Human-Centered Design
Process & Methods (Info 310)

College of Computing & Informatics, Drexel University
Course Syllabus, Fall 2024

Tuesdays and Thursdays
Section 2: 10:30–11:50 a.m.

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> *Everyone* needs habits of mind that allow
> them to dance across disciplines.
> —David Epstein, *Range*

Course Overview

My invitation to you

Welcome! In this class, you'll **become a designer**. I don't just mean software architecture, and I don't mean graphics. In this class, *design* means something bigger. Our focus is on interaction design—the creation of digital experiences. But design is all around us, and I hope this class will open you up a new way of seeing the world. What makes a design good? Why do some products fail? How can we make the world a better place with our ideas?

Perhaps you're already excited about this course. Perhaps you're intimidated. Maybe you already consider yourself a designer, or maybe you think there's not a creative bone in your body. No matter what, this class will challenge you. It'll ask you to think differently—and work differently. You'll be expected to draw sometimes, and at other times to critically dissect ideas. Sometimes you'll work alone, and sometimes in a group. In the end, the goal is to give you the tools to become a creative problem solver.

It's my belief that everyone is creative. That creativity is a skill we can build, not something that we either have or don't have. What's more, the digital age calls all of us to be designers, whether we like it or not. So you're a designer: you might as well learn how to do it better.

Please come with an open mind—as open as you can manage—and a taste for adventure. Be respectful of your classmates (and teammates, especially), particularly when disagreements arise (they will). Again, if the pandemic has taught us anything, it's that we are all in this together, and that life goes best when we help each other and practice flexibility when unexpected situations come up.

Taking a class is like buying a gym membership: you won't get results if you don't go. But just as you don't have to go to the gym alone all the time, remember that you've got a whole class full of mates who are along for the ride with you. Have fun.

Course description

This course will **introduce** you to the process of **human-centered design** for interactive user interfaces. It teaches some of the basic approaches to the **design and evaluation** of interactive user interfaces. It delivers **practical advice** on interaction design challenges and applies human-centered design principles in the design of the **user interface** to an interactive computer system.

Course purpose

This course is required for students in the following majors: Computing & Security Technology, Computer Science, Software Engineering, and Information Systems. It is also an elective, particularly for the Human Computer Interaction minor, but it may be taken as a Free Elective by students in other programs.

Learning targets

As a result of your experience in this course, you will be able to:

UX Principles →

- Explain design principles and the iterative process of user-centered design
- Describe the principles of accessible and universal design
- Explain how critical thinking and self-reflectiveness impact design choices

UX Research →

- Assess user needs and make design decisions based on user needs assessment
- Apply at least two methods for user data gathering and analysis
- Perform usability testing and user interface evaluation

UX Design

- Perform user interface prototyping using at least one prototyping tool
- Apply the principles of user-centered design to multiple interaction modes, such as mobile, wearable, and tangible interfaces

In addition, as your teacher I will help you to:

- Self-reflect on your work and receive feedback gracefully
- Explain how human-centered design can be applied to almost everything humans make and do
- Advocate for a human-centered approach to design
- Explore possible career interests in HCI/UX
- Develop your skills of good thinking and related habits of mind such as love of learning, intellectual courage, intellectual humility, and practical wisdom.

What I think about teaching and learning

I love being a teacher, I love the material I get to teach, and I love bringing new voices into the fold. So my goal is not to "cover course content," but to welcome you into a community of learning that will serve you well for life. This goal guides my teaching philosophy and my choices as an instructor.

For example, the vast majority of our time together will be in activities and conversations. You will be talking, making, doing, teaching… This is what we call *active learning,* and it will help you develop your skills in collaboration, solidify your learning for the long term, spark creative thinking, and get you to have fun along the way. Long story short, you will not be sitting in class listening to me read PowerPoint slides (though on occasion I may give short lectures to share basic information).

I realize active learning can be challenging, particularly for people who are introverted or have any kind of anxiety. I have been there! I myself am an introvert. I do my best to create a comfortable learning environment where everyone feels welcome to participate and learn to their best ability. I hope, over time, you will feel at home in the learning community we will build this quarter.

How to be a part of this class

Learning happens best in community. For our purposes, this means being present and being caring. This quarter, let mutual respect guide our time together, so that everyone can participate and enjoy the class. To be a part of this class, strive to do the following:

- **Attend each class session**, arriving a few minutes early if you can so we can start on time. I know CCI is in the boondocks of campus, but please do your best.
- **Read the assigned readings and give yourself time to mull them over before each class**, so you can participate meaningfully in our in-class activities.
- **Do your best to get to know your classmates as the course goes on**. These are your allies—and future colleagues in life. The world is small. If you're on the shy side, challenge yourself to step just outside of your comfort zone when you're able.

What book you need

The required text for this course is *Interaction Design: Beyond Human–Computer Interaction,* by Sharp, Rogers and Preece. Either the 2023 or the 2019 edition will be fine. A digital version of the 2019 edition is available freely through the Drexel Libraries. The library also has a physical copy of the 2023 edition on reserve, but we don't yet have a digital version available. If you foresee yourself going into a career in UX, you will want a copy for your bookshelf.

You'll be expected to do the scheduled readings prior to each respective class meeting. The readings are straightforward and relevant. There will be regular quizzes to help you gauge your comprehension and keep you on track. You will also have ample opportunity to develop mastery of the material in the readings through your work in the group project.

Contacting me

Student–instructor interaction is an important part of any course. I am available to you, and I want to help you succeed in this course, in your program at Drexel—and in life. Please come to me with any questions, problems, discoveries or anything else you'd like to share. If you have a question that may be of interest to others in the class (e.g., syllabus, readings, logistics, etc.), please ask it during class so that others can benefit. With personal or urgent questions, email me directly or speak to me before or after class.

I am available to meet with you by appointment, and feel free to email me at any time. I check email twice a day, and I don't do it at night or on weekends. In our always-on society, it is important to set boundaries—firstly because healthy lives require off-time, and also because our academic activities require uninterrupted periods of time for reading, writing and thinking. Moreover, taking time for rest and pursuing leisure activities have been shown to improve productivity, creativity and accomplishment, as Alex Pang discusses in his book *Rest: Why You Get More Done When You Work Less*. I hope you will join me in living with more balance.

Assignments and Grading

This class will provide you with a platform for learning and trying new things. You will get the chance to connect what we learn and discuss in class with what you have learned and practiced in other classes. Specifically, **you will do industry-level work in interaction design with a team**.

Group design project

The major portion of this class is a group design project. In this project, you will work with an assigned group of about four people to design something in response to a given theme. Every group will respond to the same theme, but will solve different problems within that theme. With your

group, you will go through the design thinking process and come up with a feasible and tested solution for a problem that you identify. The project consists of the following deliverables:

- **GP0: Team Charter**
- **GP1: Problem Space and Data Gathering Plan**
- **GP2: User Needs Analysis and Design Requirements**
- **GP3: Prototypes (Part I); then Redesigned Prototypes after critiques (Part II)**
- **GP4: Usability Study**
- **GP5: Final Presentation and Final Prototype**

Individual mini-essays

Throughout the term, you will write three mini-essays of about 700 words each. Prompts will be provided along the way. These mini-essays will give you the chance to reflect on your ongoing group project and the readings and to demonstrate what you're learning as the course goes on.

Grading

Research has demonstrated that grades diminish students' learning, decrease students' interest in the subject matter, and prevent students from taking creative risks. Moreover, many students experience anxiety about grades. In this class, **we are here to learn, to become interested in human-centered design, and to take creative risks by trying new things** (not just following a rubric)—and we certainly don't need more anxiety in our lives. So we will take a different approach to assessment.

My intention with this class is to help you to work in an organic way, as you will after graduation. So while you will get a final grade in the class, I will not put quantitative grades on individual assignments. Rather, when I review your work, I will ask questions and make comments meant to engage your work rather than simply evaluate it. You, too, will reflect deeply on your work and that of your peers throughout this quarter, and we will discuss your learning and effort as the course progresses. We will do this throughout the course, but there are three things I will ask you to do as anchors for this process:

- **Goal-Setting**: During Week 1, we will set goals for our learning this quarter to give us each a concrete place to aim for in addition to the general course learning outcomes listed above.
- **Midterm Reflection**: Midway through the course, I will provide you with a link to an online form that will guide you through a reflection on your work thus far—what challenges you've overcome, how you're living up to my, your group's and your own standards, and what your goals are for the coming weeks. At the end, you'll be asked what letter grade you would give yourself for your work thus far. This is your chance to assess yourself realistically and challenge yourself to improve in the second half of the term. I will respond to your reflection, and we'll have a conversation if our respective assessments do not match.
- **Final Reflection**: Ahead of Finals Week, I will provide you with another link to an online form where you'll complete your final self-reflection for the term. Again, I'll ask you what grade you would give yourself. I prefer to give everyone the grade they would give themselves, I do reserve the right to make adjustments.

In assigning your final grade, I will consider three dimensions: **performance, effort, and improvement**. For reference, here is my interpretation of the letter grades:

- **A: Excellent**. You have met the learning targets for this course while exceeding expectations in effort, participation and results. You achieved or exceeded your personal goals. You were an asset to your team. You were present at all class sessions with meaningful participation and arrived on time. You took part in all the assignments and did so on time.
- **B: Good**. You achieved the learning targets for the course while meeting expectations. If you started out with room for improvement, you demonstrated that improvement. You achieved your personal goals. You were a solid team member. You were present on time at most class sessions with strong participation. You took part in all assignments, maybe with some late submissions.

- **C: Acceptable**. You made progress toward all or most of learning targets for the course, and you missed some of your personal goals. You did not complete all activities. You were not a very active team member. You had hit or miss attendance. When you were present, you may have been doing other things (laptop, texting) or otherwise not participating fully.
- **D: Poor**. You did not make much progress toward one or more of the learning targets for the course. You had hit or miss attendance, and missed several assigned activities. You were a mostly absent team member.
- **F: Failing**. You demonstrated little to no progress toward the learning targets for the course. You were mostly absent from class and your team.

I know this process is quite different from how we usually think about grades. If any of this causes more anxiety than it alleviates, contact me at any time to discuss your progress in the course. As the course goes on, you'll be able to track your progress in the My Grades section on Drexel Learn.

How to get a good grade

It's easy for school to become a game. Check the boxes, don't rock the boat, say nice things. In this class, we're going to shake that up a bit. Like all shake-ups, it may be uncomfortable, but in the end it will be a chance for growth. To get a good grade in this class, pay special attention to these areas:

- **Attendance and Participation**: A lot of learning will happen in our time together, and I don't want you to miss out. Plan to attend regularly, coming prepared and with energy to participate.
- **Assignments**: Use your assignments as an opportunity to demonstrate to me what you are learning. In your group project submissions, mini-essays and self-reflections, strive to integrate insights that have come up in classroom conversations as well as the course readings.
- **Professionalism**: School is practice. Here's your chance to try out new systems and figure out what will work for you in life. Give it a serious try, and bring your best self to this class. That way you'll get the most out of this experience.

If you are worried about getting a good grade in this class, your best strategy should be to do the readings, ask questions often, complete the assignments diligently and on time, and engage earnestly with all your classmates. Again, I am looking for three things from you this quarter: **performance** (your results), **effort** (time spent, dedication, conscientiousness, participation, etc.), **and improvement** (being responsive to feedback and incorporating lessons as you move forward). Look for opportunities to demonstrate those qualities.

Notes on Group Work

As you've seen, the group project will constitute a large portion of this class. And this isn't just in terms of formal assignment submissions: the group project will motivate all our in-class activities and discussions. Throughout the class, you will often find yourself presenting on and discussing your progress on the group project, both working with your own group and consulting with other groups. In fact, most of the coursework will be closely tied to the group project, which will require good teamwork.

You may not like group projects. Still, there are at least two reasons—one pedagogical, and one professional—for having them. First, the **discussion and negotiation that occurs in teams will support your learning**. The more you discuss your view and the views of your fellow group members, and the more you challenge them, the better you will come to understand them. Not only that, but interaction design is about skill and technique just as it is about knowledge, and getting the chance to apply what we discuss in class is vital to learning it. By the end of the course, each group will have a tested, medium-fidelity prototype. (I.e., a portfolio piece!)

Second, **teams are a common feature of the workplace**, in virtually every industry, and HCI and UX are no exception. Many of you will have been, or currently are, involved in work teams, either formally or informally. In both face-to-face and remote contexts, team members have to practice

good communication and collaboration. Job descriptions routinely ask for these skills, and I hope this class will help you to develop and reflect on these skills. (E.g., on a job interview, you might be asked about a successful, or perhaps failed, group project.)

All team members should take part in all project activities, although responsibilities may be divided so that different members take the lead in different activities. No activity should be done exclusively by a single person. While the volume of work of each group member on each project component may not be equal, their contribution to the overall project should even out. You will need to meet with your group multiple times a week, whether that's face to face or online (video chat, Microsoft Teams, Slack, WhatsApp, etc.).

Here are some suggestions for achieving good teamwork:

- Select what technologies you'll use for communication and work as early as possible.
- **Choose a team leader**. (Note: not a tyrant.)
- Discuss your individual skills and strengths (graphics, programming, writing, etc.) and see where each of you can best contribute.
- Notify each other as soon as possible of travel, illness, schedule conflicts (including other class assignments), etc.
- **Explain what you mean, and say why you're saying it**.
- Be proactive: don't just do "what I was told," but also actively look for ways you might contribute that everyone else has overlooked.
- **Set agendas and time limits for your meetings**. It may be a good idea to begin each group meeting with a brief report from each member on their progress.
- Make every effort to ensure that all team members feel comfortable about other members' contributions. Be open about grievances.
- Feel free to use me as a scapegoat: "Dr. G will *not* find this convincing. Why don't we try…?"
- **General policy: if ever in doubt, communicate!** Redundancy is okay. Repetition is good. Keep everyone in the loop.

If your team is not functioning well, this could negatively impact your learning. If you find you cannot resolve the issue on your own, let me know and I will offer some help.

Policies

Academic integrity

You're here to learn, and the university environment is set up to help you do that in a structured way. Please conduct yourself respectfully, and ultimately you'll learn the most you can. This includes academic integrity. In this course, as with any Drexel course, be honest about the work you did, and do your best with it. All work you submit must be your own work. Of course, we often incorporate ideas and content from others in our work; when you do that, cite your sources to give credit where it is due. Strive to make clear your personal contribution and where you drew from others. This goes for books and articles, other people, and also AI tools (discussed specifically in the following section).

In this class, any forms of academic dishonesty will not be tolerated. This includes plagiarism (using others' intellectual work without reference) and cheating. I am obligated to report incidents of academic dishonesty to Drexel administration, and this may result in consequences such as failing the course. Note that a student who is found in violation twice (even if in two different courses) will be expelled from the university. For more information, please refer to the Provost academic integrity policy or to resources regarding Student Conduct and Community Standards. Please take this opportunity to learn the most you can this quarter by upholding your academic integrity.

A note on AI tools

We're living at an exciting time. A plethora of exciting AI tools have been released in recent years, including Grammarly, Canva, ChatGPT, Microsoft 365 Copilot, Google Gemini and many more. Clearly these tools have the capacity to support human knowledge, work and creativity. However, these tools are not magic, and they have many limitations. In this class, you may choose to use these tools to support your work. Doing so responsibly and thoughtfully is a way to increase your learning; but using them haphazardly may actually undermine your learning. If you choose to use an AI tool in your work in this course, please include an additional appendix section at the end that does the following:

1. **Explain which parts of the work came from you and which from the AI tool, and acknowledge the human labor that went into developing the AI tool you used**. If you use AI-generated content or ideas, please don't claim credit for them. AI models have been trained on the work of thousands—if not millions—of under- or unpaid writers and artists and further refined by crowd-workers. By crediting the AI tool and acknowledging the underlying human labor, you are (at least in a small way) giving credit where it is due, just like you'd want someone to credit you if they used your ideas later on.
2. **Explain how the AI tool helped improve the quality and/or creativity of your work**. Remember that AI models can only reproduce the past—they can't imagine new possibilities, whereas humans can. Leverage AI tools as a starting point for your creative process, not an end point. It may even be helpful to spend time generating ideas on your own before allowing your imagination to be directed by the AI tools. If you allow yourself to rely too much on AI tools, you may limit your future self from developing the skills (and neural pathways) needed to be creative on your own: generating new ideas, synthesizing existing ideas, writing compelling text, and designing other types of content. Strive for AI to be a partner, not a crutch.
3. **Fact check any claims you included from AI tools, and cite any primary/original sources**. Remember that AI is not magic. AI-generated content is frequently factually incorrect and often misleading because of inherent limitations in how these models are designed and currently work. Of particular note, generative AI systems often "hallucinate" claims and sources that are false or do not exist. Again, do not use AI-generated output as an endpoint.

Speaking of attribution, these ideas were developed in discussion with Dr. Sukrit Venkatagiri at the University of Washington. If you're interested in more reflection on these points, see his article here.

Changes to the syllabus

I am here to help you learn, and I want to make sure we achieve the expected learning outcomes in this course. To do this, I may have to make some changes to the syllabus—for instance, if it becomes clear that we need to spend more time on some topic. I'll do my best to honor the syllabus as is, and I'll be sure to let you know about any changes as far in advance as possible.

Dropping the course

If you are considering whether to continue your enrollment in the course, please refer to the Course Add/Drop Policy and the Course Withdrawal Policy.

Student conduct

Drexel University adopted a student conduct policy requiring that all students have the responsibility to be aware of, and abide by, the University's policies, rules, regulations, and standards of conduct. The Student Conduct and Community Standards policy information is available in the Official Student Handbook.

Appropriate use of course materials

Some of the course materials provided to you may be the intellectual property of Drexel University, the course instructor, or others. Use of this intellectual property is governed by Drexel University policies,

including the Acceptable Use Policy. Briefly, this policy states that course materials, including recordings, provided by the course instructor may not be copied, reproduced, distributed or re-posted. Doing so may be considered a breach of this policy and will be investigated and addressed as possible academic dishonesty, among other potential violations. Improper use of such materials may also constitute a violation of the University's Code of Conduct.

Participating in course evaluations

Student evaluations are a required element of every course. Evaluation forms are completely anonymous. They are confidentially used to make improvements in our curriculum and teaching. They are also used by administration in evaluating faculty performance, and in decisions about promotion, tenure and retention. Please take part in course evaluations.

Time management

Drexel University assumes that each credit-unit requires four hours of work per week (i.e., a 3-unit course means a student will spend about 12 hours per week on that course), including reading, participation and completing assignments. This is a three-credit course. Please plan accordingly.

Support and Recommendations

If you are experiencing anxiety, depression or other challenges

Drexel offers free and confidential support for anxiety-related problems, depression, family concerns, relationship issues, adjustment issues, eating disorders, alcohol- and drug-related problems, and questions about gender and sexual identity, all through the Drexel Counseling Center. The Counseling Center is located at Suite 201 in the Creese Student Center at 3210 Chestnut. The telephone number is (215) 895–1415. **For emergencies, or to reach an on-call counselor after regular business hours, please call (215) 416–3337**. Learn more on the Counseling Center website.

If you need technical support

Get 24/7 technical support for Blackboard Learn from the Instructional Technology group online or by calling (215) 895–1224. For any other technical support (email, logins, etc.), Drexel University IT is here for you. You can contact them through email at consult@drexel.edu, by phone at (215) 895–2020, or by submitting the online Problem Report Form.

Support for equality and diversity

The College of Computing & Informatics commits to creating a positive and safe learning environment for everyone—instructors, professional staff, and students—both inside and outside of the classroom. We embrace the diversity of thoughts, perspectives, and experiences that each community member brings, and we honor everyone's identity (including, but not limited to, race, ethnicity, age, gender, socioeconomic status, sexuality, religion, veteran status, and disability). We encourage each community member to share information regarding pronouns, religious and cultural holidays, accommodations, and any other information that will assist instructors in fostering a supportive and inclusive community environment.

Likewise, Drexel University more broadly strives to promote an environment of equality of opportunity and compliance with university policies and federal, state and local laws prohibiting discrimination. If you have a question or complaint concerning discrimination, harassment, and/or retaliation, contact the Office of Equality and Diversity online or at (215) 895–1405.

Coaching, mentorship and tutoring

The Center for Learning and Academic Success Services (CLASS) serves as the organizing department for a variety of programs and services that promote coaching, peer mentoring and tutoring at Drexel. The Center is located on campus at the Creese Student Center (3210 Chestnut Street), Suite 050.

Campus activities and community

Find the Student Handbook, conduct and community standards, and the Counseling Center at on the Student Life website. Consult this site for information on campus activities and student programs.

English help

The English Language Center offers English language instruction and support services to students, especially those who speak English as a second language. They are located at 229 N. 33rd Street. The telephone number is (215) 895-2022.

If you have a disability or are facing other challenges

The Office of Disability Resources (ODR) team coordinates reasonable accommodations for all Drexel students with disabilities to ensure a level playing field on which they can succeed. ODR can also facilitate temporary adjustments for students with short-term impairments such as those due to accident, injury or illness. If you are a student with a disability, you are encouraged to register with ODR to request reasonable accommodations. This office is here to work with you, so reach out to them for assistance.

For any accommodations to be made, you will need to request a current Accommodations Verification Letter (AVL) in the ClockWork database (if you are new to the system, start by clicking "Online Intake"). These requests are received by ODR, who then issues the AVL to the appropriate contacts, such as professors. For additional information, visit the DR website, reach them by phone at (215) 895–1401 or email at disability@drexel.edu, or visit them in person in Suite 228 in the Main Building.

Free health services

The Student Health Center is located at 3401 Market St, Ste 105. You can call them at (215) 220–4700.

Career counseling

CCI Career Services offers help with job placement, job postings and credentialing. Outside our college, the Steinbright Career Development Center (SDLC) offers individualized career counseling, career fairs, career programs and resume workshops. The office is located at 3201 Arch Street, Suite 250. The telephone number is (215) 895–2185.

Course Schedule

In the schedule below, readings listed should be done before class, and assignments are due at night after class (by the following morning). The textbook is listed as SRP (short for the authors, Sharp, Rogers and Preece). The SRP chapters listed in the table below are from the 2019 or 2023 editions (the numbering is the same). The other readings are:

- Brown, T., & Wyatt, J. (2010). Design thinking for social innovation. *Stanford Social Innovation Review*. https://ssir.org/articles/entry/design_thinking_for_social_innovation
- Microsoft Design. (2016). *Inclusive* [manual]. https://www.microsoft.com/design/inclusive/

Week	Date	Topic	Readings	Assignments
1	**Sep 24**	Introduction to the course	–	–
	Sep 26	Introduction to design	SRP chs. 1 and 2	Goal setting due
2	**Oct 1**	The design mind / Group formation	–	GP0 due
	Oct 3	Research: data gathering	SRP ch. 8	Mini-essay 1 due
3	**Oct 8**	Research: analysis and design insights	SRP chs. 9 and 11	–
	Oct 10	Conversations on GP1	–	GP1 due
4	**Oct 15**	Design principles / Beauty	SRP ch. 3	–
	Oct 17	Accessibility and universal design	Microsoft 2016	Mini-essay 2 due
5	**Oct 22**	Interfaces	SRP ch. 7	–
	Oct 24	Prototyping / Human–AI interaction	SRP ch. 12	GP2 due
6	**Oct 29**	Evaluating designs without users	SRP ch. 14, skim ch. 16	Midterm reflection due
	Oct 31	Evaluating designs with users	SRP ch. 15	–
7	**Nov 5**	*No class meeting – Cast your vote!* 🇺🇸	–	–
	Nov 7	Design critiques in class	–	GP3 Part I due
8	**Nov 12**	Work day and project check-ins	–	–
	Nov 14	Design and social change	Brown and Wyatt 2010	GP3 Part II due
9	**Nov 19**	Ethics and design	–	Mini-essay 3 due
	Nov 21	Design for speculative futures	–	–
9	**Nov 26**	*No class meeting*	–	GP4 due
	Nov 28	*No class meeting – Happy Thanksgiving!*	–	–
10	**Dec 3**	Project presentations	–	GP5 due in class
	Dec 5	Wrap-up	–	–
				Final reflection due by Tue, Dec 10