

1983

Center for Computer-Based Learning Doctor of Arts in Information Systems

Nova Southeastern University

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Doctor of Arts in INFORMATION SCIENCE

A FIELD-BASED PROGRAM FOR LIBRARIANS AND INFORMATION MANAGERS

The Program— "Study while you work"

Nova University now makes it possible for you to earn a doctoral degree while you continue to work. The field-based Doctor of Arts in Information Science

(D.A.I.S.) program brings Nova University to you. Most of the D.A.I.S. program can be completed at your place of employment or in your home in as little as three years.

Courses—

"Computer instruction"

The D.A.I.S. curriculum consists of five "core courses" completed through a computer-based learning system. Once you are provided with a computer terminal, you will begin a unique "on-line" study experience. You will use the computer to study in such areas as computer science, systems analysis and design, networking, telecommunications, and strategic management techniques for libraries and information centers.

"Practicums— "Research that counts"

Practicums are applied research projects related to the core courses undertaken to address significant problems in institutions and organizations. At any time during the program you encounter problems or



have questions that need immediate attention, Nova "on-campus" faculty are available through electronic mail or telephone for guidance and answers.

Regional Seminars—

"Bringing it all together"

Each year, you will attend four weekend seminars. These meetings give you the opportunity to share your progress and experiences with other D.A.I.S. students. Recognized authorities in information science conduct the sessions. These experts share the latest developments in

digital computers, telecommunications, and information science. Seminars help integrate what you have learned in the core courses, practicums and in the field project.

Tuition— "No hidden expenses"

Aside from textbooks and seminar travel expenses, all courseware and communications equipment are included in the \$3,500 per year tuition. A partial payment plan of \$875.00 per quarter is available to help make tuition manageable. A tuition reduction will be made if you have a computer terminal available.

Enrollment— "Targeted admission"

An important condition for entering the program and earning a degree is that you be currently employed in a library or information center. A master's degree in library or information science is also required.

Applications are now being accepted for the D.A.I.S. program that begins in October, 1983.

Information— "Immediate answers"

Call us today at (305) 475-7300 or in Florida call toll free 1-800-432-5021 or for a brochure and application materials write to:

Nova University
Information Sciences
3301 College Avenue
Fort Lauderdale, Florida 33314



Nova University

Nova University is accredited by the Southern Association of Colleges and Schools and admits students of any race, color, and national or ethnic origin.

DOCTOR OF ARTS IN INFORMATION SCIENCE

PROGRAM DESCRIPTION

The major purpose of the Nova Doctor of Arts in Information Science program is to provide a rich learning environment for librarians and information managers. The program facilitates the design and application of information systems based on the emerging technologies in computers and telecommunications. The program enables students to develop automated processes and systems in their work environments that take full advantage of the latest in software tools and hardware designs. For this reason the program has been designed to operate in a Unix operating system environment. The Unix operating system is rapidly expanding into almost all fields of computer usage from mainframe environments to office computers to personal micros. Unix was developed at Bell Laboratories to foster a cooperative atmosphere among scientists and engineers. The system is used in this program, not only for its extensive set of tools for automation, but also to facilitate idea sharing and joint projects among the practitioners enrolled. Unix operates at Nova University on two Digital Equipment Corporation mainframe computers: a VAX 11/780 and a DEC-20. Selection of either system is made through a port selector. Students make the telephone connection to Nova's computers by dialing phone numbers in their local area (package switching makes this facility possible at no additional cost to the student for phone calls). Up to 32 hours of connect time on Nova's computers are provided to students in each course as a part of tuition. Additional time is paid for by the student. These overtime charges are by computer connect hour and also a charge for the telephone time -- telephone charges vary with location of the student.

The Student's Terminal Interface

Each student receives a computer terminal and modem to pursue the program. The cost for this equipment is included in tuition. The terminal has an 80 column screen and full ASCII keyboard. The modem operates at either 300 baud or 1200 baud. Students receive the use of the terminal and modem for the three years. For a small fee at the end of the program students may elect to keep the terminal and modem for their own use.

Computer-assisted Instruction

The Unix system includes numerous software tools in a command interpreter called the Shell. The Shell enables students to communicate "on line" with professors and also provides a vehicle for student-to-student dialog about projects and problems. This is accomplished through programs in the Shell called "mail" and "write." These utilities enable students and professors to mail documents, ask questions of professors or certain

students or groups of students, and to receive bulletins concerning the program or their progress. Unix contains a resident CAI authoring system called LEARN where an extensive amount of the content in the first two core courses is completed. The LEARN system under Unix enables students to maintain extensive control over their own learning by making it possible for them to use all of the Unix utilities while in any given lesson. Descriptions of the courses are provided on the pages that follow.

Written Assignments and Projects (Practicum Archive)

All written assignments are entered on-line. Students are required to complete satisfactorily four practicums -- applied research projects that address significant problems in their own organizations. These projects are reviewed, corrected, and sent back to the student's home directory to be read and filed by the student. A series of text formatters and writing tools are available in the Unix environment that make for speedy and accurate processing of student projects. A master file or archive containing all practicum reports is maintained in the Nova computer for later retrieval by students and professors. This database forms a learning resource where all students can gain from the work of others enrolled in the program. The database works much like ERIC in the DIALOG System. A special-purpose thesaurus is maintained to facilitate searching in this database.

Teleconferences (Audio and Computer)

Regional-audio teleconferences are scheduled throughout the program so that students can interact with guest lecturers concerning key issues in the field. A unique bridge system enables students to dial one number (at no additional cost) to get into the conference. In addition, a variety of computer conferencing modes are provided. Computer conferences are used to develop new tools for library automation and information delivery. Program evaluation is also accomplished through this utility.

The DAIS Student Database

A great deal of work by students in the program is done on resident database management systems that run under the Unix operating system. The major DBMS used in the program is Ingres, a relational database management system. Throughout the three years of the program the Ingres system serves as a powerful on-line aid for development work and in the learning process.

Examinations

Examinations are scheduled throughout the program. Quizzes are given on-line, as well as in person, at the regional seminars. Final examinations are required for each core course and a comprehensive examination is given at the end of the second year. At any time a student can review his or her own master record on file in the Nova University central database (Student records are encrypted to protect them from unauthorized reading or writing).

CORE COURSES

Students must complete six core courses. Each course is scheduled for six months. The semester and contact hours for each course are explained below. The course descriptions follow.

Course Credit -- Five (5) Semester Hours

Time Span -- Six Months

Total Contact Hours = 75

Teleconferences:

Audio (Telephone) -- Two required at 2 hours each

Computer Conference on DAISNET -- One required at 3 hours

Regional Seminars -- Two (2) of 18 contact hours each = 36 hours

Interactive Computer Time -- Thirty-two (32) hours

Preparation and Reading -- Fifty (50) hours

DIGITAL COMPUTERS FOR INFORMATION MANAGEMENT

This course is a prerequisite to all others. The student will be required to demonstrate mastery of key concepts and rules pertaining to the use of digital computers. Topics include: computer operating systems (VMS, UNIX, CP/M, etc.), data structures, text editors (ed and vi), data base management systems (ingres and datatrieve), word processing (nroff, Wordstar, etc.), microcomputer hardware (microprocessors, disk drives, printers, and displays) and software (The Bridge emulator), applications packages (VisiCalc, VisiTrend, VisiPlot and their clones), computer graphics, and data communications. Much of the student's work in this course will be facilitated through LEARN CAI software on the DEC-VAX-11/780 (Introduction to the C programming language, files, macros, editors, etc.).

Courseware materials include student guides, guided design protocols, case analysis documents, overlays, audio tapes, and schedules. All courseware is integrated with VAX structures.

COMPUTER-BASED RESEARCH AND STATISTICS FOR INFORMATION SCIENCE

Course content includes: research methodologies from various disciplines (experimental and quasi-experimental, historical, case study, etc.); sampling techniques; continuation of structured programming ("c", PASCAL, and ADA); data base management systems in research designs: QUEL and EQUDEL for Ingres; descriptive statistics, non-parametric statistical tests; linear statistical models: linear regression, multiple regression, ANOVA, canonical analysis, discriminant function analysis, path analysis, dynamic correlations, and factor analysis; survey construction and attitude measurement; item analysis; quality control analysis, evaluation methodologies; computational linguistics using digital computers: concordances, word frequency, readability computations, automatic

grammatical analysis, and analysis of word use (UNIX operations-STYLE, DICTION, EXPLAIN, WC, AND LOOK). Data base analyses projects are completed through interactive computer simulations.

STRATEGIC MANAGEMENT FOR LIBRARIES AND INFORMATION CENTERS

Eight key areas of strategic management are presented: MARKETING (marketing research, competitor analysis, marketing mix, strategic-marketing planning, consumer need satisfaction measure, controls, promotion, and advertising); STRATEGIC PLANNING (Plan-to-plan, goal and objectives formation, planning formats, overcoming barriers to planning, alternative generation and decision making, planning processes, models of strategic planning, environmental scanning, assessment of future requirement, WOTS-UP Analysis, sample plans, implementation, and evaluation); PERSONNEL PRACTICES (MBO, affirmative action, fringe benefits, workmens' compensation, social security, health plans, staff development, supervision, leadership and motivation, health and safety, assessment centers and personnel selection, employee testing, legal aspects, office management, organizational theory and development; and career planning); FINANCE AND ACCOUNTING (budgeting, cost-benefit and cost-effectiveness analyses; software packages for ledger, accounts payable, accounts receivables, balance sheet, and inventory; financial ratio analysis; fund accounting; and purchasing); FUND RAISING AND GRANT PROPOSAL WRITING (donor analysis; campaign operation; foundations; government RFPs; and entrepreneurial strategies; PROBLEM ANALYSIS-- problem finding, problem solving (use of regression analysis in problem finding, Pounds' Models; creativity in management; the eight types of error in problem analysis; Nominal group technique; Delphi, and charrette methodologies in community information problem analysis; goal setting and the Policy Delphi); FUTURISTICS (Methodologies for generating desirable future; brainwriting; future-history writing; cross-impact analysis; scenario writing; future wheels, synectics and computer-aided forecasting techniques. SITUATIONAL LEADERSHIP MODELS AND THEORIES (ethics in management and leadership, mentors, Fiedler's leader match; Hersey and Blanchard's situational model; Reddin's 3 D model; Likert's System-4; Vroom-Yetton Model; Path-Goal; LBDQ; and Substitutes for Leadership). Case studies and self-pacing formats are used throughout this course.

TELECOMMUNICATIONS, NETWORKING, AND COMPUTER APPLICATIONS IN INFORMATION SCIENCE

Topics include computer-based information storage and retrieval, popular commercial systems: OCLC, BASIS, DIALOG, etc.; electronic mail, information networks for consumers: The Source, CompuServ, Dow-Jones, videotex, viewdata, telidon, etc.; Teleprocessing (WATS, TWX, TELEX, SBS, ACS); packet switching; GTE, Telenet and Tymnet multiplexing; modems, handshaking; electronic card catalog systems: MARC, etc.; national, regional, and local networking; satellite communications, teleconferencing: video, audio, and computer; the electronic office; file protection and data encryption (DES); intelligent terminals; natural language processing;

artificial intelligence; CAI systems for learning on-line searching; library automation: cataloging, circulation, acquisitions, and serials; criteria for the selection of systems and financial considerations in automation: pricing, budgeting, appropriations, and RFP development; on-line graphics; microcomputer systems for information searching and storing: ERIC, etc.; text and word processing: mainframe and micro-computer; human factors considerations in computer systems; and case study exercises. Feasibility studies, systems documentation, and evaluation reports from actual libraries and information centers are used throughout this course where students are required to read, question, analyze, and synthesize the information and to review alternative solutions to problems. The work of students in this area will be facilitated with on-line "guided design" courseware similar to the manual version created by Charles Wales at West Virginia University.

SYSTEMS ANALYSIS, SYSTEMS DESIGN, OPERATIONS RESEARCH, AND COMPUTER SIMULATION IN INFORMATION SCIENCE

The goal of this course is to prepare information professionals to conduct studies of the factors in their organizations that contribute to effective operations, to examine alternative ways of doing things, to assist in the design of information systems within their organizations, and to make strategic decisions that strengthen their enterprises. Systems analysis/design and operations research are paradigms that can help information workers facilitate this end. Topics include: stochastic and monte carlo techniques; computer simulation modeling and validation (DYNAMO--System Dynamics and Urban Dynamics, GPSS, SIMSCRIPT, and GASP); Markov chains; probabilistic inventory models; optimization of networks; waiting line decision theory; graph theory, circulation models, information retrieval search modeling; design of a data base; administration of a data base; data coding and validation, design of an information system, feasibility studies; implementation and testing; human aspects of information systems; optimal storage of materials; models for journal selection; literature growth, obsolescence, and scattering models; usage patterns, optimal staff size; effects of shifting costs to users; measuring effectiveness and efficiency; acquisition models; human factors in library environments; accountability; reference service models; and space utilization strategies.

DATABASE MANAGEMENT SYSTEMS, TEXT PROCESSING, AND INFORMATION RETRIEVAL

Database management systems, hierarchical and relational models, design philosophies, data dictionaries and data directories, query languages: ingres, dBASE-II, condor, and datatrieve, database administration, management of data, menu design, database planning, virtual memory, trade-offs in dbms design, distributed databases, reports preparation from a dbms, creating, modifying, and maintaining a database under ingres, addressing ingres from Unix, quel and equal in ingres, security, and dbms evaluation, auto text processing systems (nroff, wordstar and pr) and applications to libraries and information centers.

REGIONAL SEMINARS

Students are required to attend four regional seminars each year of the three year program. Seminars begin Friday evening and adjourn on Sunday afternoon. Pre-seminar assignments are given to each student. These seminars will be held in various geographical locations. Opportunities are provided for in-depth discussion, lectures, video presentations, examinations, and idea sharing among conferees. In addition, demonstrations of the latest developments in digital computers, telecommunications, and information science will be provided. Professionals from universities, government agencies, and industry will serve as presenters. Students are required to provide their own lodging and travel expenses at these seminars.

1. Operating Systems: The UNIX Environment for Information Management

Unix history and system evolution, programming the Unix Shell, files and directories, programming with Unix tools, filters, pipes, computer aids for writers (style, spell, diction), modern programming methodologies, development projects, formatting documents, editors (ed, sed, ex and vi), user to user communication (mail and write), the literature on Unix, and the Berkeley Unix System.

2. The Role of the Microcomputer in the Library and Information Center

Continuation of operating systems including advanced Unix programming environments. CP/M, Unica, and Xenix are reviewed. Students participate in demonstrations of popular microcomputers to develop skills in selection and application of personal computers. Implications for the changing nature of learning and information use are discussed. Detailed presentations are given concerning the hardware capabilities of machines using the following microprocessors (Z-80, 8080, 8085, 8088, 6502, 6800, 6809, 8001 and 68000). Machine language programs are reviewed.

3. Technical Services

The focus of this seminar is on the improvement of technical services in libraries and information facilities. Methods of acquiring and processing various kinds of collections and holdings are covered. Other topics include: utilization of commercial vendors and consultants; co-ordination of public service and technical services; and utilization of networks for the benefit of users.

4. On-Line Catalogs and Information Systems

In this seminar students are given opportunities to examine compatible and incompatible systems. The organization and function of various systems are compared using techniques in management, evaluation, and statistical measurement. Primary focus is on improving technical services.

5. Case Studies in Management

This seminar is devoted to the analysis of case studies dealing with management of information agencies and libraries. Topics include: board-director relationships; policy formation; conflict resolution; supervision; entrepreneurial problems and successes. The goal is to provide tools for information managers to assess and improve their organizations.

6. Budgeting, Finance and Accounting

Included in this seminar are the following topics: budgeting, cost-benefit and cost-effectiveness analyses; software packages for ledger, accounts payable, accounts receivable, balance sheet, and inventory; Supercalc and spread sheet practices, accrual accounting, investment analysis, managing cash and cash flow; financial ratio analysis; fund accounting; and purchasing. Assessment of user satisfaction and dimensions of marketing are explored (marketing research, marketing planning, and control).

7. Networking, Consortia, and Shared Information Systems

The latest developments in municipal, state, regional, and national networking systems are explored. Various aspects of computer-based technology are considered, particularly in relation to networks. Students will examine the advantages and disadvantages of shared systems: collaborative collection development, access to materials, time constraints, user satisfaction, cost reduction, extension of resources, document delivery, and management.

8. Advances in Telecommunications

This seminar will be held in conjunction with a national satellite video teleconference. Topics include: History of Telecommunications; regulations; network control; protocols; revised standards; satellite systems; and satellite television for nonprofit organizations.

9. Library and Information Center Environments

In this seminar discussions and demonstrations focus on the nature of contemporary library and information center environments in academic, public, government, and industrial-corporation settings. The seminar provides students with the means of planning and developing strategies for shaping these environments. Library standards relating to different environments are reviewed. Finally, networking problems associated with different environments are explored.

10. Courseware Development, Learning Theory, Media, and Individualized Instruction in the Library

The role of libraries in adult education is increasing. This seminar provides an update on the latest developments for designing instructional systems for adult education and users of information services. Topics include: Computer-aided instruction; computer managed instruction; AICAI; learning theories; design of courseware for sale to users; developments in media research and applications.

11. Automated Systems for Bibliographical Organization and Control

Deals with descriptive cataloging theory, access to subject information, classification systems, and use of robotics in the library. The most recent developments and applications of automation are discussed (acquisitions, serials control, accounting, cataloging, and circulation).

12. Public Services

Subject areas in this seminar include the following: outreach programs, reference services, data-base searching, circulation, and techniques for providing instruction to users. Human factors aspects of the user/personnel interface are considered, and examples of successful operations are demonstrated. Software selection for education and training programs is covered.

DOCTOR OF ARTS IN INFORMATION SCIENCE

CURRICULUM SEQUENCE

First Year

Term 1	Term 2
<p>DIGITAL COMPUTERS (5 Semester Hours)</p> <p>Seminar 1 Operating Systems: The Unix Environment</p> <p>Seminar 2 Role of the Microcomputer in the Library</p> <p>Practicum (4 Semester Hours)</p>	<p>RESEARCH AND STATISTICS (5 Semester Hours)</p> <p>Seminar 3 Technical Services</p> <p>Seminar 4 On-Line Catalogs and Information Systems</p> <p>Practicum (4 Semester Hours)</p>

Second Year

Term 3	Term 4
<p>STRATEGIC MANAGEMENT (5 Semester Hours)</p> <p>Seminar 5 Case Studies in Management</p> <p>Seminar 6 Budgeting, Finance, Accounting</p> <p>Practicum (4 Semester Hours)</p>	<p>TELECOMMUNICATIONS, NETWORKING, AND COMPUTER APPLICATIONS (5 Semester Hours)</p> <p>Seminar 7 Networking, Consortia, Shared Information Systems</p> <p>Seminar 8 Advances in Telecommunications</p> <p>Practicum (4 Semester Hours)</p>

Third Year

Term 5	Term 6
<p>SYSTEMS ANALYSIS, OPERATIONS RESEARCH, COMPUTER SIMULATION (5 Semester Hours)</p> <p>Seminar 9 Library and Information Center Environments</p> <p>Seminar 10 Courseware Development, Learning Theory, Media, Individualized Instruction</p>	<p>DATABASE MANAGEMENT SYSTEMS, TEXT PROCESSING, INFORMATION RETRIEVAL (5 Semester Hours)</p> <p>Seminar 11 Automated Systems for Bibliographical Organization and Control</p> <p>Seminar 12 Public Services</p>

MAJOR FIELD PROJECT

(20 Semester Hours)