Syllabus

Hacking for Defense: Solving National Security Issues with the Lean LaunchPad
Fall 2019

Wednesdays, 4:55 PM – 7:30 PM
FITZPATRICK SCHICIANO A 1464

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Office Hours Tuesdays and Wednesdays from 1-4pm Gross Hall 102	

Course Description

Hacking for Defense™ (H4D), a course designed for all graduate students in all schools and programs, takes an entrepreneurial, interdisciplinary approach to America's hardest national security challenges. The complexity of these challenges demands a transformative effort that requires multi-faceted teams comprised of graduate students from the schools of **foreign service**, **policy, law, continuing studies, medicine, and business. We need and want policy professionals, makers and mechanical engineers, systems engineers, computer scientists, biomedical and public health professionals, entrepreneurs, physicists, scientists, and everyone between to be part of this unique effort.** H4D is a modern renaissance class – it covers policy, economics, technology, national security, and whatever else you need to learn to solve your problem sponsor's pain points. You will be at the forefront of changing the paradigm of problem-solving and solution development for the U.S. Government.

The course is demanding; you'll present at every class, work closely with your team, and receive relentlessly direct feedback. Your problem sponsors, mentors, military liaisons, corporate partners, investors and journalists may be in the room, but, you'll be solving real problems for real customers, in real-time.

Overview

H4D is designed to provide students the opportunity to learn how to work with the Department of Defense (DoD) and Intelligence Community (IC) to better address the nation's emerging threats and security challenges. Large institutions come with varied constraints and the DoD and IC are no different. Using Lean Startup Theory, this course will provide a platform that can develop solution prototypes that match DOD/IC users' needs in just weeks, rather than months or years. Military commands, various agencies in the DoD and the IC, or investors may provide follow-on funding to student teams for further refinement and development of solution prototypes.

Learning Objectives

In this H4D class, student teams select from an existing set of problems provided by the DoD/IC community. Although teams pick a problem to solve, Hacking for Defense™ is not a product incubator for a specific technology/service solution. Instead, it provides teams with a deeper understanding of the selected problems and the host of potential solutions that might be arrayed against them. Using the Lean Startup Methodology the class focuses teams to:

1. Profoundly understand the problems/needs of government customers.
2. Rapidly iterate solutions while searching for product-market fit.
3. Understand all the stakeholders, deployment issues, costs, resources, and ultimate mission value.
4. Deliver minimum viable products that match customer needs in a very short time.
5. Produce a repeatable model that can be used to launch potential technology or other solutions.

Instructional Methodology

Flipped Classroom: Unlike a traditional classroom where the instructor presents lecture material in class, our lectures are online. Watching the assigned lectures is part of your weekly homework. The information in them is essential for you to complete your weekly interviews and present the insights expected by the teaching team in your presentation for that week. We expect you to watch the assigned lectures for the upcoming week before class as we will use time in class to discuss questions about the lecture material and provide supplemental material. You need to come prepared with questions or comments about the material for in-class discussion. We will cold-call students to answer questions about the online lecture material.

Experiential Learning: You will be spending a significant amount of time in between each of the lectures outside the class talking to customers. Each week, your team will conduct a minimum of ten (10) customer interviews focused on a specific part of the Mission Model Canvas. This class is a simulation of what startups and entrepreneurship is like in the real world: chaos, uncertainty, impossible deadlines in insufficient time, conflicting input, etc.

Inverted Lecture Hall: Sitting in the back of the classroom are experienced instructors and professionals who have built and/or funded world-class startups as well as seasoned military and intelligence professionals with significant experience in the field. We won't be lecturing in the traditional sense, but commenting and critiquing on each team's progress. While the comments may be specific for each team, the insights are almost always applicable to all teams. Pay attention.

Peer-to-Peer Culture: While other teams are presenting the results of their weekly experiments, the rest of the class is expected to attentively listen, engage, and react to what they see and hear. Sharing insights, experience, and contacts with each other is a key way that this unique laboratory achieves results.

Class Culture: Startups communicate in a dramatically different style from the university or large company culture you may be familiar with. At times it can feel brusque and impersonal, but in reality it is focused and oriented to create immediate action in time- and resource-constrained environments. We have limited time so we push, challenge, and question you in the hope that you will quickly learn. We will be direct, open, and tough just like the real world. This approach may seem harsh or abrupt. But it is all part of you learning to challenge yourselves quickly and objectively; to appreciate that as solution entrepreneurs you need to learn and evolve faster than you ever imagined possible. This class pushes many people past their comfort zone. You will be receiving candid critiques in front of your peers weekly. The pace and the uncertainty pick up as the class proceeds. As part of the process, we also expect you to question us, challenge our points of view if you disagree, and engage in a real dialog with the teaching team.

Course Expectations

This class is not about how to write a business plan. It's not an exercise on how smart you are in a classroom, or how well you use the research library to size markets. It is also most definitely not an incubator where you come to build the "hot-idea" that you have in mind.

This class combines Lean Startup theory with a ton of hands-on practice. Our goal, within the constraints of a classroom and a limited amount of time, is to give you a framework to test your solution hypotheses using a startup model while creating all of the pressures and demands of the real world in an early stage start up. The class is designed to give you the experience of how to work as a team and turn an idea into a solution for a real-world problem facing the Department of Defense and other government agencies.

You will be getting your hands dirty talking to "customers" - military and other government stakeholders, and end users, as you encounter the chaos and uncertainty of how a startup actually works. You'll practice evidence-based entrepreneurship by using a business model to brainstorm each part of a company and customer development. You will get out of the classroom to see whether anyone, other than you, would want/use your product. Finally, based on the customer and market feedback you gathered, you will use agile development to rapidly iterate your product or concept to build/design something customers would actually buy and use. Each block will be a new adventure outside the classroom as you test each part of your business model and then share the hard-earned knowledge with the rest of the class.

We teach Lean Startup Theory + hands-on practice. You will learn urgency, evidence-based entrepreneurship, customer development, and "good-enough" decision making. You will do so by talking to 10-15 customers per week and presenting your results in class each week.

Course Requirements

Together, you and your team will embark on a journey of discovery: customer discovery, problem discovery (and pivots), and most importantly, personal discovery. In order to document and assess your discovery activities, you will rigorously prepare for class each week and have the following completed:

1. Watched lectures online in full, and completed any required reading.
2. Prepared your Mission Model Canvas updates.
3. **Spoken to *at least* ten (10) customers, beneficiaries, and end-users. You will not be permitted to present if you have not completed at least ten (10) meaningful interviews.**
4. Completed the necessary Value Proposition Canvas(es).
5. Update team blogs with your weekly "a-ha moments".
6. A final solution that meets the requirements of your problem sponsor.

Student Assessment

These activities are designed to get you "out of the building" and into real discovery. That effort will show up in your weekly reports. This course is team-based, and, thus, 85% of your grade will come from your team participation and progress toward your final project. Your peers will also grade your contribution to your team. The grading criteria are broken down as follows:

15% - Individual participation in class

This consists of four parts:

1. Quality of the written feedback of students' peer-to-peer comments provided throughout the semester during (or) semester and during class presentations
2. Attendance at each class
3. Timely viewing of ALL course videos and beneficiary discovery interviews (those that fall far behind will be asked to **leave the class** and return when they are caught up)
4. A grade from fellow team members at the end of the course

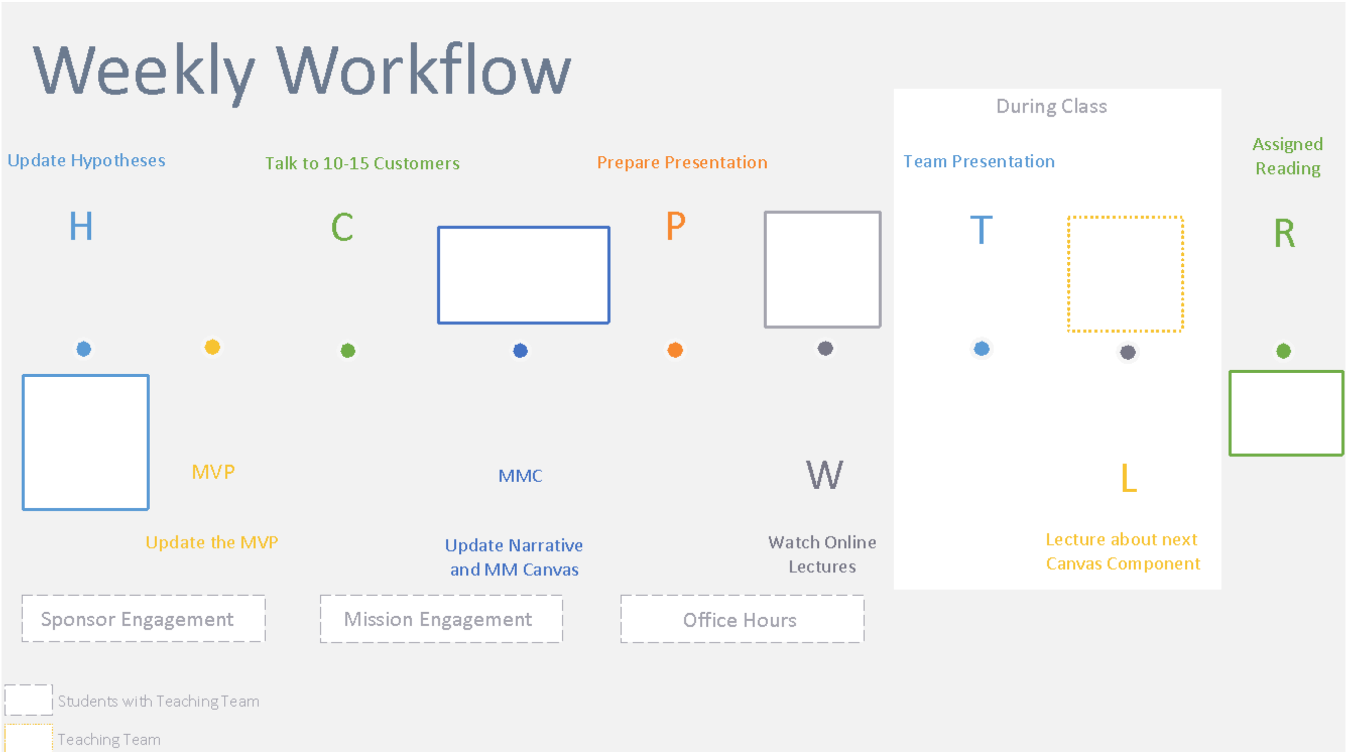
30% - Out-of-the-building progress as measured *each week* by

1. Quality of weekly blog writeups
2. Canvas updates and presentations
3. All team members are expected to perform interviews and contribute to the weekly blog entries
4. All teams must:
    a. Update mission model canvas weekly
    b. Prepare a detailed report on what the team did each week with weekly blog updates (Each team will create a subsite on innovatedefense.net)

25% - The team weekly "lessons learned" presentation (see weekly syllabus for weekly content requirement and format).

30% - Team final presentation

Your weeks will look like this:



Extensions

Extensions will be granted for family emergencies, religious observances, or unanticipated/unavoidable work-related contingencies, provided the instructors receive such requests by telephone or e-mail <u>before the applicable deadline</u>. Extensions will automatically be granted in the case of *force majeure* events including natural disasters or other Acts of God. However, in such cases, we will attempt to collaborate online using Zoom or other tools to ensure you get the most out of the time we spend together.

Personal & Professional Integrity

Please take the time to review Duke University's *Standards of Conduct* as they relate to plagiarism and proper forms of academic citation. This is particularly important for students that received their prior degrees from institutions employing different standards. Even minor misunderstandings can have serious consequences for you and your career. **When in doubt, call the instructors for guidance.**

Students are also advised to familiarize themselves with the University's *Honor Pledge*, which sets the minimum standards for personal and professional conduct in this seminar. Approach this seminar with integrity and humility. Whether it is in business, in the policy sphere, or in life generally, your character is far more precious than your career.

Course Outline

Day	Team Presentation	Lecture	Topic
8/28	Individual Presentation	**Lecture 1**	Problem Sponsor Introductions Course Success
9/4	Mission Model Canvas	**Lecture 2**	Building Strong Teams Beneficiaries Beneficiary Discovery in DOD
9/11	Mission Model Canvas 2.0	**Lecture 3**	Value Proposition and Introduction to the DOD
9/18	Base Visit/No class		
9/25	Beneficiaries and Value Proposition	**Lecture 4**	Product/Mission Fit Dual Use and DOD
10/2	Product/Mission Fit Dual Use and DOD	**Lecture 5**	Mission Achievement
10/9	Mission Achievement	**Lecture 6**	Buy-in/Support
10/16	Buy-in/Support	**Lecture 7**	Deployment
10/23	Deployment	**Lecture 8**	Activities, Resources, Key Partners
10/30	Activities, Resources, Key Partners	**Lecture 9**	Mission Budget & Operating Plan
11/6	Mission Budget & Operating Plan	**Lecture 10**	Reflections
11/13	Reflections	**Lecture 11**	Presentation Tips/Lessons Learned
11/20	Full rehearsal of final pitch & Lessons Learned	**Lecture 12**	Teams and Next Steps
12/4	**Final Presentations**		

Class Preparation

Due to the summer break, we will spend the first class focused on expectations and team formation. Prior to class, read the below material and come prepared to sell yourself. You are not officially in the course until you are placed on a team. In the first class you will present a no more than two-minute presentation that answers the following four questions

Who are you?

Why are you taking this class?

What would you be an asset to any team?

What problem are you most interested in?

Reading/Viewing BEFORE your first class:

- Why the Lean Startup Changes Everything
- Hacking for Defense Introductory Blog Post
- The Mission Model Canvas
- Watch STVP's Hacking for Defense video overview
- Business Model Design for Mission-Driven Organizations
- Ways to Present the Business Model Canvas
- Value Proposition Canvas Explained
- Read DOD/IC Primer
- Use search tools and look for potential competitors and prior work done

Following the first class you will be informed if you have been selected and your team

Teams are expected to hit the ground running. By the start of the second class we expect you to have:

1. Met with your team, in person, to establish and codify your team charter
2. Spoken to your DOD/IC problem sponsor
3. Spoken to your to your team mentor
4. Received at least ten customer names and set interviews between week two and three
5. Map out the first hypotheses you want to test in your interviews by completing the Mission Model Canvas

Aug. 28, 2019
Individual Presentations: Two-Minute
Advanced Lecture:

Pre-Read	● Why the Lean Startup Changes Everything ● Hacking for Defense Introductory Blog Post ● The Mission Model Canvas ● Business Model Design for Mission-Driven Organizations ● Ways to Present the Business Model Canvas ● Value Proposition Canvas Explained ● Read DOD/IC Primer ● The five keys to a successful Google team ● Review in detail the Fall 2019 problems
To be completed prior to class	● Prepare a two minute Powerpoint presentation that answers: Who are you? Why are you taking this class? What would you be an asset to any team? What problem are you most interested in?
Watch	● Watch STVP's Hacking for Defense video overview
In-Class	● Course introduction ● Individual two-minute presentations ● Team sponsor presentations ● Team preferences to be stated immediately after class. Teams will be matched no later than 48 hours after class

Sept. 4, 2019
Team Presentations: Mission Model Canvas
Advanced Lecture: Interviews

To be completed prior to class	● Meet with problem sponsor ● Meet with mentor ● Publish your first blog with your team charter ● Prepare your first MMC ● Read Talking to Humans
Create (10 min + 5 min Q&A)	**Slide 1: Title Slide** ● Team Name ● Team Members ● Three-sentence description of the problem and why it matters. **Slide 2: Team Introduction Slide (for 1st presentation only)** ● For Week 1, include a slide about yourselves: ○ Team Members + Photos ○ Degree and Department / Major ○ Designate a Subject Matter Expert ○ Links to LinkedIn Profiles ○ How your experience is relevant to the problem **Slide 3: Beneficiary Discovery Slide** ● Tell us what you learned from your problem sponsor ○ *Hypotheses:* What did you think beginning the week? ○ *Experiments:* What did you do this week? ○ *Results:* What did you discover? ○ *Actions:* What will you do now? How will you proceed? **Slide 4: Problem Diagram** ● Visually depict your problem through a graphic or diagram. Use this to explain what is wrong. **Slide 5: Minimal Viable Product (MVP)** ● Show the MVP of the week. Include pictures (if possible). ● Tell us what you think the MVP is testing, what data you expected, and what data you received.

	Slide 6: Mission Model Canvas + Value Propositions ● Present your Mission Model Canvas ● Use the one in your application as a template **Slide 7: Next Week** ● What is your plan for next week? ● Who will you talk to? ● What will you do? ● What do you need to find out?

Update your blogs!

Sept. 11, 2019
Team Presentations: Mission Model Canvas
Advanced Lecture: Value Proposition and Introduction to the DOD

Pre-Read	● Read 12 Tips for Customer Discovery blog post ● Read SOM pp. 22-30: An Introduction to Customer Development ● Read SOM pp. 31-50: The Customer Development Manifesto ● Read SOM pp. 67-68: Overview of Customer Discovery ● Osterwalder Value Proposition Canvas here and this one too
Watch	● How to Build a Startup: Lessons 1, 1.5b (Create Udacity account)
Create (10 min + 5 min Q&A)	**Slide 1: Title Slide** ● Team Name ● Team Members ● Number of Beneficiaries Interviewed ● Total number of Interviews (over all weeks) ● Three-sentence description of the problem and why it matters. **Slide 2: Beneficiary Discovery Slide** ● Tell us what you learned from your 10 Beneficiary Interviews ○ *Hypotheses:* What did you think beginning the week? ○ *Experiments:* What did you do this week? ○ *Results:* What did you discover? ○ *Actions:* What will you do now? How will you proceed? **Slide 4: Problem Diagram** ● Visually depict your problem through a graphic or diagram. Use this to explain what is wrong. **Slide 5: Minimal Viable Product (MVP)** ● Show the MVP of the week. Include pictures (if possible). ● Tell us what you think the MVP is testing, what data you expected, and what data you received. **Slide 6: Mission Model Canvas + Value Propositions** ● Present your Mission Model Canvas ● Use the one in your application as a template **Slide 7: Next Week** ● What is your plan for next week? ● Who will you talk to? ● What will you do? ● What do you need to find out?
Prepare	**Come prepared to answer the following questions:** ● What is Beneficiary Development? ● What is Beneficiary Discovery? What are its tenants? ● What are good practices of Beneficiary Discovery? What are bad practices?

Update your blogs!

Sept. 18, 2019
Go visit your customer and get out of the building (Duke)

Sept. 25, 2019
Team Presentation: Beneficiaries and Value Proposition (10 minutes each)
Advance Lecture: Product/Mission Fit & Dual Use and DOD

Pre-Read	● Read SOM pp. 85- 92: Customer Segments, Types, and Archetypes ● Read SOM pp. 203- 211: Problem Understanding ● Read SOM pp. 218- 219, 222- 224: Problem Understanding, Market Knowledge ● Read "An MVP is not a Cheaper Product" Blog Post ● Read Mission Model Canvas Introduction Blog Post ● Read SOM pp. 476- 477: Customer Segment Checklist (Create H4D Specific if possible) ● Read VPD pp. 7-25 Value Proposition Definition and Customer Profile ● Read SOM pp. 76- 84: Value Proposition Hypothesis ● Read Osterwalder's blog post on the Value Proposition Canvas ● Read Steve Blank's Blog Post: Watching my Students Grow into a Company Read VPD: pp. 26- 63 Value Map, Fit
Watch	● Pre-Planning Customer Discovery #1 ● Pre-Planning Customer Discovery #2 ● Pre-Planning Customer Discovery #3 ● Customer Discovery Interviews #1 ● Customer Discovery Interviews #2 ● Asking the Right Question ● Beginners Mindset Video ● Online Lesson 5 (Value Propositions)
Create (10 min + 5 min Q&A)	**Slide 1: Title/Intro Slide** ● Continue to update the interview counts ● Clearly update your problem description. **Slide 2: Beneficiary Discovery** ● Same format as last week. Tell us what you learned from your 10 Beneficiary Interviews (*hypotheses, experiments, results, actions).* **Slide 3: Beneficiary Discovery Proof** ● Show photos and videos from your site visit **Slide 4: Mission Model Canvas** ● Update the MMC. Show changes in **red**. ● Color code Beneficiaries & their value propositions. **Slide 5: Value Proposition Canvases* + Beneficiary Archetypes*** ● Complete one Value Proposition Canvas for each Beneficiary ● Show the Value Proposition Canvas and note changes to it that resulted from this week's Customer Discovery. ● Below each VPC, create a *Beneficiary Archetype* **Slide 6: Beneficiary Workflow** ● Each Beneficiary has a unique job-specific workflow. You need to diagram it. This means you must have a thorough understanding of your Beneficiary's day-to-day life. ● If you have difficulty completing this diagram, you likely need a more detailed understanding of your Beneficiary. ● Have your sponsor (or whomever is your Beneficiary) sign off on this diagram. Tell us what they said. **Slide 7: Draft Organizational Chart** ● Draw the relationships between your Beneficiaries ● Include anyone else who they regularly interact with. ● Continue to refine and update this over the course of the quarter. ● Note that this is not the same as the Beneficiary Workflow **Slide 8: MVP (+ Experiments conducted)** ● Show us your latest MVP. Include pictures (if possible). ● Remember that this is not a full-fledged prototype. ● What experiment was it being used for? What were your expected results? What did you actually find?

	Slide 9: Next Week ● What is your plan for next week? ● Who will you talk to? ● What will you do? ● What do you need to find out?
Prepare	**Come prepared to answer the following questions:** ● What did I *see* during Beneficiary Discovery and what does it *mean*? ● What is a *Beneficiary*? ● Who are my *Beneficiaries*? ● What is a *Beneficiary Archetype?* ● What are my *Beneficiary Archetypes?* ● Are organizations Beneficiaries? ● What is a Value Proposition? ● How is your MVP connected to your value proposition? ● How did your Beneficiary Discovery inform the evolution of your Value Proposition? ● What pain-points does your solution solve? ● What gains does your solution provide? ● Why do *value propositions* have a one-to-one relationship with *Beneficiaries*? ● How do the needs of your Beneficiaries diverge? Are they in conflict with one another?

Update your blogs!

Class Barbecue Saturday, September 28th at 1pm. Location TBD

Oct. 2, 2019
Team Presentation: Product/Mission Fit & Dual Use and DOD (10 minutes each)
Advance Lecture: Mission Achievement

Pre-Read	● Read SOM pp 257--273: Chapter 7 ● Review VPD pp. 26- 63: Value Map, Fit ● Read "Pivot" Section from Steve Blank's Week 6 H4D Blog Post\ ● Supplemental: Read Case study on In-Q-Tel and their attempts to align dual-use tech with the right product-market (see Harvard Business Review Case Study).
Watch	● Bill Perry interview on Innovation
Create (10 min + 5 min Q&A)	**Slide 1: Title Slide** ● Continue to update the interview counts ● Clearly update your problem description. **Slide 2: Beneficiary Discovery** ● Same format as last week. Tell us what you learned from your 10 Beneficiary Interviews (*hypotheses, experiments, results, actions).* **Slide 3: Pivot or Proceed?** ● Did you team make a Pivot this week? ● If so: What prompted the pivot? What is your new hypothesis? What will you do to follow up and test it? ● If not: How did your Beneficiary Discovery support product-mission fit? What are your next steps? **Slide 4: Get out of the Building!** ● Same as last week. Show us photos and videos from your activities. ● If you didn't visit your sponsor last week, do it this week. **Slide 5: Mission Model Canvas** ● Update the MMC. Show changes in **red**. ● Color code Beneficiaries & their value propositions. ● Note that you should **not** list *entire organizations* as Beneficiaries.

	Slide 6: Beneficiary Evolution ● Capture the evolution of your understanding about your Beneficiaries and their archetypes. How did they change over time? Who was eliminated / pruned? Who was discovered? Note any major events that prompted significant reassessments of your Beneficiaries. **Slide 8: Tiered Beneficiary Diagram** ● Create a graphic that sorts your remaining Beneficiaries into *Target, Tangential, Upstream,* and *Downstream*. **Slide 9: Value Proposition Canvases + Beneficiary Archetypes** ● Update from last week's slide deck. Note any changes (additions or removals). ● Tie into Product-Mission Fit by preparing evidence from your Beneficiary Discovery to support each entry within a section. Having verified each section, you're well on the way to Product-Mission Fit. **Slide 10: Dual-Use Summary** ● Show the options that the team explored and their analysis / conclusions as to whether they are good opportunities. ● Does your Beneficiary present a viable Dual-Use opportunity? ● What are this Beneficiaries attitudes towards using a dual-use technology? ● Highlight any other relevant Dual-Use Information and learning **Slide 11: Optional Diagram** ● Add any extra diagrams you can create that visually convey what you learned this past week. **Slide 12: MVP (+ Experiments conducted)** ● Show us your latest MVP. Include pictures (if possible). ● Remember that this is not a full-fledged prototype. ● What experiment was it being used for? What were your expected results? What did you actually find? **Slide 13: Next Week** ● What is your plan for next week? ● Who will you talk to? ● What will you do? ● What do you need to find out?
Prepare	**Come prepared to answer the following questions:** ● Have we validated product-mission fit? If so, what evidence do you have? ● Are you making any pivots? If so, what are you pivoting to? Why? ● What Gains is your MVP creating? What pain-points is it relieving? ● Are all entries on your MMC harmonious or is there conflict / tension between some? ● Who are your target Beneficiaries? Who are the tangential ones? The up / down-stream Beneficiaries? ● How do you triage Beneficiaries? ● What is *Beneficiary creep* and how do you avoid it? ● Can you tell a concise story/narrative of sit/comp/res in one minute? ● What is your dual-use value proposition? ● Who are your dual-use Beneficiaries? ● What role does Dual-Use play in your larger-business plan? ● What deployment options do you have for dual-use markets? ● What benefits does Government financing offer over VC financing?

Update your blogs!

Oct. 9, 2019
Team Presentation: Mission Achievement (10 minutes each)
Advance Lecture: Buy-in & Support

<table>
<tr><td>Read</td><td>Military Metrics: How Do We Know When We’re Winning (or Losing) a War?
Resonate—read the whole book</td></tr>
<tr><td>Watch</td><td>Online Lesson 9: Revenue</td></tr>
<tr><td>Create
(10 min +
5 min Q&A)</td><td>Slide 1: Title Slide
Continue to update the interview counts
Add in your new team/product name and one liner
Slide 2: Situation
Describe/show the problem as you see it now
Size the problem (# of teams/hours lost/etc)
Slide 3: Complication
Introduce new, non-obvious information that draws in the viewer
Why is this problem so important/tough/unresolved?
Slide 4: Solution
The current vision for the product/solution
Slide 5: Beneficiary Discovery through MVP testing
Same format as last week. Tell us what you learned from your 10 Beneficiary Interviews (hypotheses, experiments, results, actions)
Show us your latest MVP. Include pictures (if possible).
Remember that this is not a full-fledged prototype.
What experiment was it being used for? What were your expected results? What did you actually find?
Slide 6: Mission Model Canvas
Color code and associate Value Propositions with Beneficiaries
Brief only the important changes (focus on Value Prop/Beneficiaries)
Slide 7: Mission Achievement
For each of your Beneficiaries, what is their Mission Achievement?
What are your metrics for assessing Mission Achievement?
Break-down your beneficiaries by their definitions and/or metrics for Mission Achievement. Use these differences to create a tiered mission achievement diagram that shows how the criteria for mission achievement changes with rank and position within your sponsor’s organization.
Slide 8: Tiered Mission Achievement Diagram (optional)
In hierarchical military organizations mission achievement may be defined differently across different rank levels or by different levels of focus- e.g. tactical, operational, and strategic. In these cases, students may want to adapt a “Tiered Mission Achievement”. Template available here.
Slide 9: Next Week
What is your plan for next week?
Who will you talk to?
What will you do? What do you need to find out?</td></tr>
<tr><td>Prepare</td><td>Come prepared to answer the following questions:
What is Mission Achievement?
How is Mission Achievement defined for your Sponsor?
How are you defining Mission Achievement?
What are your metrics for Mission Achievement?
How does Mission Achievement change between your Beneficiaries?</td></tr>
</table>

Update your blogs!

Oct. 16, 2019
Team Presentation: Buy-In & Support (10 minutes each)
Advance Lecture: Deployment

<table>
<tr><td>Pre-Read</td><td>Read SOM pp. 126-143: Customer Relationships Hypothesis
Read SOM pp. 296-303: Get/Keep/Grow</td></tr>
<tr><td>Watch</td><td>Online Lesson 5: Customer Relationships</td></tr>
<tr><td>Create
(10 min +
5 min Q&A)</td><td>Slide 1: Title Slide
Continue to update the interview counts
Add in your new team/product name and one liner
Slide 2: Situation
Describe/show the problem as you see it now
Size the problem (# of teams/hours lost/etc)
Slide 3: Complication
Introduce new, non-obvious information that draws in the viewer
Why is this problem so important/tough/unresolved?
Slide 4: Solution
The current vision for the product/solution
Slide 5: Beneficiary Discovery through MVP testing
Same format as last week. Tell us what you learned from your 10 Beneficiary Interviews (hypotheses, experiments, results, actions)
Show us your latest MVP. Include pictures (if possible).
Remember that this is not a full-fledged prototype.
What experiment was it being used for? What were your expected results? What did you actually find?
Slide 6: Mission Model Canvas
Color code and associate Value Propositions with Beneficiaries
Brief only the important changes (focus on Value Prop/Beneficiaries)
Slide 7: Organizational Chart/Influence Chart
Create an organizational chart of your sponsor, and detail all the relationships and connections that exist that could impact your success.
Who reports to who?
How is information passed along?
Who are the gate-keepers?
Who writes requirements?
Who authorizes funding / moves money?
Who’s buy-in / support is critical?
Who are the saboteurs?
Slide 8: Buy-in / Support story for your product
Explain who is are the necessary people to rapidly deploy your product and how you are going to win them over.
Slide 9: Get-Keep-Grow Diagram
Create a Get-Keep-Grow diagram for your solution.</td></tr>
<tr><td>Prepare</td><td>Come prepared to answer the following questions:
What are saboteurs, supporters and advocates?
Who are your saboteurs?
Who are you advocates?
Who are your supporters?
Why are your saboteurs sabotaging you?
Who are the critical influencers in your influence/org chart?
What are you going to do to initially get beneficiaries? To grow your market size? And to keep customers?</td></tr>
</table>

Update your blogs!

Oct. 23, 2019
Team Presentation: Deployment (10 minutes each)
Advance Lecture: Activities, Key Resources, Partners

<table>
<tr><td>Read</td><td>Read “Building Partnerships for Efficiency” article about SOCOM
Other Transactional Authorities
OTA’s are the new cool thing
Government Contracting 101
Read “Testing With Humans” entire book</td></tr>
<tr><td>Watch</td><td>Online Lesson 4: Channels</td></tr>
<tr><td>Create
(10 min +
5 min Q&A)</td><td>Slide 1: Title Slide
Continue to update the interview counts
Add in your new team/product name and one liner
Slide 2: Situation
Describe/show the problem as you see it now
Size the problem (# of teams/hours lost/etc)
Slide 3: Complication
Introduce new, non-obvious information that draws in the viewer
Why is this problem so important/tough/unresolved?
Slide 4: Solution
The current vision for the product/solution
Slide 5: Beneficiary Discovery through MVP testing
Same format as last week. Tell us what you learned from your 10 Beneficiary Interviews (hypotheses, experiments, results, actions)
Show us your latest MVP. Include pictures (if possible).
Remember that this is not a full-fledged prototype.
What experiment was it being used for? What were your expected results? What did you actually find?
Slide 6: Mission Model Canvas
Color code and associate Value Propositions with Beneficiaries
Brief only the important changes (focus on Value Prop/Beneficiaries)
Slide 7: Technology Readiness Level (TRL)
Create a slide that indicates what TRL you have achieved.
How much will it cost to get from the current TRL to future TRLs
Slide 8: Sponsor Procurement Process
Create a diagram that that illustrates the steps to deployment that you sponsor would typically take.
This requires you to understand how your sponsor conducts business. Show this slide to them before your presentation to solicit feedback.
Slide 9: Potential Deployment Strategies
There is no one-way to get things done in the DOD. Highlight the different avenues for deploying your solution that you have discovered. Include different sources of funding, contract mechanisms, programs, etc.
Compare the pros and cons of each deployment-strategy. Consider both their timelines and funding constraints.
Detail the deployment strategy that your team is most likely to pursue.
Identify the constraints and conditions of using <u>that</u> deployment method.
Slide 10: Deployment Diagram
If your sponsor does have a method to propose deployment of a solution, work with them to lay out the specific activities that need to be completed to rapidly deploy.
In addition to necessary activities in this process <u>identify the people</u> who will be involved (organizations don’t do things, the people inside them do)
Slide 11: Next Week
What is your plan for next week?
Who will you talk to?
What will you do?</td></tr>
</table>

	● What do you need to find out?
Prepare	**Come prepared to answer the following questions:** ● How is your sponsor's organization organized? (Draw it out) ● What viable funding mechanisms exist within your sponsor's organization? How about from outside organizations? ● Are there any relevant BAAs or RFPs? ● What Technology Readiness Level (TRL) have you achieved? ● How much will it cost to get from your current TRL to the next? (est) ● What are the different Deployment routes? ● What are the associated timelines of the different deployment routes?

Update your blogs!

Oct. 30, 2019
Team Presentation: Activities, Key Resources, Partners (10 minutes each)
Advance Lecture: Mission Budget & Operational Planning

Pre-Read	● Read SOM pp. 169-175: Key Resources ● Read SOM pp. 176-177: Partners ● Read Key Partners and Business Model Canvas
Watch	● Online Lesson 8: Activities and Resources (Before watching Online Lesson 7) ● Online Lesson 7: Key Partners
Create (10 min + 5 min Q&A)	**Slide 1: Title Slide** ● Continue to update the interview counts ● Add in your new team/product name and one liner **Slide 2: Situation** ● Describe/show the problem as you see it now ● Size the problem (# of teams/hours lost/etc) **Slide 3: Complication** ● Introduce new, non-obvious information that draws in the viewer ● Why is this problem so important/tough/unresolved? **Slide 4: Solution** ● The current vision for the product/solution **Slide 5: Beneficiary Discovery through MVP testing** ● Same format as last week. Tell us what you learned from your 10 Beneficiary Interviews (*hypotheses, experiments, results, actions)* ● Show us your latest MVP. Include pictures (if possible). ● Remember that this is not a full-fledged prototype. ● What experiment was it being used for? What were your expected results? What did you actually find? **Slide 6: Mission Model Canvas** ● Color code and associate Value Propositions with Beneficiaries ● Brief only the important changes (focus on Value Prop/Beneficiaries) **Slide 7: Activities Map** ● Connect your *needs* to the *Activities* you will use to complete them. ● Separate your *Activities* into *Resources* (internally owned) and *Key Partners* (externally owned). ● Who will you partner with as *Key Partners*? **Slide 8**: **Critical Resources/Activities Gantt Chart** ● What resources do you have? What do you need? How will you acquire what you need? How much will it cost? ● Are they resources you already have? Do you need to acquire or partner with others to get them? How much will they cost? ● What human resources will you need? What equipment resources will you need? What financial resources will you need to acquire all these resources? ● What are the activities you need to perform to complete your team's value proposition? (e.g. manufacturing, launching rockets, getting funding) ● What is the timeline of those activities?

	Slide 9: Key Partners ● For each Key Partner, characterize them by type and motivation (see reading)
Prepare	**Come prepared to answer the following questions:** ● What are Activities, Resources, and Key Partners? How are they related? ● What are your Key Activities? Your Resources? Your Key Partners? ● What are the different types of resources that one can have? ● What is your most important type of Resource? ● What is a "coin-operated" partnership? ● What impact would pursuing a dual-use application have on your *Activities*, *Resources*, and *Key Partners?* ● What *resources* do you already have? What do you need?

Update your blogs!
Nov. 6, 2019
Team Presentation: Mission Budget & Operating Plan (10 minutes each)

Pre-Read	● Read SOM pp. 438-446: Metrics that Mater ● Read SOM pp. 528: Validate Financial Model ● Review Mark Leslie's Slides on Business Models
Watch	● Online Lesson 6: Revenue Models
Create (10 min + 5 min Q&A)	**Slide 1: Title Slide** ● Continue to update the interview counts ● Add in your new team/product name and one liner **Slide 2: Situation** ● Describe/show the problem as you see it now ● Size the problem (# of teams/hours lost/etc) **Slide 3: Complication** ● Introduce new, non-obvious information that draws in the viewer ● Why is this problem so important/tough/unresolved? **Slide 4: Solution** ● The current vision for the product/solution **Slide 5: Beneficiary Discovery through MVP testing** ● Same format as last week. Tell us what you learned from your 10 Beneficiary Interviews (*hypotheses, experiments, results, actions)* ● Show us your latest MVP. Include pictures (if possible). ● Remember that this is not a full-fledged prototype. ● What experiment was it being used for? What were your expected results? What did you actually find? **Slide 6: Mission Model Canvas** ● Color code and associate Value Propositions with Beneficiaries ● Brief only the important changes (focus on Value Prop/Beneficiaries) **Slide 7: Diagram of Cost Flows (e.g. Bill of Materials / BOM)** ● Create a diagram of your cost flows. ● If you have an idea of what is needed in your product, include the BOM **Slide 8: 3 Year Financial / Operations Timeline** ● Present financial and operations timeline for the next 3 years. **Slide 9: (If Dual-Use) Commercial Operations Timeline** ● Map out an operational timeline for the next 3 years
Prepare	**Come prepared to answer the following questions:** ● What is Burn Rate? What is your estimated burn rate? ● What is a BOM? ● What does your financial operations timeline look like for the coming 3 years? ● When will you need new cash injections?

Update your blogs!
TBD: BBQ and Class meeting at Sowers Residence, 4613 Oak Hill Rd, Chapel Hill (about 10 mins from campus). Time TBD.

Nov. 13, 2019
Team Presentation: Reflections (10 minutes each)
Advance Lecture: Presentation Tips/Lessons Learned

<table>
<tr><td>Read</td><td>Review sample final presentation slide decks
Reread Resonate entire book</td></tr>
<tr><td>Watch</td><td>Final Presentations video from Duke 2019 class</td></tr>
<tr><td>Create
(10 min +
5 min Q&A)</td><td>Suggested Final Presentation Outline
Slide 1: Title Slide
Continue to update the interview counts
Add in your new team/product name and one liner
Slide 2: Situation
Describe/show the problem as you see it now
Size the problem (# of teams/hours lost/etc)
Slide 3: Complication
Introduce new, non-obvious information that draws in the viewer
Why is this problem so important/tough/unresolved?
Slide 4: Solution
The current vision for the product/solution
Slide 5: Traction (can be multiple slides)
What evidence do you have of use/growth?
Slide 6: Team– Team members – name, background, expertise and your role on the team. Name of mentors and their affiliation.
Slide 7: The ask: What do you need to build something viable?

Backup slides
The World – market/opportunity, how does it operate
The Characters – customers/value proposition/ product-market fit, pick a few examples to illustrate
Narrative Arc – lessons learned how? Enthusiasm, despair, learning then insight
Quotes from customers “we loved it” or “stupid idea”
Mission Model Canvas Version 1 (use the modified Osterwalder Canvas; do not make up your own). “Here was our original idea.” Zoom in on the important parts of the canvas to make any key points
“So here’s what we did…” (explain how you got out of the building)
Show us your first MVP
“So here’s what we found (what was reality),
“So then… here’s what we did”
Presentation requires at least three diagrams of some part of the canvas. For example:<ol type="a">
Get Keep Grow Pipeline
Channel Diagram
Customer / Payer Flow
Activities / Resources / Partners Connections
Petal Diagram
TAM / SAM
“So here’s where we ended up.” Talk about: what did you learn, Show us your final MVP</td></tr>
</table>

Deadlines	The **Next draft of your slides** needs to be uploaded by 6pm on December 2 The Teaching team will give your slides one final review and send you comments that evening **Final slides and videos – approved by teaching team - need to uploaded by 6pm on December 2**

Update your blogs!

Nov. 20, 2019
Full rehearsal for final demo day

Dec. 4, 2019
Team Presentations: Final Demo Day

H4D Final Assignment

Deliverable: Each team will present a 10-minute pitch presentation composing of a four minute classic pitch, a six minute this is how we got there

Goal: Learn how to pitch an idea to investors and beneficiaries, communicate what you learned in 13 weeks and how you learned it.

For the four minute pitch this will consist of: a series of text light slides that explain situation and complication (the problem, the tension, the size of market), your solution, traction, team, the ask

For the six minute "how we got here" use the language of class: interview, iterations, pivots, restarts, experiments, MVPs, evidence. The focus of your presentation will be on how you gathered evidence and how it impacted your understanding of your business models, while you were building your MVP.

Strategy: Tell us how you used customer discovery and MVPs to evolve your mission model through iterations, and how the accumulation of evidence outside the classroom led you to pivot.

Tactics:

- Initial hypotheses and petal diagram
- Quotes from customers that illustrate learnings insights
- Diagrams of key parts of the Canvas: customer flow, channel, get/keep/grow (before and after)
- Pivot stories
- Screenshots of the evolution of MVP
- Demo of final MVP
- Bring any "show and tell" items

View the *best practice examples* on see last year's presentations

Final Presentation Tips

You've learned a lot and we want to see what you learned, not how smart you are at the end of the class.

You cannot possibly cover everything you learned in 13 weeks in a 10-minute presentation. Don't try to. The final presentation is partly an exercise in distilling the most critical, surprising, and impactful things you learned in the process.

Include anecdotes about specific customer interviews that support the "what we learned story" you are telling. Draw on insights recorded weekly in

If you have a demo, prototype, screenshots, etc. include them in your presentation to illustrate your learning process and where it has gotten you. We are not just interested in WHAT your product is, but WHY your product is – what did you learn from customers that shaped the product?

1. Final draft of your slides needed to be uploaded the night before class

    a. Teaching team will give your slides one final review and send you comments that evening.
2. Final slides and videos – approved by teaching team - need to uploaded the day of the final class, by Noon.

Congratulations on becoming a member of the H4D community at Duke University!

Appendix 1 - Explanation of Grading Policy

Grade	GPA	Criteria
A	4.0	Brilliant and original work; nearly publishable. Commendably clear and thoroughly analytical; comprehensively supported by, and systematically substantiated with, voluminous empirical evidence.
A-	3.67	Excellent work; powerful analysis with distinctive, well-structured argument; critical and full awareness of the literature alongside masterful use of empirical evidence to support and substantiate the arguments presented.
B+	3.33	Very good; fine analysis with a coherent argument, most of the most important points are developed in a structured discussion; well-substantiated with clear and firm command of supporting empirical evidence.
B	3.0	Good; sound analytical skill shown from identification and understanding of the core intellectual problem accompanied by a clear discussion of the subject substantiated with some (albeit insufficient) empirical evidence.
B-	2.67	Satisfactory; basic analytical skills apparent from identification of the intellectual problem and an insufficiently developed discussion of the same. Poorly structured argument with inadequate empirical evidence.
C+	2.33	Average; little analysis and an insufficiently developed argument. S*ome,* albeit cursory knowledge of the main intellectual problem; *some* key empirical points may have been identified and touched on, basic, but are anemically developed. No detailed familiarity with the literature evident.
C	2.0	Below average. weak analysis and an incoherent argument, bare evidence of ability to identify intellectual problem, little use of empirical evidence and minimal knowledge of the relevant literature.
F	0.0	Totally unsatisfactory, absence of argument, analysis; and little if any reference to, much less knowledge of, the relevant literature.

Required Texts

Osterwalder and Pigneur, *Business Model Generation - A Handbook for Visionaries, Game Changers, and Challengers*

Paperback: 288 pages

Publisher: John Wiley and Sons; 1st edition (July 13, 2010)

ISBN-13: 978-0470876411

Osterwalder and Pigneur, *Value Proposition Design – How to Create Products and Services Customers Want*

Paperback: 320 pages

Publisher: Wiley; 1st edition (October 20, 2014)

ISBN-13: 978-1118968055

Blank and Dorf, *The Startup Owner's Manual – The Step-By-Step Guide for Building a Great Company*

Hardcover: 608 pages

Publisher: K & S Ranch; 1 edition (March 1, 2012)

ISBN-13: 978-0984999309

Constable & Rimalovski, *Talking to Humans – Success Starts With Understanding Your Customers*

Paperback: 88 pages

Publisher: Giff Constable (September 23, 2014)

ISBN-13: 978-0990800927

Duarte, *Resonate*

Paperback: 272 pages

Publisher: John Wiley and Sons, 1 edition (September 28, 2010)

ISBN-13: 978-047063201