Introduction to Human-Centered Design and Innovation

Course # IEME E4200
Fall Semester 2018, first half (A Term), 6 consecutive Fridays
September 17 – October 19, 2018, [9:00 am- 2:30pm]
1.5 credits, 1-3 hours team-based homework assigned per session
Class will meet in Room TBD

Students are strongly encouraged to attend Columbia Maker Space safety training in advance of the class.

About
Today design has emerged as a key differentiator among the most valuable brands, products, and services in the world. The reason for this is customers, consumers, constituents, employees - the users - are now in control. Users are more discerning, they have more choices and are more comfortable exercising their choice. Users are demanding that their products and services work for them in the fullest sense: that their total experience is as good as it can be. Companies, other organizations and even governments are finding that they have to address the demands of their users and do so with an unaccustomed urgency. If they do not, their users will exercise their choices and change brand, change behavior, or even change their government.

Human-Centered Design is an approach that puts the customer, consumer, citizen or employee at the center of the process and designs around them rather than asking human beings to adapt to technological, process, tradition or other constraints. By putting the customer at the center of the enterprise, you establish a shared meaning that brings teams together and guides their work. Human-centered design teams develop better products and services which are more likely to succeed.

The design challenge will be to work as a team to explore scenarios for how new markets will evolve over the next 5 years as a result of a new technology, and then develop a vision for a product or service to serve that new market. You will then backcast from your vision to an MVP (minimum viable product) you could launch within 6-12 months. Final presentations will include a prototype MVP. Over the course of six weeks you will learn human-centered design techniques to help you do this. An example of a scenario is the impact of autonomous vehicles on urban infrastructure. Scenarios may be provided by an industry partner or by the instructors.

Each class will meet for 4.5 hours divided into three 1.5 hour blocks with one 15-minute break and one 1-hour working lunch period, during which teams may have class activities to do together. Students will be expected to attend all parts of all sessions and participate in team activities, presentations, sharing and critique. Outside of class, each week there will be reading and homework assignments, as well as group project work.

This class is open to graduate students, as well as advanced undergraduate students, with permission of instructor. Students must apply for entry into the course. Undergraduate students may not take this course Pass/Fail.

Class Schedule, Topics and Assignments

September 14 – Session 1 – Framing Design – Lead Instructor: Turi McKinley

• Introduction to Human-Centered Design
• Ethnographic research
• Reframing and creating a well posed problem
• Introduction to working in a group
• Immersion in a single-day design challenge from ideation to prototyping (reinvent a common item)

Homework
• Conduct human centered design research with the prototypes developed in class. Summarize that research and use it to frame an interesting area for design.
  o Post results to course site. (2-4 slide deck + prototype revision to show in next class)
  o Student homework must be posted to the course site by 7am on day of the course to receive credit.
• Watch - Design Thinking: https://www.lynda.com/Creativity-tutorials/Welcome/433738/462405-4.html
• Reading Assignment - Harry West, A Chain of Innovation

September 21 – Session 2 – Understanding the Human in Human Centered Design – Lead Instructor: Turi McKinley
• Present your revised concept and learnings from design research (no more than 5 minutes)
• Journey Maps
• Archetypes
• Ecosystems
• Scenario planning and Territories
• Immersion in the course design challenge

Homework
• Take refined territories and initial concepts areas from class and return to potential users to define the user’s journey today and develop at least 2 archetypes of users.
  o Post results to course site. (4-6 slide deck)
  o Student homework must be posted to the course site by 7am on day of the course to receive credit.
• Reading Assignment - Chris Bangle, How BMW turns Art into Profit, HBR - https://hbr.org/2001/01/how-bmw-turns-art-into-profit

September 28 – Session 3 – Prototyping and Iteration – Lead Instructor: Turi McKinley
• Share your journeys and concept areas. (no more than 10 minutes)
• Prototype to learn
• Refining journeys, archetypes, ecosystems and territories
• Application of theory to the course design challenge

Homework
• It’s time to prototype your concept. Spend time between the classes creating and testing your prototype with potential users.
  o Bring your prototype to share in class. (Format will vary – recommended formats include: physical prototype; paper wireframes and flows; digital prototype using a tool like Sketch; <30 sec video of a performance of your concept experience)
  o Student homework must be posted to the course site by 7am on day of the course to receive credit.
• Reading Assignment - Roger Martin, The Design of Business

October 5 – Session 4 – Evaluation and Refinement + Working Session
• Prioritization and evaluation
• Application of theory to the course design challenge
• Team working session on prototypes and presentations
• Scheduled team check-ins with TAs
Homework

• Make a video of at least one user test of your prototype and come to class ready to discuss what you learned in that test.
  o Post to course site. (up to 1 minute video focused on someone using and reacting to your prototype; option to create a up to 30 sec explanatory video for your concept)
  o Student homework must be posted to the course site by 7am on day of the course to receive credit.

Please note: Teams should convene at the classroom at the start of the day for lecture. After the lecture, teams will continue to work, though they may choose to work elsewhere. Each team should schedule a time toward the end of the class to meet with the course TA to get feedback on draft presentations and prototypes.

October 12 – Session 5 – Venture Design – Lead Instructor: Ethan Imboden

• Show video of test and prototype and pitch your idea as a business (No more than 5 slides, and no more than 10 minutes)
• Exploitative vs. explorative business
• Venture design
• Pitching
• Application of theory to the course design challenge

Homework

• Prepare and practice your final pitch, and refine your prototype for the final presentation.
• Record one practice pitch on video and post to the course site.
  o Your final pitch should be no longer than 10 minutes, and every team member should participate.
  o Review as a team to make any final improvements and post to the course site the night before the final presentation.

October 19 – Session 6 – Final @ frog studio Brooklyn – Lead instructor – Turi McKinley

• Team Presentations of Pitches and Prototypes (10 minutes + 5 minutes Q&A)
• Discussion of use of the tools taught in the course in business environments

Please note: Session location will be at frog, 55 Prospect St, 7th Floor, Brooklyn NY 11201. Allow adequate time in your schedule to arrive at frog. Class will start ½ hour later than normal to accommodate your travel, and end ½ hour early to enable your return to campus.

Please note: this session will be filmed with either video or still photography. Please indicate to the course TA if you are not comfortable with being filmed.

Please note: frog requires visitors sign a Non-Disclosure Agreement for visits the ‘back of house’ working area of the studio. Students are not required to sign the NDA, but anyone who does not will be asked to remain in the public area of the studio to protect the confidentiality of our clients. (thanks!)
Grading
Grades will be based on a combination of:

- 50% Final presentation (prototype + research + potential as a business + concept + peer evaluation) *
- 30% Class participation
- 20% Homework assignments (completion + timeliness + peer evaluation)*

* For group work, your grade will be impacted both by work produced and peer evaluation of participation.

Readings
Sample of Reading Assignments that will be posted on CourseWorks:

- Chris Bangle, How BMW turns Art into Profit, HBR
- Roger Martin, The Design of Business
- Harry West, A Chain of Innovation

Instructors

- Turi McKinley, Executive Director, frog
  Turi leads the design research and co-creation practices in the NY studio. Globally she leads Org Activation, and partners closely with companies seeking to develop new skillsets and capabilities for human centered design and innovation.

- Ethan Imboden, VP Creative & Head of Venture Design, frog
  Ethan invests frog’s deep talent and diverse capabilities in the service of entrepreneurial efforts both large and small.

- Harry West, CEO, frog
  Harry leads frog. He helps organizations see what people will want in the future and envision how to transform their business to make that future real.

About frog
frog is a global design and strategy firm. We transform businesses at scale by creating systems of brand, produce and service that deliver a distinctly better experience. We strive to touch hearts and move markets. Our passion is to transform ideas into realities. We partner with clients to anticipate the future, evolve organizations and advance the human experience.

frog’s twelve studios across three continents house a creative community that includes interaction design, industrial design, visual design, design research, design technology, mechanical engineering, copywriting, film, software engineering, quality assurance, solutions architecture, business strategy, and program management. We take on the biggest challenges for many of the leading companies in the world. Our design vision and executonal focus pull these organizations through large-scale transformations driven by new technology and changing customer expectations. We design new systems for these companies and work with them to build new capabilities. More information via https://www.frogdesign.com/

Intellectual Property

Course Challenge and Industry partners
This course will focus on teams creating a new product or service idea with an associated business model. These ideas may come from a challenge provided by the course instructors, or the challenge may be provided by an industry partner.

How will intellectual property be handled in this course?
In general, taking this class does not change the status of any intellectual property rights that existed prior to the class. Taking the class alone does not give anyone else an ownership claim to existing IP, nor does it give
you the right to IP you did not already have rights in. If you are working with a university related-technology (i.e. research from one of the team members that may have emerged from University research), then you should read the Columbia FAQ for Students on IP (link here) or email Columbia Technology Ventures at techventures@columbia.edu. If you are not a Columbia student, please speak with the tech transfer office at your institution about any pre-existing rights.

As for intellectual property rights that are developed during class: this class is explicitly intended to be a collaborative effort, without the intention of generating proprietary IP. Accordingly:

1. You are agreeing to make any class-developed assets freely available to all. If present, your industry partner will have access to those materials, as will your classmates, as will everyone else.
2. You and your team members need to disclose to each other and your industry partner any rights that you or anyone else may have to pre-existing IP developed prior to the course, so that any potentially blocking IP is at least known in advance. If you have any doubts about what this means, please speak to the professor for guidance.
3. If a subset of the team decides to start a company, they do not “owe” anything to any other team members for work done in and during the class. All team members are free to start a company, without permission of the others. (We would hope that common sense and fairness would apply.)
4. By taking this class you have agreed to these terms with your team.

I want to use this class to evolve my pre-existing idea / Business Model into a real company and I want to own it myself. What should I do?

This is more than likely the wrong class to take. Your slides, notes and findings will be publically shared and will be made freely available to industry sponsors and to the public. Discuss Intellectual Property rights with your team from the beginning – before class starts, if possible. If you cannot come to agreement with the team, join another team, pick another project, or drop the class. Remember anything you do and learn in the class is public.

Will my Intellectual Property rights be protected when I discuss my ideas with the class?

NO. This is an open class. This class is not an incubator. There are no non-disclosures. All your presentations and Customer Discovery and Validation notes, business model canvas, presentations and slides can, and most likely will, be made public.

I’m not comfortable sharing what I learn with others. What should I do?

Do not take this class.

For more information, contact

info@ieor.columbia.edu

Applications due by: August 1st at midnight

Applications should include information about student’s undergraduate or graduate status; school affiliation; 1-paragraph explanation of reasons for being interested in taking the course and commitment to attending all parts of all 5 sessions.