SOMETHING NEW!

A Bachelor’s Degree in Information Studies

by
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Computer Science. Management Information Systems. These have been the underlying academic programs supporting the use of Information Technology on our campuses for over 50 years. Today, there is a new kid on the block. Information Studies!

This paper examines the past and looks to the future in dynamics in curriculum reform that is taking place across America as we prepare for the 21st Century and educate the USERS of information. We give credit to the pioneers of this curricular reform--Pittsburgh, Drexel, and Syracuse. MIS, Computer Science, and Information Studies are contrasted as academic disciplines. Highlighting the program will be a review of the core courses and electives that make up this exciting degree program. The audience will be given an opportunity to vote, in real time, for the critical courses from their perspective.

The closing will include a summary of costs for implementing such a program and the political and administrative hurdles facing “change agents” who dare to initiate a new program in a state-funded, research university in the face of declining budgets.
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The information society had its beginnings in 1956 and 1957. In 1956, for the first time in American history, white-collar workers in technical, managerial, and clerical positions outnumbered blue-collar workers. Industrial America was giving way to a new society, where, for the first time in history, most of us worked with information rather than producing goods. The following year, 1957, marked the beginning of the globalization of the information revolution when the Russians launched Sputnik, a precursor of satellites which provide the missing technological catalyst in a growing information society, introducing the era of global satellite communications. In the information society, we have systematized the production of knowledge and amplified our brainpower. To use an industrial metaphor, we now mass-produce information the way we used to mass-produce cars. The new source of power is not money in the hands of a few but information in the hands of many.

The restructuring of America from an industrial to an information society will be profound. In the information society, change is occurring so rapidly that there is not time to react, instead we must anticipate the future. With this new society, there is a change in time orientation. That time orientation is to the future.

In an information society, for the first time in civilization, the game is people interacting with other people. This increases personal transactions geometrically, that is, all forms of interactive communications—telephone calls, checks written, memos, messages, letters and more.

Ten years into the “information age,” the U.S. Department of Commerce produced the first documentation of the information economy. Through a painstaking dissection of the nation's economy and the establishment of criteria for categorizing jobs as part of the “information sector,” some 440 occupations in 201 industries were identified as information jobs. This incredibly detailed study identified Primary Information Sector jobs such as clerks, librarians, systems analysts, and the like. In 1967, they represented 25 percent of the U.S. Gross National Product (GNP). A new information grouping called the Secondary Information Sector were the workers who produce information goods and services for internal consumption within goods-producing and other companies. This sector produced an additional 21 percent of GNP. The study concludes that the information economy accounted for some 46 percent of GNP and more than 53 percent of income earned. This was in 1967!

We have for the first time an economy based on a key resource that is not only renewable, but self-generating. Running out of information is not a problem—we live in a sea of information. For example: Over 7,000 scientific articles are written each day. And, scientific and technical information now increases 13 percent per year, doubling every 5.5 years.

The Changing Workplace

Half-way through this century, work was comprised of tasks that were outer-directed, mechanical, and easy to supervise. Today, with the service-oriented, information economy

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2Ibid., p. 16.
3Ibid., p. 18.
4Ibid., p. 19.
6Ibid., p. 34.
dominating the developed world, it is an entirely different workplace. It is almost impossible to "supervise" information work. Mental tasks have replaced mechanical ones. "Work" is what goes on inside people's heads at desks, on airplanes, in meetings, at lunch. It is how they communicate with clients, what they write in memos, what they say at meetings. Peter Drucker points out that we are managing people paid for their knowledge. We have never done that, and we don't know how to do it. The current Administration's emphasis on the "Information Superhighway" and building the National Information Infrastructure is very quickly increasing the speed at which America is changing.

Jobs in the Information Economy
The information economy is producing an extraordinary number of well-paying, challenging jobs. However, one must possess the required skills to do those jobs. The information economy jobs require a high degree of competence on the part of the individual worker. The U.S. does not presently have the trained human resources to fill those positions; nor will it for the rest of the 1990s.

What is Information Studies?
The primary focus of Information Studies is the information user. Questions of the field emanate from the behavior of the user and from the interaction of the user and information products, services, and organizations. The field's megaquestion is "how to most effectively link the best available information with the users who need it." Additional questions relate to the creation of information products, the satisfaction of user's information needs, and the analysis of information content.

Since the 1970s, the field of information studies has been increasingly recognized as a discrete academic field of study, which is interdisciplinary in nature. It is becoming increasingly clear, as our society moves more firmly into the "information age," that there is a need for people with an understanding of the many facets of the information process--from collection and storage to dissemination and use. And, they need to have the technical skills to support that understanding. The professional and popular literature have begun to focus on the increased demand for individuals with skills in the information field, and several of the leading schools in the country have instituted undergraduate programs in response to this need.

An Historical Perspective
The FSU School of Library Science (SLIS) was established in 1947, as an outgrowth of the Department of Library Science, organized in 1926. At that time both undergraduate and graduate programs were offered. Bachelor's degree in library science were popular in the 1920s and '30s; for example, the Peabody Institute of Johns Hopkins University offered a Bachelor's of Library Science as a five-year program in the '30s.

An Overseas View
Most of the major universities in the United Kingdom with "schools of information and library studies" offer undergraduate degrees. In fact, the College of St. Catherine has been involved in undergraduate library science and information management curriculums since 1929.

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8Ibid., p. 42.
9Internet message from Mary Wagner, College of St. Catherine, March 5, 1993.
The University of Wales has three undergraduate programs—Information & Library Studies; Information Science; and Information Management.\textsuperscript{10}

**Shifting to Information Studies**

Since 1972, the ALA has interpreted "librarianship" and "library science" in their broadest sense as encompassing the relevant concepts of information science and documentation. Whenever the term "libraries" is used, the current models of media centers, information centers and brokerages, information, documentation and referral centers are also assumed.\textsuperscript{11} Called "library schools" since 1887, by 1972, when the current Standards for Accreditation were adopted by the ALA, the new term, "information science," had been added to the names of seven schools to create the combination "library and information science." One school preferred "library and information services." These changes in terminology were intended to reflect the growing importance in library operations of what was frequently called the "new technology," or more specifically, information technology. This approach is also regarded as the "librarians'" traditional role of viewing information from the users' perspective and assisting patrons to resolve their information needs. There was also the growing recognition that the training being offered in many library education programs would equip students to be "information specialists" who could serve effectively in settings quite apart from the traditional library.

No fewer than 54 of the 59 library education programs accredited by the ALA now combine "information science" or some other form of the term "information" with the word "library" in their name. And, at Florida State, the change was made to "library and information studies" in 1981.

Three programs have abandoned the very word "library." At SUNY-Albany, it is called simply, "information science," and at Drexel and Syracuse, the programs carry the name "information studies."\textsuperscript{12}

**ALA Standards for Library & Information Studies**

The American Library Association, in its role to develop standards for the accreditation of library science programs, published its latest standards in 1992. In these standards, the most authoritative definition of the field is found.

\textit{The essential character of the field of library and information studies is concerned with recordable information and knowledge, and the services and technologies to facilitate their management and use. It encompasses information and knowledge creation, communication, identification, selection, acquisition organization and description, storage and retrieval, preservation, analysis, interpretation, evaluation, synthesis, dissemination, and management.}\textsuperscript{13}

**What Information Studies is Not**

It is inevitable, when one discusses the need for an Information Studies program, that a comparison is made with Computer Science and Management Information Systems. Certainly, these three programs need to work together to avoid duplication and overlap. Yet, the presence

\textsuperscript{10}Internet message from David Stoker, University of Wales at Aberystwyth, March 5, 1993.
\textsuperscript{12}Ibid.
\textsuperscript{13}American Library Association, Standards for Accreditation of Master's Programs in Library & Information Studies, 1992, Chicago, IL, January 1, 1993, p. 9.
of these three programs at one university offers synergistic opportunities for the faculty and students to work across programs for the benefit of all.

**Information Studies** is probably least like **Computer Science**. As a reference point, consider the definition of that field of study from the *Classifications of Instructional Programs*:

**Computer Science.** An instructional program that describes the scientific and mathematical study of algorithms used in designing and building computers, and their application to the development and design of actual computing systems. Includes instruction in computer architecture, assembly and programming languages, numerical and computational analysis, computer systems theory, artificial intelligence and cybernetics, and simulation and modeling.\(^{14}\)

Note that **Computer Science** places considerable emphasis on communicating with computers through programming languages. Thus, it is a look inward. **Information Studies** takes an opposite position of looking at the information that comes from computers. And, its consumers want not to communicate with the machines but rather understanding the information generated by the computer systems.

A program in **Information Studies** may appear closely related to a program offered by the College of Business, **Management Information Systems or MIS**. However, the "closeness" is evident in only a few words and phrases. Again, this is best illustrated by its definition as found in the *Classifications of Instructional Programs*:

**Management Information Systems and Business Data Processing, General.** An instructional program that generally prepares individuals to provide and manage data systems and related facilities for processing and retrieving internal business information; select systems and train personnel; and respond to external data requests. Includes instruction in cost and accounting information systems, management control systems, personnel information systems, data storage and security, business systems networking, report preparation, computer facilities and equipment operation and maintenance, operator supervision and training, and management information systems policy and planning.\(^{15}\)

The emphasis of an MIS program is on the use of information in a business or formal decision-making setting. The emphasis in Information Studies is broad, looking at the use of information across all sectors--public, private, and personal. Information Studies also is distinctive in regards to other disciplines in that its focus is on **resolving user’s information needs**. It accounts for the hardware, software, and financial concerns but views the user as the ultimate evaluator of an information system’s performance.

**The Pioneers of Information Programs at the Bachelor’s Level**

In the past 15 years, only a few universities have taken the initiative to begin bachelor’s programs in information “something.” These institutional programs are described below.

1. The **University of Pittsburgh** established the first such program in September 1979. It offers a "**Bachelor of Science in Information Science**" which integrates knowledge from fields such as communications, computer science, cognitive science, math, philosophy, engineering,

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business and others. Its goal is to prepare students for careers in diverse and exciting information professions.16

2. **Drexel University** instituted its program in September 1984. A *Bachelor of Science in Information Systems* was developed "to meet the demand for individuals skilled in the development of information systems and in the management of information." This forward-looking program for undergraduates offers a solid background in liberal arts and sciences as well as skills and knowledge needed to design, create, manage, and effectively use modern information systems."17

3. **Syracuse University** began offering an undergraduate major in information studies in 1987 with its first *Bachelor of Science in Information Studies* being awarded in 1991. Students can follow one of four concentrations--Information Resources Management and Consulting; Information Research and Services; Information Systems and Telecommunications; or Paraprofessional.18

4. **SUNY-Albany & North Texas State University** have both developed heavily interdisciplinary bachelor’s programs that use the “I” word. However, these programs appear not to be a high-priority for the schools. Yet, they are available if particular students wish to pursue them. At SUNY, the program grew out of an BS/MLS combination degree program and is now basically a bachelor’s degree in Information Science, as of the Fall of 1989.19

**Information Studies Curriculum Goals and Objectives**

The goals and objectives for this new degree program were developed by the faculty of the School and approved in October 1995 by the University Curriculum Committee.

*a. Information Studies Program Goal*

To prepare graduates, within the context of a liberal arts education, with knowledge, skills, and values required to develop, organize, store, retrieve, administer, and facilitate the use of recordable information and knowledge and their management and use to prepare individuals for service within an information-dependent, global society.

*b. Information Studies Program Objectives*

Í Develop an appreciation for the history, philosophical basis, concepts, theories and methodologies of information and collections of information.

Í Understand principal types, functions, and organizational patterns of information service organizations.

Í Appreciate the user's perspective, needs, requirements, and tasks in various information use environments.

Í Provide the communication skills to effectively serve as information brokers and information intermediaries.

Í Understand and utilize techniques of selecting, evaluating, and providing access to a full range of information resources.

Í Provide an introduction to the systems approach to problem-solving and the theories of

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information delivery systems.

- Provide an introduction to the development and uses of information resources, their general concepts, definitions and literature.
- Provide an introduction to the methods of information analysis and presentation.
- Understand the roles of systems designers, intermediaries, and information users in developing efficient and effective information services.
- Understand the cultural, linguistic, social, political, and economic implications of the information age.

**The Information Studies Curriculum**

The curriculum for the Information Studies program was developed over the period of two years. It draws on the curricula used at Syracuse, Drexel, and Pittsburgh. Copies of the course syllabus for all of their course were examined and related to the unique goal and objectives of this program. Additionally, the School’s faculty played a significant role in developing the course list and syllabi for this program.

Students enter this bachelor’s program after completing the state’s Liberal Studies program and 60 semester credit hours of course work or transfer with a comparable amount of academic work. Thus, the students entering this program will be taking the last half of their 120 semester hours of course work.

Ideally, students entering this program will take the following **core courses** in their first year in the program.

**FIVE New Undergraduate Core Courses:**

- Information Science
- Information Sources & Services
- Information Needs & Preferences
- Technologies for Information Services
- "C" Programming Language for Non-Specialists

**EIGHT New Undergraduate Elective Courses:**

- Managing Multimedia Information
- Societal Implications of the Information Age
- Quantitative Methods in Information Studies
- Managing Information Resources and Services
- Usability & Usefulness of Information Systems
- System Approach in the Information Environment
- Network Administration for the Information Professional
- Natural Language Processing for the Information Professional

**SEVEN Dual-listed Electives from the Master’s Program in Information Studies:**

- Information Services
- Seminar in Information Policy
- Theory of Information Retrieval
- Information and Image Management
- Managing Networks & Telecommunications
- Organization of Non-Bibliographic Information
- Techniques and Management of On-Line Searching
New Program; New Students?

In developing new programs, there is always a concern by other academic units that their resources and even their students will be “sucked” into the new one. And, this could happen. First of all, the student growth at Florida colleges and universities is on the rise. So, adding programs is looked upon favorably by the State University System (SUS) of Florida and like governing bodies for the private sector. As more students come into the system, enrollment dollars follow. Thus, there are some assumptions made in developing a model of costs for such a new program.

First, there is the assumption that FSU will start out like the other universities that started these degree programs. So, data from Syracuse, Drexel, and Pitt suggest the program will start with about 30 students and double for the early years. Thus, by the end of the third year of the program, some 100 students would be in the system. These numbers are then entered into a formula on funding and tell the budget staff that the will be costing about $400,000 annually and generate over $500,000 in new monies for the university.

Secondly, it will take faculty and staff to put this program into operation. Again, following the normal build-up experienced by other universities, the program would generate 4.5 FTE faculty and 1.5 support staff. This will allow about 22 courses to be taught each year and adequately meet the demand of about 100 students. One of the new staff resources will be used to manage the new computer technology and the half position will be used to help with the administration of the new program.

Resources Essential to a New Program

As part of the development process, all of the resources essential to the implementation of a new degree program are evaluated. For example, a new program and 100 more undergraduate students will require additional library resources. The State funding formula provides the dollars for additional library materials and even human resources. Existing classrooms were judged to be adequate to handle the new group of students but additional laboratories would be needed. Additions to existing labs would include:

- A doubling of the Computer Laboratory to 40 PCs. The addition of a New Technology Instructional Laboratory which will have one-of-a-kind new microcomputers and workstations, loaded with new or beta version software. A new Usability Research Laboratory is planned to develop and teach various aspects of usability and usefulness of approaches to ergonomics. It will also contain an electronic whiteboard and a video camera system to record testing sessions.

In addition to these facilities, the students will be able to use the existing labs and teaching facilities, which include: the On-line Laboratory contains the file server for the local area network, the network printers, and the documentation to support the on-line courses; the Cataloging Laboratory contains three OCLC terminals that are connected via SOLINET to the OCLC bibliographic utility; the Conservation Laboratory which is used to teach the practical aspects of conservation and preservation of books; a Graphics Laboratory that is used to teach practical methods of creating graphical items, such as passe-partout, drymounts, overhead transparencies, computer generated posters and signs, bulletin boards, etc.; and the Audio-Visual Laboratory which features audio visual (AV) equipment used in school media programs.

What do graduates of Information Studies programs do?

Now that the program is ready for implementation, a good question is, “What do graduates of Information Studies programs do?” Graduates of programs in information studies are employed in a variety of public and private sector positions that serve to link information users and information products and services. Current graduates work as information product and service designers and manufacturers and as independent information service providers.
Graduates are found in such areas as: information services & support; information specialist; network administrator/coordinator; planning services; technology licensure & testing; information systems services; educational information services; information support & analysis; reports & forms management; information program support; telecommunications specialists; network services; office automation specialist, end-user trainer, information product evaluator, information designer, information analyst, information technology planner, information researcher, data security specialist, usability analyst, on-line searcher, information broker, and Internet site architect.

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