Reimagining Mobility:
Design Exploration & Research

UC Berkeley | Fall 2017 | DES INV 190-1/ME 292B | 3 units

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Introduction

In *Reimagining Mobility,* a two-semester sequence of project-based courses, you will envision meaningful interactions between people and different transportation modalities, addressing elements such as car sharing, public transportation, autonomous driving, and more. We will look 10-15 years into the future with a human-centered approach and with the primary goal of creating better customer experiences, exploring what consumers will want and need in tomorrow's transportation ecosystem. We will use various design and innovation methodologies to attempt to gain insight into opportunities in important new areas of potential growth, and may design solutions in the areas of connectivity, assistive technology, accessibility, automation, big data analytics and customer experience. Throughout the course, you will receive feedback from mentors from the Ford Research and Innovation Center.

Course Sequence

This first-semester course - *Reimagining Mobility: Design Exploration and Research* - will focus on the early stages of the design process, including problem framing and user research. We will aim to learn what customers will want and need in future transportation ecosystems, and the themes of innovation, strategy, storytelling, and experience will be explored. You will learn the iterative process of design, the "synthesis driver" for the project. You will learn how to uncover areas for design exploration, develop empathy for end-users, how to frame and structure problems, design and develop concepts, prototype a solution, gather user feedback, and iteratively refine your idea into final presentations for executives at Ford. The follow-on course in the spring - *Reimagining Mobility: Design Development and Delivery* - will focus much more deeply on the latter stages: proposing solutions, refining your concepts, prototyping at low to high-fidelity, and developing your conceptual explorations into tangible design expressions.

Course Objectives

- Conduct a human-centered design process from a project's early stage to concepts
- Gain first-hand experience in applying the design process to create innovative results
- Understand and employ key qualitative processes and methods used in design research
- Increase confidence in ability to design effective solutions

- Explore, define and conceptualize innovative solutions regarding tomorrow's transportation ecosystem
- Employ effective storytelling and presentation skills to communicate research findings and concepts

Active Participation & Course Structure

This course is highly experiential and will require active participation from all students. Some work will be completed individually, while most will be done in teams. Depending on course flow, you may have the opportunity to work with multiple teams, encouraging greater collaboration and providing a richer learning experience.

The structure of this design course is substantially different from a lecture format course, more closely approximating a fast-paced, collaborative, project-based studio experience through which you will become a much more empathetic designer, able to visualize, create, present and evaluate your ideas. We will have time devoted to lecture, discussion, practice activities, studio time, and critique of work.

Enrollment

This course is for upper division undergraduate students and master's degree candidates. Because of the hands-on nature of this course, there is a strict capacity limit of 30 students. A waitlist will be used to ensure that the class fills to capacity. You must attend the first session to be considered for the class.

Prerequisites

Having prior experience with design is desirable.

Required Texts

There is no required textbook, but recommended media:

- *IDEO's Human Centered Design Toolkit*
- *Frog's Collective Action Toolkit*
- *Universal Methods of Design* by Bella Martin and Bruce Hanington
- *101 Design Methods* by Vijay Kumar
- *Creative Workshop* by David Sherwin
- *100 Things Every Designer Should Know About People* by Susan Weinschenk
- *Service Design Tools:* http://www.servicedesigntools.org/
- *MakeTools:* http://www.maketools.com/index.html
- *AC4D Content Library:* http://library.ac4d.com

Materials

- Sketchbook 8.5 x 11" – preferably 100 pages, 65 lb. paper, hardbound
- Sharpies – "normal size", not thin point or thick
- Sticky notes in yellow, green, red and blue
- Pens, pencils, markers (a grey + yellow or blue copic marker is great!)
- 5x8 blank index cards
- Various materials for prototyping concepts, may vary per team

Documenting Your Process

You will each be required to document your process throughout the semester – you can use a blog, your sketch book or a shared digital folder. Documenting your process is not only an essential habit, but can be a valuable tool for tracking ideas that never fully materialize. You should record your working process in the form of research, sketches, photos, frameworks, designs and anything that inspires your work. In addition to your final presentation, you will turn in your process documentation, which clearly articulates and displays your journey throughout the semester.

Grading and Evaluation

The work in this course will be evaluated according to the criteria below.

Grading Breakdown

Project Work:	**60%**
Participation in teamwork:	*10%*
Research Report(s):	*25%*
Final Project Presentation:	*25%*
Attendance and Class Participation:	**20%**
Assignments & Process Documentation:	**10%**
Personal Growth:	**10%**

Your work will be evaluated on:

1. Project work

This includes contributions on projects, quality of work in class, and on assignments.

2. Final presentations

Final presentation documents, project appendix, and verbal presentations given during class. These presentations are the culmination of project work. It is expected that you show attention to detail, show valuable research turned into deep insights, and subject matter expertise during these presentations.

3. Attendance, Participation & Attitude

This is general attendance, involvement in discussions and group work, motivation, and being fully and meaningfully prepared for each class and critique. You are expected to have carefully considered work that shows progress and thoughtful consideration, and the incorporation of previous student, studio, and instructor discussions and lessons.

4. Process

It is expected that you will show a breadth of ideas generated and explored, evidence of steady progress shown through sketches, notes, etc., and that your ideas are thoroughly evaluated and clearly used to inform steps taken in development and refinement stages. This will be followed in your process documentation.

5. Personal Growth

In addition, final course evaluations will take into account individual growth and progress as a student and designer. This consideration will be most useful in grading situations that are on the borderline.

Grading Rubric

	Excellent (3)	Good (2)	Needs Improvement (1)	Unacceptable (0)
Process				
Idea Generation & Variation:	breadth and depth of ideas generated and	the required amount of ideas are	a few ideas are generated	a single idea is typically generated
Evidence of Progress:	evidence of steady progress shown	some sporadic evidence of progress is	little evidence of progress is shown	evidence of any progress is difficult to
Concept Evaluation:	ideas are thoroughly evaluated	ideas are evaluated	ideas appear to be occasionally evaluated	evaluation of ideas isn't evident
Process Informs Refinement:	process is clearly used to inform steps	idea evaluation is loosely connected to	connection between process work and	connection of process work to the
Work				
Project Requirements Addressed:	consistently high quality work is generated	good quality work is created that	the minimal amount of work is generated	poor quality work is repeatedly generated
Craftsmanship:	craftsmanship is stellar	craftsmanship is good	craftsmanship is fair	craftsmanship is poor
Communication of Ideas &	ideas are communicated clearly in visual	visual and verbal communication of ideas	visual and verbal communication of idea	ideas communicated using visual and
Demonstration of Course Concepts:	understanding of key course concepts is	understanding of most course concepts is	basic grasp of some course concepts is	grasp of key concepts isn't evident in work
Participation & Attitude				
Constructive Criticism:	constructive criticism is often given	constructive criticism is occasionally given	constructive criticism is seldom given	constructive criticism is typically not given
Class Contribution:	appropriate and valuable contributions to	contributions to critiques and discussions	contributions to critiques & discussions	contributions to critiques and discussions
Attitude:	attitude is consistently positive	attitude is usually positive	attitude is sometimes negative	attitude is often negative
Commitment & Punctuality:	commitment to the project, instructor,	commitment to the project, instructor,	occasional lack of commitment to the	lack of a commitment to the project,
Total Score	0			
Simple Rubric Point Conversion				
A = 32 - 36 (Excellent)				
B = 27 - 31 (Good)				
C = 22 - 26 (Needs Improvement)				
R = 0 - 21 (Unacceptable)				

Course Principles

Here are good principles for all of us to remember as we progress through the semester.

1. Iterate, Iterate, Iterate
The best projects do not emerge fully formed at once or in the final days. They are a constant series of sprints, each one yielding a new understanding. Each session is designed to help you push further and further progressively. Don't wait for the perfect idea. Start somewhere.

2. Share
We are all equally great resources for one another. Many of the exercises we engage in each week will thrive on your sharing of inspiration and ideas for one another. Ask for help from your peers. Share your ideas liberally. If we are all open source, it will pay each of us back in dividends.

3. Give and Take Feedback Freely
We are all the best source of feedback for one another. Ask for it and give it with the goal of making everyone's work the best it can be.

4. Be Resourceful
Your project will no doubt emerge from a myriad of sources. Seek out the parts, knowledge, and resources you will need to make your project. There is a way to find what you need if you put a little work into it.

5. Be Visionary
We are embarking on an exploration of a space that the global community of designers, makers and coders has only begun to reveal. What you do this semester could change the world. Be daring.

6. Push Yourself
You no doubt will run into a moment where you lack a skillset or expertise that is critical to the success of your project. Ask around, but don't wait. Dive in and learn by doing. It's the only way.

7. Have Fun
At the end of the semester, you will no doubt be exhausted, but you will look back on it with an enthusiasm for the opportunities these new discoveries have laid out for you. Enjoy it!

Attendance Policy

This is a studio class that meets one time per week, and as such, students must be present in the classroom for the entire class period for each scheduled meeting of the semester. Students are expected to arrive on time for class and remain in class for the entire period scheduled. The responsibility for any work missed due to any type of absence rests with the student. Two unexcused absences will result in a student failing this class. Being late three times (more than 15 minutes) is equivalent to one unexcused absence.

You are expected to inform your instructor of any absence by 3pm on the day of the class, and be sure to work out a contingency plan with your teammates.

User Research Policy

You may NOT interview any students currently enrolled at Berkeley for your research on this project (at least, they will not count towards your required number of interviews).

Calendar **subject to change

Week	Topic	Assignments, due the following week	Readings
1: 8/24	Intro + Project Kickoff, Market landscape	+ Conduct secondary research, ecosystem map + In pairs, draft research objective, research plan & discussion guide	+ A new way to listen, Young + Interviews + Little book of design research ethics, IDEO
2: 8/31	Market landscape, Conducting user research	+ Conduct 8-10 contextual interviews + Summaries of each interview (see provided example)	+ Methods in the making, Hanington + Clarity fuzzy front end, Rhea
3: 9/7	Synthesis + Modeling research, + Guest	+ Research synthesis + Continue conducting additional interviews as needed	+ Personas, Cooper + Service blueprinting, Bitner + Experience maps, @UXLady
4: 9/14	Personas + Insights + Opportunity framing	+ Develop research report #1, which includes insights, personas, relevant diagrams, compelling POV and HMW statements	+ Abductive Thinking, Kolko + How to find the best insights
5: 9/21	**Research presentations**	+ Identify and recruit team + Develop work plan for next steps + Ideation assignment	+ Generative, Sanders
6: 9/28	Ideation and concept focus-areas	+ Develop plan for generative research on focus-area + Be prepared to pilot method in class next week	+ Analysis, Sanders
7: 10/5	Conducting generative research	+ Conduct generative research with 5-8 people	+ The product design sprint
8: 10/12	Synthesis + ideation	+ Develop research report #2, which includes generative research synthesis and implications for concept area + Storyboard 3-5 prototypes	+ User research tools options + Speed dating methods
9: 10/19	**Research presentation #2 + storyboards**	+ Take storyboards and collect feedback with 5-8 people + Taking into account feedback, select one concept and begin low-fidelity prototyping (e.g. paper prototype)	+ Design research & innovation, Norman
10: 10/26	**Prototype development**	+ Continue prototype development	+ User testing guide, MAYA
11: 11/2	User feedback on prototype	+ Collect prototype feedback with 5-8 people	+ Making usability findings actionable
12: 11/9	Refine prototype	+ Develop higher-level prototype taking into account user feedback	+ Four Truths of the Storyteller
13: 11/16	Refine prototype + user feedback	+ Refine prototype + Collect higher-fidelity prototype feedback with 5-8 people	+ Resonate, Room to improve
14: 11/23	**Holiday – No Class**		
15: 11/30	Final project refinement and final research report	+ Create final research report, which contains all user learnings from the semester (adding your evaluative research findings from 10/19 – now) + Create final presentation for Ford	
16: 12/4 - 8	**Final Presentations + design showcase**	+ Final presentations **Exact date and time TBD**	