at registration, a postdated check or credit card authorization for the deferred portion.
5. *Financial aid award*: Students who have applied for financial aid and have submitted all the required paperwork to the Office of Financial Assistance may register without payment.

Additional Information on Policies and Procedures

For additional information on policies and procedures consult the graduate catalog of the School of Computer and Information Sciences located on the school's Web site: *www.scis.nova.edu.*

Ph.D. Program in Computer Information Systems

This program offers a course of study leading to the degree of doctor of philosophy (Ph.D.) in computer information systems. It is offered in the cluster format, which combines traditional and online instruction to provide professionals the opportunity to pursue graduate study while continuing to work in their current positions. The program is especially well suited to professionals in business, government, industry, or education who are involved with research, design, implementation, management, evaluation, utilization, or teaching of computer information systems. It provides technology-oriented professionals with the knowledge and ability to develop creative solutions to substantive real-world problems. Each student must complete eight courses, four projects, and a dissertation.

Program-Specific Admission Requirements (See pp. 2–3 for general admission requirements.)

This program is designed for the student with a master's degree in computer information systems, computer science, or a closely related field. The applicant should satisfy graduate prerequisites or have equivalent experience in information systems, programming languages, database systems, systems analysis and design, data communications and networks, and computer architecture. Alternatively, SCIS master's students in computer science or computer information systems may apply for early admission into the Ph.D. program. (For details, see "General Information on Doctoral Degree Programs," and descriptions of individual master's programs, *SCIS Graduate Catalog*.)

The Curriculum for the Ph.D. in Computer Information Systems

The program requires 64 credit hours, of which 40 are required courses and projects and 24 are for the dissertation. Most students take two core/elective courses and one project course per term during the first two years and register for the dissertation in the third year. Core courses, elective courses, project courses, and dissertation registrations are listed below:

Core Courses (three credits each) (All students **must** take these.)

- DCIS 720 Human–Computer Interaction
- DCIS 740 Data Communications and Computer Networking
- DCIS 750 Database Systems
- DCIS 760 Artificial Intelligence and Expert Systems
- DCIS 770 Software Engineering
- DCIS 791 Distributed Systems

Elective Courses (three credits each) (Select two of these.)

- DCIS 710 Decision Support Systems
- DCIS 730 Information Security
- DCIS 735 Knowledge Management
- DCIS 780 Multimedia Systems
- DCIS 790 Special Topics in Computer Information Systems

Project Courses (four credits each) (Select four of these. Must be taken concurrent with, or following completion of, the corresponding core or elective course.)

- DCIS 810 Project in Decision Support Systems
- DCIS 820 Project in Human–Computer Interaction
- DCIS 730 Information Security
- DCIS 735 Knowledge Management
- DCIS 840 Project in Data Communications and Computer Networking
- DCIS 850 Project in Database Systems
- DCIS 860 Project in Artificial Intelligence and Expert Systems
- DCIS 870 Project in Software Engineering
- DCIS 880 Project in Multimedia Systems
- DCIS 890 Project in Special Topics in Computer Information Systems
- DCIS 891 Project in Distributed Systems

Dissertation Registrations

- DCIS 910 Dissertation I (12 credits)
- DCIS 915 Dissertation II (12 credits)
- DCIS 920 Continuing Dissertation (6 credits)

Course Descriptions for the Ph.D. in Computer Information Systems

DCIS 710 Decision Support Systems (3 credits)
Principles and techniques relating to automated support for decision making and organizational problem solving. Topics include decision theory, modeling and simulation, decision support system architecture, group decision support systems, knowledge-based expert systems, and intelligent systems.

DCIS 720 Human–Computer Interaction (3 credits)
Issues relating to effective human–computer interaction are presented. Basic elements, procedures, tools, and environments contributing to the development of successful user interfaces are explored. User interface design principles, guidelines, and methodologies are reviewed. Other topics include multidisciplinary dynamics of human–computer interaction as a field of study, current and projected developments in HCI research, and usability engineering.

DCIS 730 Information Security (3 credits)
Study of the theory, mechanisms, and implementation of information security and data protection. Topics include formal models for computer security, secure operating systems, mechanisms for mandatory and discretionary controls, distributed secure system architectures, encryption and authentication, access control, integrity models and mechanisms, and programming and vulnerability analysis. An emphasis will be placed on current issues, future directions, and research areas.

DCIS 735 Knowledge Management (3 credits)
Knowledge management (KM) is said to promote innovation, improve efficiency and effectiveness, and provide a sustainable competitive advantage in today's global environment. This course examines computer-based systems for supporting KM. Principles of developing systems for KM are explored. System architectures, tools and techniques, and their use in capturing, storing, locating, evaluating, disseminating, and using information and knowledge are examined. Topics will include techniques for indexing, searching, retrieving, and displaying information from knowledge bases. Investigation of the issues in the application of knowledge management to organizational learning and decision making is included. Application of these principles and techniques through the use of rapidly evolving information/communication technologies is studied in the context of their impact on organizations.

DCIS 740 Data Communications and Computer Networking (3 credits)
Recent advances and new applications in the expanding field of telecommunications and computer networks are examined. The technical fundamentals, architecture, and design of computer networks are described. Strategies, tools, and techniques for network planning, implementation, management, maintenance, and security are delineated. Topics include the OSI Model, TCP/IP, transmission media, network operating systems, topologies, configurations, protocols, and performance characteristics. Trends in standardization, internetworking, downsizing, and the development of networks are explored. The emphasis of the material for this class will be in the analysis, design, development, and management of network systems. The theory behind each component will be presented while exploring the design and development of data and computer networks.

DCIS 750 Database Systems (3 credits)
Theory and principles of databases and their management. Design, implementation, and traditional and nontraditional applications of database management systems. An emphasis will be placed on current issues, future directions, and research topics.

DCIS 760 Artificial Intelligence and Expert Systems (3 credits)
Theory of, and major approaches to, artificial intelligence. Topics include knowledge representation, heuristic search, artificial neural networks, machine learning, intelligent agents, and knowledge-based systems.

DCIS 770 Software Engineering (3 credits)
Covers advanced topics in the development of software–intensive systems, system life cycles, requirements definition and analysis, behavioral specification, design, implementation, verification and validation, system evolution, and project management. An emphasis will be placed on current issues, future directions, and research topics.

DCIS 780 Multimedia Systems (3 credits)
A course in advanced systems covering both theoretical and practical issues in designing multimedia systems. Topics include introduction to multimedia systems, compression techniques, synchronization, user interface issues, storage, video indexing and retrieval techniques, operating system support for digital audio and video, as well as network and transport protocols for multimedia. Emphasis on current design issues, research topics, software implementation, and discussion of future directions.

DCIS 790 Special Topics in Computer Information Systems (3 credits)
Covers advanced topics in areas of current research interest in computer information systems. May include topics such as client–server computing, distributed database systems, advanced computer graphics, object–oriented technology, the integration of networks and operating systems, and parallel computation. Topics will vary depending on student and faculty interest.

DCIS 791 Distributed Systems (3 credits)
Students are expected to contribute to the expansion of the client–server and distributed system paradigms. Topics include the components of client-server and distributed systems architecture, operating systems, networking, interprocess communication, user interface, middleware, distributed objects, groupware, security, and software development. The role of standards in client-server and distributed systems development is discussed, including a detailed study of protocols. Development of the client-server computing-model and the application to business process reengineering. Migration from legacy systems is considered along with project development and management. The emphasis of the material for this class will be in the analysis, design, development, and management of client-server and distributed systems. The theory behind each component will be presented while exploring the design and development of client-server and distributed systems.

DCIS 810 Project in Decision Support Systems (4 credits)
Students advance their knowledge through the completion of a research paper or project in the area of decision support systems. Some topics of current interest include model management, investigation of decision support aids, knowledge-based systems and intelligent systems, group DSS, and distributed DSS.

DCIS 820 Project in Human–Computer Interaction (4 credits)
Students produce a research paper or project on a current topic in HCI. Some topics of interest include interface quality and evaluation, computer system and computer interface architecture, Internet–based user interface design issues, legal and ethical aspects of computing, speech interfaces, and computer–supported cooperative work.

DCIS 830 Project in Information Security (3 credits)
Students pursue a research project or implementation on a current topic in information security and assurance. Topics of current interest include secure operating systems and networks, intrusion detection, cryptographic theory and applications, vulnerability analysis, and malicious code detection.

DCIS 835 Project in Knowledge Management (4 credits)
Students pursue a research study, project, or implementation in knowledge management.

DCIS 840 Project in Data Communications and Computer Networking (4 credits)
Students will advance their data communications and computer networking knowledge through the completion of a research paper or project. Some topics of current interest include protocol development and comparisons, the relationship between networks and applications, QoS, network operating systems, and security.

DCIS 850 Project in Database Systems (4 credits)
Students pursue a research study on a current topic in database systems or complete a database–oriented development project. Some areas of current interest include object–oriented database systems, extended relational DBMS, federated or heterogeneous database systems, high-performance parallel database systems, and advanced conceptual logic database modeling.

DCIS 860 Project in Artificial Intelligence and Expert Systems (4 credits)
Students pursue a research or development project in artificial intelligence. Some topics of current interest are artificial life, learning technologies (including symbol learning, neural networks, and genetic algorithms), intelligent agents, natural language processing, deep domain models in expert systems, vision, speech recognition, handwriting recognition, and parallel and distributed artificial intelligence.

DCIS 870 Project in Software Engineering (4 credits)
Students pursue a research project in a current topic in software engineering or complete a software engineering development project. Some topics of current interest include object–oriented analysis and design, software/system life cycles, reusability, specification, and verification.

DCIS 880 Project in Multimedia Systems (4 credits)
Students pursue a research study or project on a current topic in multimedia systems. Some areas of current interest include design and implementation of interactive multimedia applications including interactive television (e.g., video-on-demand, home shopping, voting, and games), hypermedia systems, digital signal processing, network architectures and protocols, multimedia authoring, videoconferencing, and groupware.

DCIS 890 Project in Special Topics in Computer Information Systems (4 credits)
Students pursue a research study, project, or implementation related to DCIS 790.

DCIS 891 Project in Distributed Systems (4 credits)
Students will advance their client-server/distributed systems knowledge through the completion of a research paper or project. Some topics of current interest include distributed object technology, QoS middleware, operating systems, and groupware.

DCIS 910 Dissertation I (12 credits)
The student develops a framework within which doctoral research will be conducted and offers evidence of qualifications to pursue the research. Prerequisite: Satisfactory completion of all course work.

DCIS 915 Dissertation II (12 credits)
Concepts and theories underlying the student's doctoral research are articulated, the problem is clearly stated, specific, measurable goals are specified, a thorough literature review is presented, the methods of conducting the research are delineated, and a strategy to achieve the goal is given. Prerequisite: Dissertation I.

DCIS 920 Continuing Dissertation (6 credits)
Students who have not completed the dissertation by the end of Dissertation II must register for Continuing Dissertation each term in order to receive faculty and administrative advice and support related to the dissertation. Prerequisite: Completion of Dissertation II.

DCIS 1200 Directed Independent Study (3 credits or 4 credits)
Involves directed readings, research, and creative activities under the supervision of a faculty member. A contract for the independent study must be prepared by the student, include an assignment time line, and be approved by the mentoring faculty member and the program director. NOTE: In special situations, a student may be granted permission to take a regular numbered course on an independent-study basis. In such cases, the same conditions would apply but the course number would reflect the regular numbered course.

Ph.D. Program in Computer Science

This program offers a course of study leading to the degree of doctor of philosophy (Ph.D.) in computer science. It is offered in the cluster format, which combines traditional and online instruction to provide professionals the opportunity to pursue graduate study while continuing to work in their current positions. The program is especially well suited to those in industry, education, or government who are involved with one of the many areas of computer science. It provides research–oriented professionals with knowledge in the major areas of computer science and the ability to develop creative solutions to substantive real-world problems. Each student must complete eight courses, four projects, and a dissertation.

Program-Specific Admission Requirements (See pp. 2–3 for general admission requirements.)

This program is designed for the student with a master's degree in computer science, or a closely related field. The applicant should satisfy graduate prerequisites or have equivalent experience in programming languages, data communications and computer networks, operating systems, compilers, database management systems, theory of computation, design and analysis of algorithms, and computer architecture. Alternatively, SCIS master's students in computer science may apply for early admission into the Ph.D. program. (For details, see "General Information on Doctoral Degree Programs," and descriptions of individual master's programs, *SCIS Graduate Catalog*.)

The Curriculum for the Ph.D. in Computer Science

The program requires 64 credit hours, of which 40 are required courses and projects and 24 are for the dissertation. Most students take two core/elective courses and one project course per term during the first two years and register for the dissertation in the third year. Core courses, elective courses, project courses, and dissertation registrations are listed below:

Core Courses (three credits each) (All students **must** take these.)

- CISD 700 Theory and Principles of Programming
- CISD 730 Operating Systems
- CISD 740 Data Communications and Computer Networking
- CISD 750 Database Management Systems
- CISD 760 Artificial Intelligence
- CISD 770 Software Engineering

Elective Courses (three credits each) (Select two of these.)

- CISD 790 Special Topics in Computer Science (offered on various subjects; may take up to two of these)
- CISD 792 Computer Graphics
- CISD 794 Knowledge Discovery in Databases

Project Courses (four credits each) (Select four of these. Must be taken concurrently with, or following completion of, the corresponding core course.)

- CISD 800 Project in Theory and Principles of Programming
- CISD 830 Project in Operating Systems
- CISD 840 Project in Data Communications and Computer Networking
- CISD 850 Project in Database Management Systems
- CISD 860 Project in Artificial Intelligence
- CISD 870 Project in Software Engineering
- CISD 890 Project in Special Topics in Computer Science
- CISD 892 Project in Computer Graphics
- CISD 894 Project in Knowledge Discovery in Databases

Dissertation Registrations

- CISD 910 Dissertation I (12 credits)
- CISD 915 Dissertation II (12 credits)
- CISD 920 Continuing Dissertation (6 credits)

Course Descriptions for the Ph.D. in Computer Science

CISD 700 Theory and Principles of Programming (3 credits)
Covers advanced topics in areas of current research interest in programming languages, semantics, visual languages, and compiler design for contemporary systems and applications.

CISD 730 Operating Systems (3 credits)
Recent advances in the theory and practice of state-of-the-art methods in the structure and development of operating systems. Topics include operating system architectures, object-oriented operating systems, distributed operating systems, real-time issues, performance, and software engineering issues in the development of an operating system. An emphasis will be placed on current issues, future directions, and research topics.

CISD 740 Data Communications and Computer Networking (3 credits)
Study of data communications and network theory, design, and implementation. Topics include network architectures, transmission encoding, direct–link networks, switching, routing, network analysis, network algorithms, internetworking, addressing, name services, security, data compression, congestion control, and high-speed networking. An emphasis will be placed on current issues, future directions, and research topics.

CISD 750 Database Management Systems (3 credits)
Theory and principles of databases and their management. Design, implementation, and traditional and nontraditional applications of database management systems.

CISD 760 Artificial Intelligence (3 credits)
Theory and practice of artificial intelligence and knowledge-based expert systems including issues in knowledge representation, search, heuristics, learning techniques, tools, languages, and programming techniques. Current issues, future directions, and research topics will be explored.

CISD 770 Software Engineering (3 credits)
Covers advanced topics in areas of current research interest in the development of software-intensive systems. Topics include metrics, requirements definition, development life cycles, software engineering processes, reuse, formal methods, verification and validation, and project management.

CISD 790 Special Topics in Computer Science (3 credits)
Covers advanced topics in areas of current research interest in computer science. May include topics in advanced computer architecture, artificial intelligence, distributed database management systems, advanced computer graphics, object–oriented technology, and parallel computation. Topics will vary depending on student and faculty interest. Depending on interest, several special-topics courses may be offered concurrently.

CISD 792 Computer Graphics (3 credits)
This course will focus on algorithms and techniques that have emerged in the past several years. Topics include basic and advanced modeling and rendering methods, volume and scientific visualization techniques, visual programming languages and environments, and computer animation.

CISD 794 Knowledge Discovery in Databases (3 credits)
This course will study a number of emerging technical approaches to knowledge discovery in databases such as data clustering and summarization, algorithms for learning classification and characteristic rules, finding dependency networks, analyzing changes, detecting anomalies, and their applications. Current issues, future directions, and research topics will be explored.

CISD 800 Project in Theory and Principles of Programming (4 credits)
The mathematics of algorithms and the specification of design are the basis for the project to illustrate the benefits of structured models, quantitative documentation, and logical assertions for the interpretation and structure of computer programs. The projects include the use of modern languages to demonstrate the abstract structures necessary for application and system development.

CISD 830 Project in Operating Systems (4 credits)
Students pursue a research project or implementation on a current topic in operating systems. Implementation projects may involve constructing a portion of an operating system, simulating the behavior of key components, performance studies of existing systems, creation of a concurrent programming environment to model parallel hardware and software. Research papers may investigate current topics such as open systems, distributed systems, massive parallelism, object–oriented operating systems, and real-time operating systems.

CISD 840 Project in Data Communications and Computer Networking (4 credits)
A research report, design, implementation, or simulation is the focus of a student project. Topics of current interest include routing, security, internetworking, and network or transport layer protocol design.

CISD 850 Project in Database Management Systems (4 credits)
Students pursue a research study on a current topic in database systems or complete a database–oriented development project. Some areas of current interest include object–oriented database systems, extended relational DBMS, deductive and logic–based expert database systems, federated or heterogeneous database systems, other high-performance parallel database systems, and advanced conceptual logic database modeling.

CISD 860 Project in Artificial Intelligence (4 credits)
Students pursue a research or development project in artificial intelligence. Topics of current interest are artificial life, learning technologies (including symbol learning, neural networks, and genetic algorithms), intelligent agents, natural language processing, deep domain models in expert systems, vision, speech recognition, handwriting recognition, and parallel and distributed artificial intelligence.

CISD 870 Project in Software Engineering (4 credits)
A research report or implementation is the focus of a student project. Topics of current interest are metrics, formal methods, development life cycles, reuse, object-oriented analysis and design and software engineering for distributed systems.

CISD 890 Project in Special Topics in Computer Science (4 credits)
Students pursue a research study, project, or implementation related to the Special Topics in Computer Science course.

CISD 892 Project in Computer Graphics (4 credits)
Students pursue a research or implementation project on a current topic in computer graphics. Topics of interest include basic and advanced modeling and rendering methods, volume and scientific visualization techniques, visual programming languages and environments, computer animation, and virtual reality.

CISD 894 Project in Knowledge Discovery in Databases (4 credits)
Students pursue a research project or implementation on a current topic in knowledge discovery in databases. The research process for the project includes searching the literature, dissecting the existing methodologies for knowledge discovery in databases, and developing a new approach for knowledge discovery in databases.

CISD 910 Dissertation I (12 credits)
The student develops a framework within which doctoral research will be conducted and offers evidence of qualifications to pursue the research. Prerequisite: Satisfactory completion of all course work.

CISD 915 Dissertation II (12 credits)
Concepts and theories underlying the student's doctoral research are articulated, the problem is clearly stated, specific, measurable goals are specified, a thorough literature review is presented, the methods of conducting the research are delineated, and a strategy to achieve the goal is given. Prerequisite: Dissertation I.

CISD 920 Continuing Dissertation (6 credits)
Students who have not completed the dissertation by the end of Dissertation II must register for Continuing Dissertation each term in order to receive faculty and administrative advice and support related to the dissertation. Prerequisite: Completion of Dissertation II.

CISD 1200 Directed Independent Study (3 credits or 4 credits)
Involves directed readings, research, and creative activities under the supervision of a faculty member. A contract for the independent study must be prepared by the student, include an assignment time line, and be approved by the mentoring faculty member and the program director. NOTE: In special situations, a student may be granted permission to take a regular numbered course on an independent-study basis. In such cases, the same conditions would apply but the course number would reflect the regular numbered course.

Ph.D./Ed.D. Program in Computing Technology in Education

This program offers a course of study leading to the degree of doctor of philosophy (Ph.D.) or doctor of education (Ed.D.) in computing technology in education. It is offered in both cluster and institute formats, which combine on-campus and online instruction to provide professionals the opportunity to pursue graduate study while continuing to work in their current positions. This program addresses: (1) the use of computing technologies to improve cognition; (2) the development, management, and evaluation of computing systems that support the educational process; and (3) the role of computing and other advanced technology in education and training. The program is especially well suited to educators, educational administrators, instructional system designers, and trainers. It provides technology–oriented professionals with the knowledge and ability to develop creative solutions to substantive real-world problems. Each student must complete eight courses, four projects, and a dissertation. A student may declare a degree preference (Ph.D. or Ed.D.) at any time during the program. The difference between these degrees is a name difference only. Many of the courses in the program have been approved for teacher certification in computer science (grades K–12) or recertification by Florida's Bureau of Teacher Certification. They may be taken as part of the degree program or independently.

Program-Specific Admission Requirements (See pp. 2–3 for general admission requirements.)

This program is designed for the student with a master's degree in education, training and learning, instructional design, information systems, educational leadership, or a closely related field. The candidate must have a significant amount of experience using computer applications and the Internet. Alternatively, SCIS master's students may apply for early admission into the Ph.D./Ed.D. program. (For details, see "General Information on Doctoral Degree Programs," and descriptions of individual master's programs, *SCIS Graduate Catalog*.)

The Curriculum for the Ph.D./Ed.D. in Computing Technology in Education

The program requires 64 credit hours, of which 40 are required courses and projects and 24 are for the dissertation. Most students take two core/elective courses and one project course per term during the first two years and register for the dissertation in the third year. Students are required to take the core course and project course in Research Methodology (DCTE 700/800). These must be taken concurrently. Core courses, elective courses, project courses, and dissertation registrations are listed below:

Core Courses (three credits each) (All students **must** take these.)

- DCTE 700 Research Methodology
- DCTE 720 Human–Computer Interaction
- DCTE 730 Seminar in Online Learning Environments
- DCTE 740 Telecommunications and Computer Networks
- DCTE 750 Educational Database Systems
- DCTE 760 Instruction Delivery Systems
- DCTE 770 Courseware Design and Development

Elective Courses (three credits each) (Select one of these.)

- DCTE 747 Learning Theory and Computer Applications
- DCTE 790 Special Topics in Computing Technology in Education (offered on various subjects such as information policy, knowledge management, and online information systems)

Project Courses (four credits each) (Select four of these. Must be taken concurrent with, or following completion of the corresponding core or elective course.)

- DCTE 800 Project in Research Methodology (required concurrent with DCTE 700)
- DCTE 820 Project in Human–Computer Interaction
- DCTE 830 Project in Online Learning Environments
- DCTE 840 Project in Telecommunications and Computer Networks
- DCTE 847 Project in Learning Theory and Computer Applications
- DCTE 850 Project in Educational Database Systems
- DCTE 860 Project in Instruction Delivery Systems
- DCTE 870 Project in Courseware Design and Development
- DCTE 890 Project in Special Topics in Computing Technology in Education

Dissertation Registrations

- DCTE 910 Dissertation I (12 credits)
- DCTE 915 Dissertation II (12 credits)
- DCTE 920 Continuing Dissertation (6 credits)

Course Descriptions for the Ph.D./Ed.D. in Computing Technology in Education

DCTE 700 Research Methodology (3 credits)
An in-depth treatment of the research process from an experimental, developmental, and evaluative perspective is provided. Techniques for planning and designing these types of projects as well as the methodologies for data collection, evaluation, and analysis are examined. Special emphasis is placed on the appropriate choice of methodologies for a variety of problem situations in both business and educational settings. Major emphasis is placed on the development of the proposal stage of research. Corequisite: DCTE 800.

DCTE 720 Human–Computer Interaction (3 credits)
Techniques facilitating effective human–computer interaction are presented. Basic elements, procedures, tools, and environments contributing to the development of a successful user interface are explored. Design principles, guidelines, and methodologies for building, installing, managing, and maintaining interactive systems that optimize user productivity are reviewed. Topics include the multidisciplinary dynamics of human-computer interaction, current and projected developments in HCI research, computer-supported cooperative work, and strategies for implementing and evaluating human–computer dialogues.

DCTE 730 Seminar in Online Learning Environments (3 credits)
This course explores the emergence of online learning environments (OLEs) as viable alternatives or supplements to traditional classroom instruction. Students will investigate the theoretical, conceptual, instructional, and technical framework of implementing and using OLEs to support the learning paradigm. The basic technology and pedagogical implications of OLEs will be explored, including issues such as learning communities and learning technologies, the Internet and the Web, online electronic performance systems, asynchronous/synchronous communication tools, methods of instruction and online tools to support learning and instruction, design of OLEs, faculty and learner considerations, and evaluation of OLEs.

DCTE 740 Telecommunications and Computer Networks (3 credits)
Recent advances and new applications in the expanding field of telecommunications and computer networks are examined. The technical fundamentals, architecture, and design of computer networks are described. Strategies, tools, and techniques for network planning, implementation, management, maintenance, and security are delineated. Topics include ISDN, ATM, the OSI Model, transmission media, network operating systems, topologies, configurations, protocols, and performance characteristics. Trends in standardization, internetworking, and the development of local-area networks (LANs), metropolitan-area networks (MANs), wide-area networks (WANs), intranets, and extranets are examined.

DCTE 747 Learning Theory and Computer Applications (3 credits)
Computing technology is assuming an increasingly dominant role in instructional delivery. In this course, students explore learning theories and how learning is achieved when instruction is presented from a computer–based paradigm. The course examines the value of the computer as a learning device to model learning theories associated with behaviorism, cognitivism, and human information processing. An emphasis will be placed on current issues, future directions, and research topics.

DCTE 750 Educational Database Systems (3 credits)
Techniques for determining database requirements and managing organizational data resources are examined. Strategies for designing database management systems applications that satisfy specific requirements are presented. Components and architecture of the relational data model are analyzed. Methods for creating and implementing object–oriented information systems are explored. Topics include object–oriented languages, the user interface, databases and expert systems, distributed computing, and the advantages and drawbacks of commercially available DBMS tools and products.

DCTE 760 Instruction Delivery Systems (3 credits)
An IDS is the setting, environment, or functional unit in which instruction takes place. This course will cover past, current, and future delivery systems used to bring learning and training to user populations. Principles of learning will be used to support a wide range of delivery in synchronous and asynchronous modes and in on-campus and distance formats.

DCTE 770 Courseware Design and Development (3 credits)
Explores the concepts and principles that underlie the design and development of courseware in education and training and implements the findings in the development of prototype materials. Students will become immersed in two important issues for successful functioning in the technological society of the 21st century: instructional design and team productions.

DCTE 790 Special Topics in Computing Technology in Education (3 credits)
Covers advanced topics in areas of current research interest in computing technology in education. May include topics in areas such as distance education, learning theory, adaptive devices, CD-ROM development, artificial intelligence and expert systems, adult literacy, computer graphics, and distributed database systems. Topics will vary depending on student and faculty interest. Depending on interest, several special-topics courses may be offered concurrently.

DCTE 800 Project in Research Methodology (4 credits)
This course will focus on the collection and analysis of data collected from experimental, developmental, and evaluative studies. Emphasis will be placed on the application of tools and techniques appropriate to the scenario and data type collected. The logical development of decisions based on the data analysis in terms of predefined hypotheses and/or project goals and objectives will be discussed. Major emphasis is placed on the development of the report stage of research. Corequisite: DCTE 700.

DCTE 820 Project in Human–Computer Interaction (4 credits)
Students pursue a research study, project, or implementation in human–computer interaction.

DCTE 830 Project in Online Learning Environments (4 credits)
Students pursue a research study, project, or implementation in online learning environments.

DCTE 840 Project in Telecommunications and Computer Networks (4 credits)
Students pursue a research study, project, or implementation in telecommunications and computer networks.

DCTE 847 Project in Learning Theory and Computer Applications (4 credits)
Students pursue a research study, project, or implementation in learning theory and computer applications.

DCTE 850 Project in Educational Database Systems (4 credits)
Students pursue a research study, project, or implementation in educational database management systems.

DCTE 860 Project in Instruction Delivery Systems (4 credits)
Students pursue a research study, project, or implementation in instructional delivery systems.

DCTE 870 Project in Courseware Design and Development (4 credits)
Requires the production of an entire courseware package. It is necessary to have a representative target population for purposes of beta testing the resulting product. The product should accommodate a range of learning styles. It must be submitted with development charts, a narrative explaining the roles taken at different times by team members, a review of the literature, and fully functional, intuitively used software. The inclusion of a management system is totally optional. However, the management component comes after the development and must not detract from software use. Additional teaching aids developed may be included.

DCTE 890 Project in Special Topics in Computing Technology in Education (4 credits)
Students pursue a research study, project, or implementation on special topics in computing technology in education.

DCTE 910 Dissertation I (12 credits)
The student develops a framework within which doctoral research will be conducted and offers evidence of qualifications to pursue the research. Prerequisite: Satisfactory completion of all course work.

DCTE 915 Dissertation II (12 credits)
Concepts and theories underlying the student's doctoral research are articulated, the problem is clearly stated, specific, measurable goals are specified, a thorough literature review is presented, the methods of conducting the research are delineated, and a strategy to achieve the goal is given. Prerequisite: Dissertation I.

DCTE 920 Continuing Dissertation (6 credits)
Students who have not completed the dissertation by the end of Dissertation II must register for Continuing Dissertation each term in order to receive faculty and administrative advice and support related to the dissertation. Prerequisite: Completion of Dissertation II.

DCTE 1200 Directed Independent Study (3 credits or 4 credits)
Involves directed readings, research, and creative activities under the supervision of a faculty member. A contract for the independent study must be prepared by the student, include an assignment time line, and be approved by the mentoring faculty member and the program director. NOTE: In special situations, a student may be granted permission to take a regular numbered course on an independent-study basis. In such cases, the same conditions would apply but the course number would reflect the regular numbered course.

Ph.D. Program in Information Science

This program offers a course of study leading to the degree of doctor of philosophy (Ph.D.) in information science. It is offered in both cluster and institute formats that combine traditional and online instruction to provide professionals the opportunity to pursue graduate study while continuing to work in their current positions. The program focuses on information organization and retrieval, which have evolved into issues of enormous importance in light of the continued rapid developments in computing technology. The program is especially well suited to professionals working in a library or information center environment in education, business, government, or industry. It provides research- and technology–oriented professionals the knowledge and ability to develop creative solutions to substantive real-world problems in information science. Each student must complete eight courses, four projects, and a dissertation.

Program-Specific Admission Requirements (See pp. 2–3 for general admission requirements.)

This program is designed for the student with a master's degree in information systems, information science, library science, computer education, or a closely related area. The candidate must have a significant amount of experience using computer applications and the Internet. Alternatively, SCIS master's students may apply for early admission into the Ph.D. program. (For details, see "General Information on Doctoral Degree Programs," and descriptions of individual master's programs, *SCIS Graduate Catalog*.)

The Curriculum for the Ph.D. in Information Science

The program requires 64 credit hours, of which 40 are required courses and projects and 24 are for the dissertation. Most students take two core/elective courses and one project course per term during the first two years and register for the dissertation in the third year. Core courses, elective courses, projects, and dissertation registrations are listed below:

Core Courses (three credits each) (All students **must** take these.)

- DISC 725 Online Information Systems
- DISC 735 Knowledge Managment
- DCTE 740 Telecommunications and Computer Networks
- DCTE 750 Educational Database Systems
- DISS 770 Information Policy
- DISS 780 Multimedia Systems

Elective Courses (three credits each) (Select two of these.)

- DCTE 700 Research Methodology (DCTE 800 must be taken concurrently)
- or DISS 700 Research Methodology (DISS 800 must be taken concurrently)
- DCTE 720 Human–Computer Interaction
- DCTE 730 Seminar in Online Learning Environments
- DISS 755 Information Security
- DISC 790 Special Topics in Information Science
- DCTE 747 Learning Theory and Computer Applications

Project Courses (four credits each) (Select four of these. Must be taken concurrent with, or following completion of, the corresponding core or elective course.)

- DCTE 800 Project in Research Methodology (must be taken concurrent with DCTE 700)
- or DISS 800 Project in Research Methodology (must be taken concurrent with DISS 700)
- DCTE 820 Project in Human–Computer Interaction
- DISC 825 Project in Online Information Systems
- DCTE 830 Project in Online Learning Environments
- DISC 835 Project in Knowledge Managment
- DCTE 840 Project in Telecommunications and Computer Networks
- DCTE 847 Project in Learning Theory and Computer Applications
- DCTE 850 Project in Educational Database Systems
- DISS 855 Project in Information Security
- DISS 870 Project in Information Policy
- DISS 880 Project in Multimedia Systems
- DISC 890 Project in Special Topics in Information Science

Dissertation Registrations

- DISC 910 Dissertation I (12 credits)
- DISC 915 Dissertation II (12 credits)
- DISC 920 Continuing Dissertation (6 credits)

Course Descriptions for the Ph.D. in Information Science

DCTE 700 Research Methodology (3 credits)
An in-depth treatment of the research process from an experimental, developmental, and evaluative perspective is provided. Techniques for planning and designing these types of projects, as well as the methodologies for data collection, evaluation, and analysis are examined. Special emphasis is placed on the appropriate choice of methodologies for a variety of problem situations in both business and educational settings. Major emphasis is placed on the development of the proposal stage of research.

DCTE 720 Human–Computer Interaction (3 credits)
Techniques facilitating effective human–computer interaction are presented. Basic elements, procedures, tools, and environments contributing to the development of a successful user interface are explored. Design principles, guidelines, and methodologies for building, installing, managing, and maintaining interactive systems that optimize user productivity are reviewed. Topics include the multidisciplinary dynamics of human-computer interaction, current and projected developments in HCI research, computer-supported cooperative work, and strategies for implementing and evaluating human–computer dialogues.

DISC 725 Online Information Systems (3 credits)
The evolution, design, and structure of online information systems. Principles, concepts, and techniques for information retrieval. Topics include the methodology of the search process, bibliometrics, the World Wide Web, user interface design and considerations, hypermedia, and related technologies, as well as information standards. Trends in system enhancements, use of online services for information retrieval, electronic document delivery, electronic publishing, and end-user training and support. Problems and issues associated with electronic information access and delivery.

DCTE 730 Seminar in Online Learning Environments (3 credits)
This course explores the emergence of online learning environments (OLEs) as viable alternatives or supplements to traditional classroom instruction. Students will investigate the theoretical, conceptual, instructional, and technical framework of implementing and using OLEs to support the learning paradigm. The basic technology and pedagogical implications of OLEs will be explored, including issues such as learning communities and learning technologies, the Internet and the Web, online electronic performance systems, asynchronous/synchronous communication tools, methods of instruction and online tools to support learning and instruction, design of OLEs, faculty and learner considerations, and evaluation of OLEs.

DISC 735 Knowledge Management (3 credits)
Principles of knowledge management and their use in locating, evaluating, disseminating, and using information and knowledge. Application of these principles and techniques through the use of rapidly evolving information/communication technologies is delineated in the context of a flexible and responsive organizational structure. This nexus, which can promote innovation, improve efficiency and effectiveness, and provide a sustainable competitive advantage in today's global environment, is outlined.

DCTE 740 Telecommunications and Computer Networks (3 credits)
Recent advances and new applications in the expanding field of telecommunications and computer networks are examined. The technical fundamentals, architecture, and design of computer networks are described. Strategies, tools, and techniques for network planning, implementation, management, maintenance, and security are delineated. Topics include ISDN, ATM, the OSI Model, transmission media, network operating systems, topologies, configurations, protocols, and performance characteristics. Trends in standardization, internetworking, and the development of local-area networks (LANs), metropolitan-area networks (MANs), wide-area networks (WANs), intranets, and extranets are examined.

DCTE 747 Learning Theory and Computer Applications (3 credits)
Computing technology is assuming an increasingly dominant role in instructional delivery. In this course, students explore learning theories and how learning is achieved when instruction is presented from a computer–based paradigm. The course examines the value of the computer as a learning device to model learning theories associated with behaviorism, cognitivism, and human information processing. An emphasis will be placed on current issues, future directions, and research topics.

DCTE 750 Educational Database Systems (3 credits)
Techniques for determining database requirements and managing organizational data resources are examined. Strategies for designing database management systems applications that satisfy specific requirements are presented. Components and architecture of the relational data model are analyzed. Methods for creating and implementing object–oriented information systems are explored. Topics include object–oriented languages, the user interface, databases and expert systems, distributed computing, and the advantages and drawbacks of commercially available DBMS tools and products.

DISS 755 Information Security (3 credits)
Security policies, models, and mechanisms for secrecy, integrity, and availability. Topics will include threats to information systems, information security policies and management issues, the evaluation of secure information systems, encryption and authentication, network security, requirements analysis, and the practical problems that have to be solved in order to make those technologies workable in a networked environment. Emphasis on current issues, future directions, and research areas.

DISS 770 Information Policy (3 credits)
Information technology's dramatic global impact on society, government, and the economy has given rise to complex legal, regulatory, and policy issues. This course explores issues ranging from the consequences of information commodification to the impact of privacy concerns, e-commerce, information ownership (patents/copyrights/trademarks), social equity, crime, free speech, telecommunications, national security, international trade, etc. All have immediate relevance to the IT workplace. While U.S. policy issues serve as the framework for the course, the U.S. experience is compared and contrasted to policy developments throughout the world.

DISS 780 Multimedia Systems (3 credits)
Advanced systems covering theoretical and practical issues in designing multimedia systems. Topics include introduction to multimedia systems, compression techniques, synchronization, user interface issues, storage, video indexing and retrieval techniques, operating system support for digital audio and video, as well as network and transport protocols for multimedia. An emphasis will be placed on current design issues, research topics, software implementation, and discussion of future directions.

DISC 790 Special Topics in Information Science (3 credits)
Advanced topics in areas of current research interest in information science. May include topics such as the virtual library, network security, the emerging national information infrastructure (NII), Internet issues, and design/implementation of information system services and applications. Topics will vary depending on student and faculty interest.

DCTE 800 Project in Research Methodology (4 credits)
This course will focus on the collection and analysis of data collected from experimental, developmental, and evaluative studies. Emphasis will be placed on the application of tools and techniques appropriate to the scenario and data type collected. The logical development of decisions based on the data analysis in terms of predefined hypotheses and/or project goals and objectives will be discussed. Major emphasis is placed on the development of the report stage of research.

DCTE 820 Project in Human–Computer Interaction (4 credits)
Students pursue a research study, project, or implementation in human–computer interaction.

DISC 825 Project in Online Information Systems (4 credits)
Students pursue a research study, project, or implementation in online information systems.

DCTE 830 Project in Online Learning Environments (4 credits)
Students pursue a research study, project, or implementation in online learning environments.

DISC 835 Project in Knowledge Management (4 credits)
Students pursue a research study, project, or implementation in knowledge management.

DCTE 840 Project in Telecommunications and Computer Networks (4 credits)
Students pursue a research study, project, or implementation in telecommunications and computer networks.

DCTE 847 Project in Learning Theory and Computer Applications (4 credits)
Students pursue a research study, project, or implementation in learning theory and computer applications.

DCTE 850 Project in Educational Database Systems (4 credits)
Students pursue a research study, project, or implementation in educational database management systems.

DISS 855 Project in Information Security (3 credits)
Students will pursue a research project or implementation on a current topic in information security and assurance. Topics: security-related applications and systems, vulnerability analysis, information security policies and management issues, security audits, and secure e-commerce.

DISS 870 Project in Information Policy (4 credits)
Students pursue a research study, project, or implementation in information policy.

DISS 880 Project in Multimedia Systems (4 credits)
Students pursue a research study or project on a current topic in multimedia systems. Some areas of current interest include design and implementation of interactive multimedia applications including interactive television (e.g., video-on-demand, home shopping, voting, and games), hypermedia systems, digital signal processing, network architectures and protocols, multimedia authoring, videoconferencing, and groupware.

DISC 890 Project in Special Topics in Information Science (4 credits)
Students pursue a research study, project, or implementation in special topics in information science.

DISC 910 Dissertation I (12 credits)
The student develops a framework within which doctoral research will be conducted and offers evidence of qualifications to pursue the research. Prerequisite: Satisfactory completion of all course work.

DISC 915 Dissertation II (12 credits)
Concepts and theories underlying the student's doctoral research are articulated, the problem is clearly stated, specific, measurable goals are specified, a thorough literature review is presented, the methods of conducting the research are delineated, and a strategy to achieve the goal is given. Prerequisite: Dissertation I.

DISC 920 Continuing Dissertation (6 credits)
Students who have not completed the dissertation by the end of Dissertation II must register for Continuing Dissertation each term in order to receive faculty and administrative advice and support related to the dissertation. Prerequisite: Dissertation II.

DISC 1200 Directed Independent Study (3 credits or 4 credits)
Directed readings, research, and creative activities under the supervision of a faculty member. A contract for the independent study must be prepared by the student, include an assignment time line, and be approved by the mentoring faculty member and the program director.

Ph.D. Program in Information Systems

This program offers a course of study leading to the degree of doctor of philosophy (Ph.D.) in information systems. It is offered in both cluster and institute formats that combine traditional and online instruction to provide professionals the opportunity to pursue graduate study while continuing to work in their current positions. The program is especially well suited to professionals working in areas such as information system planning, systems analysis and design, project management, information system administration, or software engineering. It provides technology–oriented professionals with the knowledge and ability to develop creative solutions to substantive real-world problems in information systems. Each student must complete eight courses, four projects, and a dissertation.

Program-Specific Admission Requirements (See pp. 2–3 for general admission requirements.)

This program is designed for the student with a master's degree in information systems, information science, computer science, or a related area. The applicant should satisfy graduate prerequisites or have equivalent experience in information systems, programming languages, database systems, systems analysis and design, data communications and networks, and computer architecture. Alternatively, SCIS master's students in information systems may apply for early admission into the Ph.D. program. (For details, see "General Information on Doctoral Degree Programs," and descriptions of individual master's programs, *SCIS Graduate Catalog*.)

The Curriculum for the Ph.D. in Information Systems

The program requires 64 credit hours, of which 40 are required courses and projects and 24 are for the dissertation. Most students take two core/elective courses and one project course per term during the first two years and register for the dissertation in the third year. Core/elective courses, project courses, and dissertation registrations are listed below:

Core Courses (three credits each)

All students **must** take the following four courses:

- DISS 710 Decision Support Systems
- DISS 720 Human–Computer Interaction
- DISS 725 The System Development Process
- DISS 750 Database Systems

All students **must** take one of the following courses:

- DISS 740 Telecommunications and Computer Networks
- DISS 791 Client–Server Computing

Elective Courses (three credits each) (Select three of these.)

- DISS 700 Research Methodology (must be taken with DISS 800, and concurrently)
- DISS 740 Telecommunications and Computer Networks (if not taken as a core course)
- DISS 755 Information Security
- DISS 770 Information Policy
- DISS 780 Multimedia Systems
- DCIS 790 Special Topics in Information Systems (offered on various subjects)
- DISS 791 Client–Server Computing (if not taken as a core course)

Project Courses (four credits each) (Select four of these. Must be taken concurrent with, or following completion of, the corresponding core or elective course.)

- DISS 800 Project in Research Methodology (must be taken with DISS 700, and concurrently)
- DISS 810 Project in Decision Support Systems
- DISS 820 Project in Human–Computer Interaction
- DISS 825 Project in the System Development Process
- DISS 840 Project in Telecommunications and Computer Networks
- DISS 850 Project in Database Systems
- DISS 855 Project in Information Security
- DISS 870 Project in Information Policy
- DISS 880 Project in Multimedia Systems
- DISS 890 Project in Special Topics in Information Systems
- DISS 891 Project in Client–Server Computing

Dissertation Registrations

- DISS 910 Dissertation I (12 credits)
- DISS 915 Dissertation II (12 credits)
- DISS 920 Continuing Dissertation (6 credits)

Course Descriptions for the Ph.D. in Information Systems

DISS 700 Research Methodology (3 credits)
This course generally covers advanced topics in areas of current research interest in information systems. It presents an in-depth treatment of the research process from an experimental, developmental, and evaluative perspective. Techniques for planning and designing these types of research projects, as well as the methodologies for data collection, evaluation, and analysis are examined. Special emphasis is placed on the appropriate choice of methodologies for a variety of problem situations in both business and educational settings. Major emphasis is placed on the development of the proposal stage of research carried out in conjunction with the student's dissertation. Corequisite: DISS 805.

DISS 710 Decision Support Systems (3 credits)
Structure, functions, capabilities, and limitations of decision support systems (DSS) are discussed. Development tools and techniques for constructing DSS are investigated. The focus is on automatic support for decision making and organizational problem solving. Topics include decision theory, modeling and simulation, decision support system architecture, group decision support systems, knowledge-based expert systems, and intelligent systems.

DISS 720 Human–Computer Interaction (3 credits)
Issues relating to effective human–computer interaction are presented. Basic elements, procedures, tools, and environments contributing to the development of successful user interfaces are explored. User interface design principles, guidelines, and methodologies are reviewed. Other topics include the multidisciplinary dynamics of human–computer interaction as a field of study, current and projected developments in HCI research, and usability engineering.

DISS 725 The System Development Process (3 credits)
System life-cycle models, application development strategies, and feasibility assessment. Techniques, methods, and tools for the analysis and specification of information systems. Design principles including abstraction, modularity, encapsulation, information hiding, and reusability. Quality factors. Contemporary design methods and tools, including object–oriented design and function–oriented design. Study of the verification and validation process. Integration and acceptance testing. Reliability measurement. Software testing techniques. Test of concurrent and real-time systems. Techniques for managing hardware, software, communications, distributed applications, multimedia systems, and end-user computing. Approaches to project planning, managing change and innovation, and facilitating computer and communications security.

DISS 740 Telecommunications and Computer Networks (3 credits)
Advances and new applications in telecommunications and computer networks. Technical fundamentals, architecture, and design of computer networks. Strategies, tools, and techniques for network planning, implementation, management, maintenance, and security. Topics include ISDN, ATM, the OSI Model, transmission media, network operating systems, topologies, configurations, protocols, and performance characteristics. Trends in standardization, internetworking, and the development of local-area networks (LANs), metropolitan-area networks (MANs), wide-area networks (WANs), intranets, and extranets.

DISS 750 Database Systems (3 credits)
Theory and principles of databases and their management. Design, implementation, and traditional and nontraditional applications of database management systems. Emphasis will be placed on current issues, future directions, and research topics.

DISS 755 Information Security (4 credits)
A study of security policies, models, and mechanisms for secrecy, integrity, and availability. Topics include threats to information systems, information security policies and management issues, the evaluation of secure information systems, encryption and authentication, network security, requirements analysis, and the practical problems that have to be solved in order to make those technologies workable in a networked environment. Emphasis on current issues, future directions, and research areas.

DISS 770 Information Policy (3 credits)
Information technology's dramatic global impact on society, government, and the economy has given rise to complex legal, regulatory, and policy issues. This course explores issues ranging from the consequences of information commodification to the impact of privacy concerns, e-commerce, information ownership (patents/copyrights/trademarks), social equity, crime, free speech, telecommunications, national security, international trade, etc. All have immediate relevance to the IT workplace. While U.S. policy issues serve as the framework for the course, the U.S. experience is compared and contrasted to policy developments throughout the world.

DISS 780 Multimedia Systems (3 credits)
Advanced systems covering theoretical and practical issues in designing multimedia systems. Topics include introduction to multimedia systems, compression techniques, synchronization, user interface issues, storage, video indexing and retrieval techniques, operating system support for digital audio and video, as well as network and transport protocols for multimedia. An emphasis will be placed on current design issues, research topics, software implementation, and discussion of future directions.

DISS 790 Special Topics in Information Systems (3 credits)
Covers advanced topics in areas of current research interest in information systems. May include topics such as client–server computing, distributed database systems, advanced computer graphics, object–oriented technology, the integration of networks and operating systems, ATM–based networks (asynchronous transfer mode), computer and network security, and parallel computation. Topics will vary depending on student and faculty interest.

DISS 791 Client–Server Computing (3 credits)
Emphasis on the information systems approach to client-server and distributed systems analysis, design, and management. The theory behind each component will be presented while exploring the impact it has on the business of managing information.

Topics include the components of client-server and distributed systems architecture, operating systems, networking, interprocess communication, user interface, middleware, distributed objects, security, and the software development process. The role of standards in client-server and distributed systems development is discussed, including a detailed study of protocols. Also included are the various relationships between client-server computing and business process reengineering, workflow automation, and groupware. Migration from legacy systems is considered along with project development and management.

DISS 800 Project in Research Methodology (4 credits)
Focuses on the collection and analysis of data collected from experimental, developmental, and evaluative studies. Emphasis will be placed on the application of tools and techniques appropriate to the scenario and data type collected. The logical development of decisions based on the data analysis in terms of predefined hypotheses and/or project goals and objectives will be discussed. Major emphasis is placed on the development of the report stage of research. Corequisite: DISS 805.

DISS 810 Project in Decision Support Systems (4 credits)
Completion of a research paper or project in the area of decision support systems. Some topics of current interest include comparisons of decision support aids, the relationship between decision support systems and expert systems, DSS hardware and software, group DSS, distributed DSS and data communications, and human problem solving through DSS.

DISS 820 Project in Human–Computer Interaction (4 credits)
Students produce a research paper or project on a current topic in HCI. Some topics of interest include interface quality and evaluation, computer system and computer interface architecture, Internet–based user interface design issues, legal and ethical aspects of computing, speech interfaces, and computer–supported cooperative work.

DISS 825 Project in the System Development Process (4 credits)
Students pursue a research study, project, or implementation in the system development process.

DISS 840 Project in Telecommunications and Computer Networks (4 credits)
Students pursue a research study, project, or implementation in computer networks and telecommunications.

DISS 850 Project in Database Systems (4 credits)
Students pursue a research study on a current topic in database systems or complete a database–oriented development project. Some areas of current interest include object–oriented database systems, extended relational DBMS, federated or heterogeneous database systems, high-performance parallel database systems, and advanced conceptual logic database modeling.

DISS 855 Project in Information Security (4 credits)
Students pursue a research project or implementation on a current topic in information security: security-related applications and systems, vulnerability analysis, information security policies and management issues, security audits, and secure e-commerce.

DISS 870 Project in Information Policy (4 credits)
Students pursue a research study, project, or implementation in information policy.

DISS 880 Project in Multimedia Systems (4 credits)
Students pursue a research study or project on a current topic in multimedia systems. Some areas of current interest include design and implementation of interactive multimedia applications including interactive television (e.g., video-on-demand, home shopping, voting, and games), hypermedia systems, digital signal processing, network architectures and protocols, multimedia authoring, and videoconferencing and groupware.

DISS 890 Project in Special Topics in Information Systems (4 credits)
Students pursue a research study, project, or implementation in special topics in information systems.

DISS 891 Project in Client–Server Computing (4 credits)
Completion of a research paper or project in Client-Server/Distributed Systems. Some topics of current interest include distributed object technology, QoS middleware, operating systems, information systems management, and groupware.

DISS 910 Dissertation I (12 credits)
The student develops a framework within which doctoral research will be conducted and offers evidence of qualifications to pursue the research. Prerequisite: Satisfactory completion of all course work.

DISS 915 Dissertation II (12 credits)
Concepts and theories underlying the student's doctoral research are articulated, the problem is clearly stated, specific, measurable goals are specified, a thorough literature review is presented, the methods of conducting the research are delineated, and a strategy to achieve the goal is given. Prerequisite: Dissertation I.

DISS 920 Continuing Dissertation (6 credits)
Students who have not completed the dissertation by the end of Dissertation II must register for Continuing Dissertation each term in order to receive faculty and administrative advice and support related to the dissertation. Prerequisite: Dissertation II.

DISS 1200 Directed Independent Study (3 credits or 4 credits)
Involves directed readings, research, and creative activities under the supervision of a faculty member. A contract for the independent study must be prepared by the student, include an assignment time line, and be approved by the mentoring faculty member and the program director. NOTE: In special situations, a student may be granted permission to take a regular numbered course on an independent-study basis. In such cases, the same conditions would apply but the course number would reflect the regular numbered course.

Faculty and Staff of the School of Computer and Information Sciences

The Faculty

Gertrude W. Abramson, Ed.D., Columbia University. Professor. Computer–supported education, hypermedia/ multimedia, instructional systems design and development, distance learning, instruction delivery systems.

James Cannady, Ph.D., Nova Southeastern University. Assistant Professor. Information security, artificial neural networks, distributed computing, machine learning, artificial intelligence.

Maxine S. Cohen, Ph.D., State University of New York at Binghamton. Associate Professor. Human–computer interaction, multimedia, usability engineering, database systems, distance education.

Laurie P. Dringus, Ph.D., Nova Southeastern University. Associate Professor. Human–computer interaction, group support systems, usability engineering, learning theory, distance learning.

Timothy J. Ellis, Ph.D., Nova Southeastern University. Assistant Professor. Multimedia, distance education, the Internet as a tool for education and commerce, adult education, networks and electronic communication.

George K. Fornshell, Ph.D., Nova Southeastern University. Associate Professor. Instructional systems development, multimedia, authoring systems, human factors, distance education.

William L. Hafner, Ph.D., Nova Southeastern University. Assistant Professor. Human-computer interaction, data warehousing, information storage and retrieval, computer security, artificial intelligence.

William M. Hartman, Ph.D., Nova Southeastern University. Lecturer. Software engineering, data communications, computer networks, decision support systems, mathematics in computing.

Michael J. Laszlo, Ph.D., Princeton University. Associate Professor. Data structures and algorithms, software engineering, programming, computer graphics.

Jacques Levin, Ph.D., University of Grenoble. Professor. Database management, modeling, distance education, decision support systems, numerical analysis.

Edward Lieblein, Ph.D., University of Pennsylvania. Professor and Dean. Software engineering, object-oriented design, programming languages, automata theory.

Marlyn Kemper Littman, Ph.D., Nova Southeastern University. Professor. Computer networks, ATM, wirefree and wire-based communications, network security, distance learning.

Frank Mitropoulos, M.S., Nova Southeastern University. Instructor. Programming languages, data structures, software engineering, object–oriented design, C, C++.

Sumitra Mukherjee, Ph.D., Carnegie Mellon University. Associate Professor. Database, decision support systems, information systems, network security, artificial intelligence, telecommunications.

Paul Rendulic, Ed.D., Florida International University. Associate Professor. Research methodology and statistics; learning theory; survey design, development, and analysis; and program evaluation.

John Scigliano, Ed.D., University of Florida. Professor. Management information systems, client-server computing, project management, instruction delivery systems.

Greg Simco, Ph.D., Nova Southeastern University. Assistant Professor. Operating systems, data communications, computer networks, client-server computing, online learning environments, C++, Java.

Junping Sun, Ph.D., Wayne State University. Associate Professor. Database management systems, object–oriented database systems, artificial neural networks.

Raisa Szabo, Ph.D., Budapest Technical Institute. Instructor. Computer architecture, artificial intelligence, neural networks, robotics, operations research, concurrent languages.

Steven R. Terrell, Ed.D., Florida International University. Professor. Research methodology and statistics, learning theory, distance education, computer-managed instruction.

Visiting and Adjunct Faculty

Anne Abate, Ph.D.
Ronald McFarland, Ph.D.
Richard Manning, Ph.D.
Robert Lipton, Ph.D.
David Metcalf II, Ph.D.
Terry McQueen, D.B.A.
Lee Leitner, Ph.D.
Steven Zink, Ph.D.

Teaching Assistants

Mohamad Foustok, M.S.
Jon Inouye, M.S.

The Administrative and Technical Staff

Admissions

Clare Singer, B.S., Director ext. 2003, singerc

Nancy Azoulay, B.S., Assistant Director ext. 2026, azoulayn

Richard North, Admissions Representative ext. 2002, rnorth1

Josette Davis, M.S., Admissions Representative ext. 2004, davisjos

Irene Stringer, Coordinator ext. 2001, stringer

Kenneth Mattis, B.A., M.M., Coordinator ext. 2005, mattiske

Cameran Morgan, B.A., Administrative Secretary ext. 2025, morganca

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Crystal Darville, Coordinator ext. 2053, darville

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Elizabeth Koenig, B.S., Adviser ext. 2061, koenige

Kristen Oldberg, Assistant to the Director ext. 2010, oldbergk

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Network and Software Services

Mark Powell, B.S., Senior Coordinator ext. 2015, powelma

Will Ferri, B.S., Coordinator ext. 2014, ferriw

Theodore Leonard, A.A., Coordinator ext. 2016, theo

Dean's Office

Edward Lieblein, Ph.D., Dean ext. 2034, lieblein

Bellarmin Selvaraj, Ph.D., Director, Research and Planning ext. 2048, selvaraj

Candy L. Fish, M.S., Operations Manager and Executive Asst. to the Dean ext. 2034, fishc

L. Kathleen Bryan, Coordinator, Faculty Support ext. 2032, bryankat

Dawn Sawyers, B.S., Receptionist ext. 2031, sawyerda

Finance and Administration

Barbara Edge, M.S., Director ext. 2043, barb

Claudia Chong, Manager ext. 2041, chongc

Elizabeth Vayda, Coordinator ext. 2042, vaydab

Ramona Moussignac, Coordinator ext. 2044, woodsr

Raysa Andrade, Assistant to the Director ext. 2040, andrade

Nova Southeastern University
School of Computer and Information Sciences

Ph.D. and Ed.D. Degree Programs
ADMISSION FORMS

The faculty and administrative staff of the School of Computer and Information Sciences (SCIS) are pleased that you have chosen to apply for admission. The admissions application should be accompanied by a $50 application fee (make checks payable to Nova Southeastern University).

Admission decisions are made on a rolling basis. To ensure evaluation for the desired starting term, reviewable applications must be received at least one month prior to the start of that term. Late applications that cannot be processed in time for the desired starting term will be considered for the next available term. Applicants may be granted *provisional admission* status pending completion of the application process.

To ensure that your application is complete, please use the checklist below and follow the detailed instructions provided for each item.

_____ 1. Application Form

_____ 2. Application Fee or Reinstatement Fee

_____ 3. Essay

_____ 4. Summary of Professional Experience

_____ 5. Three Evaluation Forms

_____ 6. Transcript Request Form(s)

_____ 7. Request for UNIX™ Account Form

Please mail items 1 through 4 and item 7 to:

Nova Southeastern University
School of Computer and Information Sciences
Office of Admissions
6100 Griffin Road
Fort Lauderdale, FL 33314-4416

For items 5 and 6, please follow the mailing instructions specified in the forms.

If you have any questions about the admissions process you may contact the Office of Admissions at (954) 262-2000 or toll free at 800-986-2247, or send email to *scisinfo@nova.edu.*

APPLICATION FORM
Ph.D. and Ed.D. Degee

Application Fee $50 (nonrefundable)

Nova Southeastern University
School of Computer and Information Sciences
Office of Admissions
6100 Griffin Road
Fort Lauderdale, FL 33314-4416
800-986-2247 or (954) 262-2000
Fax: (954) 262-3915

FOR OFFICE USE ONLY

Cluster Code: _____	Fee Rec'd: _____
Admit Status: _____	Major Code: _____
Admit Action: _____	Admit Type: _____
Apply Class: _____	Degree Code: _____
Rec'd: _____	Spec. Code: _____
Date Processed: _____	

PERSONAL DATA:

Social Security Number: _____ - _____ - _____ Home Telephone: ( ) _____

Date of Birth: _____/_____/_____ Sex: ☐ Male ☐ Female

_____
Last Name First Name MI Maiden

Mailing Address: _____

City: _____ State: _____ ZIP: _____ Country: _____

EMPLOYMENT INFORMATION:

Employer: _____ Job Title: _____

Address: _____ City: _____ State: _____ ZIP: _____

Work Telephone Number: ( ) _____ Email Address: _____

EMERGENCY CONTACT:

Name: _____ Telephone: ( ) _____ Relationship: _____

Address: _____ City: _____ State: _____ ZIP: _____

ANTICIPATED START DATE: ☐ Fall ☐ Winter ☐ Spring ☐ Summer Year: _____

ACADEMIC GOAL: ☐ Ph.D. ☐ Ed.D. ☐ Reinstatement ($50 fee)

PROGRAMS: (Please select the program of interest **and** the desired format.)

Institute Format: Entry dates are January and July; meets once every 6 months for one week.
Cluster Format: Entry dates are March and September; meets every 3 months for an extended weekend.

☐ Computer Information Systems (CIS)	☐ Cluster Only
☐ Computer Science (CS)	☐ Cluster Only
☐ Computing Technology in Education (CTE)	☐ Institute **or** ☐ Cluster
☐ Information Science (ISC)	☐ Institute **or** ☐ Cluster
☐ Information Systems (IS)	☐ Institute **or** ☐ Cluster

APPLICANT STATUS AT TIME OF APPLICATION:

First time attending NSU? ☐ YES ☐ NO Returning to NSU after absence? ☐ YES ☐ NO

You must complete this section or your application will not be processed.

Name of Institution	Country or State	Date Started	Date Ended	Major Field	Degree Earned	GPA

CITIZENSHIP STATUS: ☐ U.S. Citizen ☐ Resident Alien ☐ Nonresident Alien

Do you require an I-20? ☐ YES ☐ NO If you have a visa, indicate status code: _____

Country of Citizenship: _____ (Additional procedures are required for nonresident aliens.)

Is English your primary language? ☐ YES ☐ NO (If no, a TOEFL score of 550 or higher is needed.)

FINANCIAL AID: Have you filed for financial aid? ☐ YES ☐ NO

Have you filed a Free Application for Federal Student Aid (FAFSA)? ☐ YES ☐ NO

If yes, when was the FAFSA mailed? _____ Are you eligible for VA benefits? ☐ YES ☐ NO

COMPUTER EXPERIENCE:

How would you rate your overall computer ability: **Please circle: 0 1 2 3 4 5**

0 = No experience 3 = Ability to use standard applications software 5 = Very experienced

Are you able to upload and download files via the Internet? ☐ YES ☐ NO

What programming languages can you use with a high degree of proficiency? (Please use a separate sheet, if necessary, to explain your experience with these languages.)

What application programs can you use with a high degree of proficiency?

HOW DID YOU FIRST HEAR ABOUT THIS PROGRAM? Please check appropriate box.

- ☐ Friend/Colleague
- ☐ NSU Staff Member
- ☐ NSU Student or Graduate
- ☐ Direct Mail
- ☐ TV or Radio Commercial
- ☐ SREC
- ☐ Web Site (specify) _____
- ☐ Newspaper (specify) _____
- ☐ Information Meeting (where) _____
- ☐ Conference (specify) _____
- ☐ Magazine (specify) _____
- ☐ Other (specify) _____

Family Educational Rights and Privacy Act (Buckley Amendment)

Please check the appropriate phrase and sign your name.

Pursuant to the Buckley Amendment enacted on December 31, 1974,

I DO _____ or **DO NOT** _____

give permission for my name, address, and/or phone number to be used for promotional purposes.

_____ _____

Applicant's Signature Date

I DECLARE THAT THE INFORMATION CONTAINED IN THIS APPLICATION, TO THE BEST OF MY KNOWLEDGE, IS COMPLETE AND ACCURATE. I AGREE TO ABIDE BY ALL RULES AND REGULATIONS OF NOVA SOUTHEASTERN UNIVERSITY.

_____ _____

Applicant's Signature Date

NOTICE OF NONDISCRIMINATION

Nova Southeastern University admits students of any race, color, sex, age, nondisqualifying disability, religion or creed, or national or ethnic origin to all the rights, privileges, programs, and activities generally accorded or made available to students at the school, and does not discriminate in administration of its educational policies, admissions policies, scholarship and loan programs, and athletic and other school-administered programs.

Nova Southeastern University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097; Telephone number 404-679-4501) to award bachelor's, master's, educational specialist, and doctoral degrees.

School of Computer and Information Sciences
Nova Southeastern University

ESSAY
(Please use separate sheets)

The content of your essay, as well as the quality of your writing, will be evaluated by the Admissions Committee. The essay should contain a minimum of 500 words but should not exceed two pages of single-spaced text. You should discuss your reasons for pursuing this degree, why you decided to apply to Nova Southeastern University, the nature of your work, your long-term goals, and any other topics you wish to bring to the attention of the Admissions Committee.

Certification of Authorship of Essay

Attach this form to the essay

Applicant's Name: _____

Date: _____

Certification of Authorship: I hereby certify that I am the author of this essay and that any assistance I received in its preparation is fully acknowledged and disclosed in this document. I have also cited all sources from which I obtained data, ideas, or words that are copied directly or paraphrased in the document. Sources are properly credited according to accepted standards for professional publications.

Applicant's Signature: _____

School of Computer and Information Sciences
Nova Southeastern University

SUMMARY OF PROFESSIONAL EXPERIENCE

Please submit a Summary of Professional Experience. It will be evaluated thoroughly to determine, in part, your potential ability to succeed in graduate studies. The Summary of Professional Experience is a special type of resume designed to highlight the skills and knowledge you have gained through your professional career. *The importance of detail and completeness in the preparation of this summary cannot be underestimated.*

The following areas should be included in the Summary of Professional Experience:

1. **Employment history** (specific job titles and dates). Include all relevant work experience including job descriptions and responsibilities. List employment in reverse chronological order (most-recent first).

2. **Experience with computer systems.** List relevant computer-based work experiences with operating systems, software, hardware computer languages, teleconferencing, multimedia, and video. Describe the nature and length of experiences.

3. **Workshops, seminars, conferences, and special meetings attended** (list topics). Technical education course work should be fully documented. You may include course descriptions to support relevance of courses you have taken. Provide a detailed description of the learning activities that you have participated in at conferences.

4. **Publications, proposals, and reports you have authored.** Writing is a critical success factor in graduate work. Your Summary of Professional Experience should be used to highlight your writing abilities and scholarship potential. Where appropriate, provide a detailed list covering the following areas (titles, dates, coauthors, and publishers should be listed):
   - Grants
   - Professional Publications
   - Proposals
   - Reports
   - Other

5. **Technology accomplishments of significance.** Provide detailed descriptions of your roles and contributions.

6. **Awards, achievements, or special recognition you have received.** Provide a list.

7. **Membership and offices held in professional organizations.** Identify special roles and functions you may have performed.

While the above areas are specific, you should tailor the contents of each section to support your acceptance into the SCIS program of your intent. Special attention should be given to your strengths. Your goal is to provide the most effective materials that prove you have an adequate background to enter and succeed in the specialization area in which you are seeking your Ph.D. or Ed.D. degree.

School of Computer and Information Sciences
Nova Southeastern University

EVALUATION FORM

(Please photocopy this form as necessary)

TO THE APPLICANT: Please send this form to individuals who are familiar with your academic and/or professional capabilities and are able to assess your intellectual abilities, maturity, and motivation. Forms from family members or individuals who are unable to evaluate your academic or professional background are unacceptable.

TYPE OR PRINT THE FOLLOWING INFORMATION:

Applicant's Name:

_____ SS#: _____ - _____ - _____
Last Name First Name MI

Mailing Address: _____

City: _____ State: _____ ZIP: _____ Country: _____

Present Occupation: _____ Employer/Institution: _____

Degree Sought: _____ Program: _____

Expected Date of Entry: _____

NAME AND TITLE OF EVALUATOR:

_____

Family Educational Rights and Privacy Act (Buckley Amendment)

Under the provisions of this act, you have the right, if you enroll at Nova Southeastern University, to review your educational records. The act further provides that you may waive your right to see recommendations for admission. Please indicate below by checking the appropriate phrase and signing your name whether or not you wish to waive that right.

I WAIVE _____ or **DO NOT WAIVE** _____ any right that I have to this recommendation.

Applicant's Signature: _____ Date: _____

TO THE EVALUATOR: The person named on the previous page has applied for admission to a Ph.D. or Ed.D. program at the School of Computer and Information Sciences, Nova Southeastern University. You are being asked to evaluate his/her potential for success in this program.

1. How long have you known the applicant and in what capacity? (Give dates, if possible.)

_____

_____

2. Estimate of potential as a degree candidate:

_____ Outstanding _____ Above Average _____ Average _____ Below Average

3. Recommendation concerning admissions (check one):

_____ I recommend the applicant with confidence.

_____ I recommend the applicant with reservation.

_____ I do not recommend the applicant.

4. (For teachers of applicant only.) I would rank this applicant in the top _____% of approximately

_____ undergraduate or _____ graduate students I have taught in the past _____ years.

5. Please rate the applicant in each area listed below in comparison with others you have known:

	UPPER 5%	UPPER 10%	UPPER 25%	UPPER 50%	LOWER 50%	NO BASIS TO JUDGE
Intellectual Ability						
Oral Expression						
Written Expression						
Motivation/Initiative						
Cooperation						
Emotional Maturity						
Dependability						
Creativity						
Ability to Work with Others						
Ability to Work Independently						
Ability to Reason						
Overall Potential						

Please provide any additional assessment of the applicant's potential for success in graduate school. Include any particular strengths and/or weakness. We would appreciate your candid appraisal. Attach separate sheets if necessary.

Name: _____ Signature: _____

Position: _____ Date: _____

Organization: _____ Phone: _____

Please return this form to:
Nova Southeastern University
School of Computer and Information Sciences
Office of Admissions
6100 Griffin Road
Fort Lauderdale, Florida 33314-4416

TRANSCRIPT REQUEST FORM

(Please photocopy this form as necessary)

TO THE APPLICANT: It is important that transcript requests are sent to your previous school(s) in a timely fashion in order to aid in the admission process. Fill in the blanks on both parts of the form. It is suggested that you call your previous school(s) to find out if a fee should accompany this transcript request form. Mail the entire form and any fee required to your previous school(s).

TO PREVIOUS SCHOOL/COLLEGE:

Please send an official transcript of my academic work while attending your institution to the School of Computer and Information Sciences at Nova Southeastern University.

A. I attended your institution from _____ to _____

B. While in attendance, my name was:

_____

Last First MI Maiden

C. My student identification number was: _____

_____

Signature

- -

PREVIOUS SCHOOL: PLEASE RETURN THIS FORM WITH TRANSCRIPT. THANK YOU.

TRANSCRIPT TRANSMITTAL FORM

Social Security Number _____ Date _____

Name _____

Last First MI Maiden

Address _____

City _____ State _____ ZIP _____

Please send one official transcript to:

NOVA SOUTHEASTERN UNIVERSITY
School of Computer and Information Sciences
Office of Admissions
6100 Griffin Road
Fort Lauderdale, FL 33314-4416

School of Computer and Information Sciences

REQUEST FOR UNIX™ ACCOUNT

NAME: _____ SS#: _____ - ____ - _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

HOME PHONE: ( ) _____ WORK PHONE: ( ) _____

DEGREE PROGRAM
Please indicate your degree program by checking the appropriate box

MASTER'S

- ☐ Computer Science
- ☐ Computer Information Systems
- ☐ Computing Technology in Education
- ☐ Management Information Systems
- ☐ Non–Degree

DOCTORAL

- ☐ Computer Science
- ☐ Computer Information Systems
- ☐ Computing Technology in Education
- ☐ Information Science
- ☐ Information Systems

Which is your preferred operating system for accessing NSU's Unix™ systems?

☐ Windows 95 (or higher) ☐ Macintosh System 8.0 (or higher) ☐ Other

Name of your Internet service provider (ISP)? _____
All students are required to have an ISP. If you do not have an ISP, please call (954) 262-2016 for instructions.

IMPORTANT:

I have read and understand the computing account security agreement, policies on acceptable use, and use of material in Web pages policy contained in this application package and agree to abide by them.

_____ _____
Student's Signature (required) **Date**

ACCOUNT INFORMATION - FOR OFFICE USE ONLY

ESTABLISHED: _____ GROUP: _____

USERNAME: _____ QUOTA: _____

PASSWORD: _____ RESOURCE: _____

NOVA SOUTHEASTERN UNIVERSITY

COMPUTING ACCOUNT SECURITY AGREEMENT

Nova Southeastern University has adopted rules for computing. The following rules outline your responsibilities for securing your computing account. This is not, however, a comprehensive list of all online policies, procedures, and responsibilities. Consult the NSU Policy Regarding Use of Computers and Network Systems. If you misuse your account, these privileges may be withheld. You must read and agree to abide by this agreement by signing your account request form before your account can be activated.

Your computer account is to be used only by you. Do not share your account with other individuals. The password to your account must be kept secure. Make sure you commit your password to memory. You may change your password at any time with the *passwd* command. Always choose a password that is difficult to guess. Your password should conform to the following rules:

- It must be eight characters in length.
- It must not be any word that may be found in a dictionary.

Choose a password that is meaningful to you but not obvious to anyone else. Examples of acceptable passwords are: 29py94ju, x#jk*azd, 1^xx%bcd.

NSU computer systems will automatically monitor your password on a regular basis. If your password is "guessed" by the system, you will be sent electronic mail indicating that this has happened. If this occurs, change your password immediately to prevent anyone from tampering with your account.

It is your responsibility to make backups of your files on your own computer. NSU is not responsible for the loss of your computer files.

There are no specific limits to online time; however, you are encouraged to use your online time wisely in order to conserve resources. Online time that has been excessive and/or used for unauthorized purposes can result in a charge to you.

If you do not access your account for a period of one year, your account will be reviewed and may be deactivated. You must contact your account coordinator to request reactivation of your account.

If you have trouble accessing your account or forget your password, please contact your account coordinator. He/she can facilitate any changes needed to get you working again.

The School of Computer and Information Sciences

Policy on Acceptable Use of Computing Resources

This policy provides guidelines for the appropriate and inappropriate use of the computing resources of Nova Southeastern University. It applies to all users of the university's computing resources, including students, faculty members, staff, alumni, and guests of the university. Computing resources include all computers, related equipment, software, data, and local area networks for which the university is responsible, as well as networks throughout the world to which the university provides computer access.

The computing resources of Nova Southeastern University are intended to be used for its programs of instruction and research and to conduct the legitimate business of the university. All users must have proper authorization for the use of the university's computing resources. Users are responsible for seeing that these computing resources are used in an effective, ethical, and legal manner. Users must apply standards of normal academic and professional ethics and considerate conduct to their use of the university's computing resources. Users must be aware of the legal and moral responsibility for ethical conduct in the use of computing resources. Users have a responsibility not to abuse the network and resources, and to respect the privacy, copyrights, and intellectual property rights of others.

In addition to the policy contained herein, usage must be in accordance with applicable university policies (see "Related Policies" listed elsewhere in this policy) and applicable state and federal laws. Among the more important laws are the Florida Computer Crimes Act, the Federal Computer Abuse Amendment Act 1994, the Federal Electronic Communications Privacy Act, and the U.S. Copyright Act. Copies of these laws and the NSU copyright policy may be examined in the Office of Academic Affairs.

Policy violations generally fall into five categories that involve the use of computing resources:

1. for purposes other than the university's programs of instruction and research and the legitimate business of the university
2. to harass, threaten, or otherwise cause harm to specific individuals or classes of individuals
3. to impede, interfere with, impair, or otherwise cause harm to the activities of others
4. to download, post, or install to university computers, or transport across university networks, material that is illegal, proprietary, in violation of license agreements, in violation of copyrights, in violation of university contracts, or otherwise damaging to the institution
5. to recklessly or maliciously interfere with or damage computer or network resources or computer data, files, or other information

Examples (not a comprehensive list) of policy violations related to the above five categories include:

- using computer resources for personal reasons
- sending email on matters not concerning the legitimate business of the university
- sending an individual or group repeated and unwanted (harassing) email or using email to threaten someone
- accessing, or attempting to access, another individual's data or information without proper authorization (e.g., using another's computing account and password to look at his/her personal information)
- propagating electronic chain mail, pyramid schemes, or sending forged or falsified email

- obtaining, possessing, using, or attempting to use someone else's password, regardless of how the password was obtained
- copying a graphical image from a Web site without permission
- posting a university site-licensed program to a public bulletin board
- using illegally obtained licensed data/software, or using licensed data/software in violation of its license or purchase agreement
- releasing a virus, worm, or other program that damages or otherwise harms a system or network
- preventing others from accessing services
- attempting to tamper with or obstruct the operation of NSU's computer systems or networks
- using or attempting to use NSU's computer systems or networks as a means for the unauthorized access to computer systems or networks outside the university
- viewing, distributing, downloading, posting, or transporting child, or any, pornography via the Web, including sexually explicit material for personal use that is not required for educational purposes
- using university resources for unauthorized purposes (e.g., using personal computers connected to the campus network to set up Web servers for illegal, commercial, or profit-making purposes)
- violating federal copyright laws or the NSU copyright policy

Inappropriate conduct and violations of this policy will be addressed by the appropriate procedures and agents (e.g., the Office of the Dean, the Office of the Vice President for Academic Affairs, or the Office of Human Resources) depending on the individual's affiliation to the university. In cases where a user violates any of the terms of this policy, the university may, in addition to other remedies, temporarily or permanently deny access to any and all NSU computing resources, and appropriate disciplinary actions may be taken, up to and including dismissal.

RELATED POLICIES:

Student-Related:	Student Code of Conduct and Academic Integrity
Faculty-Related:	Faculty Policy Manual
Staff-Related:	Employee Handbook
General Policies:	Copyright and Patent Policy
	Computing Account Security Agreement
	Policy on the Use of Material in Web Pages

The School of Computer and Information Sciences

Policy on the Use of Material in Web Pages

You should assume that materials you find on the Web are copyrighted unless a disclaimer or waiver is expressly stated. You may not place any materials owned by others, i.e., copyrighted works, on your Web page(s) without the expressed permission of the copyright owner. (Examples: graphic images from other Web pages, articles, video, audio, photographs, software, or images scanned from published works.) You may include short quotations of text, provided you identify in an obvious way (e.g., in a footnote) the author and the work from which the quotation is taken. If you want to include something from another Web page in one of your Web pages, then link to it rather than copy it. The occurrence of plagiarism on your Web page is subject to the same sanctions that apply to plagiarism in any other media. Images in the NSU graphics repository may be used on Web pages without permission. Clip art images provided with licensed software may be used if permitted in the license agreement for such software. You may not place any pictures or videos of people on a Web page without the expressed permission of the people in the picture or video. Every person has a right to privacy, which includes the right to restrict the use of his/her own image. In addition, the picture or video may be protected by copyright.

If you have received formal permission to use material owned by another, place the following notice on the page that contains the copied material:

Copyright <year of copyright> by <name of the copyright owner>. Used with permission.

Although a copyright notice is not required to assert your rights to your own original material, you may want to include a minimal notice of copyright in a Web page footer when appropriate. When used, the copyright notice should appear as follows*:

Individual Web pages:
Copyright <year of copyright> <your name>. All Rights Reserved.

Organization Web pages (examples):
Copyright 2000 Cornell Law Review. All Rights Reserved.
Copyright 1997 Nova Southeastern University. All Rights Reserved.
Copyright 1999 the School of Computer and Information Sciences. All Rights Reserved.

Related policies that also apply to Web pages are as follows:

1. General Policies:
   Policy on Acceptable use of Computing Resources
   Copyright and Patent Policy
   Computing Account Security Agreement

2. Student-related: Student Code of Conduct and Academic Integrity (in SCIS Graduate Catalog)

3. Faculty/Administrator-related: Faculty/Academic Administrator Policy Manual

4. Staff-related: The NSU Employee Handbook

*The symbol © may be used in lieu of "copyright" or immediately after it.

School of Computer and Information Sciences

What are my computer requirements?

You must have an active account with an Internet Service Provider (ISP) before starting the program. Students may use either a IBM-compatible PC or Apple/Macintosh computer for their online studies. The following are ***minimum*** computer system requirements:

IBM-compatible PC:

- Pentium 200MMX processor or higher, Pentium II (or higher) processor recommended.
- Windows 95 or Higher, Windows NT 4 or Higher.
- 64 Megabytes of RAM (or higher).
- 28.8kb Modem (or faster) internet connection through an account on an ISP (Internet Service Provider), or a network connection to the Internet. Please note that your connection to the internet must **not** initiate from behind a **firewall**.
- floppy/CD-ROM/hard drive.
- Full Duplex Sound card with speakers/headphones and microphone.
- SVGA(1024 x 768) or higher display.

Macintosh:

- PowerPC 120Mhz processor or higher, G3 processor recommended. If you have an older Macintosh, you may check the Apple Product Info Archive to see what processor it has
- System 8.0 or higher operating system.
- 64 Megabytes of RAM (or higher).
- 28.8kb Modem (or faster) internet connection through an account on an ISP (Internet Service Provider), or a network connection to the Internet. Please note that your connection to the internet must **not** initiate from behind a **firewall**.
- floppy/CD-ROM/hard drive.
- Full Duplex Sound with a microphone.
- 1024 x 768 or higher display resolution, thousands of colors.

Software:

- Netscape 4.04 or higher, or Microsoft Internet Explorer 4.0 or higher. Please note that proprietary browser versions (those not downloaded directly from Netscape or Microsoft) may not work reliably with SCIS online systems.
- Suggested: Microsoft Office 97 (or higher). If you use other "office" type programs, please note that some professors may ***require*** you to convert your files to an MS-Office compatible format for online submission.

NOVA
SOUTHEASTERN
UNIVERSITY

School of Computer and Information Sciences
6100 Griffin Road
Fort Lauderdale, Florida 33314-4416

800-986-2247
(954) 262-2000

Email: *scisinfo@scis.nova.edu*
Web site: *www.scis.nova.edu*

NOTICE OF NONDISCRIMINATION
Nova Southeastern University admits students of any race, color, sex, age, nondisqualifying disability, religion or creed, or national or ethnic origin to all the rights, privileges, programs, and activities generally accorded or made available to students at the school, and does not discriminate in administration of its educational policies, admissions policies, scholarship and loan programs, and athletic and other school-administered programs.

Nova Southeastern University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097; telephone number: 404-679-4501) to award bachelor's, master's, educational specialist, and doctoral degrees.

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