

Design of Interactive Systems (Info 6II)

College of Computing & Informatics, Drexel University
Course Syllabus, Spring 2019

Cross-listed sections 001 and 900
3675 Market, Room 1103, Wednesdays 6:00–8:50 p.m.

Professor
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Course Overview

This course examines current methods in the design of new interactive systems. Topics address the rationale and practices associated with techniques for assessing and modeling user and organizational needs, exploring design alternatives, communicating and justifying design choices, and prototyping designs. Provides opportunities for both hands-on design work and reflection on theoretical foundation of interactive systems design. INFO 608 is a prerequisite.

Purpose within the program

This course covers concepts and methods used in the design of interactive systems. Students will learn how to apply research, evaluation, and design methods for the creation and testing of interactive systems—grounded in user-centered design. Interactive systems are dynamic and created in social settings, and respond to input from humans, algorithms, sensors, and other sources. We will explore foundations and newest developments in interaction design for home, work and play.

Expected learning outcomes

Upon completion of the course, students should be able to:

- Select an appropriate interactive system design method
- Successfully apply interactive system design methods throughout the system development cycle
- Demonstrate the relationship between design and evaluation methods
- Describe the life cycle of common system design methods
- Select an analysis method that is appropriate for the design method used

Structure

This course has two sections under one roof: one online and asynchronous; and another that meets in person on Wednesdays. The course is organized into weeks, each running Monday to Sunday. Assignments for everyone are due on Sunday by 9:00 p.m. Eastern.

The course makes use of Drexel Learn (a.k.a. Blackboard). There you will find the course materials (additional readings, lecture recordings, etc.). This is also where assignments will be submitted and where, for online students, discussion will take place.

Approach

Taking a class is like buying a gym membership: you won't get results if you don't do the work; and *you* are ultimately responsible for your success. This class, in particular, is collaborative. Much of your learning will

be through interaction with your fellow students. By participating actively, you will learn much more than by passively observing and reading—the more you put in, the more you'll get out of this course.

The course is interdisciplinary and multi-modal. The course will mix reading, designing and writing, along with individual and group activities. People with different backgrounds, specialties and skills will work together in teams. Try to find areas of our course you enjoy most. You may love sketching, while someone else may prefer research. Use that to your advantage in the group project. While you will gain experience in all parts of design, it is just natural that you may enjoy some parts more than others.

Time commitment

Design should be an enjoyable experience—sometimes even fun. However, graduate school can be stressful, and not always so much fun. This is a graduate course in a professional school. It is estimated that the total workload (lectures, readings, assignments, notes, exercises) will take *12 to 15 hours per week*. Be prepared for a serious commitment of attention and effort. It will pay off.

Conscientiously managing your time will help you succeed in and get the most out of this class. Balance your responsibilities for this course against your other obligations, and put together a schedule. If you are feeling overwhelmed, it may help to recall all of the opportunities you will have after completing this, and other HCI/design, courses. Interactive system design is a happening field. Planning ahead is essential. Starting in Week One, check your calendar for the rest of the term. Travel may interfere with your ability to participate in a particular week, and the sooner you communicate with me (and your group members) about any conflicts, the better. Do not wait until the last minute to raise questions or concerns. If you experience an unexpected event, please let me know as soon as possible so arrangements can be made.

Contacting me

Student–instructor interaction is an important part of any course, and I am available to you. I want to help you succeed in this course, in your program at Drexel—and in life. Feel free to contact me with any questions, problems, discoveries, ideas or anything else. My **office hours are Wednesdays from 3 to 5 p.m. in my office, #1118 in 3675 Market**. I am also generally available before class. If you would like to meet another time, email me to set up an appointment.

Feel free to email me at any time. Note, however, that I do not often check email on nights or weekends. In our always-on society, it is important to set boundaries—firstly because healthy lives require off-time, but also because academic activities require uninterrupted periods of time for reading, writing and thinking. I hope you will join me in living with more balance.

Readings, Assignments and Grading

Readings

There is no required textbook for the course. All readings will be available online. Note that course lectures are designed to supplement, not replace, the course readings. To succeed in this course, you will have to do the readings (and sometimes you'll have to read a given text twice to really grasp it).

If you plan to do more work in HCI and design, I would recommend you check out [NNGroup](#) and [MeasuringU](#). These are consulting groups run by HCI researchers, and they publish short articles relevant to our course, and with good insights on how research and design happen in the real world.

Assignments

There are two main assignments in this class: a group design project, and a design journal.

In the group project, you will identify an interesting problem space (Phase I), sketch and explore designs (Phase II), and prototype system ideas (Phase III). You'll develop the project phase by phase, incorporating feedback from your classmates and me as you go along. Consider each submission a portfolio piece and an exercise in design in itself—that is, presentation counts.

Throughout the term, you'll also create a design journal, which should contain at least five entries. Entries are due roughly every two weeks (see schedule below). You will submit your journal entries on Blackboard. (If you'd prefer to handwrite your journal, you may submit scans on Blackboard.) Entries will include a personal design statement, two reflections on the readings, an observation, and an end-of-term reflection on your personal design statement. Full details will be given on an ongoing basis. These journal entries are essentially pass/fail; as long as you include the required elements, complete each entry on time, and show that you've put earnest thought into it, you can expect to receive full points.

I expect your work to be well-written (as befitting a graduate-level course); your grade will consider grammar, readability and spelling in addition to content. If you are interested in improving your writing, I recommend the book *The Sense of Style*, by Steven Pinker.

Discussion

As a student, you will be expected to be present, be prepared and participate each week. You should show professionalism, open-mindedness, reflection, intellectual humility, careful preparation, punctuality, clear communication and, most especially, a willingness to learn. If you will miss a week, please let me know ahead of time. If you are ill or have another compelling reason to be absent for more than a brief period, please notify me as soon as you can.

Face-to-face students (section 001)

At each meeting, we will discuss that week's readings. This means you should have done (i.e., read, taken notes on and spent time thinking about) the required texts. **For each assigned reading, bring a discussion question to the class about that reading.** It may be a clarification question ("I didn't understand *x*! What does it mean?"), but generally I'd like you to bring a question to promote discussion ("What did you all think about *y*? Do you agree with *z*?"). Your attendance and contribution to the discussion each week will suffice for your class participation grade. You do not have to contribute to the online discussion boards, but you are welcome to do so if you want. If you will be absent any week, you can participate in the online discussion instead.

Online students (section 900)

Each week, you will take part in class discussions through the discussion boards on Blackboard, in which you will have the opportunity to discuss the weekly readings and to share related questions or observations with others. Each week, I will post prompts for discussion to get things started. **You should post at least three posts each week—one of these as an original topic question, and two as responses to others' questions.** When you create your original topic, please give it a relevant title (e.g., in the form of a question), rather than something generic like "Smith Week 3 Discussion Topic." You may contribute to each week's discussion at any time during the week; but please do not wait till Sunday night to make your first contribution for the week, as doing so would be inimical to meaningful dialogue. Posts are expected to be substantive. They should reference class readings, including those from previous weeks, and they should incorporate your own analysis and perspective.

Grades

Your course grade is based on a total of 100 possible points. The contribution of each assignment to the final grade is:

Assignment	Percent of Grade
Group project	50%
Journal entries	40%
Class discussion	10%

You can expect to receive grades and feedback within a week of the assignment's due date. Please let me know if you have any questions or concerns. Your final grade for the course is assigned as follows:

A+	98-100%	A – Excellent. Goes above and beyond. Original thinking. Creatively synthesizes class readings and discussions with additional readings, reflections and observations. Strongly supports arguments with evidence and citations.
A	94-98%	
A-	90-94%	
B+	87-90%	B – Good. Demonstrates understanding of the facts and concepts presented in class. Few misapprehensions. Most arguments are well-supported.
B	83-87%	
B-	80-83%	
C+	77-80%	C – Acceptable. Meets most expectations, but some material is misapprehended or ignored.
C	73-77%	
C-	70-73%	
D+	67-70%	D – Poor. Demonstrates faulty understanding of significant portions of course material.
D	60-67%	
F	0-60%	F – Failing. Deep misunderstandings, poor attention.

Policies

Late work

Meeting deadlines is an important professional responsibility; grades for work submitted late without prior authorization will be lowered one full letter grade per week late. Work submitted more than three weeks late will not be accepted. For the final project, late work will not be accepted.

Academic honesty, plagiarism and cheating

You are expected to conduct yourself in a respectful manner as befitting the university environment. This includes academic honesty. In this course, as with any Drexel course, cheating will not be tolerated. This includes plagiarism. Examples of plagiarism include, but are not limited to:

- quoting another person's actual words, complete sentences or paragraphs, or an entire piece of written work without acknowledgment of the source
- using another person's ideas, opinions or theory, even if it is completely paraphrased in one's own words without acknowledgment of the source
- Borrowing facts, statistics or other illustrative materials that are not clearly common knowledge without acknowledgment of the source
- Copying, or allowing another student to copy, a computer file that contains another student's assignment and submitting it, in part or in its entirety, as one's own
- Working together on an assignment, sharing the computer files and programs involved, and then submitting individual copies of the assignment as one's own individual work

All work you submit must be your own work, with sources properly cited. Any plagiarism or other academic dishonesty will result in a sanction that may range from an F on the assignment to an F for the course, depending on the severity of the plagiarism. I am obligated to report incidents of cheating (including plagiarism) to Drexel administration. 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 dishonesty policy at http://www.drexel.edu/provost/policies/academic_dishonesty.asp or to resources regarding Student Conduct and Community Standards at http://www.drexel.edu/studentlife/community_standards/overview/.

If you are keen on avoiding unintentional plagiarism, Drexel Libraries offer several tutorials, which can be found at <http://www.library.drexel.edu/resources/tutorials/plagiarism/plagiarism.html>.

Changes to the syllabus

I reserve the right to make changes to this course or its syllabus during the quarter if circumstances warrant such a change. Topics, readings and dates are subject to change, but only if necessary. Additional topics may be discussed as issues and ideas arise in the news and on the Discussion Board. All changes will be provided to students in writing 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, the Course Withdrawal Policy, or other relevant policy made available by the Office of the Provost at http://www.drexel.edu/provost/policies/course_drop.asp or <http://www.drexel.edu/provost/policies/overview/>.

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 at http://drexel.edu/studentlife/community_standards/studentHandbook/.

Support and Recommendations

Design tools

In this course, students will design systems. There are many design tools available, which range from free to thousands of dollars. Below are some suggestions for free tools, or that students should have access to.

- **Pen and paper** are great design tools, and many designers' go-to, even in our digital world. You may feel free to submit hand-drawn and -written assignments—if you're an online student, you'll have to scan your work, or take a clear and in-focus photo with a digital camera.
- **Bootstrap** is an open-source toolkit for developing with HTML, CSS, and JS
- **Digital presentation software**, including Microsoft PowerPoint, Apple Keynote and Google Slides
- Speaking of Google, **Google Docs** and **Google Drawings** may also come in handy
- **Pencil** is open source prototyping tool—other (paid) prototyping tools include Axure, Balsamiq and Sketch, and you can get a trial license for either
- **Web hosting** is a useful way to publish your work—Drexel offers free hosting at pages.drexel.edu for students; more info at <http://drexel.edu/it/connect/webpage/>

Research assistance

Individualized advising on research and APA citing practice for your papers is available from your CCI librarian Tim Siftar at siftar@drexel.edu.

Technical support

Get 24/7 technical support for Blackboard Learn at <http://www.drexel.edu/irt/help/learn> or by calling (215) 895-1224. For other technical support, Instructional Resources and Technology is the university hub for information and support for online accounts, including email, hardware and software. Please contact the IRT Help Desk through email at consult@drexel.edu, phone at (215) 895-2020, or the online Problem Report Form at <http://www.drexel.edu/irt/help/report-problem/>.

Campus activities and community

Find the Student Handbook, conduct and community standards, and the Counseling Center at <http://drexel.edu/studentlife/>. Consult this site for information on campus activities and student programs.

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. Learn more at http://drexel.edu/studentlife/student_family_resources/class/.

English help

The English Language Center offers English language instruction and support services to students, especially international students. They are located at 229 N. 33rd Street. The telephone number is (215) 895-2022. Learn more at <http://drexel.edu/elc/>.

Support for equality and diversity

Drexel University strives to promote an environment of equality of opportunity and compliance with University policies and federal, state and local laws prohibiting discrimination based upon race, color, religion, gender, marital status, pregnancy, national origin, age, disability and veteran status. Students, faculty, and staff with questions about or complaints concerning discrimination, harassment, and/or retaliation should contact the Office of Equality and Diversity at (215) 895-1405 or <http://www.drexel.edu/oed/>.

If you have a disability or are facing other challenges

Students [requesting accommodations](#) due to a disability at Drexel University need to request a current Accommodations Verification Letter (AVL) in the [ClockWork database](#) before accommodations can be made. These requests are received by Disability Resources (DR), who then issues the AVL to the appropriate contacts. For additional information, visit them at drexel.edu/oed/disabilityResources, or contact DR for more information by phone at (215) 895-1401, or by email at disability@drexel.edu.

Free health services

The Student Health Center is located at the University City Science Center (3401 Market Street), Suite 105B. The telephone number is (215) 220-4700. Learn more at http://drexel.edu/studentaffairs/support_health_services/student_health_center/.

If you are experiencing anxiety, depression or other issues

The Drexel Counseling Center offers free and confidential counseling services provided by mental health professionals to graduate students. The Counseling Center is located at Suite 201 in the Creese Student Center at 3210 Chestnut St. 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 at http://drexel.edu/studentaffairs/support_health_services/cc_ucmc/.

Career counseling

CCI Career Services offers help with job placement, job postings, and credential services: <http://drexel.edu/ci/resources/current-students/career-services/>. More generally, 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. Learn more at <http://www.drexel.edu/scdc/index.html>.

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 the 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.

You will also be invited to take part in a separate, mid-term evaluation of the course. This is especially valuable as it will give me (anonymous!) feedback for improving the course while you are still in it, or for reinforcing the aspects of the course that you find helpful.

Course Schedule

In this course, the weeks run Monday to Sunday. Assignments are due on Sunday at the end of the given week by 9:00 p.m. Eastern. In the schedule below, **J** denotes a Journal Entry, and **GP** denotes the Group Project. Note that the on-campus section meets Wednesday evenings, and all reading should be done prior to class.

Week	Dates (M–Su)	Meeting	Topic	Assignments
1	Apr 1–7	Apr 3	Situating Design	J Design statement
2	Apr 8–14	Apr 10	Contextual Inquiry	
3	Apr 15–21	Apr 19	Things, People and Spaces	J Reflection 1
4	Apr 22–28	Apr 24	Designing with and for Others	GP Phase I
5	Apr 29–May 5	May 1	Prototyping I	
6	May 6–12	–	Prototyping II	J Gesture exercise
7	May 13–19	May 15	Intense Design Week	GP Phase II
8	May 20–26	May 22	Social Interaction: Challenges	J Reflection 2
9	May 27–Jun 2	May 29	Social Interaction: Approaches	
10	Jun 3–9	Jun 5	HCI and Design	GP Phase III J Design statement redux

Week 1 (Apr 1–7)

Course Introduction and Situating Design

Assignment due: Personal Design Statement

Langdon Winner. (1986). Do Artifacts Have Politics? *The whale and the reactor: a search for limits in an age of high technology* (pp. 19–39). Chicago, IL: University of Chicago Press.

Week 2 (Apr 8–14)

Contextual Inquiry (Beyond the Task)

Hugh Beyer and Karen Holtzblatt. (1999). Contextual design. *Interactions* 6(1), 32–42.
Bill Gaver, Tony Dunne, and Elena Pacenti. (1999). Design: Cultural probes. *Interactions* 6(1), 21–29.
Steve Harfield. (2007). On design “problematization”: Theorising differences in designed outcomes. *Design Studies*, 28(2), 159–173.

Week 3 (Apr 15–21)

Designing in a World of Things, People, and Spaces

Assignment due: Journal Reflection I

Scott Klemmer, Björn Hartmann and Leila Takayama. (2006). How bodies matter: Five themes for interaction design. In *Proceedings of the 5th ACM conference on Designing Interactive Systems (DIS 2006)* (pp. 140–149). New York: ACM.

Jacob O. Wobbrock, Meredith Ringel Morris and Andrew D. Wilson. (2009). User-defined gestures for surface computing. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '09)* (pp. 1083–1092). New York: ACM.

Week 4 (Apr 22–28)

Designing with and for Others

Assignment due: Group Project Phase 1

Yann Riche and Wendy Mackay. (2010). PeerCare: Supporting awareness of rhythms and routines for better aging in place. *Computer Supported Cooperative Work*, 19(1), 73–104.

Michael J. Muller. (2002). Participatory design: The third space in HCI. In *The human-computer interaction handbook* (pp. 1051–1068). Hillsdale, NJ: Erlbaum.

Week 5 (Apr 29–May 5)

Prototyping I

Jared Spool. (2012). Goods, bads, and dailies: Lessons for conducting great critiques. Available at https://articles.uiie.com/great_critiques/

Steven P. Dow et al. (2010). Parallel prototyping leads to better design results, more divergence, and increased self-efficacy. *Transactions on Computer–Human Interaction*, 11(4), Article 18.

Week 6 (May 6–12)

Prototyping II

Note: No face-to-face meeting this week

Assignment due: Gesture Exercise

Christopher A. Le Dantec et al. (2010). A tale of two publics: democratizing design at the margins. In *Proceedings of the 8th ACM Conference on Designing Interactive Systems (DIS '10)* (pp. 11–20). New York: ACM.

Kristian T. Simsarian. (2003). Take it to the next stage: The roles of role playing in the design process. In *CHI '03 Extended Abstracts on Human Factors in Computing Systems (CHI EA '03)* (pp. 1012–1013). New York: ACM.

Week 7 (May 13–19)

Intense Design Week

Assignment due: Group Project Phase II

Ethan Marcotte. (2010). Responsive web design. *A List Apart*. Available at <https://alistapart.com/article/responsive-web-design>

Week 8 (May 20–26)

Designing for Social Interaction: Challenges

Assignment due: Journal Reflection 2

Jonathan Grudin. (1994). Groupware and social dynamics: Eight challenges for developers. *Communications of the ACM*, 37(1), 92-105.

Mark S. Ackerman. (2000). The intellectual challenge of CSCW: The gap between social requirements and technical feasibility. *Human-Computer Interaction*, 15(2), 179-203.

Week 9 (May 27–Jun 2)

Designing for Social Interaction: Approaches

Thomas Erickson. (2011). Social computing. In *The encyclopedia of human-computer interaction* (2nd ed). Retrieved from <https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/social-computing>

Thomas Erickson and Wendy A. Kellogg. (2000). Social translucence: an approach to designing systems that support social processes. *Transactions on Computer-Human Interaction*, 7(1), 59-83.

Eric Gilbert. (2012). Designing social translucence over social networks. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12)* (pp. 2731-2740). New York: ACM.

Week 10 (Jun 3–9)

HCI and Design

Assignment due: Group Project Phase III, Personal Design Statement redux

Paul Dourish. (2006). Implications for design. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '06)* (pp. 541-550). New York: ACM.