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# Graduate School of Computer and Information Sciences-Doctoral Degree Programs 2003-2005

Nova Southeastern University

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# Doctoral Degree Programs

- **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.)**



**Graduate School of Computer  
and Information Sciences**

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## Documents and Policies

The catalog of the Graduate School of Computer and Information Sciences (SCIS) is the governing document for all program-related information. Please become familiar with the policies and procedures contained within it. Official versions of the catalog will be posted to the school's website. The catalog posted most recently to the website supercedes previous web and printed versions. In addition, the *NSU Student Handbook* specifies rights, responsibilities, and specific university policies and procedures. It is provided to new students on CD-ROM and may be downloaded from the school's website. Failure to read the catalog and handbook does not excuse students from the rules, policies, and procedures contained therein. If there is any conflict between the information contained in the catalog and handbook and that contained in this or any other document, the information in the catalog and handbook prevails. Policies, regulations, requirements, and fees, are necessarily subject to change without notice at any time at the discretion of the Nova Southeastern University administration. The university reserves the right for any reason to cancel or modify any course or program listed herein. In addition, individual course offerings may vary from year to year as circumstances dictate.

## Accreditation

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. Eight of the school's graduate programs have been certified for inclusion in the Southern Regional Education Board's Electronic Campus.

## 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 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.

## Academic Calendar, Doctoral Programs (Doctoral programs have rolling admissions)

### Fall 2003 (Sept 5 2003 – Feb 3 2004) Term Code: 200420

Jul 28–Aug 21 03	Registration period (no late fees)
Aug 22–Sept 5 03	Late registration period (late fees)
Sept 4 03	New student orientation
Sept 5 03	First day of term
Sept 5–7 03	First meeting dates
Sept 6 03	Drop/add deadline
Dec 5–7 03	Second meeting dates
Jan 13 04	Last day to withdraw from a course with a final grade of W
Feb 3 04	Last day of term

### Winter 2004 (Jan 4 – Jun 3 2004) Term Code: 200430

Nov 24–Dec 18 03	Registration period (no late fees)
Dec 19 03–Jan 4 04	Late registration period (late fees)
Jan 3 04	New student orientation
Jan 4 04	First day of the term
Jan 4–9 04	Meeting dates
Jan 5 04	Drop/add deadline
May 13 04	Last day to withdraw from a course with a final grade of W
Jun 3 04	Last day of term

### Spring 2004 (Mar 5 – Aug 3 2004) Term Code: 200440

Jan 26–Feb 19 04	Registration period (no late fees)
Feb 20–Mar 5 04	Late registration period (late fees)
Mar 4 04	New student orientation
Mar 5 04	First day of the term
Mar 5–7 04	First meeting dates
Mar 6 04	Drop/add deadline
Jun 4–6 04	Second meeting dates
Jul 13 04	Last day to withdraw from a course with a final grade of W
Aug 3 04	Last day of term

### Summer 2004 (Jul 11 – Dec 10 2004) Term Code: 200515

Before Jun 25 04	Registration period (no late fees)
Jun 25–Jul 11 04	Late registration period (late fees)
Jul 10 04	New student orientation
Jul 11 04	First day of term
Jul 11–16 04	Meeting dates
Jul 12 04	Drop/add deadline
Nov 19 04	Last day to withdraw from a course with a final grade of W
Dec 10 04	Last day of term

### Fall 2004 (Sept 10 2004 – Feb 9 2005) Term Code: 200520

Before Aug 27 04	Registration period (no late fees)
Aug 27–Sept 10 04	Late registration period (late fees)
Sept 9 04	New student orientation
Sept 10 04	First day of term
Sept 10–12 04	First meeting dates
Sept 11 04	Drop/add deadline
Dec 3–5 04	Second meeting dates
Jan 19 05	Last day to withdraw from a course with a final grade of W
Feb 9 05	Last day of term

### Winter 2005 (Jan 9 – Jun 8 2005) Term Code: 200530

Before Dec 24 04	Registration period (no late fees)
Dec 24 04–Jan 9 05	Late registration period (late fees)
Jan 8 05	New student orientation
Jan 9 05	First day of term
Jan 9–14 05	Meeting dates
Jan 10 05	Drop/add deadline
May 18 05	Last day to withdraw from a course with a final grade of W
Jun 8 05	Last day of term

### Spring 2005 (Mar 4 – Aug 3 2005) Term Code: 200540

Before Feb 18 05	Registration period (no late fees)
Feb 18–Mar 4 05	Late registration period (late fees)
Mar 3 05	New student orientation
Mar 4 05	First day of term
Mar 4–6 05	First meeting dates
Mar 5 05	Drop/add deadline
Jun 3–5 05	Second meeting dates
Jul 13 05	Last day to withdraw from a course with a final grade of W
Aug 3 05	Last day of term

A major force in educational innovation, the Graduate School of Computer and Information Sciences (SCIS) provides educational programs of distinction to prepare students for leadership roles in its disciplines. Its strengths include a distinguished faculty, a cutting edge curriculum, and flexible online and campus-based formats for its four M.S. and five Ph.D. programs. It has approximately 2,000 graduate students. All programs enable working professionals to earn the M.S., Ph.D., or Ed.D. without interrupting their careers. The school also welcomes students who wish to attend full-time, whether on-campus or online. On-campus evening master's degree programs are tailored to meet the needs of South Florida residents. Online master's degree programs require no campus attendance and are available to part-time or full-time students worldwide. A unique online doctoral program requires only four weekend or two weeklong campus visits each year. The school has online students living in almost every state in the United States and in more than 25 foreign countries.

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*, the school currently offers more than 300 online classes annually. The school has been a pioneer in online graduate education. It began offering online programs in 1983 and created the first electronic classroom in 1985. Since that time, it has developed other unique software tools to enhance the online learning environment.

SCIS has been awarding graduate degrees since 1983. Its research advances knowledge, improves professional practice, and contributes to understanding in the computer and information sciences. In addition to its regional accreditation by the Commission on Colleges of the Southern Association of Colleges and Schools, the school is a certified member of the Electronic Campus of the Southern Regional Education Board, and most of its online programs and courses are offered via this highly successful consortium. The school also participates in several federal and military programs including the DANTES Distance Learning Program and the U.S. Army's new online initiative, eArmyU. The school has a chapter of Upsilon Pi Epsilon (UPE), the International Honor Society for the Computing and Information Disciplines, and a student chapter of the Institute of Electrical and Electronic Engineers (IEEE), the largest in Florida.

The M.S. requires 36 credit hours. It may be completed in 12–18 months. Terms are 12 weeks long. There are four terms each year. Terms start in September, January, March, and June. The school's master's degree students may apply for early admission into the doctoral program which provides 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 members 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, while taking courses, attend four cluster sessions per year, held quarterly over an extended weekend (Friday, Saturday, and half-day Sunday) at the university. Cluster terms start in September and March. Institute students, while taking courses, 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 learning methods involve web pages to access course materials, announcements, the electronic library, and other information, plus a range of activities that facilitate student-professor and student-student interaction. Faculty members and students interact via forums using threaded discussion boards, email, chatrooms, electronic classrooms, and online submission of assignments in multimedia formats.

Located on a beautiful 300-acre campus in Fort Lauderdale, Florida, NSU has more than 20,000 students and is the largest independent institution of higher education in the Southeast United States. It is the 10th largest private university in the United States. NSU awards bachelor's, master's, educational specialist, doctoral, and first-professional degrees in more than 80 disciplines. It has an undergraduate college and graduate schools of medicine, dentistry, pharmacy, allied health, optometry, law, computer and information sciences, psychology, education, business and entrepreneurship, oceanography, and humanities and social sciences.



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

- thirty-nine college presidents and chancellors
- more than 100 college vice presidents, provosts, deans, and department chairs
- sixty-five school superintendents in 16 states, including nine of the nation's largest school districts
- hundreds of college and university faculty members nationwide
- high-ranking U. S. military officers, including admirals and generals, and business presidents, vice presidents, executives, and researchers at companies such as American Express, AT&T, BellSouth, General Electric, GTE, IBM, Microsoft, Motorola, Nortel Networks, Sun Microsystems, TI, and Westinghouse

### Degrees and Programs of the Graduate School of Computer and Information Sciences (SCIS)

#### *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

Admission is competitive; consequently applicants who meet the minimum requirements specified in the catalog are not assured admission. The school qualitatively and quantitatively evaluates applicants and makes selections based on performance, personal qualifications, and evidence of potential for success. Admission decisions are made on a rolling basis. Applications will be reviewed by the Admissions Committee after the following items have been received by the admissions office: application form, application fee, essay, summary of professional experience or GRE scores, three evaluation forms and all transcripts (unofficial copies are acceptable pending receipt of official transcripts). To ensure evaluation for the desired starting term 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 not having an immediate degree objective are welcome to apply for master's-level courses. Newly admitted students must register within two years from the date of their first possible registration. Failure to do so will require a formal petition for readmission. Applicants must meet the requirements 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 of admission materials are contained in the admission forms, which may be downloaded from: [http://www.scis.nova.edu/NSS/pdf\\_documents/index.html](http://www.scis.nova.edu/NSS/pdf_documents/index.html).

To obtain additional information, contact:

Graduate School of Computer and Information Sciences  
Nova Southeastern University  
3301 College Avenue  
Fort Lauderdale, Florida 33314-9918

Telephone: 800-986-2247 or 954-262-2000  
Email: <mailto:scisinfo@nova.edu>  
Website: <http://www.scis.nova.edu/>

### Minimum Admission Requirements for U.S. Citizens or Permanent Residents

1. An earned master's degree with a GPA of at least 3.25 from a regionally accredited institution with an appropriate major (see program-specific admission requirements under individual programs). Alternatively, SCIS master's degree students may apply for early admission into the doctoral program with the same major (see master's brochure or SCIS catalog for requirements).
2. Application form, application fee, and essay.
3. Official transcripts of all graduate and undergraduate education.
4. Evaluation forms from three people who are familiar with your academic and/or professional capabilities and can assess your intellectual abilities, maturity, and motivation. Forms from your professors are preferred. Forms from family members or those unable to evaluate your academic potential are unacceptable.
5. Summary of professional experience or score report of the Graduate Record Examination (GRE).
6. Proficiency in the English language is a prerequisite for graduate study at the Graduate School of Computer and Information Sciences. Doctoral students are expected to write numerous papers and a dissertation. 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. The applicant must have a university-level education equivalent to a regionally-accredited United States master's degree in a related field (see program-specific admission requirements in this brochure) with an equivalent GPA of at least 3.25. To enable SCIS to determine equivalencies, the applicant must have his or her degree evaluated by an agency that is a member of the National Association of Credential Evaluation Services (NACES). For current information on evaluation agencies visit <http://www.naces.org/members.htm>.
3. The applicant whose native language is not English and who has not earned a degree at an English-speaking university must take the Test of English as a Foreign Language (TOEFL). The applicant may take the test in one of two ways: (a) paper-based; or (b) computer-based. A minimum score of 550 is required in the paper-based test. A minimum score of 213 is required in the computer-based test. Scores must be no more than two years old. Test results must be sent directly to the Graduate School of Computer and Information Sciences from the TOEFL Score Reporting Service. For information on TOEFL/TSE Services: (1) visit <http://www.toefl.org/>; (2) write to TOEFL/TSE Services, P.O. Box 6153, Princeton, NJ, USA 08541-6153; (3) call (609) 771-7100; or (4) fax: (609) 771-7500.
4. After admission, the international doctoral student may choose to reside in the United States or travel to the United States only to attend four cluster weekends a year or two institute weeks a year at the university. These options are described in the following paragraphs.
5. Those who choose to reside in the United States will qualify for the issuance of an I-20. The BCIS requires that all students on an F-1 student visa must enroll full time and reside in the tri-county area. An I-20 will be issued for a period of time that will allow completion of all degree requirements. Non-degree or provisional admission status is not considered a basis for the issuance of an I-20.
6. Those who choose to travel to the United States only to attend four cluster weekends a year or two institute weeks a year at the university will be able to enter the United States on a B-1 (Visitor) or B-2 (Tourist) visa because the on-campus instruction, in each instance, would be for a period less than three weeks in duration. Students from countries participating in the Visa Waiver Program may also seek admission to the United States under its provisions. (This program enables citizens of certain countries to travel to the United States for tourism or business for 90 days or less without obtaining a visa. Currently, 27 countries participate in this program.) When the student begins the dissertation phase of the program, he/she will have the following options: (1) when required by the faculty or program director to visit the campus for a short period, students may enter the United States on a B-1 (Visitor) or B-2 (Tourist) visa; or (2) students may be permitted to reside in the United States on an F-1 visa for the purpose of research on their dissertations. This is determined on a case-by-case basis. To qualify, the student must have completed the required 40 credits of coursework, must be in good academic standing, and must submit a letter to the Office of International Students written by his/her committee chairperson stating that it is necessary for the student to do research in the United States. Students permitted to reside in the United States must reside in the tri-county area.
7. For additional information regarding United States immigration rules and regulations as they apply to international students, contact the university's Office of International Students by email: <mailto:intl@nova.edu>; telephone: 954-262-7240 or 800-541-6682 ext. 7240; or fax: 954-262-3256. Detailed instructions on how to enter the United States with the visa and how to maintain visa status are provided on the Office of International Students' website at <http://www.nova.edu/cwis/registrar/iss/>.

### **Provisional Admission**

Students are provisionally admitted to a degree-seeking program based on a review of unofficial transcripts or other specific program admission requirements. However, this admission includes a condition that final and official documents and requirements must be received within 90 calendar days from the start of the term. If these final and official documents and/or requirements are not received by that time, the student will not be allowed to continue class attendance. Financial aid will not be disbursed to a provisional/conditional student until he or she has been fully admitted as a regular student (all admission requirements have been approved by the school's admissions office).

## **Early Admission into the Doctoral Program** (See requirements in SCIS master's brochure or catalog.)

This option provides the school's master's degree students the opportunity to earn the doctorate in a shorter time.

## **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 advisors 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. Applicants and prospective students may apply for financial aid online: <http://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 additional information or application forms (1) call 954-262-3380 or 800-806-3680; or (2) send email to <mailto:gabriels@nova.edu> or <mailto: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.

## **Orientation and Advisement**

New doctoral students must attend an orientation day on the main 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, and financial aid. The school's website 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. The academic calendar for the program is contained earlier in this brochure and is posted on the school's website: <http://www.scis.nova.edu/Doctoral/index.html>. During the first two years of the program, most students complete two three-credit core or elective courses and one four-credit project course each term. After the completion of all courses and 40 credit hours with a GPA of at least 3.0, the student registers for the dissertation at 12 credits per term for two terms. Students who have not completed the dissertation after 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*. Programs for computer information systems and computer science are offered in cluster format only. Programs for computing technology in education, information science, and information systems are offered in both cluster and institute formats. Cluster students, while taking courses, 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, while taking courses, 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, dissertation counseling (individual and group), special lectures, and ample opportunity for student-faculty and student-student interaction. Students are required to attend all of their scheduled cluster or institute class sessions.

Between on-campus meetings, students work on assignments and projects, and participate in online activities that facilitate frequent interaction with the faculty and with other students. The online component involves use of web pages to access course materials, announcements, the Electronic Library, and other information. Online activities may include forums using threaded discussion boards, chatrooms, email, and electronic classroom sessions. In addition, the school provides a system that enables the student to submit assignments online in multimedia formats and to receive his or her professor's online reviews of assignments in the same formats. Students are provided NSU computer accounts but must obtain their own Internet service providers and use their own computer systems.



## **Grade Requirements and Time Limitations** (See SCIS catalog for additional information.)

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 degree within seven years from the date of their first registration.

## **Independent-Study Basis, Directed Independent Study, or Taking a Course in Another Program**

Each of these requires the student to submit a request for approval to the Director of Graduate Programs prior to registration. *Independent-study basis* means taking a course that is published in the curriculum of the program under which the student is enrolled but is not currently offered (it would be taken under the supervision of a faculty member). The student would register for the course prefix and number listed in the curriculum. *Directed independent study* means working on a project or study under the supervision of a faculty member in an area not covered by a course in the published curriculum. The student would register for the course <Prefix> 1200 *Directed Independent Study* (the prefix would identify the student's program). *Taking a course in another program* means taking a course in one of the school's doctoral programs in which the student is not enrolled. For each of these cases, the program director will review the student's record to determine the appropriateness of the request. If the request appears to be consistent with the students' program and school policies, the director will consult with the appropriate faculty member for possible approval and will notify the student of the decision and any requirements.

## **The Dissertation**

Students will be permitted to register for the dissertation after they have completed their required course work with a minimum cumulative GPA of 3.0. Both Dissertation I and Dissertation II are required. They are usually taken over two consecutive terms. The dissertation is the most important requirement for the doctoral degree. Each student is expected, with the approval of a faculty advisor, 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 doctoral degree, 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*. It is recommended that students attend cluster and institute presentations on the dissertation process, research methodology, and writing for publication.

## **Library Resources**

NSU's library system (<http://www.nova.edu/library>) provides access to over 10 million volumes, 200 online databases, and 28,000 full-text journals. The library system includes: the Alvin Sherman Library, Research, and Information Technology Center; the Shepard Broad Law School Law Library and Technology Center; the William Richardson Oceanographic Library, the Health Professions Division Library, and the Electronic Library. The Alvin Sherman Library, Research, and Information Technology Center, a five story, 325,000 square-foot facility, the largest library in Florida, has 1000 user seats, 20 electronic classrooms and a 500-seat auditorium. The catalogs of all NSU libraries are accessible to local and distance education students and faculty members, wherever they may be located, via computers for remote searching (as are catalogs of other university libraries) using the Electronic Library. Online and CD-ROM databases complement the paper-based holdings and provide full-text resources. NSU is a member of several cooperative networks. As a member of the Florida Library Information Network (FLIN) and the Southeast Florida Library Information Network (SEFLIN), NSU is able to obtain books and periodicals through interlibrary loan quickly and efficiently. NSU students may also use other SEFLIN libraries.

Online students have access to books, journal articles, microfiche, dissertations, index searches, catalog searches, and reference librarians. Distance students may request library materials for delivery to their homes or offices using fax, mail, or online forms. Distance Library Services (DLS) can be reached by toll-free phone: 800-541-6682, ext. 4602; by email: <mailto:library@nova.edu>, or via the web: <http://www.nova.edu/library/docdel/distance.htm>. All

materials mailed by DLS 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 need not be returned.

### Student Organizations at SCIS

The goal of these organizations is to help students advance in their professions through contact with working professionals, participation in conferences, or recognition of academic excellence. Student membership provides a variety of benefits including technical publications, career development, and financial services. Organizations include

- Association of Computing Machinery (ACM)
- Institute of Electrical and Electronics Engineers (IEEE) and IEEE Computer Society
- Upsilon Pi Epsilon (UPE) International Honor Society for the Computing and Information Disciplines

### Tuition and Fees (Rates are subject to change. Textbooks must be purchased separately.)

Course Work.....	\$475 per credit hour
Dissertation I or II .....	\$5,100 per term (\$425 per credit hour)
Continuing Dissertation .....	\$2,550 per term (\$425 per credit hour)
Continuing Services, Incompletes .....	\$475 per incomplete (I) grade per term
Application Fee .....	\$50 nonrefundable
Registration Fee.....	\$30 nonrefundable
Materials Fee .....	\$20 per 700-level course
Late Registration Fee .....	\$100 nonrefundable
Readmission Fee.....	\$50 nonrefundable
Program Change Fee .....	\$50 nonrefundable
Graduation Fee .....	\$75
Deferrment Fee for Installment Payment .....	\$50

### Tuition Payment Policy (Additional information may be found at <http://www.nova.edu/cwis/bursar>.)

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. The options available for the payment of tuition are:

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 fee.
2. *Installment payment by the student* (foreign students attending on a visa may not be 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 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 on 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 Student Financial Assistance may register without payment.

### **Additional Information on Policies and Procedures**

For additional information on policies and procedures consult the school's catalog.

### **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 to the Ph.D. program. (For requirements, see the school's master's brochure or catalog.)

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

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

##### **Core Courses** (three credits each) (Select eight of these.)

- DCIS 710 Decision Support Systems
- DCIS 720 Human-Computer Interaction
- DCIS 730 Information Security
- DCIS 735 Knowledge Management
- DCIS 740 Data Communications and Computer Networking
- DCIS 750 Database Systems
- DCIS 760 Artificial Intelligence and Expert Systems
- DCIS 770 Software Engineering
- DCIS 780 Multimedia Systems
- DCIS 790 Special Topics in Computer Information Systems (offered on various subjects)
- DCIS 791 Distributed Systems

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

- DCIS 810 Project in Decision Support Systems
- DCIS 820 Project in Human-Computer Interaction
- DCIS 830 Project in Information Security
- DCIS 835 Project in 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 current interest include interface quality and evaluation, computer system and computer interface architecture, user and task analysis, advancements in usability engineering, Internet-based user interface design issues, legal and ethical aspects of computing, speech interfaces, agent technology, handheld and wearable technology, and computer-supported cooperative work.

**DCIS 830 Project in Information Security (4 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 symbolic 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 applicable to their field of study.

**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: 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 independent study must be prepared by the student, include an assignment timeline, and be approved by the mentoring faculty member and the program director. (See the section Independent Study and Directed Independent Study.)

**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 give 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 may apply for early admission into the Ph.D. program. (For requirements, see the school's master's brochure or catalog.)

**The Curriculum for the Ph.D. in Computer Science**

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

**Core Courses (three credits each) (Select eight of 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

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, and 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 symbolic 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: 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 independent study must be prepared by the student, include an assignment timeline, and be approved by the mentoring faculty member and the program director. (See the section Independent Study and Directed Independent Study.)

**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 educational administrators, college faculty members, directors of academic computing, teachers of all grades, district and building technology administrators, industry and armed forces trainers, and instructional system designers and developers. 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. After students complete the course requirements they may apply for the educational specialist (Ed.S.) degree.

**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 requirements, see the school’s master’s brochure or catalog.)

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

The program requires 64 credit hours, of which 40 are for courses 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 concurrently the core course and project course in Research Methodology (DCTE 700/800). 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 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

**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, usability engineering, computer-supported cooperative work, and strategies for implementing and evaluating human-computer dialogues.

### **DCTE 730 Online Learning Environments (3 credits)**

This course covers theory and practice involving online learning systems and online communication processes. It explores models of online learning environments (OLEs) as viable alternatives or supplements to traditional campus or building-based learning. Students will investigate the theoretical, conceptual, instructional, and technical framework of implementing and using OLEs in pursuit of lifelong learning. Relevant issues include the technology infrastructure, program development and administration, and most significantly, the Internet as cyberschool. (The Institute course usually has a collaborative online component.)

### **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)**

This course provides opportunity for independent, creative, innovative exploration and development in teaching and learning in the Age of Communications. Course content combines experiential learning based in the asynchronous student forum with related scholarly pursuit. Synchronous and asynchronous delivery systems in buildings and in cyberspace will enable the best possible matches between societal needs and instruction delivery. The purpose of this course is to reengineer education to meet the needs of society, to use any and all technology to devise the best possible learning experiences for learners of all ages.

### **DCTE 770 Courseware Design and Development (3 credits)**

This course deals with the analysis, design, development, implementation, and evaluation (ADDIE) of technology-based, content and multimedia-intensive, interactive courseware. The product may be constructed with an authoring system or a state-of-the-art, visual programming language. It may be accessed from a floppy disk, a zip disk or a CD-ROM and may be read through a browser or a run-time program.

### **DCTE 790 Special Topics in Computing Technology in Education (3 credits)**

This course introduces state-of-the-art topics in emerging fields relevant to the program. Topics may cover theory, practice, development, experimentation, assessment, or application. Several special topics courses may be offered concurrently.

### **DCTE 800 Project in Research Methodology (4 credits)**

This course 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: DCTE 700.

**DCTE 820 Project in Human-Computer Interaction (4 credits)**

Students produce a research paper or project on a current topic in HCI. Some topics of current interest include interface quality and evaluation, computer system and computer interface architecture, user and task analysis, advancements in usability engineering, Internet-based user interface design issues, legal and ethical aspects of computing, speech interfaces, agent technology, handheld and wearable technology, and computer-supported cooperative work.

**DCTE 830 Project in Online Learning Environments (4 credits)**

Students will produce original work that is grounded in theory and practice on a relevant issue in OLE research. Students will be encouraged to submit their work for potential presentation at conferences or for possible publication related to educational technology and online learning research.

**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)**

The goal of the project is for each student to prepare a publishable, scholarly article and a public presentation within the area of instruction delivery systems. In addition, participants will serve as editorial board members to sharpen their critical evaluation skills.

**DCTE 870 Project in Courseware Design and Development (4 credits)**

It is recommended that students enroll in 770 and 870 concurrently. The combined courses require the production of an entire courseware package, alpha testing for functionality and beta testing for effectiveness with the target population. The evaluation processes coupled with reflections on the instructional design process and plans for future modifications make for a highly satisfactory professional learning experience.

**DCTE 890 Project in Special Topics in Computing Technology in Education (4 credits)**

The goal of the project is to extend the learning experience of the accompanying 790 course. Procedures for implementation are subject to the discretion of the course professor.

**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: 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 independent study must be prepared by the student, include an assignment timeline, and be approved by the mentoring faculty member and the program director. (See the section Independent Study and Directed Independent Study.)

## **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. This is an interdisciplinary program drawing on the fields of information systems and computing technology in education. It is offered in both cluster and institute formats, which 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 degree students may apply for early admission into the Ph.D. program. (For requirements, see the school's master's brochure or catalog.)

### **The Curriculum for the Ph.D. in Information Science**

The program requires 64 credit hours, of which 40 are for courses 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 these.)

- DCTE 720 Human-Computer Interaction
- DISC 725 Online Information Systems
- DISC 735 Knowledge Management
- DCTE 740 Telecommunications and Computer Networks
- 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
- DCTE 730 Online Learning Environments
- DCTE 750 Educational Database Systems
- DISS 755 Information Security
- DISC 790 Special Topics in Information Science (offered on various subjects)

#### **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 Management
- DCTE 840 Project in Telecommunications and Computer Networks
- 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, usability engineering, 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 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 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 worldwide.

**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 produce a research paper or project on a current topic in HCI. Some topics of current interest include interface quality and evaluation, computer system and computer interface architecture, user and task analysis, advancements in usability engineering, Internet-based user interface design issues, legal and ethical aspects of computing, speech interfaces, agent technology, handheld and wearable technology, and computer-supported cooperative work.

**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 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 (4 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 applicable to their field of study.

**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)**

Involves directed readings, research, and creative activities under the supervision of a faculty member. A contract for independent study must be prepared by the student, include an assignment timeline, and be approved by the mentoring faculty member and the program director. (See the section Independent Study and Directed Independent Study.)

## **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, which 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, telecommunications and computer networks. Alternatively, SCIS master's students in information systems may apply for early admission into the Ph.D. program. (For requirements, see the school's master's brochure or catalog.)

### **The Curriculum for the Ph.D. in Information Systems**

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

#### **Core Courses** (three credits each) (Select eight of these.)

- DISS 700 Research Methodology
- DISS 710 Decision Support Systems
- DISS 720 Human-Computer Interaction
- DISS 725 The System Development Process
- DISS 740 Telecommunications and Computer Networks
- DISS 745 Electronic Commerce
- DISS 750 Database Systems
- DISS 755 Information Security
- DISS 770 Information Policy
- DISS 780 Multimedia Systems
- DISS 790 Special Topics in Information Systems (offered on various subjects)
- DISS 791 Client-Server Computing

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

- DISS 800 Project in Research Methodology
- 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 845 Project in Electronic Commerce
- 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.

### **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)**

Recent advances and new applications in the expanding field of telecommunications and computer networks are examined. Strategies, tools, and techniques for network planning, implementation, management, maintenance, and security are described. Topics include ATM, SONET/SDH, 10 gigabit Ethernet, the OSI reference model, and second-generation and third-generation wireless network solutions. Trends in standardization and internetworking and advances in optical networks and residential networking solutions that feature cable, DSL, powerline, and satellite technologies are reviewed. Next-generation national research and education networks including Internet2 and GEANT are explored.

### **DISS 745 Electronic Commerce (3 credits)**

This course examines the theories, frameworks and methodologies used to study the strategic impact of electronic commerce on systems, organizations and markets. The goal of the course is to provide doctoral students with the necessary background knowledge to appreciate e-commerce research in the IS field and to develop academic research proposals.

### **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 (3 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 worldwide.



**DISS 780 Multimedia Systems (3 credits)**

Advanced systems covering theoretical and practical issues in designing multimedia systems. Topics include an 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.

**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 845 Project in Electronic Commerce (3 credits)**

Students pursue a research study or project in electronic commerce.

**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 independent study must be prepared by the student, include an assignment timeline, and be approved by the mentoring faculty member and the program director. (See the section Independent Study and Directed Independent Study.)

**Faculty and Staff of the Graduate School of Computer and Information Sciences****The Faculty**

Gertrude W. Abramson, Ed.D., Columbia University. Professor. Online teaching and learning, distance learning programs and communications, instructional systems design, development, delivery and evaluation.

James Cannady, Ph.D., Nova Southeastern University. Assistant Professor. Network intrusion prevention, detection, and response; complexity theory and complex adaptive systems; machine learning; information assurance.

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

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

Timothy J. Ellis, Ph.D., Nova Southeastern University. Associate Professor. Multimedia design and application, application of database technology to education, online learning environments, adult education.

George K. Fornshell, Ph.D., Nova Southeastern University. Associate Professor. Instructional design, instructional technology, instructional video, streaming media, distance learning, multimedia, authoring tools, human factors.

William L. Hafner, Ph.D., Nova Southeastern University. Assistant Professor. Information storage and retrieval, privacy and computer security, data warehousing, knowledge management.

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. Professor. Computer graphics, data structures and algorithms, software engineering, programming.

Yair Levy, Ph.D., Florida International University. Assistant Professor. Online learning systems effectiveness, value of information systems, e-Commerce, telecommunications and networking.

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

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

Frank Mitropoulos, Ph.D., Nova Southeastern University. Instructor. Programming languages, data structures, software engineering, object-oriented design, C, C++, Java.

Sumitra Mukherjee, Ph.D., Carnegie Mellon University. Professor. Artificial intelligence, decision support systems, knowledge-based expert systems, database security, database management, economics of information systems.

Easwar Nyshadham, Ph.D., University of Mississippi. Assistant Professor. Electronic commerce, decision support systems, security, privacy and trust in online environments, economics of information systems.

Amon Seagull, Ph.D., University of Rochester. Assistant Professor. Natural language processing, computational linguistics, statistical modeling, programming languages, artificial intelligence, institutional research.

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. Associate Professor. Operating systems, data communications, computer networks, client-server computing, distributed systems, systems performance evaluation.

Junping Sun, Ph.D., Wayne State University. Professor. Database management systems, data warehousing, knowledge discovery and data mining.

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

Ling Wang, Ph.D., Purdue University. Assistant Professor. Research methodology and statistics, instructional design, motivation in education, learning theory.

#### **Visiting and Adjunct Faculty**

Ray Albert, Ph.D.	Phyllis Chasser, Ph.D.	James Dollens, Ph.D.	Andre Folleco, Ph.D.
Stephen Hansen, Ph.D.	Raghu Korrapati, Ph.D.	Lee Leitner, Ph.D.	Robert Lipton, Ph.D.
Richard Manning, Ph.D.	Ronald McFarland, Ph.D.	Terry McQueen, D.B.A.	David Metcalf II, Ph.D.
Frank Nasuti, Ph.D.	Alan Peslak, Ph.D.	Helen St. Aubin, Ph.D.	Eric Stocker, M.S.
Steven Zink, Ph.D.			

#### **Teaching Assistants**

Ellen Scalese, M.Ed.      David Shrader, M.S.

#### **The Administrative and Technical Staff**

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#### **Network and Software Services**

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Mark Powell, M.S., Director, ext. 2015, *powelma@nova.edu*

#### **Operations**

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#### **Research and Planning**

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NOVA SOUTHEASTERN UNIVERSITY  
Graduate School of Computer and Information Sciences

**Ph.D. and Ed.D. Degree Programs Admissions Forms**

Admission requirements are contained in the school's graduate catalog and doctoral brochure.

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 of \$50 (in U.S. Dollars)
- \_\_\_\_\_ 3. Essay
- \_\_\_\_\_ 4. Summary of Professional Experience
- \_\_\_\_\_ 5. Three Evaluation Forms
- \_\_\_\_\_ 6. Transcript Request Form(s) and/or Agency Evaluation of Foreign Degree for Determination of U.S. Equivalence
- \_\_\_\_\_ 7. TOEFL Score (if applicable)

Please mail all items to:

Nova Southeastern University  
Enrollment Processing Services  
Attn: Graduate School of Computer and Information Sciences  
3301 College Avenue  
P.O. Box 299000  
Fort Lauderdale, Florida 33329-9905

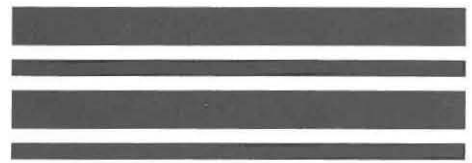
If you have any questions about the admissions process, you may contact the Office of Admissions at (954) 262-2000, toll free at 800-986-2247, or send email to [scisinfo@nova.edu](mailto:scisinfo@nova.edu).







NOVA SOUTHEASTERN UNIVERSITY  
 Enrollment Processing Services (EPS)  
 Attn: Graduate School of Computer and Information Sciences  
 3301 College Avenue  
 P.O. Box 299000  
 Fort Lauderdale, Florida 33329-9905



**Graduate School of Computer  
 and Information Sciences  
 Admissions Application**

To complete admissions process, please submit a non-refundable \$50 application fee to address above or call 800-541-6682, ext. 5200, with credit card information.

Legal Name: \_\_\_\_\_ Last \_\_\_\_\_ First \_\_\_\_\_ Middle \_\_\_\_\_

Maiden \_\_\_\_\_

Social Security Number \_\_\_\_\_

Do you have educational materials under another name, Social Security number, or ID?  Yes  No

If yes, then please indicate \_\_\_\_\_

**Preferred Mailing Address:**

Number and Street \_\_\_\_\_ City \_\_\_\_\_

County \_\_\_\_\_ State \_\_\_\_\_ Country \_\_\_\_\_ ZIP Code \_\_\_\_\_

Telephone \_\_\_\_\_ Cellular/Pager \_\_\_\_\_

**Permanent/Legal Address:**

Number and Street \_\_\_\_\_ City \_\_\_\_\_

County \_\_\_\_\_ State \_\_\_\_\_ Country \_\_\_\_\_ ZIP Code \_\_\_\_\_

Telephone \_\_\_\_\_ Cellular/Pager \_\_\_\_\_

**Business Address:**

Name of Company \_\_\_\_\_

Number and Street \_\_\_\_\_ City \_\_\_\_\_

County \_\_\_\_\_ State \_\_\_\_\_ Country \_\_\_\_\_ ZIP Code \_\_\_\_\_

Telephone \_\_\_\_\_ Cellular/Pager \_\_\_\_\_

**How did you learn about NSU?  
 Please check all that apply.**

- Friend/Colleague/Relative
- NSU Employee
- NSU Student or Graduate
- Direct Mail
- TV or Radio Commercial
- SREB Electronic Campus
- eArmyU
- Web Site (specify) \_\_\_\_\_
- Newspaper (specify) \_\_\_\_\_
- Information Meeting (where) \_\_\_\_\_
- Conference (specify) \_\_\_\_\_
- Magazine (specify) \_\_\_\_\_
- Other (specify) \_\_\_\_\_

**Application Status at Time of Application:**

Is this your first time applying to NSU?  Yes  No

If no, what programs have you applied to? \_\_\_\_\_

Will this be your first time attending NSU?  Yes  No

If no, what program(s) are/have you been enrolled in? \_\_\_\_\_



The university is required to collect the following information to comply with federal reporting requirements of the U.S. Department of Education. The collected information will not be used in any discriminatory manner.

### General Information:

Date of Birth (mm/dd/yy) \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Country of Birth \_\_\_\_\_

Sex:  Male  Female

#### Ethnic Origin Data:

(The provision of this information is voluntary and we request it for reporting purposes only. This information will not be used in any discriminatory manner.)

- White (not of Hispanic origin)  African American (not of Hispanic origin)  
 Hispanic  Native American or Alaskan Native  
 Asian or Pacific Islander  Other \_\_\_\_\_

### Veterans' Information:

Have you ever served in the United States Armed Forces?  Yes  No If yes, complete the following:

Branch of service: \_\_\_\_\_ Rank: \_\_\_\_\_

Entry date: \_\_\_\_\_ Date and type of discharge: \_\_\_\_\_

Reserve status: \_\_\_\_\_ Are you eligible for veterans benefits?  Yes  No

If so, under what law? \_\_\_\_\_

### Citizenship Status:

Failure to complete this information may delay the processing of your financial aid and delay your matriculation should you require certain documentation in order to attend classes in the United States.

- United States citizen  Temporary resident  
 Permanent resident  Nonresident alien

If you are a nonresident alien, please complete the following.

Country of Birth \_\_\_\_\_ Country of Citizenship \_\_\_\_\_

Is English your native language?  Yes  No If not, documentation of English literacy is required.

Do you currently have a U.S. visa?  Yes  No If yes, what type? \_\_\_\_\_

What is the expiration date? \_\_\_\_ / \_\_\_\_ / \_\_\_\_ (mm/dd/yy)

Do you require an I-20?  Yes  No

If you have any questions, please visit our Web site: [www.nova.edu/cwis/registrar/iss/](http://www.nova.edu/cwis/registrar/iss/).

**Emergency Contact Information:**

Name: \_\_\_\_\_ Last \_\_\_\_\_ First \_\_\_\_\_ Relationship to you \_\_\_\_\_

Number and Street \_\_\_\_\_ City \_\_\_\_\_

County \_\_\_\_\_ State \_\_\_\_\_ Country \_\_\_\_\_ ZIP Code \_\_\_\_\_

Day Telephone \_\_\_\_\_ Evening Telephone \_\_\_\_\_

**Applicant Email Address:**

\_\_\_\_\_ Email Address

**Previous Education:**

All official transcripts/documents are required from the applicant for ALL previously attended institutions for FULL admittance.\*

High school/General Education Diploma (GED) documentation is required only for undergraduate applications.

**SECTION A**

\_\_\_\_\_ Name of High School \_\_\_\_\_ Graduation Month and Year \_\_\_\_\_

\_\_\_\_\_ Number and Street \_\_\_\_\_ City \_\_\_\_\_

\_\_\_\_\_ County \_\_\_\_\_ State \_\_\_\_\_ Country \_\_\_\_\_ ZIP Code \_\_\_\_\_

General Education Diploma (GED) awarded: \_\_\_\_\_ Month and Year \_\_\_\_\_ State \_\_\_\_\_

**SECTION B**

List ALL academic institutions (in chronological order beginning with most recent) you have, are, or will attend prior to NSU matriculation. \*Official transcripts/documents from all institutions attended are required for FULL admittance.

Name of Institution	City	State or Country	Degree	Approx. # of Credits Earned	Start and End Date (or expected end)

Have you ever been required to leave any college or denied readmission because of conduct or academic deficiencies?  Yes  No

If yes, please explain.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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**Anticipated Start Date:**

**Cluster Format:**     Spring (3/4/03)     Fall (9/10/04)     Spring (3/4/05)     Other \_\_\_\_\_  
**Institute Format:**     Winter (1/4/04)     Summer (7/11/04)     Winter (1/9/05)     Other \_\_\_\_\_

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**Academic Goal:** (Please check the appropriate box.)

Ph.D.     Ed.D.     Early Admission     Readmission

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

Institute Format: Entry dates are Winter and Summer; meet once every six months for one week.  
Cluster Format: Entry dates are Spring and Fall; meet every three months for an extended weekend.

<input type="checkbox"/> Computer Information Systems (CIS)	<input type="checkbox"/> Cluster Only
<input type="checkbox"/> Computer Science (CS)	<input type="checkbox"/> Cluster Only
<input type="checkbox"/> Computing Technology in Education (CTE)	<input type="checkbox"/> Institute or <input type="checkbox"/> Cluster
<input type="checkbox"/> Information Science (ISC)	<input type="checkbox"/> Institute or <input type="checkbox"/> Cluster
<input type="checkbox"/> Information Systems (IS)	<input type="checkbox"/> Institute or <input type="checkbox"/> Cluster

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**Computer Experience:**

How would you rate your overall computer ability? **Please circle:**    0    1    2    3    4    5  
(0 = No experience    5 = Very experienced)

Which programming languages can you use?  
(Please use a separate sheet, if necessary, to explain your experience with these languages.)

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What application programs and operating systems can you use? (Please use a separate sheet, if necessary.)

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**Note: Please be certain to read the following disclosure and sign the application for further processing. No application will be processed without your signature.**

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**Disclosure Statement:**

Have you ever been convicted in any state or country of a criminal offense, other than a minor traffic offense, where you have been found guilty by a judge or jury or entered a plea of nolo contendere (no contest); or any juvenile offenses; any offenses where the records have been expunged; or any conviction that the applicant is currently appealing, regardless of adjudication?

Yes     No

If the answer is yes, please explain. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

The disclosure is a continuing duty. All applicants must report to Nova Southeastern University (NSU) any such arrest or conviction after the filing of the application for admissions or during the time that the student is enrolled at the college. The admissions committee and NSU will consider new information submitted, and in appropriate circumstances, may change the status of an applicant or student.

Permission is hereby given to NSU to make any necessary inquiries and I voluntarily and knowingly authorize any former school, government agency, employer, person, firm, corporation, its officers, employees and agents, or any other person or entity making a written or oral request for such information.

Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_

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**Notices of Nondiscrimination and Accreditation**

Nova Southeastern University admits students of any race, color, sex, age, nondisqualifying disability, religion or creed, or national or ethnic origin or marital status or sexual orientation 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 in compliance with Title IX, Title VI, Title VII, the Americans with Disabilities Act, Section 504 of the Rehabilitation Act and all other laws, rules, or regulations pertaining to these policies.

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 associate's, bachelor's, master's, educational specialist, and doctoral degrees.

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**Acknowledgment Statement**

I have read and understood the instructions. I certify that the information submitted in this application is complete and correct to the best of my knowledge. False and/or omitted information will invalidate this application and could result in rejection of the applicant or dismissal from the university if the applicant has already been admitted. Permission is hereby given to NSU to make any necessary inquiries and I voluntarily and knowingly authorize any former school, government agency, employer, person, firm, corporation, its officers, employees and agents, or any other person or entity making a written or oral request for such information. I agree that this information may be used by Nova Southeastern University for research and development purposes aimed at improving education and admissions programs.

Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_

**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 the Graduate School of Computer and Information Sciences at 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.

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**Certification of Authorship** (Attach this form to the essay.)

\_\_\_\_\_  
Applicant's Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Social Security number

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

\_\_\_\_\_  
Date



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## Summary of Professional Experience

Applicant's Name \_\_\_\_\_

Social Security number \_\_\_\_\_

(Attach this form to the Summary of Professional Experience)

Please submit a Summary of Professional Experience or GRE scores. These 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. You should provide information that would support your potential for success in the doctoral program.







**Graduate School of Computer and Information Sciences • Ph.D. and Ed.D. Degree Programs**

Applicant's Name \_\_\_\_\_

Social Security number \_\_\_\_\_

**To the evaluator:** The person above has applied for admission to a Ph.D. and Ed.D. degree program at the Graduate School of Computer and Information Sciences, Nova Southeastern University. You are being asked to evaluate the applicant's potential for success in this program. **Please complete the following form. Letters may be provided but they must be supplemental to the form.**

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

\_\_\_\_\_

\_\_\_\_\_

2. Estimate of potential as a candidate for this degree:

- 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 additional assessment of the applicant's potential for success in a dissertation-based doctoral program. Include strengths and weaknesses. We would appreciate a candid appraisal. Attach separate sheets if necessary.

Name (print) \_\_\_\_\_

Signature \_\_\_\_\_

Position \_\_\_\_\_

Date \_\_\_\_\_

Organization \_\_\_\_\_

Phone \_\_\_\_\_



**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 Graduate 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  
Enrollment Processing Services (EPS)  
Attn: Graduate School of Computer and Information Sciences  
3301 College Avenue  
P.O. Box 299000  
Fort Lauderdale, Florida 33329-9905



# Nova Southeastern University

## Graduate School of Computer and Information Sciences

### What are my computer requirements?

You must have an active account with an Internet service provider (ISP). Students may use either an IBM-compatible PC or Apple/Macintosh computer for their online studies. Students will be provided SCIS accounts that will allow access to certain databases, Forums, ESET, and other programs. The following are minimum requirements. Individual professors may have additional software and hardware requirements, depending on the course. Such additional requirements will be posted well before the start of the term.

#### IBM-compatible PC

- Pentium II/233 MHz processor or higher, Pentium III/4 processor recommended
- 64 Megabytes of RAM (128MB or higher preferred)
- CD-ROM
- 20GB hard drive (30GB or higher preferred)
- SVGA (1024 x 768) or higher display
- Full Duplex Sound card with speakers/headphones and microphone
- Windows Operating System
- 56 kb Modem (or faster)
- Internet connection through an account on an ISP, or a network connection to the Internet

#### Macintosh

- PowerPC 120Mhz processor or higher, G4 processor recommended
- 64 Megabytes of RAM (128MB or higher preferred)
- CD-ROM
- 20GB hard drive (30GB or higher preferred)
- 1024 x 768 or higher display resolution, thousands of colors
- Full Duplex Sound with a microphone
- System 8.0 or higher operating system
- 56 kb Modem (or faster)
- Internet connection through an account on an ISP, or a network connection to the Internet

#### Software

- Netscape 4.75 or higher, or Microsoft Internet Explorer 5.0 or higher
- Adobe Acrobat Reader 5.0 or higher
- Microsoft Office 2000 (or higher)
- Proprietary browser versions (those not downloaded directly from Netscape or Microsoft) may not work reliably with SCIS online systems. If you use other office type programs, please note that some professors may require you to convert your files to a MS-Office compatible format for online submission.
- Your connection to the internet may initiate behind a firewall, however the firewall settings may have to be adjusted in order to allow for proper functioning of our web based tools.
- Any other operating system may be used (e.g., Linux) but must support the software specified above



NOVA SOUTHEASTERN UNIVERSITY  
Graduate School of Computer and Information Sciences  
3301 College Avenue  
Fort Lauderdale, Florida 33314-7796

800-986-2247  
(954) 262-2000

Email: [scisinfo@nova.edu](mailto:scisinfo@nova.edu)  
Web site: [www.scis.nova.edu](http://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.

The official catalog of the Graduate School of Computer and Information Sciences is the governing document for all program-related information. The catalog is posted on the school's Web site: [www.scis.nova.edu](http://www.scis.nova.edu). Nonacademic policies and procedures are contained in the *NSU/SCIS Student Handbook*, which may be downloaded from the school's Web site. If there is any conflict between the information contained in the catalog and that contained in this brochure or any other document, the information in the catalog prevails. Policies, regulations, and requirements, including fees, are necessarily subject to change without notice at any time at the discretion of the Nova Southeastern University administration. Adequate notice of anticipated changes will be given to the student, whenever possible. The university reserves the right to cancel or modify any course or program listed herein for any reason. In addition, individual course offerings may vary from year to year as circumstances dictate.

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 associate's, bachelor's, master's, educational specialist, and doctoral degrees. The master of science curricula for computer science and computer information systems follow the guidelines of the Association for Computing Machinery (ACM).