

DTX 221: Human-Centered Design Across Disciplines

Spring 2026

Course Description

Students in this interdisciplinary course will explore the Human-Centered Design (HCD) process through lecture, discussion, and in-depth analysis of real-world case studies. The journey begins by developing understanding around assessing needs, synthesizing insights, and generating innovative ideas, before progressing to prototyping and implementing solutions. Weekly topics highlight HCD applications in diverse fields, including technology, healthcare, education, and social services, with a focus on the critical role of empathy-driven design and interdisciplinary collaboration. Case studies will offer concrete examples of successful design solutions and innovation. The course also addresses common challenges in HCD, ethical considerations, and emerging trends shaping the future of design. Ultimately, students will gain practical experience and a deep understanding of how HCD principles can drive meaningful impact across various contexts.

Learning Objectives

By the end of this course, students will be able to:

1. Define and explain the key concepts and principles of Human-Centered Design.
2. Identify and describe the five spaces of the Human-Centered Design process.
3. Analyze case studies to understand the practical application of Human-Centered Design in different fields.
4. Evaluate the effectiveness of Human-Centered Design solutions in various contexts.
5. Discuss the interdisciplinary nature of Human-Centered Design and its relevance to solving real-world problems.
6. Develop critical thinking and discussion skills through engagement with course material and peer discussions.

Required Readings and Texts

Kelley, T., & Littman, J. (2016). *The Art of Innovation: Lessons in creativity from IDEO, America's leading design firm*. Profile Books.

Lawrence, L., Shehab, S., Tissenbaum, M., Rui, T., & Hixon, T. (2021, April).

Human-Centered Design Taxonomy: Case study application with novice, multidisciplinary designers. Poster to be Presented at the American Education Research Association Virtual Conference.

Lawrence, L., Shehab, S., & Tissenbaum, M. (in press). *Understanding non-designers' practices and processes in a Human-Centered Design course. International Journal of Innovation in Education.*

Course Policies

Attendance

Unless otherwise stated, attendance at regular in-person or virtual class meetings is required. If you think that you will not be able to attend one or more of our class meetings, please let me know in advance. Because this course is heavily dependent on the work that you will begin with your teammates during class meetings, you can only miss one class before you fall behind.

If you get ill, have a family emergency, feel emotionally run-down, have technology problems, lose the internet, whatever, let me know and take the time you need to feel better. (I do NOT need any documentation of illness from a doctor - I trust you.) Please prioritize your well-being over this class, if you need to.

Participation

You are welcome to participate in this class in whatever way is most useful to you. In "typical" college classrooms, participation looks like active verbal contributions in large group conversations during class meetings, but I understand that this model doesn't fit everyone's personality type, abilities, and cultural norms. If it works better for you to listen attentively and take notes during class, do that. Remember, this class relies heavily on your work in your group. Please, do your best to actively participate in group discussions and activities. Unless I contact you with concerns about your participation, you can assume that you are doing fine and earning all the possible participation points.

Classroom conduct

Section 1-201(b) of the UIUC Student Code states that "It is expected that students enrolled in the university will conduct themselves at all times in accordance with accepted principles of responsible citizenship and with due regard for the rights of others." Additionally, my goal is to run an inclusive, safe, and accommodating classroom and to provide a supportive learning environment for all students.

I have a zero-tolerance policy for attacks of a personal nature or statements denigrating another on the basis of race, sex, religion, sexual orientation, age, linguistic background, ability or

disability, physical appearance, or national/regional origin. Those who engage in such behaviors will be asked to leave the classroom and counted absent for the day.

I respect each student's right to respond to the name and pronoun of their choice and the right of all people to be treated with dignity and respect. If you see a way to make the class feel more inclusive, safe, and accommodating, I encourage you to share your ideas with me.

Grade Policy

Your grade will be determined by the following.

Points per assignment:

Class Participation/Preparedness	20
Midterm Exam	25
Case Study Poster	30
Final Exam	25
100 points possible	

Points will be totaled and divided by the number of points possible to determine the final grade for the course.

Grading Rubric

A+ 97-100%	A 93-96%	A- 90-92%
B+ 87-89%	B 83-86%	B- 80-82%
C+ 77-79%	C 73-76%	C- 70-72%
D+ 67-69%	D 63-66%	D- 60-62%
F 59% and below		

Assessment Details

- **Participation and Preparedness (20%)**
 - Active and prepared participation in discussions and consistent attendance.
- **Midterm Exam (25%)**
 - Multiple choice and short answer questions covering the first half of the course.
- **Case Study Poster (30%)**
 - Students will develop a poster that outlines their analysis of a chosen case study. The poster will be presented at the SCD Student Showcase, allowing students to demonstrate their understanding of Human-Centered Design (HCD) principles and their ability to communicate their findings effectively.

- **Final Exam (25%)**

- Comprehensive exam covering all course material, including case studies and key concepts.

Land Acknowledgement Statement

As a land-grant institution, the University of Illinois at Urbana-Champaign has a responsibility to acknowledge the historical context in which it exists. We are currently on the lands of the Peoria, Kaskaskia, Peankashaw, Wea, Miami, Mascoutin, Odawa, Sauk, Mesquaki, Kickapoo, Potawatomi, Ojibwe, and Chickasaw Nations. It is necessary for us to acknowledge these Native Nations and for us to work with them as we move forward as an institution with Native peoples at the core of our efforts.

Academic Integrity

The University of Illinois at Urbana-Champaign Student Code should also be considered as a part of this syllabus. Students should pay particular attention to Article 1, Part 4: Academic Integrity. Read the Code at the following URL: <http://studentcode.illinois.edu/>.

Academic dishonesty may result in a failing grade. Every student is expected to review and abide by the Academic Integrity Policy: <https://studentcode.illinois.edu/article1/part4/1-401/>. Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not hesitate to ask the instructor(s) if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.

Disability Statement

Every human being learns, thinks, works, writes, and moves through the world differently. Consequently, I am committed to making this course flexible and accommodating to account for both difference and disability in this classroom, including in instances of physical disability, mental illness, and/or learning disability.

As part of this commitment, I try to present all course materials in multiple modes whenever possible, giving you the opportunity to participate and engage with different materials as you see fit. (And, really, this is one of the things this course is all about!) However, if any class materials, practices, or policies are in any way keeping you from being successful, please let me know by email or in person. I am more than happy to work with you!

Additionally, if you have a disability, I strongly encourage you to work with UIUC's Division of Disability Resources and Educational Services (DRES) to document your needs and request accommodations. They are an invaluable resource, and they can help us both better understand commonly helpful types of accommodations. You can contact DRES at 1207 S. Oak St., Champaign, (217) 333-1970, or via email at disability@illinois.edu.

Religious Observances

Family Educational Rights and Privacy Acts (FERPA)

Any student who has suppressed their directory information pursuant to Family Educational Rights and Privacy Act (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See

<https://registrar.illinois.edu/academic-records/ferpa> for more information on FERPA.

Mandated Reporter Status and Sexual Assault Resources

Please know that while I care greatly for my students and am happy to lend an ear in support when asked, under Title IX, I (along with your other teachers) am designated as a mandated reporter. This means I am required to disclose reports of sexual misconduct to the University or law enforcement. If you are a victim of sexual violence and are ready to speak to an advisor but unsure of whether you want to file a report, you do have access to confidential advisors and other confidential resources through the university and community. You can find information about those and other related resources at <http://www.wecare.illinois.edu/resources/students/>.

Course Outline

Week 1: Introduction to Human-Centered Design

- Course Introduction and Overview
 - Introduction to course structure, objectives, and expectations.
 - Overview of Human-Centered Design.
- The Importance of Human-Centered Design
 - Historical context and evolution of Human-Centered Design.
 - The impact of HCD on innovation and problem-solving.

Week 2: Understand Space

- Deep Dive into Understanding
 - Techniques for gathering user data and insights.
 - Empathy and user-centered research methods.
- Case Studies
 - Examples of successful user research in various fields (e.g., healthcare, technology, social services).

Week 3: Synthesize Space

- Synthesizing User Insights
 - Methods for organizing and interpreting user data.
 - Introduction to user personas and journey maps.
- Case Studies
 - Analysis of case studies where synthesis led to significant design breakthroughs.

Week 4: Ideate Space

- Ideation Techniques
 - Brainstorming methods, creative thinking, and generating ideas.
 - Collaboration and diversity in ideation sessions.
- Case Studies
 - Reviewing innovative ideas generated through HCD in different sectors.

Week 5: Prototype Space

- The Role of Prototyping
 - Different types of prototypes and their purposes.
- Case Studies
 - Examining prototypes that led to successful product, service, and system development.

Week 6: Implement Space

- Implementation Strategies
 - Planning and executing design solutions.
 - Measuring impact.
- Case Studies
 - Success stories of implemented HCD solutions.

Week 7: Human-Centered Design in Technology

- HCD in Software and App Development
 - User experience (UX) and interface design (UI).
 - Agile methodologies and HCD.
- Case Studies in Technology
 - Examination of HCD in tech industry projects.

Week 8: Human-Centered Design in Healthcare

- HCD in Medical and Healthcare Innovations
 - Patient-centered care and medical device design.
- Case Studies in Healthcare
 - Analysis of HCD projects in the healthcare sector.

Week 9: Human-Centered Design in Education

- HCD in Educational Tools and Systems
 - Designing for diverse learning needs.
- Case Studies in Education
 - Review of HCD applications in educational settings.

Week 10: Human-Centered Design in Social Services

- HCD for Community and Social Impact
 - Designing services for vulnerable populations.
- Case Studies in Social Services
 - Success stories of HCD in non-profit and government sectors.

Week 11: Interdisciplinary Applications of HCD

- Cross-Disciplinary Innovation
 - How HCD can foster collaboration across fields.
- Case Studies of Interdisciplinary Projects
 - Examples of interdisciplinary projects driven by HCD principles.

Week 12: Challenges in Human-Centered Design

- Common HCD Challenges
 - Barriers to successful HCD implementation.

- Overcoming Challenges
 - Strategies for addressing and overcoming obstacles in HCD.

Week 13: Ethical Considerations in Human-Centered Design

- Ethics in Design
 - The role of ethics in the HCD process.
- Case Studies in Ethical Design
 - Evaluating ethical dilemmas in real-world HCD projects.

Week 14: Future Trends in Human-Centered Design

- Emerging Trends and Technologies
 - The future of HCD in an evolving technological landscape.
- Poster Workshop
 - Designing effective posters to communicate ideas.

Week 15: Student Showcase Week

- Poster Work Time
 - Gather feedback and iterate on the Case Study Poster for the SCD Student Showcase.
- Student Showcase
 - Students will present their Case Study Poster at the SCD Student Showcase.

Week 16: Final Discussions and Reflections

- Group Discussions and Reflections
 - Students share their insights and reflections on the course material.
- Course Wrap-Up
 - Final thoughts, feedback, and course evaluation.