**DTX 495: Special Topics in Design Thinking
Section: Design Thinking in Health Innovation**

**Course Description:**

Human-Centered Design (HCD) is a problem-solving approach that identifies the unmet needs of a population in order to collaboratively and iteratively develop solutions. During this 8-week course, you will be introduced to human-centered design in the context of health innovation.

In this class, we'll use human-centered design (HCD) mindsets to follow a typical workflow of the HCD taxonomy to first understand problems in the health space, synthesize findings, generate divergent ideation directions, prototype solutions and then test those solutions with our audience. This workflow will provide students experience in an end to end solutioning process utilizing HCD and Design Thinking methodologies to achieve human-centered outcomes.

In this highly interactive course, students will gain experience with research methods like interviewing, synthesis methods such as affinity clustering, ideation methods like creative matrix, prototyping methods and testing methods, collaborating with peers in a small group environment. Since human-centered design is not practiced in a vacuum, students will learn how to effectively collaborate with peers within their small groups.

**Learning Outcomes:**

Upon completion of this course, students will be able to:

- Describe the model of human-centered design (HCD) and apply it to the issue of health innovation
- Analyze applications of human-centered design in various practices within health innovation
- Identify needs for human-centered design in healthcare
- Understand the human-centered design taxonomy, and how each step helps contribute to human-centered outcomes
- Practice Design Thinking methods to help solve identified needs, especially in collaboration with peers
- Build a thorough understanding of empathy, how it functions and how human-centered design can help build it within ourselves and those we collaborate with
- Empathize with research subjects and learn how to use empathy to drive an immediacy to act within teams, groups, institutions and organizations

**Readings/Required Texts:**

Portions of texts below will help support each week's activities and objectives; but it is not required to read the full texts listed below, only the pages assigned for each week's sessions.

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Texts:
- Pressman, A. (2019). Design Thinking: A Guide to Creative Problem Solving for Everyone. Routledge.
- Ku, B., Lumpton, E. (2020) Health Design Thinking, Creative Products and Services for Better Health, Cooper Hewitt
- Dasari, S. (2020) Hacking Healthcare, Designing Human-Centered Technology for a Healthier Future

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**Main Assignments/Assessments:**

1. Weekly Engagement: It is expected that you will attend each class session and actively participate in all class activities, collaborative work time with your team, and class discussions. Each week will be worth 10 points - 5 points for attendance and up to 5 for participation as detailed below. You may be able to make up these points for a single absence on a case-by-case basis per instructor discretion. **(25% of grade)**

   ○ Class Participation points are earned for the following:
      ■ Actively listen and engage with your peers and course instructors (collaborative and communicative mindsets)
      ■ Asking questions and seeking feedback or clarification from peers and course instructors (experimental and communicative mindsets)
      ■ Approach this course with both metacognitive and human-centered mindsets. In other words, you reflect on and consider what you are learning, consider and empathize with the perspectives of others, and check your own biases and assumptions. (Enter with an openness and sense of "unknowing").
      ■ Demonstrate understanding of methods explored each week by active participation within small group environment
      ■ Reference course lectures and course readings, making connections between what you are learning and the practical application of that in your project work.

2. Weekly Assignments: As the course progresses, you will be asked to complete a range of assignments to help you both demonstrate an understanding of the course material, such as reflections, and use of Design Thinking methods outside of the course's sessions to help further your design project **(25% of grade)**
   ○ **Weekly Reflections:** Throughout the course you will be asked to reflect on your personal connections to the spaces involved and your experiences; these reflections should be approximately 1-2 paragraphs in length, and you will be asked to share them as the course progresses.

Health Innovation Design Project: **(50% of grade)**
**This project will consist of two assessment dimensions - participation in the workflow process and the project design deliverable itself.**

3. Participation in Human-Centered taxonomy workflow: (Due 5/7/23) Throughout the course, you will be introduced to a range of Design Thinking methods aligned to the human-centered taxonomy process, and expected to practice each method with your small group to help drive your group's solutions forward; you will be assessed on a week to week basis on your participation, understanding, and practice of the methods covered, along with your level of collaboration with your small group.

4. Development of Heath Design Project (Due in class 5/7/24): You, along with your team, will seek to understand different health problem spaces, learn from and empathize with those impacted by said problems, synthesize your learnings to find themes, ideate broadly to explore solution spaces,

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develop prototypes of your preferred solution, and test your solutions with your audience.  At the end of the course you and your small group will be expected to present your process, your prototyped solution, and your test findings to the class.

5.  <u>Ways Forward Paper</u>: (Due in final class 5/9/24): You will individually draft a short reflection on both what you learned during the course of your workflow with your group, how you might improve your solution based on your testing findings moving forward, and how you might approach the problem differently.

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**Course Evaluation:**
A big part of this course is working in small teams.  As such, this class relies heavily on your collaboration and communication with your team. Please, do your best to actively participate in group discussions and activities. Effective communication and collaboration with teammates will set you up for success in this course. Additionally, this course also consists of both lecture and discussion, so active engagement (whatever that looks like for you) in these experiences is essential as well.

In addition, a core assumption of this course is that all enrolled participants will bring both an open mind and a critical attitude to their work. Openness in this situation refers to a willingness to consider perspectives other than one's own as well as the capacity to find hidden opportunities in assignments, individuals, and settings whose parameters and/or challenges were unexpected. A critical attitude refers to the capacity to see both the situations from multiple angles and critically reflect on what you know and experience. It also refers to the capacity to evaluate and question one's own assumptions and past experiences.

**Course Expectations:**
1.  **Be present:** Since this course is highly interactive and small group based, it is expected you will be fully present for each class session.  Minimize distractions as best as you can to stay focused on the material and your group's work.
2.  **Be curious:**  This course covers a wide array of potential problems and solutions, so keep an open mind and be curious about both problem and solution spaces.  Try to set aside your own assumptions and biases to help you see problems clearly.
3.  **Be collaborative:** As mentioned earlier, this course is highly interactive, with small groups working together towards solutions. Be prepared to collaborate with your groups each week to help drive towards human-centered solutions.

Additionally, this course is a judgment-free zone, with criticism coming from our test subjects, not each other. It is also a safe space to explore human-centered design and collaborate with each other, so there are no bad questions or ideas here.

**Academic Integrity**:
The Illinois 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://www.admin.uiuc.edu/policy/code/](http://www.admin.uiuc.edu/policy/code/).

Academic dishonesty may result in a failing grade.  Every student is expected to review and abide by the Academic Integrity Policy: [http://www.admin.uiuc.edu/policy/code/](http://www.admin.uiuc.edu/policy/code/).  Please note that you are responsible for reading this policy.  Ignorance is not an excuse for any academic dishonesty.

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**Grading**:
Your grade is based largely on your engagement in and successful completion of tasks for DTX 495 as explained above and below. Additionally, satisfactory completion of the field placement associated with this course is linked to your final grade. Proof of successful completion of the field placement includes:

Grading scale: (For individual assignments and overall)

| | | |
|---|---|---|
| A+ = 100% | A = 93% - 99.4% | A- = 90% - 92.4% |
| B+ = 88% - 89.4% | B = 83% - 87.4% | B- = 80% - 82.4% |
| C+ = 78% - 79.4% | C = 73% - 77.4% | C- = 70% - 72.4% |
| D+ = 68% - 69.4 | D = 63% - 67.4% | F = 62.4% and below |

Work with grades below 90% may be resubmitted to get up to ½ of the credit points back on the assignment. Redo must be resubmitted within one week of posting the grade on Canvas to be reconsidered and prior to the end of the semester.

Requirements for assignments will be available on Canvas and are expected on the designated date; all reading should be done prior to the class date noted. All composed work will be evaluated on the basis of your engagement in the process and thoughtfulness and thoroughness of execution. All major presentations will also include a checklist or rubric to help guide your work.

Unless otherwise specified, you will submit assignments to Canvas (this includes presentations). Assignments not turned in on the designated day will receive a lowered grade (2 points per day) unless prior permission for an extension has been requested and approved by the instructor. In order to get an extension, you must be proactive and contact the instructor at least 24 hours prior to the due date unless there are emergency circumstances that prevent you from doing so earlier.

**Attendance Policy**: 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.

All this being said, please keep in mind two things:
- Not attending class and missing deadlines will mean that the work you produce by the end of the semester will be weaker. Staying on schedule as much as possible will set you up to succeed.
- We'll be doing a substantial amount of in-class and/or team work in this class. Getting behind on deadlines puts you and/or your whole team at risk; be sure to communicate with your team members regularly to discuss how to coordinate with and support each other throughout the semester.

**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

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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.

**Strategies for Success**: Your success is important to me. Quality and growth demand effort and commitment. I suggest the following strategies in not just this class, but in every class, you embark on at UIUC:

- Make every effort to engage in the course content.
- When doing collaborative work, schedule time for it.
- Be accountable to yourself and your working team. Design challenges are inherently collaborative. Rely on one another and be there for each other.
- Ask questions (in class and/or via email) whenever you need further insight. I welcome your questions, feedback, and suggestions. Developing a dialogue with your instructors should be a top priority for all students.
- If you are having trouble understanding or completing the course material, please consult me ASAP. I can be reached by email to schedule an appointment. I am *not* a proponent of asking for forgiveness as I have found that some students will never see that that is a risk that can apply to them.
- Observe, share, discuss, and debate ideas. Please think of your instructor and fellow students as your colleagues.
- Cultivate an open mind, a desire to learn, and a passion for excellence.

| In essence, I'm looking for you to... | Not... |
|---|---|
| Be open to learning | Already know it all |
| Dare to try | Limited by timidity |
| Work hard | Half-hearted effort |
| Honest engagement | Polite observation |
| Pay attention, listen, and explore the material | Careless egotism, do your own thing |

**Equal Opportunity and Access:**
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!
To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TDD), or e-mail a message to disability@uiuc.edu. To ensure that disability-related concerns are properly addressed from the beginning, students with disabilities who require assistance to participate in this class are asked to see the instructor as soon as possible. If you need accommodations for any sort of disability, please speak to me after class, or make an appointment to see me, or see me during my office hours.

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**Emergency Planning Statement**:
Plan for emergency situations in the classroom by reviewing the important material found at:
http://police.illinois.edu/emergency-preparedness/.  The more prepared you are, the safer you will be.

**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. In order to remind ourselves and our community, we will begin this event with the following statement. We are currently on the lands of the Peoria, Kaskaskia, Piankashaw, 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. Over the next 150 years, we will be a vibrant community inclusive of all our differences, with Native peoples at the core of our efforts.

**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/.

**Week-by-Week Course Schedule**

Each week, we will openly discuss, reflect, write and verbalize our thoughts on the many issues we face as a class. Throughout the class, we will periodically check-in and reflect on what we're learning. Reflection is a key component of human-centered design and an area that we do not always spend enough time on. Therefore, the emphasis on this is important for understanding your motivations for doing social impact work.

The course is structured with weekly themes with three iterations of team projects. We will have guest lectures, workshops, and ample time to practice and model how to design for social change. Students will engage in regular presentations that lends the opportunity for both instructor and peer feedback and positive, proactive critique. This process has proven to build creative confidence in students and will strengthen your design thinking skills week-to-week. We will also plan to have two guest lectures throughout the semester.

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| Class Session | Weekly Focus | Readings/Videos Due | Assignments Due |
|---|---|---|---|
| **Week 1**<br>Mon, 3/18 | **About this class and HCD**<br>- Introductions<br>- Syllabus<br>- Principles<br>- The HCD Taxonomy<br>- Design Thinking methods<br>- Quick exercise<br>- Our required texts | None | None |
| Wed, 3/20 | **The Health and Healthcare Space**<br>- Reflection 1 shareouts<br>- Health and Healthcare Problem Spaces and Opportunities<br>- Class Design Project assignment<br>- Review | ▶ The Healthcare Divide (full docum… | **Reflection 1:** How has your life been impacted by health and healthcare? |
| **Week 2**<br>Mon, 3/25 | <mark>Understanding Overview</mark><br>- Reflection 2 shareouts<br>- Understanding overview<br>- Empathy in the Everyday<br>- Understanding research methods<br>   - Interviewing<br>   - Surveys<br>   - Diary studies<br>   - Interviewing practice | **Health Design Thinking,** pages 9-19<br>**Health Design Thinking,** pages 64-68<br>**Hacking Healthcare,** pages 49-68 | **Reflection 2:** Who in your life has been impacted by healthcare? What problems did they face? |

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| Wed, 3/27 | **Understanding in Practice**<br>- Group Assignments<br>- Introduction to Discussion Guides<br>- Discussion Guide Prep time | **Design Thinking**, 13-22<br>**SCD Interviewing Guide** (in course canvas) | **Reflection 3:** List 3-5 people you'd like to interview who have experienced a problem with health or healthcare. |
|---|---|---|---|
| **Week 3**<br>Mon, 4/1 | <mark>Synthesis Overview</mark><br>- Interview reflection<br>- Synthesis overview & methods<br>- Rose, Thorn, Bud introduction<br>  - RTB practice (groups)<br>- Affinity Clustering introduction<br>  - Affinity Clustering practice (establish themes from interviews)(groups) | **Design Thinking**, 23-27 | **Interviews Assignment:** Conduct 15-30 minute interviews with the as many subjects identified in Reflection 3 as you can, using your discussion guide from the 3/27 session |
| Wed, 4/3 | **Synthesis in Practice / Inspiration**<br>- Reflection 4 shareout<br>- Group shareouts: RTB and Affinity Clustering results<br>- How Might We Statements overview<br>- Group exercise: HMW Statements practice<br>- Visualize the Vote overview<br>- Group exercise: Visualize the vote (HMW statements)<br>- HMW Statements shareouts & voting results<br>- Innovation in Healthcare case studies | **Health Design Thinking,** pages 34-39 | **Reflection 4:** What did you learn from your interviews? |

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| **Week 4**<br>Mon 4/8 | <mark>**Introduction to Ideation**</mark><br>- Reflection 5 shareout<br>- Ideation overview<br>- Ideation methods<br>- Creative Matrix introduction<br>- Constructing the Creative Matrix<br>- Alternative Worlds introduction | **Health Design Thinking,** pages 40-45 | **Reflection 5:** What recent innovations in health care have inspired you? |
|---|---|---|---|
| Wed 4/10 | **Ideation in Practice**<br>- Group exercise: Creative Matrix ideation, part 1<br>- Alternative Worlds selections<br>- Group exercise: Creative Matrix ideation, Alternative worlds<br>- Group exercise: Visualize the Vote | **Design Thinking,** pages 27-39 | None |

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| **Week 5**<br>Mon 4/15 | **Introduction to Creative Convergence**<br>- Reflection 6 shareout<br>- Introduction to creative synthesis<br>- Synthesis methods<br>- Importance/Difficulty Matrix introduction<br>- Group exercise: Importance/Difficulty Matrix | **Health Design Thinking,** pages 40-45 | **Reflection 6:** What ideas from your group are you excited by and why? |
|---|---|---|---|
| Wed 4/17 | **Proposing Ideas with Storytelling**<br>- Group idea roadmap review<br>- Introduction to storyboarding<br>- The role of AI in storyboarding | **Health Design Thinking,** pages 52-55, 80-91 | None |
| **Week 6**<br>Mon 4/23 | **Storyboarding Working Time + Feedback sessions** | | |
| Weds 4/25 | **Storyboarding updates**<br>**Introduction to Prototyping**<br>- Prototyping overview<br>- Health prototype examples<br>- Group exercise: prototyping | • None | • Prototype working time as needed |

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| Week 7<br>Mon 4/30 | **Introduction to Prototyping (cont'd)**<br>- Reflection 7 shareout<br>- Prototyping overview<br>- Health prototype examples<br>- Group exercise: prototyping<br>**Prototyping Working Time** | **Health Design Thinking,** pages 46-51 | ● **Reflection 7** - What materials do you need to create your prototype? |
|---|---|---|---|
| Wed 5/1 | **Prototyping Working Time** | ● None | ● Prototype working time as needed |
| Week 8<br>Mon 5/6 | **Introduction to Evaluative Research: Testing**<br>- Reflection 8 shareout<br>- Group exercise: Defining learning priorities<br>- Research and Testing methods: Testing platforms<br>- Developing a testing guide<br>- Recruitment criteria | | ● **Reflection 8 -** What would you like to learn from testing your prototype? |

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| | - Group exercise: Prototype testing guide | | |
| Weds 5/8 | **Creating Tests**<br>- Testing Platform overview (dscout)<br>- Building a successful test | | ● Prototype Testing Guide |
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