Systems Analysis in Healthcare (CHIP 490.311)

This course, offered by the UNC Carolina Health Informatics Program, will introduce the basic concepts underlying systems analysis, focusing on **contextual inquiry** and data modeling, and the application of those analysis techniques in the analysis and design of organizational information systems specially in healthcare. We will also introduce to you Agile, Lean thinking and Six Sigma to aid system analysis and contextual inquiry.

Course objectives include:

- Develop an understanding of the role of information systems in modern organizations and healthcare.
- 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: Thursdays 9:30am – 12:15pm

Instruction style: In person

Place: HSL 333

Credits: 3 Hours

Instructor: Dr. Selina Sharmin

Office Hours: Make an appointment.

Email: sselina@email.unc.edu

The required textbook for this course is the following: Beyer, H. & Holtzblatt, K. (2nd edition). Contextual Design: Defining Customer-Centered Systems. San Francisco: Morgan Kaufmann.

CANVAS: We will use Canvas 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 Canvas site for this course. You can reach Canvas by visiting https://edtech.unc.edu/service/canvas/. 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 Canvas. 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.

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:

- 35% - Team project
- 15% - Information Gathering Plan
- 15% - Project draft models
- 15% - Problem definition
- 10% - Case study assignment
- 10% - Peer evaluation and class participation

Resources

- Model Drawing Software: You may need a graphics tool for drawing models for several assignments. You can select software that you are most comfortable with. Most models can be developed using basic software packages.

Assignment Submission Instructions

Format Requirements for your Assignments

All assignments (group and individual) must be prepared and submitted electronically as PDF files via Canvas. For group assignments, only one team member should submit the assignment to Canvas. Canvas will record the time of your submission, and the time recorded by Canvas will be used to determine if a submission was turned in on time.

Digital Drawings for All Models

Assignments for this course involve the creation of models to represent information systems from various perspectives. Hand-drawn models are acceptable. Final models for the class project should be done in an electronic format.

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.

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 form the schedule.

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.
- 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 time management.
- 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.
- 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

All students are expected to be present in the class, participate in all forums, and to contribute to group discussions. In addition:

- Complete assignments on time.
- 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.
- If you don't understand something from class, **ask questions!** You can ask in class, write email, or use message in Canvas.

Assignments

Assignments are to be submitted electronically using Canvas.

Start early and ask questions. **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 contact (email) 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 contact 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 assignments are to be done individually. You may consult the course readings and slides, your notes, and even other print or web sources.
  - 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 and CHIP 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.