CS 184: Bridging policy & tech through design Spring 2020

Teaching Staff
Jeffrey Ullman (CS Professor/Project Mentor) -- ullman@gmail.com
Constanza Hasselmann (Head CA)-- cbh21@stanford.edu
Janna Huang (TA/Project Mentor) -- jhuang7@stanford.edu
Jasmine Sun (CA, curriculum) -- jasminesun@stanford.edu
Julia Meltzer (CA, partnerships) -- jnmeltzer@stanford.edu

Overview
Welcome to **Bridging Policy & Tech Through Design**! This project-based course aims to bring together students from computer science and the social sciences to work with external partner organizations at the nexus of digital technology and public policy. Students will collaborate in interdisciplinary teams on a problem-space co-created with the partner organization. Along with the guidance of faculty mentors and the teaching staff, students will produce a set of deliverables ranging from policy memos and white papers, to data visualizations and software. We hope to create an environment for a vibrant and interdisciplinary community of students, faculty, and external partners.

Course Structure
Each week, students will have the opportunity to work on their projects, give and receive constructive feedback, and talk with project mentors. Course meetings will include:
- **Weekly Project Development Sessions**: This is a time for students to work on their group projects, hear from guest lecturers, and learn through workshops. Students will also give a mid-quarter presentation and a final presentation on the development of their projects to the rest of class.
- **Weekly Mentor/Partner Org Meetings**: These meetings will serve as check-ins on students' projects to guide them through the design-thinking process, from brainstorming to prototyping to presenting their project. We also encourage students to meet as a team to move their project along.

Potential Partner Organizations
Students can partner with partner organizations at the nexus of technology and government, such as:

- Southern Poverty Law Center
- California Health and Human Services
- Facebook
- Listen4Good
- Paradigm Initiative
- Cyber Peace Institute
- San Francisco Public Libraries
- Formally

Deliverables/Assignments

Project Proposal

> A one page document about the general area of interest for the project/problem, vision, and some ideas for solutions.

Research Report

> A 4-5 page document describing what the team did, the data they used, their methodology and their conclusions. If appropriate, include ideas for future work or ways in which a stronger study could be carried out. Graded on demonstration of understanding of the problem, details of existing solutions and thoroughness. Can include questions to ask in interviews to stakeholders.

Prototype + Midterm Presentation

> A technical prototype backed with research data and political science expertise. The prototype could be code that extracts data from a dataset for use in the project, a web app, mobile app, or digital service.

Final Presentation

> A pitch deck and presentation of the prototype demo to the rest of the class, as well as an audience of experts

Attendance Policy

Students are expected to attend all of the weekly Project Development Sessions, including for the midterm and final presentations slotted during that time.

Resources

- The teaching staff is available to help with any questions or concerns you may have - feel free to reach out at any point in the quarter! Emails can be found on page one of this document.

- We have a **Piazza** page, **class website** and course Canvas that we will use for project ideas, announcements, and is also a space for students to pose any questions they may have.
- We will also setup a website for course information and to showcase student projects.

The Honor Code

We will be following the policies and expectations of the Stanford Computer Science Department. That being said:

- The Honor Code is an undertaking of the students, individually and collectively:
  - that they will not give or receive aid in examinations; that they will not give or receive unpermitted aid in class work, in the preparation of reports, or in any other work that is to be used by the instructor as the basis of grading;
  - that they will do their share and take an active part in seeing to it that others as well as themselves uphold the spirit and letter of the Honor Code.
- The faculty on its part manifests its confidence in the honor of its students by refraining from proctoring examinations and from taking unusual and unreasonable precautions to prevent the forms of dishonesty mentioned above. The faculty will also avoid, as far as practicable, academic procedures that create temptations to violate the Honor Code.
- While the faculty alone has the right and obligation to set academic requirements, the students and faculty will work together to establish optimal conditions for honorable academic work.

Curriculum (Long)

Week One: What is PIT?

Before class:
- Read: Transitioning from big tech to local government (Interview with Katherine Phan, *Coding It Forward*, 2019)

20m [discussion]: Introductions (teaching team and students and projects)

20m: What is Public Interest Tech?
- 10m [discussion]: Students present definitions and associations; teachers mind map on board
- 10m [presentation]: Present definitions of PIT
  - [Mapping the public interest technology landscape](#) (Sara Hudson, *New America*, 2018)
  - [Taxonomy of civic tech](#) (Matt Stempeck, *Microsoft*, 2016)

20m: Public vs. Private Sector Values
- 10m [discussion]: What might be different about working in a public interest organization vs. a tech company?
- 10m [activity]: DCSL activity: core values and social contract. How do these values translate into your responsibility as a technologist?

20m [activity]: Haas Center workshop on ethical and effective service in PIT
- [Principles of Ethical and Effective Service](#) (Haas Center for Public Service, 2019)

Week Two: Technology/Data Ethics

Before class:
- [Chapter 3: The Five Cs](#) (Mike Loukides, Hilary Mason, DJ Patil, in *Ethics and Data Science*, 2018)
- [Data Ethics Workbook](#) (UK Department for Digital, Culture, Media & Sport, 2018)

20m: 8 risk zones for technology
- 10m [presentation]: Present "Tool 2: Risk Zones" in PowerPoint [Anticipating the future impact of today's technology](#) (Ethical OS, 2018)
- 10m [discussion]: Which risk zones are relevant to your project? What can you do to ensure your work avoids risks?

20m [presentation]: How to work with data you don't understand

40m [activity]: Work in project teams to identify your data challenges.
- How well do I understand the data I've been given by my partner?
- Is there any data I need from them that I do not already have?
- Discuss each section in the UK Data Ethics Workbook. Highlight questions that you don't know how to answer, or need support with.

Based on the above, list the tasks your team needs to complete to begin working with data ethically and effectively.

Week Three: Human-Centered Design

Before class:
- Watch video: <u>What is Human-Centered Design?</u> (IDEO, 2015)
- Browse: <u>IDEO toolkit methods</u> (IDEO)
- Read: <u>Case Study: The most empowering tool for hurricane recovery</u> (Denice Ross, *Slate*, 2017)

15m [presentation]: Recap human-centered design.
- 10m [presentation]: What is HCD and the 3-step process?
- 5m [discussion]: Why is it important in the PIT context?

25m [discussion]: Recall the hurricane recovery case study (ideally printed for students) and the IDEO design thinking methods.
- <u>Inspiration</u>: Who were the relevant stakeholders? What were their unique needs? What design thinking methods might help explore these problem areas? (E.g. group interview, guided tour, etc.)
- <u>Ideation</u>: What solutions (technological and not) were tested? Pick one, and sketch a journey map on a sheet of paper.
- <u>Implementation</u>: How were the solutions implemented? How could you test the effectiveness of these solutions? How might you find opportunities for growth? (E.g. live prototype, capabilities quicksheet, etc.)

20m [activity]: One of the key elements of HCD is having empathy for the user, their journey, and their emotions. Let's practice thinking through the user journey of a technological tool.
- Pick a phone app that you are familiar with, and fill out/discuss this worksheet:
  <u>Humane Design Guide</u> (Center for Humane Technology, 2019)

Especially if you are designing a service -- as opposed to conducting research -- you will need to ask yourself similar questions during the design process.

20m [discussion]: Consider how HCD might play a role in your project. Which design thinking methods will be relevant? How can HCD support your core values?

Week Five: Midterm Presentations

Week Ten: Final Presentations

Curriculum during weeks 4 and 6-9 will be determined by project needs and progress, which may include visits from guest speakers in relevant roles.

Curriculum (Short)

Week One: What is PIT?

Before class:
- Read: [Transitioning from big tech to local government](#) (Interview with Katherine Phan, *Coding It Forward*, 2019)

Agenda topics:
- Introductions
- What is public interest technology?
- Public vs. private sector values
- Ethical and effective service in PIT

Week Two: Technology/Data Ethics

Before class:
- Read: [Chapter 3: The Five Cs](#) (Mike Loukides, Hilary Mason, DJ Patil, in *Ethics and Data Science*, 2018)
- Read: [Data Ethics Workbook](#) (UK Department for Digital, Culture, Media & Sport, 2018)

Agenda topics:
- Project assignments
- 8 risk zones for technology
- How to work with data you don't understand
- Work in project teams to identify your data challenges

Week Three: Human-Centered Design

Before class:
- Watch video: [What is Human-Centered Design?](#) (IDEO, 2015)

- Browse: [IDEO toolkit methods](IDEO) (IDEO)
- Read: [Case Study: The most empowering tool for hurricane recovery](#) (Denice Ross, *Slate*, 2017)

Agenda topics:
- Recap of human-centered design
- Hurricane recovery case study
- User journey activity
- Human-centered design in your project

Week Five: Midterm Presentations

Week Ten: Final Presentations

Curriculum during weeks 4 and 6-9 will be determined by project needs and progress, which may include visits from guest speakers in relevant roles.