

INLS 582: Systems Analysis

This course, offered by the UNC School of Information and Library Science, will introduce the basic concepts underlying systems analysis, focusing on contextual inquiry/design and data modeling, and the application of those analysis techniques in the analysis and design of organizational information systems. We will also explore Lean Six Sigma thinking to aid system analysis and contextual inquiry.

Course objectives include:

- Develop an understanding of the role of information systems in modern organizations.
- Become familiar with a variety of information systems analysis and problem-solving approaches.
- Gain practical experience with information systems analysis, working as part of a project team.
- Apply Lean Six-Sigma thinking for system analysis and problem solving.
- Continue the development of your professional skills, such as technical writing, working with clients.

Time: Monday & Wednesday 12:30pm-1:45pm

Place: Manning Hall, Room 307

Credits: 3 Hours

Instructor: [Lukasz Mazur](#)

Office: 206 Manning Hall

Office Hours: Monday and Wednesdays, 1:35-3PM (or by appointment)

Phone: 919-616-9702 (cell)

Email: lmazur@med.unc.edu

The required textbook for this course is the following: Beyer, H. & Holtzblatt, K. (1998). Contextual Design: Defining Customer-Centered Systems. San Francisco: Morgan Kaufmann.

Sakai: We will use Sakai in this course to assign and submit assignments, return grades, share lecture notes, and provide access to other class resources. Please be sure that you can access the Sakai site for this course. You can reach Sakai by visiting <https://www.unc.edu/sakai/>. In addition to the textbook, we'll read articles or selections from a variety of other sources.

Grading

Grades for all assignments will be returned via Sakai. Individual assignment grades will combine to determine your final semester grade. Semester grades will follow the standard UNC grading system as outlined by the [Office of the University Registrar](#). The grading scale will be curved, with the highest grades reserved (as outlined by the Registrar) for those with "the highest level of attainment that can be expected." Note that the threshold for an "H" (for High Pass) for graduate students requires exceptional performance, beyond what would be considered "A" work on the undergraduate grading scale.

Your grade for this course will be based on individual assignments, a team project, and participation. The approximate breakdown within those categories is as follows:

- 45% - Team project
- 15% - Active participation
- 40% - Quizzes (5 total; unannounced [beginning of the class]; 4 will count towards your grade)

Resources

- Visio Model Drawing Software: You will need a graphics tool for drawing models for several assignments. Microsoft Visio provides templates for the UML models we'll be drawing, as well as many other useful features. It is also available for free to students enrolled in this class. [Click here to learn more](#), or contact the SILS IT Help Desk.

Assignment Submission Instructions

Format Requirements for your Assignments

All assignments (group and individual) must be prepared and submitted electronically as PDF files via Sakai. For group assignments, only one team member should submit the assignment to Sakai. In addition, the assignment must have the required header on the first page. If that header is missing, points will be deducted from your assignment. For detailed instructions, including the required header, please refer to the "SubmittingAssignments.pdf" document posted to the Resources section of Sakai.

Digital Drawings for All Models

Many of the homework assignments for this course involve the creation of models to represent information systems from various perspectives. All models submitted as part of either group or individual assignments must be drawn using a computer program. Hand-drawn models are not acceptable. See the links above (under Resources) to learn more about what software is available to help you draw your models.

Electronic Submission via Sakai

All assignments must be submitted electronically via Sakai. Sakai will record the time of your submission, and the time recorded by Sakai will be used to determine if a submission was turned in on time.

Course Design and Approach

Systems Analysis is all about problem solving.

- What is the information system doing now?
- What should it be doing?
- What needs to change to make it do the right thing?
- How can we best implement the changes?

These are the fundamental questions whether you're fixing a broken system, adding new functionality to an existing system, or designing an entirely new system. The purpose of this course is to help you gain the knowledge, tools, and skills you need to answer these questions and design effective information systems.

The material we cover includes the theories that help explain information systems and people's interaction with them, tools and techniques for analysis and design, and best practices for systems analysis projects. Readings include research articles, case studies, and documentation for specific modeling techniques. A major part of the work for this class is analyzing an information system problem and designing a solution for a real client. This group project gives real-life experience in information system problem solving. Individual assignments provide additional practice on specific techniques.

Your work for this class falls into 3 categories: (1) preparation for class, (2) in-class activities, and (3) individual and group assignments.

Preparation

The schedule describes what you should do to prepare for each class meeting. Typically, this involves readings from your textbook or other sources linked from the schedule.

Your preparation for each class meeting is the key to getting the most out of each class's activities. It is therefore essential that you complete the assigned readings prior to class. As you read, think about what interests/surprises/informs/challenges you. Consider what questions I might ask about the material, or what questions you will bring to our discussion. Be prepared to ask--don't assume that I'll answer an unasked question.

In-Class Activities

Class meetings will typically consist of 3 sections:

- **Business:** operational questions, assignments, and other administrative issues.
- **Instruction:** an overview of the material for the day, including examples. This is also your opportunity to ask questions about the assigned readings.
- **Activities:** discussions and practices exercises, in small groups or as a class.

Assignments

Individual assignments will provide more opportunities for practicing specific skills, and let you demonstrate to me what you have learned. Team assignments are the deliverables for your semester project, which provides you with the opportunity to work on a larger systems analysis effort.

Helpful Hints

- **Plan ahead!** Success in this course requires the same kind of project management that your team project does.
- **Coordinate the work schedule** for this class with the schedules for your other classes, work, and other activities. You are likely to have many deadlines toward the end of the semester, so it's important for you to keep up.
- **Give yourself plenty of time** to prepare for each class. If you are not prepared for class, you will not be able to fully participate in (and benefit from) the in-class activities.
- **There is often more than one good or correct way** to develop a model or design for a given situation. There are always many more bad and incorrect ways to do so!

By the end of the course, I hope you will have learned the fundamentals of systems analysis and design, developed an arsenal of tools and techniques as well as the knowledge of when to use them, and produced a proposal that will solve an information problem for a real client. Information system problems are pervasive in our society: what you learn here may help you in many aspects of your future endeavors.

Policies

Participation

Class participation is a key element of this course. All students are expected to come to class prepared to be engaged, to participate in all class exercises, and to contribute to group discussions. In addition:

- Be on time for class.
- If you know in advance that you will miss a class, arrive late to class, or leave early from class, please let me know ahead of time.
- If you miss class unexpectedly, please let me know why you were absent before the next class meeting.
- Repeated absences or late arrivals will negatively impact your class participation grade.
- If you don't understand something from class, **ask questions!** You can ask in class, you can stop by my office during office hours, or you can make an appointment to meet with me.
- "Quality is better than quantity." Class participation is part of your grade for this course. However, there are many ways to participate.

Assignments

Assignments are due by the start of class on the day they are due unless otherwise specified. For assignments that are due on days when class is not scheduled, they must be submitted by the normal class starting time (even though class is not meeting) unless otherwise specified.

The required format for your assignments, as well as other submission tips, can be found in the "SubmittingAssignments.pdf" document posted to the Resources section of Sakai.

Assignments are to be submitted electronically using [Sakai](#). Sakai enforces the late policy described below. Therefore, be sure you submit your assignment early to avoid last minute technical problems.

Late assignments will be penalized 10% for each day late, up to a maximum of three days. A "day" here refers to a 24 hour period, or fraction thereof, after the due date. For example, a late assignment turned in 25 hours late will be penalized as two days late. No assignments will be accepted if more than 72 hours (3 days) late.

Start early and ask questions. Many assignments may turn out to be more time consuming than expected. It is strongly suggested that you start working on assignments as soon as they are assigned. In this way, you'll have time to ask questions and complete your assignment before the due date.

Exceptions due to special circumstances will be considered on a case-by-case basis. When deemed appropriate, limited extensions may be granted. However, be sure to inform the instructor **AS SOON AS POSSIBLE** should you require a special accommodation. If a problem is known about in advance, then the instructor should be told before it occurs. Exceptions are much less likely to be provided if requests for accommodation are not made in a timely fashion.

Office Hours

Those with questions about course material, having trouble with assignments, or seeking any other kind of assistance related to class are encouraged to meet with the instructor during office hours. Regularly scheduled hours are posted to the "Course Information" section on [the home page for this class website](#).

Meetings by appointment can be made when scheduling problems prevent students from seeking help during regularly scheduled office hours.

Academic Integrity and Diversity

UNC-Chapel Hill has had a student-administered honor system and judicial system for over 100 years. Because academic honesty and the development and nurturing of trust and trustworthiness are important to all of us as individuals, and are encouraged and promoted by the honor system, this is a most significant University tradition. You are responsible for being familiar with the UNC-Chapel Hill [Honor System](#).

- If your team is having difficulty with some aspect of your project, please come to see me. One of the educational outcomes of this class should be an increase in your effectiveness in getting advice from more experienced colleagues.
- The Honor Code, which prohibits giving or receiving unauthorized aid in the completion of assignments, is in effect in this class. The Instrument of Student Judicial Governance gives examples of actions that constitute [academic dishonesty](#). There are also some specific guidelines for this class:
 - You may give and receive assistance regarding the use of hardware and software.
 - You are welcome to work together on class preparation; discussing articles, walking through examples, working on exercises, etc. You may also ask your classmates for clarification of class notes.
 - All work you submit should be your own.
 - Individual home work assignments are to be done individually. You may consult the course readings and slides, your notes, and even other print or web sources. (Keep in mind, however, that what you find in other sources may not be consistent with what I want you to do.) You may not consult your classmates or other people; all questions should be addressed to me.
 - Team assignments are to be done as a team, with the team taking responsibility for all products. Work on the project should be distributed equitably among team members. I expect team members to discuss, consult, and even debate with each other about the project throughout the term.

In support of the University's diversity goals and the mission of the School of Information and Library Science, SILS embraces diversity as an ethical and societal value. We broadly define diversity to include race, gender, national origin, ethnicity, religion, social class, age, sexual orientation and physical and learning ability. As an academic community committed to preparing our graduates to be leaders in an increasingly multicultural and global society we strive to:

- Ensure inclusive leadership, policies, and practices;
- Integrate diversity into the curriculum and research;
- Foster a mutually respectful intellectual environment in which diverse opinions are valued;
- Recruit traditionally underrepresented groups of students, faculty, and staff; and
- Participate in outreach to underserved groups in the State.

The statement represents a commitment of resources to the development and maintenance of an academic environment that is open, representative, reflective, and committed to the concepts of equity and fairness.

INLS 582: System Analysis (003)

January

10	Class 1	Introduction; Assign Case Study 1 Leaders <ul style="list-style-type: none"> • Check Sakai access • Review course syllabus, requirements, and policies 	
15		No Class – MLK	
17	Class 2	Information Systems, Information Systems Analysis -- what are they? <ul style="list-style-type: none"> • Sellen, A. & Harper, R. (2002). The future of paper. In Sellen & Harper, <i>The Myth of the Paperless Office</i>, Cambridge, MA: The MIT Press. Ch. 7, pp. 185-212. 	Case Study 1 discussion leaders comments.
22	Class 3	The Systems Development Life Cycle <ul style="list-style-type: none"> • Beyer & Holtzblatt, Ch. 1, Introduction • Batra, D., Xia, W., VanderMeer, D. & Dutta, K. (2010). Balancing agile and structured development approaches to successfully manage large distributed software projects: A case study from the cruise line industry. <i>Communications of the Association for Information Systems</i>, 27, Article 21, 379-394. 	
24	Class 4	Models; Case Study 1 <ul style="list-style-type: none"> • Hendry, D. (2004). Communication functions and the adaptation of design representations in interdisciplinary teams. <i>Proceedings of the 2004 Conference on Designing Interactive Systems</i>, 123-132. • Case Study 1: Jaferian, P., Botta, D., Hawkey, K., & Beznosov, B. (2009). A case study of enterprise identity management system adoption in an insurance organization. <i>Proceedings of the Symposium on Computer Human Interaction for the Management of Information Technology (CHIMIT)</i>, 46-55. 	Due: Case Study 2-4 Preferences
29	Class 5	Problem Definition; Feasibility Study <ul style="list-style-type: none"> • Davis, W. (1999). The problem statement. In W. Davis & D. Yen, <i>The Information System Consultant's Handbook: Systems Analysis and Design</i>. Boca Raton: CRC Press. Chapter 12, 87-90. • Davis, W. (1999). The feasibility study. In W. Davis & D. Yen, <i>The Information System Consultant's Handbook: Systems Analysis and Design</i>. Boca Raton: CRC Press. Chapter 13, 91-96. 	
31	Class 6	Contextual Inquiry; Information Gathering <ul style="list-style-type: none"> • Swan, L., Taylor, A., & Harper, R. (2008). Making place for clutter and other ideas of home. <i>ACM Transactions on Computer-Human Interaction</i>, 15(2), Article 9. • Beyer & Holtzblatt, Ch. 2, Gathering Customer Data & Ch. 3, Principles of contextual inquiry. 	

February			
5	Class 7	Contextual Inquiry and Information Gathering, Continued <ul style="list-style-type: none"> • Beyer & Holtzblatt, Ch. 4, Contextual inquiry in practice. • Gellatly, A., Hansen, C., Highstrom, M & Weiss, J. (2010). Journey: General Motors' move to incorporate contextual design into its next generation of automotive HMI designs. Proceedings of the Second International Conference on Automotive User Interfaces and Interactive Vehicular Applications, 156-161. 	
7	Class 8	Project Management <ul style="list-style-type: none"> • Armour, P. (2002). Ten unmyths of project estimation. Communications of the ACM, 45(11), 15-18. • Project Management Institute Browse the website, especially "About Us" and "Certification" pages. 	
12	Class 9	Scenarios; Use Cases; Personas <ul style="list-style-type: none"> • Beyer & Holtzblatt, Ch. 5, A language of work. • Carrol, J. (2000). Five reasons for scenario-based design. Interacting with Computers, 13(1), 43-60. • Holtzblatt, K., Wendell, J. & Wood, S. (2005). Rapid Contextual Design. San Francisco: Morgan Kaufmann. Ch. 9, Using Contextual Data to Write Personas, 181-191. • Gottesdiener, E. (2002). Top ten ways project teams misuse use cases -- and how to correct them: Part II: Eliciting and modeling use cases The Rational Edge, July 2002. 	Due: Problem Definition Problem preferences due Wednesday, Feb 14 th before the class
14	Class 10	Overview of project requirements Project/team organization	This is the day we'll form teams! Assign: Information Gathering Plan Assign: Draft Models 1 & 2 Sign up for private meetings Overview: Final Project Deliverables
19	Class 11	Class is cancelled. This class period should be used for meeting with clients.	
21	Class 12	Artifact Models <ul style="list-style-type: none"> • Beyer & Holtzblatt, Ch. 6, Work models: The artifact model, pp. 102-107. 	

26	Class 13 (class 15)	Sequence and Decision Models • Beyer & Holtzblatt, Ch. 6, Work models: The sequence model, pp. 96-101.	
28	Class 14 (class 16)	Flow Models • Beyer & Holtzblatt, Ch. 6, Work models: The flow model, pp. 89-96	Due: Information Gathering Plans
March			
5	Class 15 (class 18)	Physical and Cultural Models • Beyer & Holtzblatt, Ch. 6, Work models: The physical model, pp. 115-123. • Beyer & Holtzblatt, Ch. 6, Work models: The cultural model, pp. 107-115. • Monk, A. & Howard, S. (1998). The rich picture: a tool for reasoning about work context. interactions, 5(2), 21-30.	
7	Class 16	Class is cancelled. This class period should be used for meeting with clients.	Due: Case Study 2 discussion leader comments
12 & 14		Fall Break	
19	Class 17	Flow Charts and Activity Models • Miles & Hamilton, Ch. 3, Modeling System Workflows: Activity Diagrams. • Pilone & Pitman, Ch. 9, Activity diagrams. • Bell, D. (2003). UML Basics Part II: The activity diagram. The Rational Edge, September 2003. [optional]	
21	Class 18	Class is cancelled. This class period should be used to complete your information gathering plan.	
26	Class 19	Interpretation; Case Study 2 • Beyer & Holtzblatt, Ch. 7, The interpretation session. • Case Study 2: Laster, S., Stitz, T. & Bove, F. (2011). Transitioning from marketing-oriented design to user-oriented design: A case study. Journal of Web Librarianship, 5, 299-321.	
28	Class 20	Consolidation • Beyer & Holtzblatt, Ch. 8, Consolidation. • Beyer & Holtzblatt, Ch. 9, Creating one view of the customer. • Beyer & Holtzblatt, Ch. 10, Communication to the organization. • Beyer & Holtzblatt, Ch. 12, Using data to drive design.	
April			
2	Class 20	Class is cancelled. This class period should be used to complete draft models.	Due: Project Draft Models 1 and Progress Report Due: Case Study 3 discussion leader comments
4	Class 21	Lean Six Sigma I; Case Study 3 • Case Study 3: Sutcliffe, A., de Bruijn, O., Thew, S. Buchan, I. Jarvis, P. McNaught, J., Procter, R. (2014). Developing visualization-based decision support tools for epidemiology. Information Visualization, 13:3(1), 3-17.	

9	Class 22	Lean Six Sigma II	
11	Class 23	Class is cancelled. This class period should be used for project consolidation efforts.	
16	Class 24	<p>Risk, Change Management, and Implementation</p> <ul style="list-style-type: none"> • Lorenzi, N., & Riley, R. (2000). Managing Change: An Overview. Journal of the American Medical Informatics Association, 7, 116-124. • Sicotte, C. et al. (2006). A risk assessment of two interorganizational clinical information systems. Journal of the American Medical Informatics Association, 13, 557-566. 	<p>Due: Project Draft Models 2 and Progress Report</p> <p>Due: Case Study 4 discussion leader comments</p>
18	Class 25	<p>Design Ethics; Case Study 4</p> <ul style="list-style-type: none"> • Friedman, B. (1996). Value-sensitive design. <i>interactions</i> 3(6), 17-23. <i>Proceedings of the ASIS&T 2010 Annual Meeting</i>. • Case Study 4: Guillemette, M., Fontaine, I., Caron, C. (2009). A hybrid tracking system of human resources: A case study in a Canadian university. <i>Communications of the Association for Information Systems</i>, 24(1), Article 15. 	
23	Class 26	Project Presentations	Due: Project Presentations
25	Class 27	Project Presentations	Due: Project Presentations
30	Final Report	Final deliverables due at 8AM.	<p>Due: Final specifications and presentation materials</p> <p>Due: Team evaluations.</p>