Product Studio

Karan Girotra
Professor, Technology & Operations
Cornell Tech/Johnson
girotra@cornell.edu
www.girotra.com

Leandra Elberger
Assistant Director of Partnerships
le225@cornell.edu

Khoa Ma,
Assistant Studio Director
khoama@cornell.edu

The world is being transformed by builders— individuals who combine engineering, business, design and interpersonal skills to *build* new products, services and businesses. The most successful and innovative business leaders are builders (think Steve Jobs, Jeff Bezos, etc.), high-performing companies want to hire individuals with builder skills, and builders are making the most impact in transforming communities and lives.

Product studio will provide you with the key skill-sets to be a world-class builder. The best way to learn to be a builder is by building new products, services and businesses. Therefore, product studio will be organized around the central activity of building a new product, service or business model that addresses a need that will be presented to you in terms of a "How Might We" challenge.

Over the next 14 weeks, we will guide you through a state-of-the art product development process that will provide you with tools to understand user needs, to ideate broadly and identify potential solutions, to analyze and compare different solutions, to validate your key assumptions by extensive, fast-paced rigourous real-world testing, and to work in an interdisciplinary team to build your products. This structured recipe-like process will serve as the key template for subsequent elements of your Cornell Tech journey, for example as a recipe for building products you might commercialize as independent entrepreneur or for an internal venture.

Along the way, the real world nature of the studio experience will also help you learn some key life-lessons around: collaborating and engaging constructively with individuals with very different skill sets, background and work-habits, working on things you think you don't want to work on, trying your best and doing everything right and still failing because of circumstances outside your control, working under sub-optimal circumstances (limited resources, unfair outcomes, etc.), finding clever ways to get around all these challenges, etc.

This product development process at the center of the studio is based on the studio team's extensive academic research on this topic, real-world experience in building products at leading companies and

Cornell Tech's deep and continuing engagement with practitioners. It challenges many practices that are very common in organizations, and the default habits of untrained builders. We will strive to present you with both the current best practices in industry and the timeless key academic principles of product development.

Course Activities

The course follows an unusual and innovative pedagogy that combines real-world experiential learning (i.e. learning by doing), interactive class sessions, practitioner perspectives on key topics, and feedback and coaching by leading academics and top-tier practitioners. As such, there are a number of different types of activities in the course and you will need to work much harder than typical courses to keep track of these activities and fully benefit from them. The course will comprise the following kinds of (required) activities:

Product Development in the Classroom: These sessions will teach you key product development principles using a combination of lectures, mini-cases, and classroom discussion. They are like typical classes in business degree programs (for ex. MBA).

Clinics: Each team will be assigned to a clinic that is focused on a particular topic related to its challenge. These clinics will be led by Cornell Tech faculty that are world-class experts in the areas. The faculty will help you translate some of the generic product development concepts to the specific context, share their domain expertise and will critique and coach your work.

Building Products in an interdisciplinary team: This is the main project exercise where you will build a new product, service or business that addresses the "How Might We" challenge assigned to you. Like in the professional life that awaits you, you will be assigned a challenge and a team.

> Challenges: We reached out to 100s of different companies and have worked closely with them to identify about 100 challenges that are both important and amenable to study in this course. Prior to starting the program, you will be asked to provide your preferences and based on your stated preferences we will match you to a challenge.
>
> Teams: The team will be created based on our proprietary DreamTeam software that optimizes the skill distribution across team.
>
> Warning: Note however, that we have very limited information on students, knowing your preferences, skills and talents is an imperfect science, etc. as such it is highly likely that you will not like the challenge you are assigned to or not immediately work well with your team. Learning to make such a team work and be productive in this context will be one of your key tasks (and learnings).

Sprints: Sprints are dedicated 24-hour windows where you work closely as a team to make substantial progress on your product. There are no other activities scheduled during this time and the three sprints will correspond to three key stages of the product development process. You will make a presentation

to show your progress at the end of each sprint. Your clinic faculty will provide feedback on your progress and on other team's progress.

> Pro-tip: you will learn more from listening to feedback on other team's work than by just focusing on your product.

Crits: Your work from the sprints will also be reviewed by industry experts. The industry experts or "critters" will run 3 crit sessions following the sprints. There will be an additional crit session with alumni of the course to help you through the product studio experience.

Notes from Practice: We will convene 4 panels during the semester where top industry practitioners will give their perspective on what we have been learning and doing in our product development journeys. They will share how things we learn in class are implemented in their organizations.

The People

Primary Instructor: Prof. Karan Girotra will lead you through the product studio. He will deliver most of the lectures around the product development process, moderate discussion with panelists, etc.

Domain Faculty: Senior Cornell Tech faculty that will lead the clinics (see above). These domain experts will be your primary faculty contact. They will (i) lead clinic sessions that will cover domain-specific topics. (ii) meet with you at key stages of the product development process to guide your team. (iii) evaluate your work at the sprint and the final presentations.

The domain faculty for the 2018 studio are

Digital Commerce: Jason Hogg, CEO AON Cyber
Digital Operations: Prof. Karan Girotra, Operations/Johnson
Health Tech: Prof. Deborah Estrin, CS
Security: Prof. Tom Ristenpart, CS
Social Tech: Prof. Tapan Parikh, IS

Assistant Director of Partnerships: Leandra Elberger is our primary contact with all practitioners and companies that make Studio possible. She will help with any issues working your Company Advisor, and connect you to our network of industry experts.

Assistant Studio Director: Khoa Ma is the primary contact for Studio programming (coursework, Crit, Sprints, Open Studio, ect...) and day-to-day logistics. He will help with any issues working with your HMW, program advice, questions about the Studio.

Critters: Are active, product owners, technical managers, founders, and entrepreneurs in NYC that come to campus at least twice a semester to provide practical feedback and instruction, encourage progress, and help address any blockers or risks the students are facing.

Company Advisor: Each company that hosts a Product Challenge will provide a Company Advisor to work with the student teams. The Company Advisor will help you gain access to information that is required to respond to the challenge. As a team, *you will send your Company Advisor all your deliverables* as well as meet with your Company Advisor (virtually or in person) once per month.

Practice Panelists/Guests: Industry experts that will join us to share their notes from practice.

Network of Industry Experts: Our large network of experts across the tech industry. If you want to be connected with someone in a specific job role or field, please reach out to Leandra.

Class Graders: Your primary contact for all questions related to Product Studio, homework, and all deliverables.

Your Class Graders for the Product Development lectures are:

Svava Kristinsdottir
Mikaela Brown

Your Class Graders for individual clinics are

Digital Commerce: Marika Cusick
Digital Operations: Svava Kristinsdottir, Mikaela Brown
Health Tech: Emily Tseng
Security: Liran Sharir
Social Tech: Young Sang Choi

I need help/I am confused-- who to ask?

Email the relevant Course grader (TA) and cc hellostudio@cornell.edu. **You do not need to email anyone else besides these two.** We will assign your query to the right individual and you will receive a response in due course

House Rules (aka Course Policies)

- **No cell phones or laptops!**
    - You are liable to be removed from class for using any electronic screen-based device. Please take notes in a paper notebook.
    - You are also liable to lose a large proportion of your class contributions grade if noticed by the TAs, instructors or anyone else of using these devices

- **Attendance in all class-sessions, crits, sprints, etc. is mandatory. There is, however, a very painful recourse if you must must miss a session. Please read the recourse mechanism carefully before missing any session.**

  Class sessions

  - If you miss any class, homework, or quizzes quiz ***for any reason***, you can make up the class by completing an optional make-up assignment. ***You do not need to share why you missed class with the instructor or ask for an excused absence,*** just ask for and complete a make-up assignment to receive full credit for the absent by emailing Khoa **cc** your class grader. Do not email any instructor about your absence.
  - Make-up assignments are due before the next class, just like homework
  - Note that the make-up assignments are more work than the class time you missed

  Sprints

  - If you are unable to participate in a sprint work session with your team, you are allowed one (1) makeup without penalty to your grade. You must propose and present a solo sprint project of roughly the same amount of work that we would expect you to accomplish during the sprint (~8 hrs). Projects must be approved by Khoa and your team members. To prevent your team from falling behind, it is recommended that you complete your project prior to the missed sprint. You must at least notify Khoa and propose a project prior to the missed sprint.
  - If you miss more than one sprint work session, you cannot get a higher grade than a C.

- **Don't be a jerk to your teammates and classmates. Here are some examples:**

  - ***Free-riding:*** Not making your absolute best effort to support your team, relying on others to carry the team forward.
  - ***Negative attitude:*** Building stuff is hard, and it is easy to pretend to be above it all and just criticize everything-- the teammates, the challenges, the course, etc. This will not help you team advance and you will just bring everyone down. BE POSITIVE!
  - ***No Biases*****:** Builders bring together individuals from very different backgrounds. It is easy to believe the cliches about different cultures, programs, etc. Yet, the across-individual variation is much larger than across-group variation. This means-- treat people as individuals and not as cliches.

  We will police for jerk-behavior-- negative peer feedback will impact your grade by upto 15%.

- **A bad workman always blames his tools:** Building stuff is hard, and it is easy to blame external factors outside of your control (teammates, course-design, cornell-tech, etc.) for any frustrating experiences. This is futile as these factors are outside your control. Look internally and see what

you can change about yourself. Note successful builders build stuff despite the most adverse circumstances, not because of the circumstances.

Grading

Your grade will be based on the following components:

Deliverables I-VII: 50%
Class Contributions (Presence, engagement and behavior): 15%
Peer Review of Team Contributions: 15%
Final Presentation (Deliverable VIII): 20%
Bonus Deliverable: Upto 10% extra points

All presentations, submissions, etc. will be evaluated for effort (i.e. inputs), in particular around following a legitimate, thoughtful and systematic process for product development. We will not evaluate the quality of your final output (as that is subject to a lot of elements outside your control). Thus, it is entirely possible that your product development effort completely fails, but you still end up with an excellent grade.

To be sure, while the quality of your final output does not influence the grade, it will be key to deciding which teams will eventually launch/commercialize their products, get to present at open studio, etc.

Course Calendar

Will be provided to you after you get your final team-matching and assignment to different tracks/sections.

GRIZZLY: bit.ly/grizzly18
BIG RED: bit.ly/bigred18
URSA: bit.ly/ctursa18

Course Plan

Notes aka The Fine Print:

- Prework must be done before session.
- Unless indicated otherwise Project work must be completed before start of next session.
- Things that need to be submitted via blackboard are highlighted in red. If it is not in red, it doesnt need to be turned in. It still needs to be done, just not submitted.
- While we will work hard to avoid any changes, all session guidelines/submissions are subject to change until 1 week before they are due. Please read the latest version of the syllabus here before embarking on any exercise

Introduction (28 Aug, 30th August)

Session 1 Course Introduction (28th August)

Prework

Read this outline (very carefully up to this point, carefully till sprint 1, and skim the remaining parts)
Make sure you know (i) your team, (ii) your challenge (iii) your clinic
Add times and locations for all studio activities to your favorite calendar app. You are solely responsible for making it to different activities. No excuses. No late arrivals. See course calendar here.

Agenda

What is Product Studio?
Why you need to do it?
How we will do it?
Logistics and Warnings
Course Rules

Class Materials *01-Course-Intro*

Project work

Meet and greet your team
Think of team expectations/Rule
Reach out to advisors

Session 2 Tackling Design Problems (30th August)

Prework

Identify your 3 favorite problem solving toolkits that you learnt in your past educational/professional experience. Problem solving toolkits are mathematical formulae, spreadsheet calculators, analytical frameworks, etc. that help you answer a key question. Note the name of the toolkit and the the typical question it can answer.

Do not worry if you can't think of anything or don't fully understand what this means. We will discuss it in class; this is just to get you going. Typical time spent here should be between 1- 30 minutes.

Agenda Analytical Problems and Design Problems
Iterative Search and the Funnel
Feeding the funnel
The product studio funnel

Class Materials *02-BuilderRules*

Project work [Required] None! (Enjoy the weekend before the storm hits you!)
[Optional aka overachiever track]: Read ahead about the upcoming project work and start working on it.

Part I: Observe and Brainstorm (Sept 4, Sept 6, Sept 11)

Session 3 Observing and Visualization (4th September)

Prework Recover from your "free" weekend.

Agenda Observe: Contextual Inquiry and Participant Observation
Visualize: Affinity Diagramming, Work Models
The 5 Why

Class Materials *KG's Slides*, *Tap's Slides*, *Anna's Slides*
Project Work Deliverable I

Deliverable I : Observe and Visualize

[Due before start of Sprint 1, 13th September, Start ASAP-- This is a long time taking exercise which requires multiple meetings and organization]

Part I: Observe
[Team] Meet with your team and make a plan for "observing" your system. Divide the system/product/service/industry/context at the center of your challenge into various subparts and allocate responsibilities. For redundancy, independent evaluation, and for keeping each person honest, make sure every aspect is covered by at least 2 independent individuals.

[Individual] For the part(s) allocated to you, collect as much information as you can by applying the contextual inquiry and participant observation methods learnt in class and if needed additionally,

googling and reading extensively about the system, researching users via online forums, reaching out to friends, contacts, company sponsor, etc.

Report back to your team with what all you learnt. In addition to the reporting back procedures discussed in class, highlight 10 things you didn't know, and three things that you are sure will surprise everyone in the team. If you can't hit the numbers, you need to read, observe more.

[Optional, Team] As a team decide on who came with the most surprising facts and raise a toast to the "winner"!

[Team] Come up with a consolidated list of 10 things you didn't know and three things that you are sure will surprise everyone. I strongly suggest completing the observe part of the exercise by Sep 11th.

[Team] Using the 5 Whys technique, attempt to transform your HMW into 4 different but related HMWs.

Part II: Visualize

Meet with your team and make a plan for using the visual representations taught in class. Again allocate different representations to different individuals. Make sure each visual representation is worked on by at least 2 different individuals.

Meet with your team to review all visual representations created by individuals. Extensively critique, discuss and improve the representations. End up with one consolidated visual representation for each type (Affinity Diagram, Flow Model for each involved stakeholder, etc.). Feel free to drop a type if you feel it is redundant or not relevant. Overall having a minimum of 2-3 types of visual representations will be helpful.

Deliverable I: Observe and Visualize
[Team] Submit the following materials via Blackboard

- 10 things that the team didn't know.
- Three things that you are sure will surprise everyone.
- Your final iterated visual representations

[Due before start of Sprint 1, 13th September]

Notes from Practice I: User Research (September 4th)

Like everything else on the syllabus, attendance is mandatory in all "Notes from Practice" sessions

Practitioner	Anna Avrekh, Senior UX Research Manager, Betterment
Time	6:15pm-7:25pm
Location	Bloomberg Auditorium

Anna's Slides

Session 4 Brainstorming (6th September)

Agenda	Three rules of brainstorming Brainstorming templates - I
Project Work	Keep working on Deliverable I Next class (Tuesday) is a clinic on Sept 11, note time and location here: http://bit.ly/studioclinic18
Class Materials	Class Slides

Session 5 Brainstorming Clinic (11th September)

Please check the pre-work, agenda and project-work 1 week before for your clinic here:

Digital Commerce
Digital Operations
Health Tech
Security
Social Tech

You clinic schedule is posted here: http://bit.ly/studioclinic18

Alumni Crit (11th September)

Time: 6:15pm-7:25pm
Location: Your room assignments are posted here: http://bit.ly/AlumniCrit
Overview of Alumni Crit will be posted here

Sprint I: Observe and Brainstorm (13th-14th September)

In the next 24 hours your main goals are (i) To use all the information you have gathered to brainstorm and generate a large number (~20-50) of possible solutions to your HMW challenge (ii) Integrate diverse perspectives from your team to narrow down to about 5 solutions (iii) Imagine and dream up these 5 solutions (iv) Create a compact presentation to obtain feedback from your entire clinic on the most preferred of these 5 solutions.

Here is how I recommend you organize your time (this is a recommendation, i.e. you are free to organize yourself in any alternate way also; but keep in mind the brainstorming principles you have learnt in class)

- Prepare multiple physical copies of your visual representations.

- Work individually for 30-45 minutes to brainstorm possible solutions:
    - Sit in a quiet isolated place without distractions (i.e. keep away and turn off your electronic devices)
    - Follow brainstorming templates from class.
    - If you run out of templates, look at your visual representations and start playing with them-- shifting components around, asking if everything needs to be the way it is. What parts could you change with digital/modern technologies, etc.?
    - Note down possible solutions. Attempt to come up with at least 5 different solutions.

- Meet with your team. Each member of the team will describe their solutions. Do Not Criticize, Praise or judge the solution. Simply try to build up on it. You can discuss your variants on the solution. You will often think that you or others have the same solution-- if this is the case, delve into details. It is highly likely that the solutions will be different once you look deeply enough.

- Take a break for the evening--- dinner, go home, hang out.

- Repeat the individual brainstorming/Team meeting steps (as many times as needed) till you have 20+ solutions. You can do this after dinner or early next morning. Most teams should get there in < 2-3 rounds.

Deliverable II(a)

Submit your team's best 15 solutions to the challenge. Choose these 15 from the large number you generated (20-50). [Due by noon, 14th Sep]

Your next step is to pick 5 favorite approaches of the team. Do this by organizing an independent multi-vote (let each individual member of the team allocate 10 points to different solutions, Pick 5 solutions with the most votes). You can do this over lunch.

Next, you need to prepare a presentation with the following content (in this order) that must you be able to present in 4 minutes.
Your Team Name). Your HMW

- Your three most surprising things from Deliverable I
- All 20 Approaches on 1 slide (just flash this slide-- DO NOT talk about any of these)
- 1 slide each for the 5 selected solutions (= 5 slides). Plan to speak < 30 seconds on each solution.

- Last Slide must list all 5 selected approaches on 1 slide. Label the approaches from A-E. You must do this to enable the class to give you feedback.

The class will use this peer-feedback form.

Practice, Practice and Practice your presentation. You can practice a 4 minute presentation as many as 5-8 times in an hour. Please do so. Make sure you can finish in 4 minutes. You will not be permitted to go longer. Not all members of the team need to speak. Your goal is to deliver a cogent high-quality presentation that benefits from everyone's wisdom; but this doesn't require everyone to present.

Deliverable II(b)

Submit your presentation to blackboard before start of the sprint presentations. [Due before start of sprint presentations]

Deliverable II(c)

Your feedback on other teams [Due end of sprint]

Deliverable II(d)

Publish your work to the Course BuildBoard, see details below. [Due end of weekend following the sprint]

Upload final versions of Deliverable I and II to your team's BuildBoard. The BuildBoard gives our community (students, faculty, advisors, critters, and practitioners) a look into all the work you are doing in the Studio. More info on Buildboard is here.

Review and look at other teams progress with particular attention to (i) those that are working on HMWs that you wanted to work on, (ii) that relate to your past experience, interests, etc. and (iii) relate to your program.

Crit- I Prep

Check dates and location for your team here. (Group A Sep 18; Group B Sep 25)

Based on your experience with the sprint presentations, please update your presentation for the crit. You will give the same presentation in your crit sessions. Critters will provide feedback on (i) how wide your search for solutions was and (ii) their favorite solutions.

Part II: Analyze and "Pilot"

Session 6: Value Creation Analysis (18 September)

Pre-work Reflect on feedback from sprints and attempt to shortlist 3 preferred approaches

Agenda
Selection Principles
Value Creation Analysis
The Central Value Logic

Project Work Value Creation Analysis for 3 top Approaches (Deliverable III)

Deliverable III

Perform a value creation analysis for your 3 top approaches.

Submit an easy-to-follow and concise summary of your value creation analyses. You are free to use any format-- a document, a presentation, etc. Select one approach that seems most feasible and value creating [Due before start of Analysis Clinic, 25th September]

Session 6a: Analysis Redux (20 September)

Buffer class for items arising. Before going to class, please check if this session is actually being held.

Session 7: Analysis Clinic (25th September)

Please check the pre-work, agenda and project-work for your clinic here:

Digital Commerce
Digital Operations
Health Tech
Security
Social Tech

Coaching I: 25 Sep - 2 Oct

Follow your TAs instructions to schedule a meeting time with the faculty leading your clinic. Be prepared to present your value creation analysis and any other analysis taught in the Analysis clinic. Your clinic faculty will provide you with valuable feedback on how to analyze the potential and value created by your solution.

Bonus Deliverable

Use any tool that you have learnt in your courses to provide a detailed analysis of your solution approach. For ex. You may build a simulation to study and estimate the performance of your solution. You may obtain and analyze public data to test key hypotheses rigorously.

Bonus points will be awarded for using state of the art technical analysis tools that you have learnt in any non-studio class at Cornell-Tech

You can also send multiple (substantially different) analyses to earn double and triple bonus points.

This can be submitted individually, as the project team or even as a new group you build with individuals from your program. Of course, bonus points will accrue only to the entity that submit the analyses. Group submissions will be more fun and are encouraged.

[No Strict Due date-- Submit it before start of Sprint 3 to earn full bonus points]

Deliverable IV: Peer Review of Analysis

Partner with two other project teams. Schedule a 1.5 hour (or longer) session that all three teams attend.
Prepare a 15-minute summary presentation of all analyses you did to evaluate your solution.
During the session, each team will present their analysis followed by a minimum 15 minute discussion of the analyses. Note three things from the discussion:

1. Aspects everyone agreed with.
2. Aspects where everyone had a different/alternate take than your team
3. Aspects where there was no clear consensus (in agreeing or disagreeing with you), such as aspects which generated the most discussion, etc.

Deliverable: [Each Team]: Submit your 15 minute presentation. And a 1-page summary of the discussion that includes the names of the peer teams, and items that fell in categories 1, 2 and 3 above. [Due before start of Session on 4 October]

Session 8: Risk Identification (2 October)

Pre-work Make sure your team is on track to complete Coaching I and Deliverable IV.

Agenda The Segway Saga.
The thumb rule of managing under extreme uncertainty.

Session 9: Cheap Experiments (4 October)

Check Room location-- This session is in a different room

Pre-work Review what you submitted as Deliverable IV

Agenda Cheap Experimentation Strategies
What makes for a good experiment?

Project Work

Using techniques learnt in sessions Risk Identification and Cheap Experiments, develop your experimentation plan. Your experiment plan should include a sequence of experiments and details of the experiment design. You do not need to submit this, but hold on to it as this will be a key input for subsequent classes

Session 10: Experimentation Clinic (16 October)

Please check the pre-work, agenda and project-work for your clinic here:

Digital Commerce
Digital Operations
Health Tech
Security
Social Tech

Notes from Practice: Panel II Experimentation (Oct 16th)

Confirm location and time on course calendar (here)

Coaching II: 11 Oct-18 Oct

Follow your TAs instructions to schedule a meeting time with the faculty leading your clinic. Be prepared to present your experiment plan revised on the basis of what you have learnt in the Experimentation Clinic. Your clinic faculty will provide you with valuable feedback on your experimentation plan.

Sprint II Launch Party (18th-19th October)

Your main task in this sprint is to refine your experiment plan and build all software, hardware and other tools needed to actually run your experiments.

Deliverable V(a) :

Prepare a 4 minute presentation that summarizes

1) Your choice of solution

2) Your Experiment plan
3) Demo/show tools that you have built to run the experiments.
4) A timetable/plan on how you will run experiments between now and 8th Nov

[Due before start of sprint presentations]

Your work will be evaluated around: (i) a logical analysis based choice of solution, (ii) correctly following the process to identify key unknowns, (iii) a clever experiment plan that neither builds too much nor too little. (iv) good adherence to experimental hygiene.

The feedback card is here.

Deliverable V(b)

Publish your work to the Course Buildboard, see details below. **[Due end of weekend following the sprint]**

Upload final versions of Deliverable III-V to the course build-board here. The course buildboard will help us archive all content created in the course and allow us to share our progress with the entire cornell tech community.

Review and look at other teams progress with particular attention to (i) those that are working on HMWs that you wanted to work on, (ii) that relate to your past experience, interests, etc. and (iii) relate to your program.

Crit II

Check dates and location for your team here (Group A- Oct 30, Group B-Nov 6)

Based on your experience with the sprint presentations, please update your sprint presentation for this crit. Critters will provide feedback on the same issues as during the sprint.

Part III: Build, Iterate, Build, Iterate...

Session 11: Reflection (23rd October)

Pre-work

Think about your experience so far in Product Studio. In particular, note the following:
What have you learnt so far?
What aspect most surprised you?
What are you going to do differently now that you have been through this experience.

Agenda The Good, the Bad and the Ugly (so far)
Learning and Reflecting beyond the immediate product.

Session 12: How's it Going? (30th October)

Pre-work

Prepare a short summary presentation on how your experiments are going-- what you have done so far, what you learned. Some teams will be called randomly and asked to share their progress in class.

Agenda Discussion on how experiments are going

Deliverable VI: Experiment Results

Prepare a summary of your findings from the experiments.
Come up with a plan/design for the product that you are going to build based on what you have learned. Highlight a minimum of three things that you changed drastically on the basis of your experiments. If you are not planning to change at least three substantial things from your original solution-- you probably haven't run a good enough experiment. Repeat the experimentation stage or think hard about your data.w

Submit a short overview of these items using any format you like (presentation, document, etc.)
[Due before start of Product Review Clinic]

Session 13: Clinic: Product Review (13 November)

Please check the pre-work, agenda and project-work for your clinic here:

Digital Commerce
Digital Operations
Health Tech
Security
Social Tech

Sprint III Building Products! (November 15-16)

Your main task in this sprint is to build your product or service that is informed by the results of your experiments.

Deliverable VII(a): Product Demo

Build a demo of your proposed product. Prepare a 4 minute presentation that includes

- Your key findings from the experiments
- Your three pivots
- Your Product Demo. (this should be the majority of your presentation)

You will be evaluated on (i) your use of experiments to learn and pivot (ii) the rigor and quality of processes used to arrive and build the demo.

Deliverable VII (b)

Publish your work to the Course Buildboard, see details below. **[Due end of weekend following the sprint]**

Upload final versions of Deliverable III-V to the course build-board here. The course buildboard will help us archive all content created in the course and allow us to share our progress with the entire cornell tech community.

Review and look at other teams progress with particular attention to (i) those that are working on HMWs that you wanted to work on, (ii) that relate to your past experience, interests, etc. and (iii) relate to your program.

Crit III

Check dates and location for your team here.

Based on your experience with the sprint presentations, please update your sprint presentation for this crit. Critters will provide feedback on the same issues as during the sprint.

Coaching III: 16 Nov-27 Nov

Follow your TAs instructions to schedule a meeting time with the faculty leading your clinic. Your clinic faculty will provide you with valuable feedback on items to improve for your final presentation.

Session 14: Final Presentations (27 Nov)

Check exact time and location of session here.
Final Deliverable:Prepare a 5 minute final presentation summarizing your work during the semester. Include the most salient aspects from the previous sprint presentations, reminding us of your journey

through the product studio. The presentation should include the most salient aspects of the process you followed and the product you eventually built. Be creative with format, but make sure you finish in 5 minutes. You will not be given any extra time.

Notes from Practice: Panel III: Product development failures, frustrations, and learnings (27 Nov)

Confirm location and time on course calendar (here)

Crit Thank You party!

Learning and Reflection

Session 15: Reflection (29 Nov)

Pre-work

Think about your experience as a builder. In particular, note the following:
What did you learn?
What aspect most surprised you?
What are you going to do differently now that you have been through this experience.

Agenda

The Good, the Bad and the Ugly
Learning and Reflecting beyond the immediate product.