

# 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 and Wednesday 1:25pm-2:40pm

**Place:** Manning Hall, Room 307

**Credits:** 3 Hours

**Instructor:** [Lukasz Mazur](#)

**Office:** 206 Manning Hall

**Office Hours:** Monday and Wednesday by appointment only

**Phone:** 919-616-9702 (cell)

**Email:** [lmazur@med.unc.edu](mailto:lmazur@med.unc.edu)

**The required textbook for this course is the following:** Beyer, H. & Holtzblatt, K. (2<sup>nd</sup> edition). 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 following:

- 40% - Team project
- 20% - Final exam
- 20% - Problem definition
- 20% - Quizzes

## Resources

- Model Drawing Software: You will need a graphics tool for drawing models for several assignments. For example, Microsoft Visio provides template models we'll be drawing, as well as many other useful features. You can also build your models in other software packages you are familiar with.

## 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 assignments for this course involve the creation of models to represent information systems from various perspectives. All final models submitted as part of either group or individual assignments must be drawn using a computer program. Hand-drawn models are only acceptable as draft 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.

### **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

## January

8	Class 1	<p><b>Introduction and set-up for the semester</b></p> <ul style="list-style-type: none"> <li>• Check Sakai access</li> <li>• Review course syllabus, requirements, project, and policies</li> </ul> <p>Class reading/exercise:  <a href="http://donellameadows.org/archives/dancing-with-systems/">http://donellameadows.org/archives/dancing-with-systems/</a></p>	
13	Class 2	<p><b>Intro to Information Systems &amp; Information Systems Analysis -- what are they?</b></p> <ul style="list-style-type: none"> <li>• <i>Reading (Sakai/Resources/Class 2):</i> The Role of Systems Analyst.</li> </ul>	
15	Class 3	<p><b>The Systems Development Life Cycle</b></p> <ul style="list-style-type: none"> <li>• Beyer &amp; Holtzblatt, Ch. 1, Introduction &amp; Chapter 2 User Data Drives Design</li> </ul>	
22	Class 4	<p><b>Models; Case Study 1</b></p> <ul style="list-style-type: none"> <li>• Beyer &amp; Holtzblatt, Ch. 5, From Data to Insight: Contextual Design Models</li> <li>• <b>Case Study 1:</b> Batra, D., Xia, W., VanderMeer, D. &amp; 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.</li> </ul>	Case Study 1 discussion comments.
27	Class 5	<p><b>Problem Definition;</b></p> <p><b>Intro to Project Charter</b></p> <p><b>Exercise: Lean A3 for Problem Solving</b></p> <ul style="list-style-type: none"> <li>• Davis, W. (1999). The problem statement. In W. Davis &amp; D. Yen, <i>The Information System Consultant's Handbook: Systems Analysis and Design</i>. Boca Raton: CRC Press. Chapter 12, 87-90.</li> </ul>	
29	Class 6	<p><b>Contextual Inquiry; Information Gathering</b></p> <ul style="list-style-type: none"> <li>• Beyer &amp; Holtzblatt, Ch. 3, Principles of Contextual Inquiry.</li> <li>• Beyer &amp; Holtzblatt, Ch. 4, The Interpretation Session.</li> </ul>	Due: Problem Definition

## February

3	Class 7	<p><b>Contextual Inquiry; Information Gathering – Cont.</b></p> <ul style="list-style-type: none"> <li>• <b>Case Study 2:</b> Gellatly, A., Hansen, C., Highstrom, M &amp; Weiss, J. (2010). Journey: General Motors' move to incorporate contextual design into its next generation of automotive HMI designs. <i>Proceedings of the Second International Conference on Automotive User Interfaces and Interactive Vehicular Applications</i>, 156-161.</li> </ul>	Case Study 2 discussion comments.  Problem preferences due before the class
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5	Class 8	<b>Overview of project requirements</b> <b>Project/team organization</b>	This is the day we'll form teams!  Assign: Information Gathering Plan  Assign: Draft Models  Sign up for private meetings  Overview: Final Project Deliverables
10	Class 9	<b>Scenarios &amp; Personas</b>	
12	Class 10	<b>Intro to Lean</b>	
<b>February 14th (Friday) – Lean Six Sigma Yellow Belt Certification (All day Event)</b> <b>Manning Hall 014</b>			
17	Class 11	<b>Student Presentations of Information Gathering Plans (15min each)</b>	Due: Information Gathering Plans
19	Class 12	<b>Affinity Diagram</b> • Beyer & Holtzblatt, Ch. 6, The Affinity Diagram.	
24	Class 13	<b>Traditional Models – Part 1</b> • Beyer & Holtzblatt, Ch. 8, Traditional Contextual Design Models.	
26	Class 14	<b>Traditional Models – Part 2</b> • Beyer & Holtzblatt, Ch. 8, Traditional Contextual Design Models.	
<b>March</b>			
2	Class 15	<b>Experience Models</b> • Beyer & Holtzblatt, Ch. 7, Building Experience Models.	
4	Class 16	<b>Consolidation and Visioning</b> • Beyer & Holtzblatt, Ch. 10 The Bridge from Data to Design • Beyer & Holtzblatt, Ch. 11 Ideation: Visioning and the Cool Drilldown	
9 & 11		<b>Spring Break</b>	
16	Class 17	Individual Team Meetings with Instructor	
18	Class 18	Individual Team Meetings with Instructor	
23	Class 19	<b>Rapid Student Presentation – Progress Report</b>	Due: Project Draft Models and Progress Report
30	Class 20	<b>Guest Lecture – Bret Shultz - Risk &amp; Change Mgmt</b>  Experienced Lean Improvement Coach Division of Healthcare Engineering University of North Carolina	
<b>April</b>			
1	Class 21	<b>Guest Lecture - Matthew Carroll – Design and User Experience</b>  User Experience Strategy, Research & Design, Creative Interactive Services Bank of America, Global Banking and Markets	
6	Class 22	Work on Projects	

8	Class 23	Work on Projects	
13	Class 19	Review and prep for the final exam.	
15	Class 20	<b>Project Presentations</b>	
20	Class 21	<b>Project Presentations</b>	
22	Class 22	Final Exam	
24	Class 24	Final reports and team evaluations due	Due: Final specifications and presentation materials Due: Team evaluations.