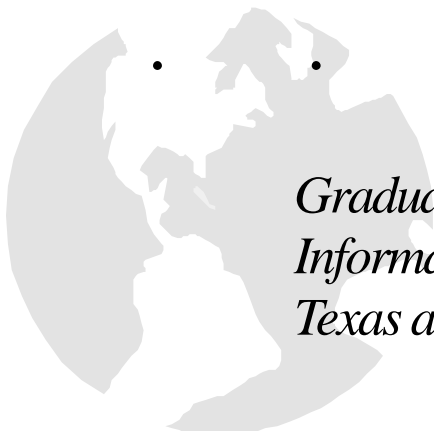




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Information Architecture Proposed Curriculum



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Information Architecture

Overview

Information Architecture is an important emerging discipline. Since 1998, there has been an increased awareness and demand for Information Architecture to improve the effectiveness of information spaces, particularly websites. Academic interest and corporate acceptance of Information Architecture is fueling the development of this new discipline. LIS professionals are versed in many of the key concepts of Information Architecture such as information organization, categorization, and defining user requirements. Because of this similarity between LIS and Information Architecture, there is a unique opportunity for the LIS community to help focus the direction of Information Architecture. Part of this focus can be the development of a structured graduate level program of study in Information Architecture.

IA is the commonly accepted abbreviation for either Information Architect or Information Architecture and is used throughout the rest of this paper.

The World Brain and the Law of Disruption – Why IA Now?

In 1938, H.G.Wells envisioned a World Brain that would connect man's knowledge across time and space.¹ Instant access to knowledge from around the world and throughout time would allow us to learn faster and create a better world while not having to relearn knowledge from the past. While his true concept of the World Brain is utopian, the reality of globally networked information is here.

Robert Metcalfe, a 3Com engineer who developed the Ethernet protocol, stated that *the usefulness, or utility, of a network equals the square of the number of users*. The Internet reached critical mass in November 1997 with more than 25 million host computers. Gordon Moore, founder of Intel, stated that *every 18 months, processing power doubles while cost holds constant*.² The law of disruption is from the book *Unleashing the Killer App*.³ It states that until a critical mass of users is reached, a change in technology only affects the technology. However, by attaining critical mass, social, political, and economic systems change. Inexpensive, powerful computers linked globally through the Internet are beginning to change our social, political, and economic systems.

The 1990's saw an unprecedented growth in information networks and widespread use of computers. The result was that more people have access to more information. Businesses and organizations realizing the benefit of networked information are increasingly dependent upon on that networked information to function.

Metcalfe is only partially right about the usefulness of a network. If users cannot find their information or use the interfaces on the network then the usefulness of the network diminishes. This is increasingly being realized by the poor design of websites where users cannot accomplish simple information retrieval tasks.

¹ Wells, H. G. (1938) "World Encyclopedia." World Brain. Garden City, NY: Doubleday, Doran & Co. (p3-35)

² Boyd, Charles. "Why Strategy Must Change." Management Issues. 2001.
<http://www.mgt.smsu.edu/mgt487/mgtissue/newstrat/index.htm>.

³ Downes, Larry and Mui, Chunka. *Unleashing the Killer App: Digital Strategies for Market Dominance*. Harvard Business School Press. Harvard, MA. 1998.

Now that the Internet is an accepted and essential means of communication for people and organizations, they are demanding usefulness and performance from it. IA advocates the users' needs and is concerned with improving the organization, structure, and usefulness of an information space, such as websites.

Emergence of IA

While the term IA was first used by Richard Saul Wurman in the 1960's, the growth of the Internet has played a major role in pushing IA to the mainstream. Richard Saul Wurman an architect by trade was concerned with the gathering, organizing, and presenting of information to achieve some purpose.

"information architect. 1) the individual who organizes the patterns inherent in data, making the complex clear. 2) a person who creates the structure or map of information which allows others to find their personal paths to knowledge. 3) the emerging 21st century professional occupation addressing the needs of the age focused upon clarity, human understanding, and the science of the organization of information." Richard Saul Wurman⁴

The rise in the visibility and demand for IA in the late 1990's coincided with the Internet reaching critical mass in 1997. Lou Rosenfeld and Peter Morville published *Information Architecture for the World Wide Web* in 1998.⁵ The book referred to as the "Polar Bear" book is due to the publisher placing a polar bear on the front cover. This book defined the current scope of IA as it relates to the website development. The book also brought the principles of IA to the Internet development community. IA has been gaining wide acceptance as an essential part of developing websites and other information spaces.

Since the publication of the "Polar Bear" book in 1998, professional interest and the number of publications about IA have been on the rise. There have been two ASIS&T IA conferences. The first was the mid year summit 2000 in Boston. The second IA summit was in February 2001. Also in the fall of 2000 Argus Associates sponsored an IA conference in La Jolla, California. The ASIS&T SIG IA is also enjoying widespread popularity between IA's. Started in the summer of 2000 it is one of the most active ASIS&T SIGS. Starting in the beginning of 2001, Andrew Dillon began publishing a regular IA column in the Bulletin for ASIS&T.

The professional interest in IA is ensuring its future in the design and creation of information spaces. Since the field is in its defining stages, there still are many debates about the definition and scope of what an IA is and does. LIS has an important role in this debate and an opportunity to shape the future of this important profession.

Process, Person, Collaboration - Defining IA

Lou Rosenfeld calls IA "the art and science of organizing information to help people effectively fulfill their information needs...which includes the organization, navigation, labeling, and search mechanisms of information systems."⁶ IA is part of the analysis, design, and implementation of an information space.

⁴ Wurman, Richard Saul; Bradford, Peter; eds. *Information Architects*. Zurich, Switzerland: Graphics Press; 1996. ISBN:3-85709-458-3. [The quoted phrase is from the jacket's definition of "architect".]

⁵ Rosenfeld, Louis; Morville, Peter. *Information Architecture for the World Wide Web*. Sebastopol, CA: O'Reilly; 1998. ISBN:1-56592-282-4.

⁶ Zwies, Richard. "Observations on the American Society for Information Science Summit 2000 Meeting: Defining Information Architecture." *Bulletin of the American Society for Information Science*. June/July 2000. (p.11).

“Information architecture is an applied field that needs to draw from a variety of subject disciplines.”⁷ IA’s must have knowledge of user interaction theory, task analysis, user cognition, the organizational and social impact of technology, design process, system design and development, user testing principles, principles of communications, logical reasoning, critical thinking, and analytical skills.

Many disciplines contribute to successful IA. These include organizational psychology, computer science, education, cognitive science, user-centered design, graphic and industrial design, instructional design, sociology, anthropology, software engineering, web design, data modeling, database management, human computer interaction, information retrieval, and information science.^{8,9}

This multidisciplinary aspect of IA has led to much debate about what IA is. At the IA conferences and on SIG IA the argument has been whether IA is a person or a process. As a person, the IA can define the audience, purpose, and organization of an information space. As a process, it is the means by which people from a variety of disciplines collaborate on the definition, purpose, and organization of an information space.

The information architecture process focuses on creating usable information spaces that accomplish the requirement of users and fulfills the goals of the website owners. IA’s do not just create navigation structures for websites. They integrate organizational needs with user requirements. They are the advocates for the users in designing information spaces.

“For me IA is best seen as an umbrella term under which we will find many concerns shared with researchers who describe themselves as information scientists, interaction designers, usability engineers, and so forth... We can add to this the methods and skills of journalists, educators, market researchers, and system analysts and many more who have ideas and knowledge of what it takes to make information accessible, desirable, and consumable by people.” Andrew Dillon¹⁰

Information spaces include any system that requires interaction from human users for the purpose of information retrieval or exchange. Predominantly IA’s work with the website information space. IA is applicable to different information spaces such as databases, libraries, and such.

Whether IA is a process or a person, it has many facets. This is because IA is always a collaborative effort. The expertise of many disciplines is required to effectively gather requirements, design, and organize an information space. The paradox between process and person is if a person is qualified as an IA will they have knowledge of many disciplines but master none. One solution may be to treat IA as a process where the practitioners understand the process and concentrate their expertise in one area like information organization.

⁷ Morville, Peter. “Educating the Information Architect.” Argus Center for Information Architecture. August 15, 2000. http://www.argus-acia.com/strange_connections/strange0005.html.

⁸ Dillon, Andrew. “Information Architecture: Why, What, and When?”. Presentation. American Society for Information Science Mid Year Summit 2000.

⁹ Zwies, Richard. “Observations on the American Society for Information Science Summit 2000 Meeting: Defining Information Architecture.” Bulletin of the American Society for Information Science. June/July 2000. (p.11).

¹⁰ Dillon, Andrew. “I Think Therefore IA.” Bulletin of the American Society for Information Science and Technology. December/January 2001.(p.)

LIS and IA - Partnership

IA currently lacks formal credibility. There are three ways to gain credibility: formal credentials, credible tools, and direct involvement by IA professionals. “In the absence of both formal credentials and tools, IA’s must demonstrate their worth through direct involvement...”¹¹ Direct involvement is happening now through the IA conferences and public discussion forums. Several universities around the country, mostly LIS schools, have nascent IA programs and/or courses.

LIS is a logical starting point to develop an IA curriculum. LIS expertise in information retrieval, defining user information requirements, and information organization is closely tied to the principles of IA. LIS professionals have been defining system requirements based on user information needs for over a 150 years. There is an established infrastructure in LIS for teaching and researching these principles. That infrastructure can support the formalization of IA as a discipline. An LIS based IA curriculum will add credibility to the discipline and provide a forum for academic research in IA.

An LIS developed IA curriculum should be based on the strengths of LIS. IA’s trained in this curriculum will have a thorough understanding of the process of IA. They will however be specialists in information retrieval and information organization. LIS also has a tradition of combining an academic foundation with practical experience. This same model will produce IA’s who understand why they are doing something and how to do it. By endorsing IA with a graduate level curriculum, LIS will be taking the lead in providing the research and training to organize and make accessible the digital landscape.

The Practice of IA

What to Expect

The Information Architect is the liaison between several groups during the requirements gathering, functional requirement identification, and information architecture design of a Web site project. The IA must act as a mediator between the client, user, business office, graphics team, and the programming department. He will be in charge of a wide variety of activities from content analysis to focus group research to web page framing. The effective IA has an arsenal of technical skills mixed with effective interpersonal communication, which puts him at the center of a complex web of communication between differing views and ideas. The IA plays the role of a diplomat by maintaining cohesion between team members and ensuring the project remains on schedule, meeting goals and deadlines.

As a mediator, an IA must rely on diplomatic, presentation and communication skills. The primary function of the IA is to educate, advocate, and translate the requirements for all the different audiences involved. If the IA is ineffective, the project will fail or be troubled with multiple problems. Communication lines begin with the initial “pitch” to the client where the IA provides a cost benefit analysis to justify an IA. Throughout the project, the IA will give updates, documentation, and presentations to the client. Next, the IA must speak with users of the web site and become an advocate to the client on their behalf. The principle responsibility of the IA is to architect the site with the needs and functionality requested by the user. If this is not accomplished the site will either remain or develop as non-functional. Finally the IA will in turn translate the users’ needs to the client, design team and production group. This makes concise language an imperative. Failure in this regard whether verbal or written will effect the project throughout the entire process.

¹¹ Dillon, Andrew. “Practice Makes Perfect: IA at the End of the Beginning”. Bulletin of the American Society for Information Science and Technology. April/May 2001. (p. 28-9).

The IA completes a wide variety of tasks to accomplish a user design. Two pre-steps in the process involve obtaining the mission statement and target market of the company. The first task performed is a content analysis. The act of physically going to the company and obtaining all content archived, used, and created by the company. Then the IA must determine from the content if the target market is truly indicative of the content, which the client owns. Next, the IA will conduct research on the projected users. The IA compiles this research for the creation of a taxonomy list or thesauri. The IA sorts and groups the content into definitive areas. A blending occurs of the taxonomy list with the content areas for matching of like terms and begins to form the navigation. The thesaurus either creates title subject heading pages or metadata for search engine functions. At this stage user profiles, use cases, and task flows develop to help ensure that the navigation will reflect the users needs. Creation of the navigation takes the form of a site map that includes a rudimentary navigation through the site. In the interim, the graphic team is receiving information about color and user design elements from the IA. Next, to hold the content the IA constructs mock-ups. Included along with the mock-ups is a functional spec that dictates the navigation intentions. The compiling of the IA and graphic documentation forms a style guide that is given to the program team for production of prototype web pages. Use of Paper prototyping is for initial user testing of the site. It identifies problems of information flow and ease of use by the members of the target market. After paper prototyping the site navigation, taxonomy, and content are redesigned based on user input. The site is then passed on to the production team who creates the final product. The IA will assist in the testing of the final site and make recommendations for any final changes. This is an interlaced complicated process but necessary for an effective IA design.

Thus, the IA creates meaningful, useable organizations of information. Further, an IA must work with other members of the team and with clients to identify the elements of information involved in the project. They discover or create information structures and organization schemes, which can serve as the bridge between the underlying technology and a good user experience. IA's bridge the creative and technical elements of a project both for the project itself and for the production team, ensuring that the balance between the technical and creative elements remains stabilized so that the audience's needs are served. All this makes an IA the network hub in designing an effective and useful web site.

Professional Requirements

Job requirements range greatly from employer to employer and are dependant on job title. Job Titles themselves cover a larger range from simply IA to Senior Structural Web Designer. This then creates a host of sub-requirements, which are then dependent on a third element: whether you are a solo or team IA. Below is a list of requirements compiled from at least 30 different job descriptions. The arrangement of these requirements is by interactive levels of a typical project. * Indicates requirements from job postings on the ASIS.org web site.

Client interaction/mgmt:

- Fulfillment of orders,
- Business savvy
- Customer service information
- Information flow for financial purposes
- Monitor content delivered by client and ensure objectives are met
- Gather communication and functional objectives by leading client working sessions,
- Reviewing the competitive landscape,
- Conduct effective meetings and presentations
- Translate user needs to client
- Identify mission and target market
- Deliver appropriate documentation throughout project

Discovery/analysis (Client/Production research):

- *Define, characterize and prioritize the audience that the project is meant to reach
- Work with client and end user to ID web strategy
- Identify and classify (develop categories) Web Info content and types.
- *Organization of information (usable and meaningful)
- Gathering user interface requirements and modeling
- Transfer of information
- *Assess and document current site functionality and structure.
- *Interpret client needs in coherent and constructive form for the project.
- Gather communication and functional objectives by creative brainstorming sessions with the project team.

IA Design:

- *Design the navigation structure (hierarchy), system and workflow (dataflow)
- Solid understanding of web technology
- Create User scenarios
- Create User profiles
- Conduct Task flow analysis
- Develop Use cases
- Create Form, function, metaphor, interface, interaction, and visual design
- *Assist in translation of business and user requirements into functional and design recommendations.
- *Specify how users will find and interact with information by defining systems of organization, labeling and searching.
- *Produce site maps, content maps, page schematics, and text-based outlines to communicate information structures and organization schemes.
- Develop Storyboards
- Develop Wireframes
- Develop Info boards, mood boards
- Develop Project site structures
- Develop controlled vocabularies and thesauri

Production

- Familiar with the same technologies as the programmer position.
- Prototype site schematics for presentation to clients.
- Perform usability testing of proposed designs.
- Key advocate for users
- User analysis
- Task Flow analysis
- Design the interfaces
- *Collaborate on user interface designs through the development of paper or screen prototypes.
- *Coordinate with designer, writer, project manager, and developer to identify and obtain client assets in all stages of design.
- *Communicate with project manager and application architect to coordinate site concept, visual design, writing, interface, and navigational structure of site with functional aspects.
- Advise designers on usability issues

Implementation

- Usability testing
- Paper prototyping

Skills Needed

The skills required to become an IA include, but are not limited to the following (they may be fewer depending on the hiring company). * Indicates requirements from job postings on the ASIS.org web site.

- Degree in a related field, such as Technical Communication, HCI, Usability, LIS, or Graphic design.
- Experience designing application interfaces.
- Experience designing and conducting usability tests and (method inspections).
- Self motivated and proactive mind set (initiative)
- Strong interpersonal skills,
- Leadership ability,
- Attention to detail,
- Experience leading (and presenting) clients through the discovery, analysis, and design phases of web projects.
- Organizational skills
- Strong creative and organizational vision for interactive projects.
- *Thorough understanding of web design and online media issues
- *Ability to work effectively with other team members
- *Strong critical thinking and problem solving abilities
- *Excellent verbal and written communication skills
- *Exceptional customer service orientation
- *Design of information architecture and navigation, information structure and workflow for Web sites and other interactive media
- *Creating and documenting design concepts and solutions through sketches, diagrams, maps, storyboards, rapid prototypes, and functional prototypes
- *Task analysis, task modeling, and usage scenarios
- *Work with design, engineering, & New Business team to ensure implementation of all project requirements.
- Hands-on Web development experience.
- Understanding of time management and appropriate use of resources
- Experience with research techniques
- Experience working with multidisciplinary teams contextual inquiry

Technical Application Skills

The following is a gathering from several job listings via the Internet.

- | | |
|---------------------------|---------------------|
| • HTML and creation tools | • Visio |
| • JavaScript | • Cross-platforming |
| • CSS | • ^VB |
| • DHTML | • ^VB Script |
| • MS Project, | • ^CGI |
| • MS Word, | • ^Perl |
| • MS Excel, | • ^ASP |
| • Illustrator | • ^SQL |
| • Photoshop | • ^Java |
| • Quark express | |

^ indicates not required unless Solo IA.

Deliverable Production

The primary form of written communication between all parties involved in a project comes by way of the IA deliverables. Deliverables are a term used for any document given to the client for maintaining contact with the project progression. At the end of the project, the compilation of deliverables and other documents generated by the IA goes to the client. The

concept is that with this document, any number of Web pages created by any number of programmers will retain the professional continuity of the. The following is a sample list of the many deliverables produced by the IA

- Proposal
- Business objectives
- Work flow / Timeline
- Brand personality
- Site Audit (if needed)
- Design Principles
- User information
- Content Analysis
- Focus Group analysis
- Needs analysis
- Style Guide
- Taxonomy/Thesauri
- Wire Frames
- Functional Specification
- Templates
- Story Boards
- User profiles
- Task Flow analysis
- Use cases
- Site map
- Mood Boards
- Design Comps
- Prototypes
- Heuristic usability analysis
- Usability testing results

The Open Market

The Market reliance on networked information will create a need for IA's. There are many examples of poorly designed Web sites on the Internet that prevent users from accomplishing the simplest of information retrieval tasks. The use of IA's will remain a staple as they perform a key function within the development of effective and usable Web sites. Corporate demand to use the Internet for marketing, e-commerce, inventory management, information transfer, etc., will continue to increase. This will make the services of IA's increasingly important.

Many Web job-lists have numerous career opportunities for IA's. Monster.com lists 57 positions using the term "Information Architect" (quotes included). Dice.com lists over 50 positions and Flipdog.com has over 100. This is encouraging as the information technology economy is currently depressed and employers still need IA's. Even if the market were to die there are numerous other positions such as Database Architecture, Interface Design, and Electronic Librarianship were IA's can apply their qualifications. The reason such a transition is easy stems from fact that the IA's job is to make content accessible in a meaningful way to the users of the information, not unlike a librarian.

Current Status in Education

Overview

Many Universities have embraced IA as a field of study and developed curriculum to support the infant career. A review of eight prominent Universities assisted in the following breakdown of the curriculum currently in use. These Universities are Drexel, Florida State, Kent State, San Jose State, Indiana, UC Berkeley, Illinois, and Michigan. Six of these eight list that students can specialize in Information Architecture.

Trends in Core Courses

With the exception of the programs at Florida State and the University of Illinois, most Masters programs that offer degrees or specializations in Information Architecture or fields that are akin to IA require several core classes. There are visible trends in the core requirements from program to program. Although each program seems to employ its own nomenclature, most of the classes seek to impart the same knowledge to the student.

Several core courses deal with the rubric of information management in its various forms. These include courses that speak to the management of specific information systems (whether traditional or electronic), as well as the theoretical management of knowledge. Further, many core classes are concerned with the theory of information retrieval and users' information seeking behavior. When one considers the courses offered by the various national programs, the tremendous overlap of knowledge becomes evident.

Information Systems/Management/Organization

The management and organization of information is probably the most crucial skill the aspiring IA will learn. All of the programs require at least one core course that deals with this. For instance, Drexel requires eight core courses of all its MSIS students. Included in these are "Information Systems Analysis and Design," "Evaluation of Information Systems," and "Information Systems Management." These are classes that either deal with systems analysis from the stance of design technique, the evaluation of system software, or the examination of technology-induced changes in information systems. The tracks at San Jose State impart similar knowledge through a course dubbed "Information Organizations and Management" (as well as "Information and Society"). At the University of Indiana, the student will take "Information Management." UC Berkeley offers the same content under the heading "Information Organization and Retrieval." Kent State requires two courses entitled "Information Architecture and Knowledge Management."

Information Searching/Retrieval

Most tracks seek to familiarize the student with the information-seeking behavior of users. Among University of Michigan's core courses is one entitled "Search and Retrieval." UC Berkeley offers "Information Organization and Retrieval." This perhaps overlaps with knowledge gleaned from courses concerning information management as well. San Jose State requires "Information Retrieval." Florida State requires students in five out of six of the IS tracks to take a course entitled "Theory of Information Retrieval."

Database Management

Some of the programs require a core course that specifically deals with the management of databases. These programs include those at Drexel and Florida State

Research Methodology/Statistics

Kent State requires all IS students to take a "Research Methods" class. The University of Indiana's program also requires an "Intermediate Statistics" course. The lack of representation in this area might result from the various programs' leaning toward the practical rather than the theoretical.

Human-Computer Interaction

Several of the Universities studied require core knowledge in HCI. Drexel requires, as a core course, "Human-Computer Interaction." Indiana requires a course entitled "Introduction to HCI." One of UC Berkeley's core requirements is "Information Users and Society" that deals in part with HCI.

Networking

Drexel is the only program with a core requirement having an obviously title of a networking course: "Distributed Computing and Networking." However, many of the core courses required by other programs include a strong networking component. Examples are Kent State's "Information Architecture I & II" and "Information Technologies," San Jose State's "Information and Society," and UC Berkeley's "Distributed Computing Applications and Infrastructure."

Project Management/Problem Solving

Since most students who are preparing for careers in IA or another related fields will move into management positions, many of the programs require a core course that deals with project management, planning, team building, or leadership. For instance, Drexel requires a course entitled "Software Project Management," Kent State requires "Strategic Information Management," Indiana requires "Information Management," UC Berkeley requires "Analysis of Information Organization and Systems."

Trends in Elective Courses

The programs examined offered a host of elective courses from which students could choose. Both Florida State and the University of Illinois required no core courses; therefore, students there had greater latitude to tailor degrees to their interests. Among the eight programs evaluated, trends are apparent in the types of courses offered as electives.

Cognitive Psychology/Human Behavior: Half of the programs offer some form of cognitive study, whether it is in the guise of Cognition or Cognitive Psychology or Human Behavior. Obviously, the study of human factors is integral to the education of an IA since understanding how the human mind functions will assist in the design of better user interfaces.

Software Engineering/User Interface Design/HCI: This is the heart of user-centered design. Most of the programs offer one or more courses in related topics. This area seeks to impart knowledge concerning the creation of user interfaces optimized for usability. This constitutes a large part of an IA's responsibilities.

Database Management: Many of the programs offer elective courses in database management. Many of those programs requiring a core database management class offer courses in advanced database management.

Programming: Some of the schools offer elective courses in object-oriented programming, user interface programming, and Java. This was not something common to most of the programs though.

Classification/Indexing/Cataloging: Many of the programs, especially those based in traditional library schools, offer courses in the classification of information, indexing and abstracting, cataloging of information, and thesaurus construction. Given the IA's responsibilities involving content analysis and taxonomy creation, the organizational skills imparted by these courses are indispensable.

Networking: Some programs offer elective courses in computer networking and network administration that were apparent from their title. Most of the programs that did not have such courses seemed to cover networking as part of related courses in information systems management.

Public Policy: A few of the programs offer courses concerning public policy and information policy. This may be of importance to the IA if he finds himself working in a large corporation or for the government wherein state or federal laws may guide work on certain applications or web sites.

Management/Administration: There is a host of elective courses that deals with the business side of being an IA: administration and management of the information apparatus, organizational communication, and management of technology. These were especially common at Kent State. Kent State also offers a course on interpersonal communication. This is another area important to the aspiring IA, for the need to communicate with upper management, clients, users, and other team members is crucial to success.

Search Behavior/User Needs: Classes dealing with the information needs of users are also common. Knowing how users search for information and what different types of needs various user groups have can assist the IA in better system design, especially if he works for an organization that caters to a specific client or user group.

System Analysis: Many programs require this as a core course. However, it is also available as an elective in many instances. The study of information systems and how various methods can be applied to deliver information to users and clients is important for the IA who will play a role in the development of such systems.

Trends in Capstones

Many of the programs require the completion of a Masters Thesis or a “capstone” experience before attainment of the degree. If they do not have this requirement, they usually have some form of “real-world” experience to supplement the degree.

Drexel: Drexel does not require a thesis or capstone. Drexel has a program for Career Integrated Education (CIE). This is a program in which students get course credit and a grade for their work experience. The experience can be either three or six months long and either full-time or part-time. It enables students to get “real world” experience that will enhance their resumes and help them acquire employment after completion of the degree.

Florida State: The student can complete a Masters Thesis, but it is not required of all tracks.

Kent State: The student can complete either a Masters Thesis or a Masters Project. Those seeking professional employment should opt for the Masters Project, while those planning to perform research or pursue a doctoral degree should opt for the Masters Thesis.

San Jose State: The student can complete a research thesis, culminating experience, or final project.

Indiana: The student must complete a Masters Thesis or project in Human Computer Interaction.

UC Berkeley: The student must complete a culminating project. In the final semester, students undertake group projects to design, build, and evaluate an information system.

Illinois: No capstone or thesis is required.

Michigan: Students are required to complete a Practical Engagement. This experience can be a directed field experience or an internship with a major corporation or not-for-profit organization.

Proposed Curriculum

One important consideration for an IA curriculum is to realize IA as a process that involves the contributions of many disciplines. An LIS based curriculum in IA will provide an awareness of the practice and study of IA while allowing the specialization in organization and retrieval of information. This approach leverages the current strengths of the LIS curriculum information retrieval, defining user information requirements, and information organization. The LIS IA curriculum will introduce the importance of the multidisciplinary team and provide the necessary skills to successfully practice IA. Students will have an

appreciation for research methods and the theoretical underpinnings of IA. They will also gain a practical knowledge of using IA in real world settings.

This curriculum satisfies the needs of academia and the corporate world. IA provides many new opportunities for academic research into information organization and retrieval systems as well as human interaction with these systems. There is also a real and growing need for professionally trained IA's in the corporate world. This need for IA's will keep growing, as the Internet becomes an integral part of daily life.

The curriculum will add credibility to the term IA. Currently IA's are self-proclaimed and the definition of what an IA does is varied. A recognized curriculum will help to focus the discipline and ensure its longevity.

This proposed curriculum is in addition to the required curriculum and objectives of the current GSLIS MS in Information Studies curriculum. Some recommendations for courses come from outside the traditional LIS realm. This reflects the multidisciplinary aspect of IA. This curriculum incorporates what are considered the most important areas of study and skills that IA's will need. This is based on research into corporate requirements for IA's and curriculums already offered at other universities.

Objectives

The IA curriculum will prepare students to enter the field of information architecture or a related field such as interaction design or website usability. Graduates of the IA curriculum will be able to:

1. Understand and apply theories of information organization and retrieval as they relate to managing electronic information resources.
2. Have a basic knowledge of a web programming language and the software design process.
3. Design, implement, and analyze data from social science research projects.
4. Understand and apply the concepts of user centered design and website usability.
5. Research, plan, and manage IA projects.
6. Familiar with key aspects of the application of electronic information resources in educational and/or business environments
7. Develop and practice the soft skills of working in a team environment, critical thinking, and problem solving.
8. Effectively communicate ideas and concepts (both verbally and in writing) on many different levels of understanding, from end users to clients to corporate sponsors.

Courses

The following courses are in addition to the required courses for the GSLIS MS in Information Studies. Course recommendations are from the UT catalog.

Business Management. This course (preferably from the business school) will introduce students to key concepts and issues about electronic information in the corporate community.

Recommend MIS 380N. Digital Economy & Commerce. Electronic commerce is in its infancy and changing rapidly as new technologies emerge. This course provides a detailed review of the production, marketing, and distribution of digital information products and applies microeconomic analyses to examine some of the radically new business models emerging from web-based businesses.

Experimental Design. Competency in developing credible research experiments will add to the validity of the design recommendations made by an IA. This will also require a prerequisite class in statistics.

Recommend PSY 384K. Advanced Statistics: Experimental Design. Consideration of problems of analysis and design commonly encountered in psychological research.

Cognitive Science. As the user, advocate and IA, the student must have a foundation in human cognition.

Recommend. LIS385T17 Cognitive Studies. The cognitive nature of information needs and use.

or

CMS386P Technology, Intelligence, & Interaction. In recent years, a new interdisciplinary view of human communication and cognition has emerged. This view holds that communication is a social practice that is mediated by historically evolved symbol-systems, tools, and technologies. The objective of this seminar is to give students a solid and broad based understanding of the theories, both old and new, that have informed (or emerged from) the new paradigm.

Usability Engineering. Usability testing is key to gathering quantitative and qualitative information about how users interact with an electronic information system.

Recommend. LIS385T.6 Software Usability Engineering. The rapid expansion of the Internet and e-commerce has brought software usability engineering into prominence. As computing oozes into every nook of citizenry, it's increasingly important for software developers to NOT depend on their own intuitions as to what product designs are likely to be seen as usable. The way web and other user interface developers address this intentionally is by pursuing a course of "user-centered design" (UCD). UCD involves employing a collection of usability engineering methods across the life cycle of a software product.

Computer Science. Understanding the implementation aspect of information systems is important. This requirement provides the IA with an appreciation for the capabilities and limitations of current Internet programming languages.

Recommendation. CS 389M. Principles of Object-Oriented Software Technology. Fundamental principles of object-oriented software engineering, including design and implementation of object-oriented analysis methods, software architectures, translators of high-level programming language representations, translations to multiple-software architectures.

or

LIS 384K. Topic 11 Access to Information and Materials. - Database Management Principles and Applications. Study of principles and theories of selecting, acquiring, organizing, indexing, and networking sources of information. Creation, processing, and management of automated and manual files for information access. May be repeated for

credit when the topics vary. Database management systems, including architecture, design, administration, and implementation.

Interpersonal Communication. Being able to effectively communicate with clients as well as other project managers and company personnel is crucial to the IA's task of being an advocate, facilitator, and liason.

Recommend. CMS386K Interpersonal Communication Theory. This course will provide broad coverage of research, theory and methods relevant to the study of interpersonal communication. This survey class will cover contexts such as family, friendship, and love. Topics covered include compliance, conflict, emotion, deception, and more.

or

CMS306M Professional Communication Skills. This is an undergraduate course, but it might be more appropriate for the aspiring IA who has no previous experience with public speaking and is in need of such skills. The goal of the course is to make the student a more competent professional communicator by studying the theories and principles of effective communication, applying these principles in a variety of assignments, and critiquing the performances of other speakers. After this class, students should be able to prepare and succeed at professional interviews, meetings, and presentations; analyze and adapt to various audiences; and adjust to different speaking situations, purposes, and contexts.

or

CMS310K Team-Based Communication. This is an undergraduate course, but it might be appropriate for those who have no prior experience working in teams. This course explores a wide range of communication issues in the contexts of small group and team interaction. The class is a combination of theory and research about small group communication processes, as well as application of that material. Students will learn by being part of both an in-class and a virtual (technology mediated) team, and will execute a major project as part of each team. The role of communication technologies to support groups is also emphasized.

Capstone IA Project. A culminating project requiring a team effort to build an IA from requirements gathering to implementation. This is a single semester project where the students work with a client to build an IA for a website or other appropriate information space.