IS 282, UCLA
Winter term, 2008
Wednesdays, 1:30-5pm, GSE&IS 111
Prof. Christine Borgman

Information Systems Analysis and Design

This is an introductory and relatively non-technical introduction to systems analysis and design[1]. The main idea is that data modeling provides a language, and that iterative design provides a process with which designers and users can articulate the functionality of a computer system.

The only course prerequisites are those of the program in general, including the programming requirement. The course complements several other courses in the program, including IS 240 (Management of Digital Records), IS 245 (Information Access), IS 260 (Information Structures), IS 270 (Introduction to Information Technology), IS 272 (Human/Computer Interaction), IS 274 (Database Management Systems), IS 276 (Information Retrieval Systems: Structures and Algorithms), IS 277 (Information Retrieval Systems: User-Centered Designs), IS 464 (Metadata), IS 473 (Management of Digital Services).

IS 282 satisfies the methods requirement. While most appropriate for MLIS students specializing in Informatics, it is open to students in all specializations.

The course has three parts. The first part consists mostly of lectures and discussion on the nature of design, including a fieldwork exercise. This component continues throughout the course, interleaved with parts 2 and 3.

The second part concerns the two most important skills of systems analysis, data modeling and process modeling. Because data and process modeling are so fundamental to the main tradition of system design, we will take time in class to work examples of them.

The third part consists of a group design exercise. Each group will get its own design problem. The groups will then iterate their designs, starting at the most conceptual level and working toward detailed designs by the end of the term.

This class, like most serious design classes, involves a significant amount of group-oriented work outside of the weekly class meeting. Although I will attempt to assign students to groups based on the times when they are available for group meetings, I cannot guarantee that group work will be feasible for those whose weekly schedules are almost entirely filled with other activities. Because those people's scheduling issues will make life difficult for the other students in their group, they should not enroll in the class.

[1] Course overview adapted from Phil Agre's IS282 syllabi of 2006 and 2007.

Learning objectives

Upon completion of this course, students will be able to:

- Analyze an organization's need for information and develop an appropriate strategy to provide the required information system or service
- Construct and interpret structured documents to represent systems, including data flow diagrams and entity-relationship diagrams
- Plan projects using project management tools such as Gantt charts and PERT charts
- Define requirements for an information systems development project
- Define use case analyses for an information systems development project
- Define user interface requirements for an information systems development project
- Work in a team to define, develop, and iteratively refine a systems design project at the conceptual level

Grading

Grades consist of 15% for the fieldwork exercise, 15% for the process and data modeling assignment, 10% for class preparation and participation, and 60% for the group project.

Reading materials:

Textbook: Dennis, A.; Wixom, B.H.; & Roth, R.M. (2006). *Systems Analysis and Design*, 3rd ed. New York: Wiley.

The text is available at LuValle Commons bookstore. The price is over $100 (as are all textbooks on systems analysis and design). You may share a book, provided that you can work out equitable arrangements for each participant to complete his or her readings by class time. Please bring your texts to class as we will be referring to them.

Other readings are available online, as noted.

Weekly course outline

Week 1 (Jan 9): Introduction to systems analysis and design

Week 2 (Jan 16): Project initiation and management

Week 3 (Jan 23): Requirements; Field work presentations

Week 4 (Jan 30): Ethnographic methods in design; Use cases

Week 5 (Feb 6): Process modeling and data modeling

Week 6 (Feb 13): Group presentations: Initial design

Week 7 (Feb 20): Moving into design; presentation of models

Week 8 (Feb 27): User interface design; presentation of interim design

Week 9 (Mar 5): No class; work on projects

Week 10 (Mar 12): Architecture; presentation of user interfaces

Exam week (Mar 19): Final group presentations

Weekly Session Detail

Week 1 (January 9). Introduction to Design

Textbook, Chapters 1 and 2 (Introduction; Project Initiation).

Batya Friedman and Helen Nissenbaum, Bias in computer systems, *ACM Transactions on Information Systems* 14(3), 1996, pages 330-347.
http://portal.acm.org/citation.cfm?id=230561

Battle for Biloxi:
http://www.nytimes.com/2006/05/21/magazine/21biloxi.html?pagewanted=print

Field work assignment given; due Jan 23

Week 2 (Jan 16): **Requirements**

Textbook, Chapter 4 (Requirements)

Group assignment signup sheet distributed today.

Week 3 (Jan 23): **Project management; Field work presentations**

Textbook, Chapter 3 (Project management)

In the second half of the class session, students will present their field work, as explained in the assignment.

Group assignments to be made today.

Week 4 (Jan 30): **Ethnographic methods in design; Use cases**

Guest presentation by Prof. Ramesh Srinivasan (first half of class period)

Textbook, Chapter 5 (Use case analysis)

Srinivasan, Ramesh, (2007). "Ethnomethodological Architectures - The Convergence Between an Information System and the Cultural Landscape", *Journal of the American Society of Information Science and Technology*.

Srinivasan, Ramesh and Huang, Jeffrey. (2005). "Fluid Ontologies for Digital Museums", *Journal of Digital Librarie,s* special issue on Digital Museums 5(3).

Srinivasan readings available via: http://polaris.gseis.ucla.edu/srinivasan/research.html

Crabtree, A. "Ethnography in Participatory Design" (1998) Proceedings of the 1998 Participatory Design Conference (eds. Chatfield, R. Kuhn, S., Muller, M.), 93-105, Seattle, Washington, USA, 12-14 November: Computer Professionals Social Responsibility. (available online – easy to find in Google Scholar)

Week 5 (Feb 6): **Process modeling and data modeling**

Textbook, Chapters 6 and 7 (Process modeling and data modeling)

Modeling assignment given; due Feb 20

Week 6 (Feb 13): **Group presentations: Initial design**

Full class session: Each group will make a 30-minute presentation, followed by a 30-minute discussion session.

Week 7 (Feb 20): Moving into design; presentation of models

Textbook, Chapter 8 (Moving into design)

Tentative: presentation on agile design, first half of class, by Andrew Magpantay of Reunion.com

Second half of class session: Groups will make their second presentations, focused on their process models and data models.

Week 8 (Feb 27): User interface design; presentation of interim design

Textbook, Chapter 10 (User interface design)

Second half of class session: Groups will make their third presentations, focused on their overall design progress and questions for stakeholders.

Week 9 (Mar 5): No class; work on projects

Week 10 (Mar 12): Architecture; presentation of user interfaces

Textbook, Chapter 9 (Architecture design)

Second half of class session: Groups will make their fourth presentations, focused on their user interfaces and questions for stakeholders.

Exam week (Mar 19): Final group presentations

Full class session: Groups will make their fifth presentations, presenting their final design to their stakeholders for feedback and to request approval to develop and implement.

Group project due.