

Spring 2024

I 320S Topics in Social Informatics: Sociotechnical Systems Analysis

Unique ID: 27465
Instructor: Elliott Hauser
Office Hours: By self-scheduled appointment (mostly Fridays) or [email](#)
Class Meetings: Mon Wed 03:30 PM - 05:00 PM
Classroom: [CPE 2.206](#)
Modality: In person

Course Description

Effective application of social and technical methods of analysis to specific existing systems with inseparable technical and social components to enable improvement. Covers techniques such as modeling, interviewing, observation, trace analysis, and benchmarking.

Prerequisites

Informatics 310S.¹00

Course Overview

Sociotechnical systems must be understood as *simultaneously* social and technical; systems meeting this definition pervade all aspects of modern life. This course is focused on identifying, describing, evaluating, and intervening to improve sociotechnical systems and the sociotechnical processes they comprise.

The broader field of systems analysis has developed techniques and concepts for analyzing the technical aspects of systems of various kinds, from business process workflows to networked computer systems. Humans often show up in traditional systems analysis diagrams, but are often indistinguishable from machines. As a subfield of Social Informatics, which emphasizes the social import of information systems and the central role humans play in them, sociotechnical systems analysis seeks to apply the insights of technical systems analysis alongside a deepened understanding of systems' relationships with the people who enable and are affected by them.

Students will end the course able to identify and make visible the workings of sociotechnical systems around them, evaluate their intended and unintended effects, and design interventions to improve these systems along specific dimensions.

Course Goals and Learning Objectives:

Students will leave the course with:

- knowledge of core principles of sociotechnical systems

¹ I will consider admitting students taking 310S concurrently. Please contact me if interested.

- knowledge of social informatics methods and techniques for analyzing sociotechnical systems
- the ability to describe sociotechnical systems using models
- the ability to evaluate sociotechnical systems in relation to specific goals
- the ability to plan intervention in sociotechnical systems to achieve specific goals

How to Do Well in This Course

Find an aspect of this topic that interests you. I will provide many opportunities to do so. Cultivate that interest into the motivation required to sustain your efforts in this course throughout the semester. No one assignment will make or break your grade: inconsistent effort will.

Some students find this challenging or unexpected, since in prior courses they've been able to 'cram' or 'pull it out in the end' with a final project or paper. This course will instead ask you to apply small amounts of consistent effort. If this isn't something you've had to do or you don't feel you've mastered, let me know and I'll be happy to help you find a process that works for you. Mastering these skills will serve you well in all areas of future coursework and professional career: very few areas of advanced or professional work are amenable to 'cramming' techniques.

Course Topics

Note: These dates and topics are subject to change. See the official course schedule for the latest version.

Date	Week	Topic	Assignment Due	In-Class Activity
1/17/24	0	Welcome & Introduction		
1/22/24	1	What is a sociotechnical system?	<i>Reading(s)</i>	
1/24/24	1	What is a sociotechnical process?	<i>Reading(s)</i>	
1/29/24	2	Process concepts & techniques: Diagramming	<i>Reading(s)</i>	Diagramming
1/31/24	2	Process concepts & techniques: Diagramming	Diagram Draft	Diagramming
2/5/24	3	Sociotechnical processes: Initial analysis	☛ Process Diagram	
2/7/24	3	How do we get from a process to a system?	[Optional Revision]	Analysis
2/12/24	4	System concepts & techniques: Analysis	<i>Reading(s)</i>	
2/14/24	4	System concepts & techniques: Diagramming	Diagram Draft	Diagramming
2/19/24	5	Sociotechnical System: Initial Analysis	☛ System Diagram	
2/21/24	5	How can a process be improved?	<i>Reading(s)</i>	Analysis
2/26/24	6	Process improvement concepts & techniques		Diagramming
2/28/24	6	Process improvement concepts & techniques	Improvement Draft	Analysis
3/4/24	7	Sociotechnical Process: Improvement Analysis	☛ Process Improvement	Presentations
3/6/24	7	Sociotechnical Process: Improvement Analysis		Presentations
3/11/24	8			Spring Break
3/13/24	8			Spring Break
3/18/24	9	Conceptual synthesis	[Optional Revision]	
3/20/24	9	Individual Interests	☛ Interest Statement	Presentations
3/25/24	10	Understanding sociotechnical systems	<i>Reading(s)</i>	Group field work
3/27/24	10	Diagramming sociotechnical systems	<i>Reading(s)</i>	Diagramming

4/1/24	11	Analyzing sociotechnical systems	Diagram Draft	Analysis
4/3/24	11	Analysis Workshop	Assignment Draft	Analysis
4/8/24	12	Sociotechnical System: Initial Analysis	☛ System Analysis	Presentations
4/10/24	12	Improving sociotechnical systems	Reading(s)	Group/field work
4/15/24	13	Improving sociotechnical systems	Reading(s)	Diagramming
4/17/24	13	Improving sociotechnical systems		Group/field work
4/22/24	14	Presentations	Presentations	Presentations
4/24/24	14	Presentations	Presentations	Presentations
4/29/24	15	Presentations	☛ System Improvement	Presentations

There is no final exam for this course.

Assessment & Grades

Students will be evaluated on their work in the following categories:

Assessment Category	Assessment Method	Weight
☛ Diagrams, Analysis, & Improvement of Sociotechnical Processes & Systems	Rubric	50%
Intermediate Assignments	Completion	25%
Presentations	Rubric	15%
Participation & Preparation	Expectation	10%
<i>Total</i>		<i>100%</i>

The largest category of assessment is the artifacts of sociotechnical systems analysis you will create. These are aligned with the course objectives. The other categories are designed to facilitate and deepen your understanding of sociotechnical systems analysis:

- Intermediate Assignments, such as Drafts, will help you get formative feedback from me and your classmates. This takes advantage of the phenomenon that it's easier to learn *before* you get a grade on something (producing better grades!)
- Presentations take advantage of the phenomenon that teaching something is an oddly effective way to learn it. You might not think of presenting your work as teaching, but it is!
- Students' participation & preparation are essential for this course to be successful (not to mention fun and interesting).

No individual assignment will count 20% or more of the final grade, meaning that your grade will in part be a measure of how consistent your effort is over the semester. See also "How to Do Well In This Course".

Optional revisions will allow students to revise select assignments. Students may not know their grade when deciding whether to revise, but revisions will never negatively impact grades. I reserve the right to add or remove revision options to any assignment.

Assessment methods:

- **Rubric** assessment evaluates student work in terms of the relevant portion of the course objectives the assignment assesses.
- **Completion** assessment will award full credit to work that satisfies the requirements of the assignment. Half credit will be awarded to work that partially satisfies the requirements or displays grossly insufficient effort.
- **Expectation** assessment indicates that students can expect to receive full credit, assuming they meet basic expectations of participation & preparation for class (including attendance). Points will only be deducted from the grade of students who do not.

GRADE SCALE

Grade	Cutoff
A	94%
A-	90%
B+	87%
B	84%
B-	80%
C+	77%
C	74%
C-	70%
D+	67%
D	64%
D-	60%
F	<60%

I will utilize +/- grades in this class. Each student's numerical grade will be rounded to the nearest whole number. The student's rounded numerical grade will be compared to the following cutoffs to assign a final grade. For instance, a raw numerical grade of 93.5% would be rounded to 94%. 94% is greater than or equal to the cutoff for A, so the student's final reported grade would be an A.

A final grade of **Incomplete** will be granted only in exceptional circumstances, such as when a student has a Student Emergency Services verified emergency or personal circumstance that prevented them from completing all work during the semester. Students receiving Incompletes are advised to complete missing work as soon as possible.

Canvas

All instructions, assignments, readings, rubrics and essential information will be on the Canvas website at utexas.instructure.com. Check Canvas regularly, and/or set your notification preferences to make sure you're notified of any changes.

Schedule & Due Dates

If changes to the schedule are required, I will make them with an eye towards improving student learning outcomes. I will announce any changes in class and will also communicate them via a Canvas announcement. It is your responsibility to note these changes when announced, and I will do my best to ensure that you are notified of changes with as much advance notice as possible. When I make mistakes entering things like due dates or point values, I will do my best to resolve this in students' favor.

Contacting Me

Please contact me via Canvas message to discuss any aspect of this course. This is for your benefit: by keeping all of our conversations on Canvas I am better able to keep track of your requests and less likely to overlook or forget about an extension I granted or an absence I excused when it's time to assign final grades. For the same reasons, if you verbally ask me for something like an extension or let me know you'll be unavoidably absent at an upcoming session, please don't forget to send the Canvas message I'll probably ask you for as well.

If you instead email me about the course I will of course reply as soon as I'm able, but think of a Canvas message as skipping to the head of a vary gnarly line (or perhaps...avoiding the line next to a dumpster fire 🤖).

I'm always happy to meet with students 1:1. In fact, this is one of the most enjoyable parts of teaching. Please reach out (via Canvas) or follow the instructions to self-schedule office hours if you'd like to talk about anything related to the course topics or your performance in the course.

Requirements & Expectations

Participation: Participation in this class means actively engaging with your classmates during group work, and contributing ideas and reflections in the various writing-about-programming assignments.

As I will discuss in class, we must all “meet in the middle” to have successful discussions and activities. This means students should adjust their speaking up if they typically say little or down if they typically talk a lot in class to ensure even participation from everyone. I will help guide students to find the right balance over the course of the semester; nothing beyond basic self-awareness is required to accomplish this.

Attendance: Students cannot participate in class unless they attend. Students should attend every class on-time and give it their undivided attention. Students found to be doing other things in class will be asked to leave and marked absent for the day.

If you must miss class please let me know as soon as possible. You will still be responsible for any in-class exercises completed that day. If you have an emergency, focus on getting safe and well. When you're able, contact Student Emergency Services, notify me, and I will work with you to get a plan for your return and catch-up.

Preparation: Each student is expected to prepare appropriately for class by completing readings and assignments. Students should come prepared with observations or questions about topics that are particularly interesting or difficult to understand. Students will be encouraged to identify how their personal interests relate to the course material. Students who take me up on this will find preparation that much easier and more enjoyable.

Behavior: I expect every student to uphold the university's core values:

The core values of the University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the University is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

Please contact me or the appropriate person in the university if you observe inappropriate behavior from anyone during class.

Required Devices

A laptop computer with a mouse or touchpad is required for in-class diagramming activities, homework, and assignments. Touchscreens are very slow and inefficient for diagramming activities and are likely to impede your progress in the course. If you only own a touchscreen tablet, please obtain access to a laptop for class sessions, or contact me.

Required Textbooks

Note: In addition to the University Co-op, versions of these books may be available via the library or other resources you have access to. I would recommend acquiring either a PDF or physical copy, for ease of reference: ebooks designed for e-readers may have different page numbers, which may be inconvenient.

If you have difficulty accessing these resources for financial reasons, please contact me and I will help you.

- Pnina Fichman, Madelyn R. Sanfilippo, and Howard Rosenbaum, *Social Informatics Evolving* (Springer International Publishing, 2022).

Note: The 2022 edition of this book, published by Springer, is a reprint of the 2015 edition, published by Morgan & Claypool.

- Tristan Boutros and Jennifer Cardella, *The Basics of Process Improvement, 1st Edition*. (CRC Press, 2017).

Recommended:

- Johnson, Deborah G., and Jameson M. Wetmore. *Technology and Society, Second Edition: Building Our Sociotechnical Future*. (MIT Press, 2021).

Other assigned readings will be provided via Canvas.

Diversity, Equity and Inclusion

I take the university's mission and values very seriously, and expect you to as well. Together we will create a welcoming, inclusive, engaging, supportive, and effective learning environment for all students.

It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs be addressed, and that the diversity that students bring to this class can be comfortably expressed and be viewed as a resource, strength and benefit to all students. Please come to me at any time with any concerns.

Accessibility, Inclusivity, and Compliance Statement

The university is committed to creating an accessible and inclusive learning environment consistent with university policy and federal and state law. Please let me know if you experience any barriers to learning so I can work with you to ensure you have equal opportunity to participate fully in this course. If you are a student with a disability, or think you may have a disability, and need accommodations please contact Disability and Access (D&A). Please refer to D&A's website for contact and more information: <http://diversity.utexas.edu/disability/>. If you are already registered with D&A, please deliver your Accommodation Letter to me as early as possible in the semester so we can discuss your approved accommodations and needs in this course.

Academic Integrity

Students who violate University rules on academic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of the University, policies on academic dishonesty will be strictly enforced. For further information, please visit the Student Conduct and Academic Integrity website at:

<http://deanofstudents.utexas.edu/conduct>.

University Resources for Students

STUDENT EMERGENCY SERVICES (SES)

Student Emergency Services in the Office of the Dean of Students helps students and their families during difficult or emergency situations. Assistance includes outreach, advocacy, intervention, support, and referrals to relevant campus and community resources. If you need to be absent from class due to a family emergency, medical or mental health concern, or academic difficulty due to crisis or an emergency situation, you can work with Student Emergency Services. SES will document your situation and notify your professors. Additional information is available at <https://deanofstudents.utexas.edu/emergency/> or by calling 512-471-5017.

COUNSELING AND MENTAL HEALTH CENTER (CMHC)

All of us benefit from support during times of struggle. Know you are not alone. If you or anyone you know is experiencing symptoms of stress, anxiety, depression, academic concerns, loneliness, difficulty sleeping, or any other concern impacting your wellbeing – you are strongly encouraged to connect with CMHC. The Counseling and Mental

Health Center provides a wide variety of mental health services to all UT students including crisis services, counseling services with immediate support and well-being resources. You may contact the iSchool's dedicated CARE Counselor Bryce Moffett, LCSW at 512-232-2983. For more information on CMHC, visit <https://cmhc.utexas.edu> or call 512-471-3515. Outside CMHC business hours (8a.m.-5p.m., Monday-Friday), contact the CMHC 24/7 Crisis Line at 512-471-2255.

UNIVERSITY HEALTH SERVICES (UHS)

Your physical health and wellness are a priority. University Health Services is an on-campus high-quality medical facility providing care to all UT students. Services offered by UHS include general medicine, urgent care, a 24/7 nurse advice line, women's health, sports medicine, physical therapy, lab and radiology services, COVID-19 testing and vaccinations and much more. For additional information, visit <https://healthyhorns.utexas.edu> or call 512-471-4955.

SANGER LEARNING CENTER

Did you know that more than one-third of UT undergraduate students use the Sanger Learning Center each year to improve their academic performance? All students are welcome to take advantage of Sanger Center's classes and workshops, private learning specialist appointments, peer academic coaching, and tutoring for more than 70 courses in 15 different subject areas. For more information, please visit <https://ugs.utexas.edu/slc> or call 512-471-3614 (JES A332)."

Information About Reporting Sexual Misconduct

Sexual misconduct, including sexual harassment, discrimination, and sexual assault has no place at the University of Texas. **I will believe you if you disclose any experience of sexual misconduct to me.** The official notice below informs you of my legal responsibility to inform our Title IX Office of any such incidents I become aware of involving university-affiliated people.

Since it might not be clear from the text, **its purpose is to help you make an informed decision about whether disclosing an incident to me, to a TA, and/or during class is right for you.** You are welcome to disclose this type of information to me privately if this would be helpful to you, especially if it involves University-affiliated individuals. I will keep any information you share with me confidential within the constraints of my responsibilities as a University employee. The notice also provides the advocate@austin.utexas.edu email address, which will allow you to access University support and remedies for sexual misconduct without triggering a mandatory report, if that's not what you want to happen. If you become aware of sexual misconduct at the university and are unsure of your options or their potential consequences, contact the Title IX office directly for general information about University policies.

TITLE IX DISCLOSURE

This is the University-recommended syllabus notice regarding mandatory reporting:

Beginning January 1, 2020, Texas Senate Bill 212 requires all employees of Texas universities, including faculty, to report any information to the Title IX Office regarding sexual harassment, sexual assault, dating violence and stalking that is disclosed to them. Texas law requires that all employees who witness or receive any information of this type (including, but not limited to, writing assignments, class discussions, or one-on-one conversations) must report it. If you would like to speak with someone who can provide support or remedies without making an official report to the university, please email advocate@austin.utexas.edu. For more information about reporting options and resources, visit <http://www.titleix.utexas.edu/>, contact the Title IX Office via email at titleix@austin.utexas.edu, or call 512-471-0419. Although graduate teaching and research assistants are not subject to Texas Senate Bill 212, they are still mandatory reporters under Federal Title IX laws and are required to report a wide range of behaviors we refer to as sexual misconduct, including the types of sexual misconduct covered under

Texas Senate Bill 212. The Title IX office has developed supportive ways to respond to a survivor and compiled campus resources to support survivors.

*Faculty members and certain staff members are considered “Responsible Employees” or “Mandatory Reporters,” which means that they are required to report violations of Title IX to the Title IX Coordinator. **I am a Responsible Employee and must report any Title IX-related incidents** that are disclosed in writing, discussion, or one-on-one. Before talking with me or with any faculty or staff member about a Title IX-related incident, be sure to ask whether they are a responsible employee. If you want to speak with someone for support or remedies without making an official report to the university, email advocate@austin.utexas.edu For more information about reporting options and resources, visit the [Title IX Office](#) or email titleix@austin.utexas.edu.*

Campus Safety

The following are recommendations regarding emergency evacuation from the [Office of Campus Safety and Security](#), 512-471-5767,

Students should sign up for Campus Emergency Text Alerts at the page linked above.

Occupants of buildings on The University of Texas at Austin campus must evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.

Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.

Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.

In the event of an evacuation, follow the instruction of faculty or class instructors. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.

For more information, please visit [emergency preparedness](#).