[Note – this schedule is subject to change in light of student backgrounds & skills, resources, specific academic and professional needs. Student performance will be evaluated based on quizzes, in-class presentations, class participation, and hands-on projects. I reserve the right to have a pop-quiz if people don’t keep up with the above.]

1/23  Intro  Systems Analysis & Info Arch
Welcome & Introduction to the Class & Subject
Class Discussion
Assignment: Read SQL command set, DTD & XML Schema (for the following week’s discussion).
2. HTML: http://www.w3.org/TR/REC-html40/types.html
4. XML chapters on reserve from Brill’s Code Notes for XML

What is a class in “applied information systems design”? The very title somewhat begs the question of what are design, a system, information and what’s necessary to apply these.

The Application is usually the “design” component of Systems Analysis & Design. What is that?

“Design” the physical component of the analysis.
Requires knowledge of the organization in which the system is used
Requires technological support system
Requires that the product be useful to people, which leads to interface design.
There are two main components, then: the technology and the users.

First let’s look at two “analysis and design” behaviors: Systems Analysis & Design and Information Architecture.
SA&D defined
Information Architecture?

What System Designers must know:
• Software tools
• Techniques for documentation (e.g., needs analysis, storyboarding, pseudocoding)
• System architecture (specifically the client/server model as represented in the Internet)
• Data modeling (structured [sql] and tagged [xml])
• Design principles: aesthetic, communicative, cognitive, ergonomic, critical [e.g. “Fix the site”]
• Organizational constraints on their application

What you should know:
Why the above are important
The difference between data & information
What a system is and why people create them

1/30 Data Modeling: SQL & XML  SQL command set; DTD & XML schema
Last week you were assigned several readings: SQL, DTD, XML, and XML Schema. Today, we review data types in order to emphasize the idea of data-driven applications.

SQL:
Products: Oracle, Sybase, MySQL, PostgreSQL and others

XML:
Do it yourself! Or buy HyTime, XMLSpy.

No doubt you’ve learned about the basic data types: String, character, Boolean, and “number”. The fact is there are many data types and in the object-oriented world, you can create your own data types. “Number” really breaks down to many primitive data types: integers, bytes, short, float, double, char that vary by specific software and hardware implementation. Notice how different domains have different data formats. After you read chapter 8 of the MySQL manual, take a look at the different sites below.

SQL (read “Basic SQL Commands handout” and chapter 8 of the MySQL Manual):

GIS: http://www.gis.com/data/data_types_print.html
HTML: http://www.w3.org/TR/REC-html40/types.html
XML: www.xml.dvint.com/docs/SchemaDataTypesQR-2.pdf
Perl: http://www.perldoc.com/perl5.6/pod/perldata.html

2/6  Contextualizing Info Systems
Assignment: Write a white paper on a specific type of info system. Do not work together – the purpose is to learn how to make sense of the host of resources and to shape a well-written paper about applied information systems. Follow APA for your cites. Papers will be graded down for spelling errors, incorrect APA use, poor writing style, clichés, poor organization. [Any paper that uses the words “simply”, “utilize” or use the passive voice a lot are failed immediately.] Due before class on March 5. You will discuss your work in class.
You see that there are different data types in different environments – that’s the “applied” part. Notice that in Systems Analysis & Design (and IA) there is often a smaller view in mind: that of the data needs of a particular institution. Consider scaling-up the data needs – from an individual library to a network of libraries; from an algorithmic solution to one need to an algorithmic approach to a variety of needs within a larger domain. This is where artificial intelligence, e-commerce, machine translation, semantic networks, visualization, and other systems come into play.

Consider artificial intelligence: what is it? An algorithmic approach to problem-solving, one in which the role of the human is diminished by capturing either the rules that a human expert would apply or the thinking that an expert would use. These are two very different approaches to a solution. In class, let’s discuss each one and see if we can find trends and see if we can apply one perspective to our own work.

There are many types of applications of systems, then. Here is a small list. What others can you list?
- Artificial intelligence
- E-commerce
- Decision-support systems
- Expert systems
- Machine translation
- Semantic webs
- Visualization
- Genetic algorithms

Read: Types of Information Systems.doc

2/13 Tech support for systems       Demo of Client/Server Architecture; software tools
   Most information systems today rely on TCP/IP and increasingly seamless integration with the Internet. Today we will consider the client/server architecture (2- and n-tier!) and how requests for services are processed. This will introduce us to “CGI”, client-side (JavaScript, HTML, ActiveX, etc) and server-side (JSP, ASP, Java Servlets, PHP, database access, XML transformations) processing.

2/20 HCI factors       A host of HCI factors to know.
   Today we will discuss many of the factors in HCI. Why this type of reading (mostly abbreviated text and bullet-points)? Because the literature of HCI is not vast – it is monstrously large and varied. But designers should have an idea of some of the themes and who is talking about them.

3/5 Applying Design       Storyboard, data models, tech choices & documentation; domain of application; intro to practical issues
   In SA&D there are formal, accepted forms of documentation. In “Information Architecture”, a trend is emerging for documentation there, too. Today we are going to divide into two groups: the more visual oriented designers, and the data-oriented designers. The visual group will focus on storyboarding; the data group will focus on
data dictionaries, entity relationship or UML, etc. Why? So that you, the designer, have a full understanding of what data are available to you when you execute your design.

The practical part of the class: building something. As mentioned before, the design part requires a domain of use, data, technical support ... usually an entire analysis has been performed. In our situation, however, we don't have that luxury. So you will have to (a) be aware that an analysis is needed, (b) create your own (admittedly perhaps incomplete analysis and data model), and (c) build your product anyway.

3/12   Spring Break   Have fun!
3/19   Practical component   Development of Info Systems. Review your project doc & storyboards
3/26   TBA   Spend this time creating and testing your projects. Students will meet with me individually to review their work, help resolve difficult development problems.
4/2   TBA
4/16   TBA
4/23   TBA
4/30   Presentations   Present your work to the class. Must be professional quality presentations.
5/7   Presentations & Wrap up.

4/16 Graduation.

Schedule as of Jan 20, 2004.

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