

SYLLABUS FOR CSCI 5980 / 8980 DESIGN METHODS FOR COMPUTER SCIENTISTS

What: CSCI 5980 / 8990: Design Methods for Computer Scientists

When: Spring 2015, 2:30 – 3:45 PM, Mon and Wed

Where: KHKH 3-125

Course Instructor

Instructor: [Dr. Lana Yarosh](#)

Address me as: Professor Lana

Contact me: lanea@umn.edu or by following my “[Contact Me](#)” instructions

Office hours: Keller 5-187 4:30–6:00 PM Mon–Fri ([instructions and exceptions are posted online](#))

Course Goals and Overview

In this course, you will apply the principles of human-centered computing and design to address real-world challenges faced by people and groups. You will learn and demonstrate mastery in three phases of design: (1) investigating the needs of target stakeholders, (2) charting the solution space through ideation and visual exploration, and (3) rapidly prototyping and iterating on solutions. Finally, you will acquire significant practice in the skills of independent research, presentation, and critique by implementing and evaluating peer tutorial sessions.

Required Course Materials

There is no required textbook for this class and all readings will be available for free online. However, you are advised to reserve \$250 for course materials. These course materials may include supplies like Arduino kits and other similar parts for your design projects or peer tutorial presentations. One goal of this policy is to help you retain full intellectual property rights for any commercially viable projects created during this course.

Course Expectations and Grading

For this course, you will be expected to demonstrate your mastery of the course material through in-class participation and the course project. There will be no exams, however I reserve the right to administer unannounced quizzes on assigned readings. The following will determine your grade:

- **In-Class Participant Components (35% total):**
 - *Participation in Class Discussion (10%).* You are expected to be prepared for and contribute to class discussion. This portion may include unannounced quizzes testing that you have read the assigned reading for this class.
 - *Participation in Class Critique (10%).* You will be expected to provide written and oral feedback to your classmates as they present their project milestones and teaching presentations. Your critique feedback will be evaluated both on content and delivery. I reserve the right to involve the recipient of the critique in evaluating its contribution.
 - *Peer Teaching Presentation (10%).* You will pick a topic relevant to the course and sign up for a teaching slot to present a tutorial on this topic to the rest of the class. Your grade will be based on my evaluation and student critique.
 - *Attendance (5%).* Each unexcused absence will lower your grade by 1% (up to 5%). Discuss any expected absences with me *before* you miss class. Otherwise, I will follow [University policy on legitimate absences](#).
- **Course Project (65% total):**
 - *Milestone 0:* You will present a project proposal to the class or join another presenter’s team.
 - *Milestone 1 (15%):* You will reach out to stakeholders to understand their motivations and goals and read about others’ formative work in this space. You will present your results to the class as “Implications for Design.”

- *Milestone 2 (15%):* You will practice divergent thinking, generating many possible ideas for technology in your target space. You will present your process and your best ideas to the class.
- *Milestone 3 (15%):* You rapidly prototype two or more variations of your ideas. You will present your prototypes to the class.
- *Milestone 4 (5%):* You will create a short video explaining your project to the world.
- *(5980 Students Only) Teammate Evaluation (10%):* Your teammates will evaluate your contribution to the project.
- *(8980 Students Only) Publication-Quality Submission (10%):* You will be expected describe the process and results of the class project as a publication-quality extended abstract or paper. You are encouraged (but not required) to submit to a conference in your field.
- *Maintaining a Design Resource Notebook (5%):* You will be expected to practice the habit of keeping a design resource notebook (digital, physical, or both) to collect articles, images, videos, etc. that may be relevant to your project. This notebook is expected to contain 15 – 25 items by week 7 of the course and 30 – 50 items by the end of the semester.

The course is not graded on a curve. The nominal scale awards an A or A- for 90% and better, B+, B, or B- for 80% and better, etc. That scale may be adjusted to lower numerical cut-offs if warranted, but will not be raised.

5980 Versus 8980 Expectations

This course may be taken as 5980 or 8980. The following are the expected differences in policies:

- Course project evaluations for 5980 students will include a “Teammate Evaluation” component
- Course project evaluations for 8980 students will include a “Publication-Quality Paper” component

In general, graduate students taking 8980 are expected to demonstrate a greater level of intellectual maturity and course material mastery in both the course project and the class participation.

Course Schedule

The following is a preliminary course schedule and I reserve the right to change the schedule to better serve the course learning objectives. The readings and deliverables in each row must be completed *prior* to that class meeting.

Date	Lecture Topic	Other	Readings	Deliverables
1/21	Intro to the Course and Project		SV's Youth Problem	
1/26	Basics of Critique	New idea (m0) critique		New Idea (m0)
1/28	Ethnographies and Interviews		Seidman	
2/2	Design Notebook	(m0) critique PT: Video Editing		(m0)
2/4	HCI and the Probes Participatory Design Research	PT: IRB	Cultural Probes Methodology Of PD	
2/9	Creating a Study Protocol	Lit review critique	Example Protocol	Lit review
2/11	Protocol Troubleshooting	Protocol critique		Study protocol
2/16	Analysis		Analysis Reading	
2/18	Scenarios and Personas		Scenrios; Prsonas	
2/23	Milestone 1 troubleshooting	PT: Atlas.TI		
2/25	-----	(m1) critique		(m1)
3/2	Generating Ideas	PT: Drop Box API	Harmful? IDEO Vid.	
3/4	Idea Selection Process	Notebook critique		Resource notebook
3/9	Sketching Like You Mean It	PT: Mobile APIs	1 Image; Vis. Narat.	
3/11	Cheating Like You Sketched It	PT: Google APIs	Traces	
3/16	Spring Break, no class			
3/18	Spring Break, no class			
3/23	Paper and Lo-Fi Prototyping	PT: WebRTC	Guide; PowerPoint	

3/25	-----	(m2) critique		(m2)
3/30	Using What You Know	PT: Scrape & GreaseM	Bricolage	
4/1	Arduino Basics Tutorial	PT: Sketch Project work day	Arduino Guide	
4/6	-----	PT: LittleBits PT: eTextiles PT: MicroView		
4/8	Laser-Cutting and 3D printing – Field trip to DigiFab facilities	PT: 3D Modeling		
4/13	Wizard-of-Oz Strategies	PT: Intel IoT	Wiz of Oz	
4/15	-----	PT: Raspberry Pi PT: HP Sprout PC PT: Facebook API		
4/20	Guest Lecture – Justin Porter	PT: Electronics Basics		
4/22	-----	PT: Sensors + Fun PT: IKEA Hacking PT: Quick Start Web		
4/27	-----	(m3) critique		(m3)
4/29	Guerrilla evaluation	Notebook critique	Tohidi	Resource notebook
5/4	Stretch topics: critical design, value sensitive design		TBD	
5/6	Last class celebration	m4 viewing		(m4)
5/11	-----			8980 paper

Standard Policies

This course follows the standard University of Minnesota policy on each of the issues below, please refer to the linked policy for more information:

- [Use of personal electronic devices in the classroom](#)
- [Student conduct code](#)
- [Scholastic dishonesty](#)
- [Makeup work for legitimate absences](#)
- [Appropriate student use of class notes and course materials](#)
- [Grading and transcripts](#)
- [Sexual harassment](#)
- [Equity, diversity, equal opportunity, and affirmative action](#)
- [Disability accommodations](#)
- [Mental health and stress management](#)

If you have questions or concerns regarding any of the above policy, please let me know.

Academic Freedom and Responsibility

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom and conduct relevant research. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled. When conducting research, pertinent institutional approvals must be obtained and the research must be consistent with University policies.

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college, or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.

