I-Corps™ L Course Syllabus

Days and Times:	**July–August 2016**
Kick-off Workshop	July 13–15 (with a reception on July 12)
Online Classes	Fridays, July 22, 29, August 5, 12 and 19
	1:00 pm–4:00 pm EDT via Adobe Connect
Final Workshop	August 25–26, 2016
Core Instructors:	Dean Chang, University of Maryland; Russell Korte, Colorado State University; Todd Morrill, Venture Management Group; Karl Smith, University of Minnesota & Purdue University
Adjunct Instructors:	Nancy Kamei, Entrepreneur in Residence, UCSF School of Pharmacy ; Ann McKenna, Arizona State University; Perry Samson, University of Michigan; Grant Warner, Howard University
Teaching Assistant:	Lindsey Mitchell, DC I-Corps Program Manager
Logistics:	American Society for Engineering Education (ASEE): Rocio Chavela Guerra, Ray Phillips
Course Evaluation:	Quality Evaluation Designs (QED): Gary Lichtenstein, Cathleen Simons, Sheri Sheppard
Faculty Advisor:	Dean Chang, University of Maryland, National Faculty Representative, I-Corps™
Teaching Team Observers:	Karen Burg, University of Georgia; Maria Milleville, University of Pittsburgh
Texts:	*The Startup Owner's Manual (SOM),* Steve Blank and Bob Dorf; *Business Model Generation (BMG),* Alexander Osterwalder and Yves Pigneur; [Note: SOM and BMG will be sent to teams] first 100 pages downloadable from http://www.businessmodelgeneration.com ; *Talking to Humans*, Giff Constable and Frank Rimalovski – Download from http://www.talkingtohumans.com/
Online Lectures:	On LaunchPad Central: https://launchpadcentral.com
Project Software:	LaunchPad Central: https://launchpadcentral.com
Program Website	American Society for Engineering Education: http://www.asee.org/i-corps-l

Contents

Introduction

Requirements for Enrollment

1. Attend as a NSF-selected team consisting of a Principal Investigator (PI), Entrepreneurial Lead (EL), and Mentor (M). The I-Corps™ L course is open to pre-approved I-Corps™ L teams only.

2. Each team member should be prepared to commit to class time plus at least 20 additional hours a week for Customer Discovery interviews, updating the Business Model Canvas (BMC) and interview notes in LaunchPad Central, and preparing for the weekly team update presentations.

Course Goals

1. Engage the I-Corps™ L team in an experiential learning opportunity to help determine the readiness of their innovation for sustainable scalability. Sustainable scalability involves a self-supported entity that is sustainable and systematically increases the adoption of the educational innovation and enables and facilitates its use.

2. Enable the team to develop a clear go/no go decision regarding significant and sustainable scaling of the innovation based on an evidence assessment.

3. Develop a transition plan and actionable tasks to move the innovation forward to sustainable scaling, if the team decides to do so.

This course requires in-depth preparation and significant effort outside of the class sessions.
Your feedback is very important. You will be asked to complete four brief surveys. The Teaching Team relies on this feedback during and after the course.

Why Participate in this Course?

Your ideas and innovations are important and this course will help you determine if you can sustain and scale those ideas to impact more learners in more schools, thus improving STEM education across the country. That is the goal of the I-Corps™ L course, and it is modeled after the successful NSF I-Corps™ program focused on sustaining and scaling technical innovations. Scaling new innovations to a wider audience is difficult, and an important part of this process is to develop an entrepreneurial mindset and a strategic framework for success.

The NSF I-Corps™ program has taught hundreds of teams how to sustain and scale their research innovations. The process is successful in helping startups increase their odds for success. We model our efforts after the business-oriented, start-up processes that have proven to be effective in scaling up the audience for innovations and increasing their sustainability beyond the end of research funding. We use the terminology used in the world of entrepreneurs who successfully sustain and scale their innovations. Previous I-Corps™ L cohorts demonstrated the effectiveness of this model for moving educational innovations to broader sustainable audiences.

This program provides real world, hands-on learning designed to reduce the risks and obstacles inherent in developing successful, sustainable, and scalable new ventures. We do this by helping innovative teams *rapidly*:
- define the utility of their ideas before spending more time and money
- understand who their core and tertiary customers are, and the marketing processes required for initial adoption and downstream sustainability
- assess and scope of risk before they design and build
- know what data will be required by future partnerships/collaborations/users before getting too far down the road
- identify financing and other important resources early

Program Strategy

This is a practical workshop – essentially a lab, not a theory or "textbook" class. Our goal, within the constraints of a classroom and a limited amount of time, is to *help you find a repeatable and scalable model that will launch your innovation to the widest possible audience. This will allow you to pursue your goals with substantially less resources and in a shorter amount of time than using traditional methods*.

The program uses the ***Lean Startup*** method. Rather than engaging in months of business planning, the method assumes that all you have is a series of untested hypotheses—basically, good guesses about the utility of your idea, who the customer/adopter/user is, payers, regulation, intellectual property, implementation requirements and objectives, etc. And that regardless of how elegant your plan, the reality is that most of it is wrong. You need to *get out of your lab and/or office and into the world of your potential users* to search for the facts that validate or invalidate your hypotheses, and ultimately enable you to pursue strategies that will accelerate the launch, development, and scaling of your innovation.
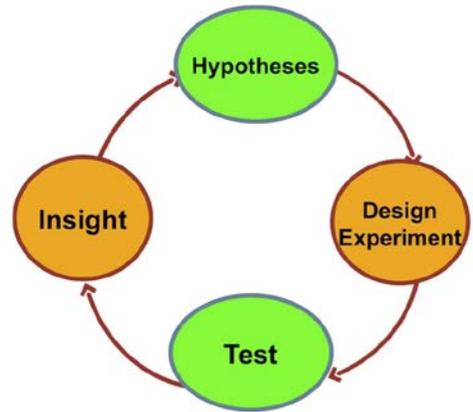
This program formalizes this *search for a sustainable and scalable business model* in three main phases.

First, we start with a process of hypothesis testing familiar to every researcher. In this program you will learn how to use a ***business-modeling*** tool (the Business Model Canvas (BMC) developed by Osterwalder and Pigneur) that helps focus and organize your entrepreneurial thinking and articulate your hypotheses for testing.

Second, you'll "*get out of the building*" using an approach called ***customer discovery*** to test your hypotheses. You will interview at least 100 potential users and collect evidence about whether your business hypotheses are valid or not. That means that every week you'll be talking to customers, partners, regulators, payers and competitors outside the classroom testing your assumptions about utility, partners, IP, regulatory issues, product features, pricing, distribution channels.

Third, based on the customer feedback you gathered, you will use ***agile development*** to rapidly iterate your innovation (product or concept) to design/build something users would adopt. This program requires you to be nimble and fast; you'll iterate on hypotheses and rapidly assemble minimum viable products (MVPs) and immediately elicit customer feedback. Then, using those customers' input to revise your assumptions and hypotheses, you'll start the cycle over again, testing redesigned offerings and making further refinements or more substantive changes (pivots) to improve your innovation.

This process of making substantive changes to one or more of your hypotheses before you get too far into development is called pivoting. Pivots help you avoid huge future costs and potentially unforeseen dead-ends farther down the road of development.

Some teams make even more radical pivots. For example more than one team in an I-Corps™ L course has discovered that the "*right*" customer wasn't at all the market they originally targeted. Several teams have changed their core technology, program, and/or service to better serve broader, more sustainable customer segments.

Instructional Methods

The course uses eight teaching methods. These include: 1. experiential learning, 2. team-based development, 3. a "flipped" classroom, 4. domain specific presentations, 5. weekly team updates, 6. team teaching, 7. observing other teams and providing constructive feedback, and 8. *LaunchPad Central (LPC)*—a learning and development management system.

1. Experiential Learning

This course is not about the presentations. The learning occurs outside of the classroom through conversations with potential users. Each week your team will conduct a *minimum* of 15 user interviews focused on specific parts of the business model canvas. This class is a simulation of what startups and entrepreneurs experience in the real world: chaos, uncertainty, impossible deadlines, insufficient time for development, conflicting input, etc.

2. Team-based development

This course is team-based. Working and studying will be done in teams of three; a Principal Investigator, Entrepreneurial Lead, and Mentor. The commitment of the entire team to the effort and necessary hours is a key admission criterion. Each and every team member *should participate in customer discovery activities* (*out of the building hypotheses testing)* talking with customers and users. You cannot delegate customer discovery (if you don't remember why, you might want to review the first few Steve Blank Udacity videos on LaunchPad Central). Teams will self-organize and establish individual roles and tasks on their own. There are no formal CEO/VP's, just the constant parsing and allocating of the tasks that need to be done.

3. The Flipped Classroom

During the online sessions, you'll watch weekly lectures on your own time. These lectures contain the information you will need to complete that week's customer interviews. What is traditional homework (summarizing your weekly team progress updates) is now done in class, with the teaching team offering personalized guidance to each team. Note: The work you will be presenting weekly will generally be based in part on the online presentation you watched the prior week.

4. Domain Specific Lectures

Online presentations are supplemented by interactive, in-class presentations and discussions tailored to your educational ecosystem.

5. You Present Your Progress Weekly

Each week all teams will present a brief summary of what was learned testing specific hypotheses about parts of the business model canvas. The teaching team and your peers will provide feedback, advice, and guidance.

6. Team Teaching and the Inverted Lecture Hall

Sitting in the classroom are experienced instructors and entrepreneurs who've built and/or funded world-class startups and have worked with hundreds of entrepreneurial teams who will be commenting and asking tough questions about each team's progress. While the comments may be specific to each team, the insights are almost always applicable to all teams.

7. Actively Observing Other Teams and Providing Written Constructive Feedback

The participant teams form a learning cohort. It is your responsibility to help each other and learn from one another's experiences. This form of collaborative learning will accelerate your team's progress. Each week, when other teams are presenting, you will be logged into the class online management tool, *LaunchPad Central,* where you will provide helpful feedback, ideas, and suggestions for each team as they present. You will also assign a

rating solely on your individual assessment of their performance. This feedback is viewable by all members of the class, and may – at the discretion of the instructors – be shared for class discussion.

8. Keeping Track of Your Progress: LaunchPad Central

Each week as you get off of the building and talk to customers you will summarize what you learned using an online tool called LaunchPad Central. The tool affords the collection and display your current hypotheses and the ones you've invalidated. This allows you to share what you've learned with the teaching team and your peers. This, along with your weekly updates is how you monitor your progress. However, to effectively use the tool your data needs to be update regularly, especially 24 hours before class meetings.

Teaching Team Expectations

We will push, challenge, and question you continually and directly to make the most of the limited time we have with each team. The pace and the uncertainty accelerate as the course proceeds. Your presentations to the teaching team are not going to be typical presentations but rather rapid exchange feedback sessions. In other words, **we will be constantly interrupting you and asking you tough questions early and often** during your presentations. Don't expect to make it through all your prepared slides and talking points. In order to make this successful, each team is expected to:

- Conduct at least the required number of quality interviews each week and look for key insights and learnings
- Make a thoughtful, concise and evidence-based report on what you learned from your customer discovery and interviews. Focus on what you learned from your customers, not on explaining or pitching your idea.
- Sufficiently understand your customers and develop strong Value Propositions aligned with Customer Segments before moving on to the rest of the BMC building blocks.

We will be relentlessly direct, open, and tough because of our desire for you to learn to challenge yourselves quickly and objectively, and to appreciate that as entrepreneurs you need to learn and evolve faster than you ever imagined possible. This class pushes many people out of their comfort zone.

This course really is self-paced with lots of self-learning. We've tried to make space for longer discussions in office hours.

Course Culture – A Culture of Learning

Our goal is to foster a culture of learning because as Peter Senge notes, "the only sustainable competitive advantage is an organization's ability to learn faster than the competition." According to Amy Edmondson, a culture of learning is one where there is both high psychological safety AND high accountability for meeting demanding goals as shown in the figure (Edmondson, A. 2008. The competitive advantage of learning. Harvard Business Review).

Accountability for Meeting Demanding Goals

	LOW	HIGH
Psychological Safety HIGH	**Comfort zone** Employees really enjoy working with one another but don't feel particularly challenged. Nor do they work very hard. Some family businesses and small consultancies fall into this quadrant.	**Learning zone** Here the focus is on collaboration and learning in the service of high-performance outcomes. The hospitals described in this article fall into this quadrant.
LOW	**Apathy zone** Employees tend to be apathetic and spend their time jockeying for position. Typical organizations in this quadrant are large, top-heavy bureaucracies, where people fulfill their functions but the preferred modus operandi is to curry favor rather than to share ideas.	**Anxiety zone** Such firms are breeding grounds for anxiety. People fear to offer tentative ideas, try new things, or ask colleagues for help, even though they know great work requires all three. Some investment banks and high-powered consultancies fall into this quadrant.

Characteristics of High Performing and Low Performing Teams

The following table lists team qualities that the teaching team will be looking for during our interactions with each team, especially during office hours.

Quality	High Performing Teams	Low Performing Teams
Embrace the Process	Team leans into the effort, shows initiative, takes Teaching Team (TT) advice to heart.	Team resists the I-Corps™ L process and/or philosophy, is lackluster in customer discovery, untimely in LPC posts, doesn't act on TT advice.
Questioning Skills	Ask the "right" questions in customer interviews, based on testable hypotheses.	Asks questions that elicit confirmation of existing beliefs, do not test hypotheses, do not push for understanding about value propositions or customer segments.
Orientation Toward Adjusting Innovation	Open-minded, flexible, inclined towards innovation, quickly assimilates data from customer discovery into BMC.	Rigid, resists innovation change, rejects or ignores data from customer discovery. Little substantive change in BMC over time.
Team Dynamics	Team works well together, all members shoulder the load, relying on complementary strengths.	Team is not collaborative, may work against one another, mentor might not be engaged, work not distributed equitably.
Interview Selection	Team seeks a range of customers, buyers, and decision-makers. Selection of candidates to interview is purposeful to test hypotheses and/or clarify value propositions for different customer segments.	Team selects candidates from a single customer segment, and/or fails to distinguish between users, buyers, and decision-makers. Candidate selection may be haphazard.
Presentation Skills	Articulate, succinct, focused on the right information, "quick on their feet."	Long-winded, frequently unable to articulate core insights, not focused on correct content, requires extensive TT prompting or re-direct.

Amount of Work

Teams that have completed this course report spending 20 to 40 hours or more per person (typically the EL spends the most time) each week on course activities. Teams report spending 60-75 hours per week. Getting out of the classroom and interviewing customers is a majority of the effort. Teams are expected to complete at least 15 in-person or video conference (e.g., Skype) interviews each week focused on the business model canvas area of emphasis for that week. This means that in total you will have completed 100 or more interviews by the end of the course. These interviews are valuable sources of information and cannot be delegated.

Course Organization

Three-Day I-Corps™ Kick-Off Workshop

The course starts with your entire NSF I-Corps™ L team in Washington, DC on the evening of July 12th and ends on July 15th 2016. During this time your team will present what you are learning to the entire class. During each team's update the teaching team will offer observations and ask guiding questions. In addition, we'll learn and practice the art of customer discovery and "Get out of the Building".

Post Kick-Off Workshop, Out of the Building Effort

As NSF I-Corps™ L teams return to their institutions, they are required to get out of the lab/building to test business model assumptions. This is a team effort. The curriculum will then continue weekly online via Adobe Connect.

Online Curriculum: Weekly Updates and Progress Tracking

The teams will typically be divided into three groups. Each team will have up to 15 minutes for an update on progress to members of the teaching team via Adobe Connect. During each team's update we will offer observations and interrupt with a lot of questions. This is how we monitor your progress and give you guidance. When your team is not presenting, each member of your team will be providing feedback to your peers on their updates/ideas/progress.

Online Curriculum: Weekly Advanced Interactive Discussions

In addition to the team updates, the instructors will facilitate an interactive session via Adobe Connect on a portion of the business model canvas. The instructors will run five weekly on-line interactive discussion sessions, July 22, 29, August 5, 12, & 19 that will step through various building blocks of the Business Model Canvas.

I-Corps™ "Lessons Learned" Workshop – Team Presentations

The entire I-Corps™ L team (Principal Investigator, Entrepreneurial Lead, Mentor) will return to the Washington, DC area on August 25th and 26th. There teams will present to the entire cohort, the teaching team and guests the Lessons Learned in their exploration of sustainable scalability.

Deliverables

There are four main deliverables that are required:

1. Your **weekly LaunchPad Central narrative** is an integral part of your deliverables. It's how we all measure our progress and it's required that you maintain and update it several times per week, if not after every customer insight. This means logging all interviews and updating your Business Model Canvas (BMC).
   a. Your LaunchPad Central narrative must be updated no later than Thursday morning of each week so the teaching team has time to review prior to the Team Update on Friday.
2. It is absolutely critical that your team has developed strong Value Propositions (VPs) linked to specific Customer Segments (CSes) before moving on the other cells in the BMC, such as Key Activities. Without strong VPs and CSes nothing else in the BMC matters. In other words, you might want to continue to focus your weekly activities primarily on VP and CS even if the syllabus has moved on to another part of the canvas.
3. Each week your team will present a PowerPoint update of progress. You are expected to prepare all required slides as best you can, but do not expect to present all your slides as you will likely be asked by the teaching team to jump around. Preparation of the slides is in large part to clarify your thinking and analysis, and ideally any team member should be able to have a conversation about the teams' key learnings that week without the aid of slides.

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      a. **Essential slides included at the beginning of every update:**
- Title Slide
  - Team name
  - Team members
  - Team number
  - 1 to 2 sentence description of your innovation (not "tech speak" but rather what problem you're solving for whom)
  - Number of customer interviews for the current week and the cumulative total (e.g., 15 interviews this week, 49 total)
- Customer Discovery – What did you learn from talking to your customers?
  - Hypotheses: Here's What We Thought
  - Experiments: So Here's What We Did
  - Results: So Here's What We Found
  - Iterate: So Here's What We're Going to do Next
- Current Business Model Canvas (BMC) with any changes marked
- Current Value Proposition Canvas for at least one of your VP-CS alignments - http://www.businessmodelgeneration.com/downloads/value_proposition_canvas.pdf

      b. **If your team has accumulated enough compelling evidence for strong Value Propositions linked to specific Customer Segments then report on subsequent cells in the BMC.**

      c. **Additional Slides**
- Develop a Minimum Viable Product (MVP). Meaningful customer discovery leads to the development of a minimum viable product (MVP), such as a product or program or both.
- Identify Market size (TAM/SAM/Target/Year (1--3))
- Additional Information that you want to share

4. Session 6 - Team Progress Report – Search for a Sustainably Scalable Model – Evidence that the team is able to:
   a. Apply the BMC to think strategically about an innovation in one's own ecosystem
   b. Formulate specific Value Propositions and Customer Segments
   c. Align Value Propositions with Customer Segments
   d. Develop a Customer-Focused vs. Feature –or Innovation-Focused perspective
   e. Conduct effective customer interviews

5. As the final deliverable for the Lessons Learned closing workshop (August 25-26), your team will prepare:
   a. a 10-minute PowerPoint summary of Lessons Learned
   b. a 2-minute video of your Lessons Learned, and
   c. a 1-minute video explaining your technology

Logistics

Class meets in Washington, DC the evening of July 12th for a reception, which includes introduction of the teams
Class meets July 13th, 14th, 15th -- these are full days.
Class meets remotely every Friday July 22, 29, August 5, 12, & 19 for 3 hours.
Class meets again in the Washington, DC area on August 25th and 26th -- these are full days.

Class Design

Teams have weekly activities inside and outside the classroom.

Outside the classroom testing your business model hypotheses by doing the following **each week**:

- Interview at least 15 customers in-person or via video conference, e.g., Skype
- Enter your customer discovery in the [LaunchPad Central](#) software and update your business model canvas
- Take what you have learned and assemble a Lessons Learned Presentation
- Engage with your mentors
- Attend office hours
- Watch the on-line lecture for the week and prepare questions for discussion

In the classroom:
- We meet together and engage in Q&A about what happened during the past week's Customer Discovery
- Teams split into separate groups
- All teams present what they learned during the week and receive instructor comments and questions
- Group instructors facilitate a domain specific discussion on one of the 9 Business Model Canvas building blocks to help teams prepare for the next week's Customer Discovery (see diagram below, taken from *Business Model Generation*).
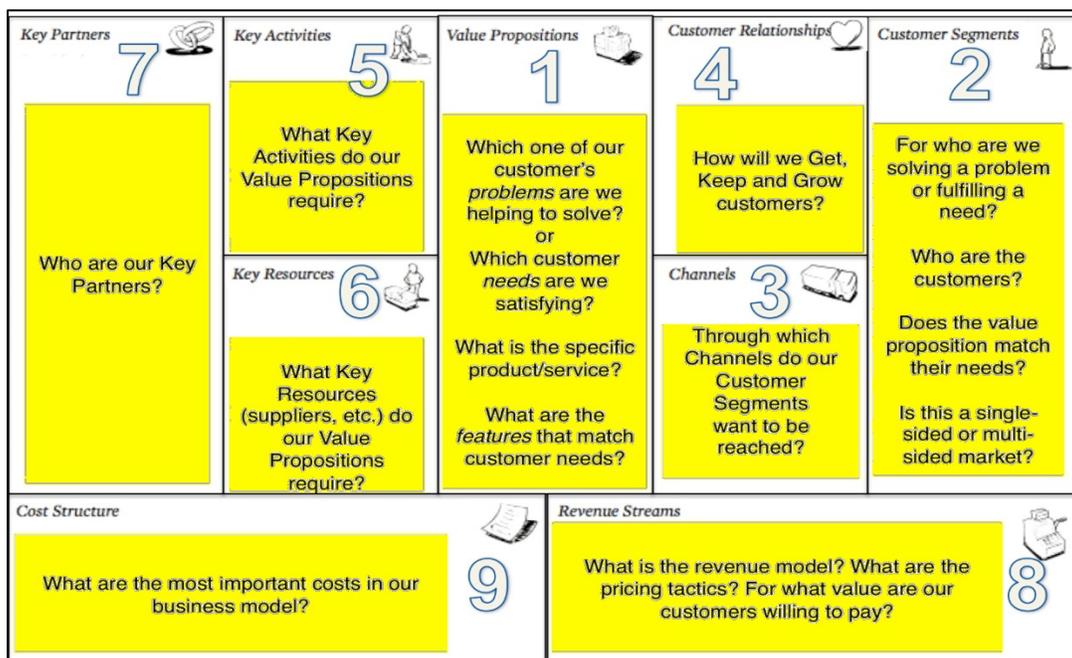
Note: Nominally the work you will be presenting will be based on the online lesson you watched the prior week. The online lesson you watched before class and the in-class discussion will cover the upcoming week's business model topic to prepare you for the discovery tasks for the following week.

For example, when you participate in Class 4, you will be presenting your learnings over the past week on Customer Segments (BMC-2). You are expected to also have watched the online lessons about Customer Relationships (BMC-4). The group discussion (which will occur after the team updates that were focused on Customer Segments), will address Customer Relationships.

Each week you present your updated version of your entire business model canvas, but your customer discovery should focus especially on the topic discussed in the prior week's class. Your update will primarily focus on the results of, and insights gained from, Customer Discovery. However, as noted earlier, if you haven't developed strong Value Propositions (VPs) linked to specific Customer Segments (CSes), you should still keep up with the online lessons but focus your customer activities primarily on validating a VP and CS even if they syllabus has moved on to another part of the canvas.

Program At-A-Glance

Session (Date)	Session Topics	Team Deliverables for Session
0 (Jul. 12)	● Opening reception	● Readings ● Watch online lessons ● Brief introduction of team
1 (Jul. 13)	● Course Introduction ● Business Model Canvas ● Customer Discovery & Development ● Get out of the building	● Readings ● Watch online lessons ● Team Update (Business Model Canvas, BMC)
2 (Jul. 14)	● Team Feedback ● Value Propositions (BMC-1) & Customer Segments (BMC-2) ● Get out of the building	● Readings ● Watch online lessons ● Team Update (Revised BMC)
3 (Jul. 15)	● Team Feedback ● Value Propositions (BMC-1) & Customer Segments (BMC-2), cont'd ● Web Conference training ● Send off	● Readings ● Watch online lessons ● Team Update (Value Propositions BMC-1 & Customer Segments BMC-2 and Value Proposition Canvas)
4 (Jul. 22)	● Team Feedback ● Customer Relationships (BMC-4)	● Readings ● Watch online lessons ● Team Update (Value Propositions BMC-1 & Customer Segments BMC-2, Value Proposition Canvas, and Market Size)
5 (Jul. 29)	● Team Feedback ● Progress Report Preparation	● Readings ● Watch online lessons ● Team Update (Customer Relationships BMC-4)
6 (Aug. 5)	● Team Feedback ● Key Activities (BMC 5) & Key Resources (BMC-6)	● Readings ● Watch online lessons ● Team Update - Progress Report on VP-CS alignments during team feedback followed up with an office hour
7 (Aug. 12)	● Team Feedback ● Key Partners (BMC-7) & Distribution Channels (BMC-3)	● Readings ● Watch online lessons ● Team Update (Key Activities BMC 5 & Key Resources BMC-6)
8 (Aug. 19)	● Team Feedback ● Revenue Streams (BMC-8) & Cost Structures (BMC-9)	● Readings ● Watch online lessons ● Team Update (Distribution Channels BMC-3, Key Partners BMC-7)
9 (Aug. 25)	● Practice Lessons Learned Presentations ● What's Next?	● Watch online lessons – video preparation ● Prepare Lessons Learned Slides and Video ● Lessons Learned Update and Video – Refine and Finalize
10 (Aug. 26)	● Lessons Learned	● Team Presentations (Final)

Pre-Class Assignments

Pre-Class Preparation for Day 1 of the Class - Wednesday July 13th

Teams are expected to hit the ground running. We expect you and your team to come prepared having
1. read the assigned materials,
2. watched the online lectures,
3. completed discovery interviews with at least 3 potential customers,
4. scheduled and confirmed appointments with **5 more potential customers/users in the Washington DC area** before the start of the class that you will interview during class (July 13-15) and
5. prepared a set of at least 5 more customer contacts to call on in the Washington, DC Area that you can **interview during the class** (July 13-15).

WATCH: Pre-recorded LaunchPad Central Training Webinar.

The recording (10-min) can be accessed anytime at the following location:
https://virginiatech.webex.com/virginiatech/ldr.php?RCID=72ddb06fd62a2d37e4d1cd54fe5eaf8d
Additional information will be sent via email by the course TA, Lindsey Mitchell.

READ: Business Models, Customer Development, Value Proposition

Remember that these readings and presentations came out of the world of start-ups, and even though the language is business oriented, the concepts apply to sustaining and scaling innovations in other types of organizations as well.

- Read Steve Blank, "Why the lean startup changes everything," http://steveblank.com/2013/05/06/free-reprints-of-why-the-lean-startup-changes-everything/
- Read: *Business Model Generation (BMG)*: pp. 14-49 The 9 Building Blocks of the Canvas. pp 77-87 multisided platforms, pp 134-142 Ideation, pp 200-211 business model environment
- Read: *Startup Owner's Manual (SOM)*: pp. 1-75 intro to customer development and discovery, market size, pp. 76-84 value proposition and MVP, pp 112-122 market type, pp. 123-124 competitors, pp 189-199 getting out of the building/experiments/contacts, pp 472 market size, pp. 473-475 product features checklist pp. 487 Contacts checklist
- *Read*: Giff Constable, "Talking to Humans"
- Steve Blank, "What's a Startup? First Principles," http://steveblank.com/2010/01/25/whats-a-startup-first-principles/
- Steve Blank, "Make No Little Plans – Defining the Scalable Startup," http://steveblank.com/2010/01/04/make-no-little-plans-–-defining-the-scalable-startup/
- Steve Blank, "A Startup is Not a Smaller Version of a Large Company", http://steveblank.com/2010/01/14/a-startup-is-not-a-smaller-version-of-a-large-company/

WATCH:
- Online lessons 1, 1.5a, 1.5b and 2: What We Now Know, Business Models and Customer Development, and Value Proposition Online lessons on LaunchPad Central - flipped classroom in blue nine squares symbol just to the right of the Resource Hub
- The "Customer Discovery Best Practice" Online Lessons on LaunchPad Central

REMEMBER:
- Talk to at least 3 customers and use what you learn to complete your initial business model canvas
- Record what you learned from the customer interviews in LaunchPad Central
- **Come prepared with a list of 5 confirmed appointments and 5 additional individuals that you will call on while you're in the Washington, DC area during the class (July 13-15).**

All Teams: Come Prepared to answer the following questions:
- What's the difference between search and execution regarding business models?
- What is a business model versus a business plan?
- What is the Business Model Canvas?
- What are the 9 components of the Business Model Canvas?
- What is a hypothesis in this context?
- What do we mean by "experiments"?
- What is Customer Development?
- What are the key tenets of Customer Development?

Prepare an Update for July 13th Class - Business Model

Upload your update to Dropbox by 7:00 am EDT on July 13th

NOTE: Save your updates to Dropbox using this naming convention: TeamNumber_TeamName_Date

Slide 1: Title Slide (see example on the right)
- Team name and number
- Pictures/names of your team members
- Innovation picture/description (not "tech speak" but 1-2 sentences about what problem you're solving for whom)
- Number of customer interviews for the current week and the total
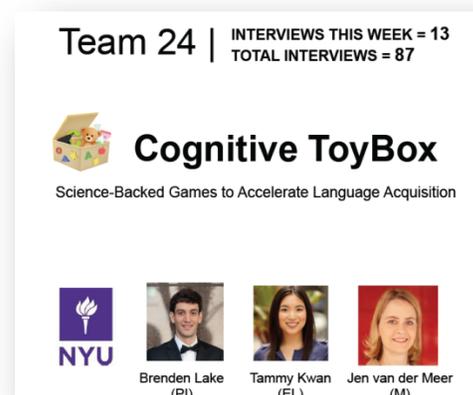
Slide 2: Customer Discovery. What you learned from customers. What did you expect, what did you learn, and what are you going to do next?

Slide 3: Populated Business Model Canvas

Team 24 | INTERVIEWS THIS WEEK = 13 TOTAL INTERVIEWS = 87

Cognitive ToyBox

Science-Backed Games to Accelerate Language Acquisition

NYU

Brenden Lake (PI) Tammy Kwan (EL) Jen van der Meer (M)

TEAM NAME HERE   **FILL OUT ALL 9 BOXES OF THE CANVAS IN ORDER 1 THUR 9**

Key Partners 7	Key Activities 5	Value Propositions 1	Customer Relationships 4	Customer Segments 2
Who are our Key Partners?	What Key Activities do our Value Propositions require?	Which one of our customer's *problems* are we helping to solve? Which customer *needs* are we satisfying? What is the specific product/service? What are the *features* that match customer needs?	How will we Keep and Grow customers?	For who are we solving a problem or fulfilling a need? Who are the customers? Does the value proposition match their needs? Is this a single-sided or multi-sided market?
	Key Resources 6		Channels 3	
	What Key Resources (suppliers, etc.) do our Value Propositions require?		Through which Channels do our Customer Segments want to be reached?	

Cost Structure 9	Revenue Streams 8
What are the most important costs in our business model?	What is the revenue model? What are the pricing tactics? For what vale are our customers willing to pay?

Download PowerPoint Template here: http://docs.asee.org/public/I-Corps-L/BusinessModelCanvas.pptx
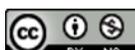
Detailed Course Schedule

Tuesday July 12th – Reception

7:00 - 9:00pm Location: The Hilton Crystal City (room TBD)

Wednesday, July 13th – Class 1 – Business Model/Customer Discovery & Development

Time	Session
8:30 - 9:00 am	**Introduction** ● Welcome and introduction by NSF ● Teaching Team Introductions ● Evaluation Team Introductions & Expectations ● Class Goals ● Teaching Philosophy ● Expectations
9:00 - 9:45 am	**Discussion: Overview of Business Model/Customer Discovery & Development** What's a business model? What are the 9 parts of a business model? What are hypotheses? What is the Minimum Feature Set? What experiments are needed to test business model hypotheses? What's "getting out of the building?" What is market size? How to determine whether a business model is worth doing? ● Intro to the Business Model Canvas and customer development a. Mapping the canvas to learning innovations b. Discovery versus selling versus focus groups ● Definition of hypotheses ● Definition of Minimum Viable Product (MVP) in educational settings ● Constructing experiments ● Explanation of "getting out of the building" ● Definition of market type (existing, re-segmented, new, or clone) ● How market size/exit strategy differ for educational innovations a. How do you determine whether a business model is worth doing
10:00 – 11:30 am	**Team Update** Teams present their business model canvas in two tracks. Each team is allotted about 5 minutes for a critique of their customer discovery and business model canvas, specifically focused on Value Propositions and Customer Segments. **Entrepreneurial Lead** should be prepared for a conversation about team's work with the teaching team. ● **Slide 1:** Title Slide ● **Slide 2:** Tell us about your customer interviews. What did you expect, what do you learn, and what are you going to do next? ● **Slide 3:** Show us your Business Model Canvas – for 30 seconds
11:30 – 12:00 pm	**Q&A LaunchPad Central (Lunch)**
12:00 – 1:00 pm	**Discussion: Best Practices for Customer Discovery & Development**

	• How to call on people you don't know. How to get the most out of the people you do. • Expectations, speed, tempo, logistics, commitments. • How do I protect my IP when I speak to partners? • Does Lean work for education efforts? • How do I interview? • How is an interview different than a sales call? **Interview Modeling, Coaching and Practice**
1:00 - 6:00 pm	**Customer Discovery & Development – Get out of the building!** • Using the contacts you've already prepared and the interviews you've previously scheduled, interview at least 5 potential customers to generate findings about your value proposition hypotheses. We encourage you to set up meetings to talk to potential customers in the Washington, DC Area or via Skype before you arrive at the workshop. • Getting a good start and maintaining a good pace of discovery interviews has proven to be a key success factor for the best performing teams. • You will be presenting your results tomorrow morning in your updated business model canvas.
6:00 - 7:30 pm	**Panel: How to Succeed in the Innovation Corps for Learning (Working Dinner)** A panel discussion with prior participants in the I-Corps™ program
7:30 - 8:30 pm	**Mentor Workshop** (Mentors only) The role of Mentors in the Lean LaunchPad® process
8:30 – 9:30 pm	**Office Hours***

*A schedule of **Office Hours** throughout the course will be made available. You are expected to use these valuable opportunities to have longer discussions with the teaching team.

Assignment for Class 2 – Thur., July 14th – Value Propositions (BMC-1) & Customer Segments (BMC-2)

READ: evening of July 13th for Class 2 – Value Propositions (BMC-1) & Customer Segments (BMC-2)
- *BMG*, pp. 22—25
- *SOM*: pp. 76-84 value proposition and MVP, pp. 473-475 product features checklist
- Osterwalder Value Proposition Canvas readings at
http://businessmodelalchemist.com/blog/2012/08/achieve-product-market-fit-with-our-brand-new-value-proposition-designer.html and http://businessmodelalchemist.com/blog/2012/09/test-your-value-proposition-supercharge-lean-startup-and-custdev-principles.html
- Value Proposition/Customer Segment Canvas:
http://www.businessmodelgeneration.com/downloads/value_proposition_canvas.pdf

WATCH:
- Online lesson 2 Value Proposition on LaunchPad Central
- Online lesson 3: Customer Segments (only through Customer Pains) on LaunchPad Central:

PREPARE: Update for tomorrows July 14th Class: Customer Discovery & Development
Talk to at least 5 potential customers to generate findings about your innovation

UPDATE FORMAT:
- **Slide 1:Title Slide**
    - Team name
    - Team members
    - Team number
    - 1 to 2 sentence description of your innovation
    - Number of customer interviews for the current week and the total
- **Slide 2:** Current business model canvas with any changes marked
- **Slide 3:** Current Value Proposition Canvas for one VP-CS
http://www.businessmodelgeneration.com/downloads/value_proposition_canvas.pdf
- **Slide 4:** What did you learn from talking to your customers? What are your proposed experiments to test customer segment and value proposition hypotheses?
    - Hypotheses: Here's What We Thought
    - Experiments: So Here's What We Did
    - Results: So Here's What We Found
    - Iterate: So Here's What We're Going to do Next

REMEMBER:
- Get out of the building and talk to as many people as you can
- Record what you learned from the customer interviews in LaunchPad Central

Upload your update to Dropbox by 7:00 am EDT on July 14th

Thursday, July 14th – Class 2 – Value Proposition (BMC-1) & Customer Segments (BMC-2)

Time	Session
8:30 – 8:45 am	**Day 2 Introduction** A brief introduction by NSF Q&A Customer Discovery & Development, Value Proposition
8:45 – 11:15 am	**Team Updates – Customer Discovery & Development** Teams present their business model canvas in two concurrent tracks (break-out groups). Each team is allotted about 10 minutes for a critique of their customer discovery and business model canvas, specifically focused on Value Propositions and Customer Segments.
11:30 – 12:30 pm	**Discussion: Value Propositions (BMC-1) & Customer Segments (BMC-2)** What is your product, service, or program and what problem is it solving? How does it differ from an idea? Specifically who will want it and why? Who's the competition and how does your customer view these competitive offerings? Where's the market? What's the *minimum feature set*? What's the Market Type? What was your inspiration or impetus? What assumptions drove you to this? What unique insight do you have into the market dynamics or into a technological shift that makes this a fresh opportunity?
12:30 – 7:30 pm	**Customer Discovery – Get out of the building!** ● Interview at least 5 more potential customers to generate findings about your value proposition hypothesis. We encourage you to you set up meetings to talk to potential customers in the Washington, DC Area or via Skype before you arrive. Getting a good start and maintaining a good pace of discovery interviews has proven to be a key success factor for the best performing teams. You will be presenting your results tomorrow morning in your updated business model canvas.
7:30 – 8:00 pm	**PI Workshop** (PI's only)
8:00 – 8:30 pm	**EL Workshop** (EL's only)
8:30 - 9:30 pm	**Office Hours**

Assignment for Class 3 – Friday, July 15th – Customer Segments (BMC-2) & Value Propositions (BMC-1)

READ: the evening of July 14th for Class 3 – Customer Segments (BMC-2) & Value Propositions (BMC-1)
- Read *BMG:* pp 127-133 customer insights, pp 161-168 prototyping
- Read *SOM:* pp 85-92 customer segments, pp. 203-214 problem understanding, pp. 218- 219 gain customer understanding, pp. 222-224 Market Knowledge, pp. 260-266 product/market fit pp. 476-477 customer segment checklist

WATCH:
- Online lesson 3: Remaining parts of Customer Segments on LaunchPad Central:

PREPARE: update for tomorrow's July 15th class: Customer Segments

Talk to at least 5 new potential customers to generate findings
- **Slide 1:Title Slide**
  - Team name
  - Team members
  - Team number
  - 1 to 2 sentence description of your innovation
  - Number of customer interviews for the current week and the total
- **Slide 2:** Current business model canvas with any changes marked
- **Slide 3:** Current Value Proposition Canvas for one VP-CS
- **Slide 4:** What did you learn from talking to your customers? What are your proposed experiments to test customer segment and value proposition hypotheses?
  - Hypotheses: Here's What We Thought
  - Experiments: So Here's What We Did
  - Results: So Here's What We Found
  - Iterate: So Here's What We're Going to do Next

  Slide 5+: Slides reporting on Customer Segments, Value Propositions, and Market Size.
  Slide 6+:Optional Slides: Additional Information that you want to share

Upload your update to Dropbox by 7:00 am EDT on July 15th

REMEMBER:
- Get out of the building and talk to as many people as you can
- Ask potential customers what they think about your value proposition. You may consider online survey tools* as a secondary means by which to generate more data.
- Update your business model canvas based on your findings
- Record what you learned from the customer interviews in LaunchPad Central

*** Survey tools are** not a **means to conduct customer interviews,** and survey responses may not be counted as unique customer contacts. Surveys are most useful for collecting quantitative data on subjects for which responses are finite and follow-up minimal. Surveys cannot, however, compare with live interviews, wherein respondents' answers to open-ended questions can drive follow up that digs deeper and ascertains a deeper understanding of respondent pain-points, needs, priorities, etc.*

Friday, July 15th – Class 3 –Customer Segments (BMC-2) & Value Propositions (BMC-1)

Time	Session
8:30 – 8:45 am	**Day 3 Introduction** A brief introduction by NSF Q&A – How did the discovery go? Surprises?
8:45 – 11:15 am	**Team updates** Teams present their business model canvas in three concurrent tracks (breakout groups). Each team is allotted about 15 minutes for a critique of their customer discovery and business model canvas, specifically focused on Customer Segments and Value Propositions and Market Size.
11:15 – 12:15 am	**Discussion: Customers Segments (BMC-2) & Value Propositions (BMC-1)** Who's the customer? User? Payer? How are these roles different? What does the ecosystem look like? Do these roles each have different Value Propositions? Why do they buy? How can you reach them? What is the customers' workflow? How is a business customer different from a consumer? What's a multi-sided market? What's segmentation? What's an archetype?
12:15 – 1:15 pm	**Adobe Connect Training and Send off (Working Lunch)** Receive your headset. Learn the expectations and protocol for the 5 online classes. Preflight and checkout of your computer and headset for use in remote lectures. Configuration support for hardware and software

See you online next week, Friday, July 22nd

1:00 pm - 4:00pm EDT

Assignment for Class 4 – Friday, July 22nd – Customer Relationships (BMC-4)

READ:
● *SOM* pp. 126-143 customer relationships hypotheses, pp. 296-303 Get/Keep/Grow, pp.   480-482 Relationships checklist, pp. 489 Test the Problem and its importance

WATCH:
● Online lesson *5 – Customer Relationships* on LaunchPad Central

UPDATE FORMAT:
• **Slide 1:Title Slide**
  ▪ Team name
  ▪ Team members
  ▪ Team number
  ▪ 1 to 2 sentence description of your innovation
  ▪ Number of customer interviews for the current week and the total

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- **Slide 2:** Current business model canvas with any changes marked
- **Slide 3:** Current Value Proposition Canvas for one VP-CS
- **Slide 4:** What did you learn from talking to your customers? What are your proposed experiments to test customer segment and value proposition hypotheses?
  - Hypotheses: Here's What We Thought
  - Experiments: So Here's What We Did
  - Results: So Here's What We Found
  - Iterate: So Here's What We're Going to do Next

Upload your update to Dropbox by 10:00 am EDT on July 22nd

REMEMBER:

- Talk to ~15 customers.
- Record what you learned from the customer interviews in LaunchPad Central

Friday, July 22nd – Class 4 – Customer Relationships (BMC-4)

Location: Adobe Connect

Time	Session
12:00 – 1:00 pm EDT	**Test Adobe Connect** The online classrooms will be open for one hour prior to Team Updates. Log on during this time to test video, sound and troubleshoot technical issues.
1:00 – 2:30 pm EDT	**Team Updates** Teams present their business model canvas in four concurrent tracks (break-out groups). Each team is allotted about 12 minutes for a critique of their customer discovery and business model canvas, specifically focused on Customer Segments and Value Propositions and Distribution Channels.
2:30 – 3:00 pm EDT	**Discussion (Whole Group): Customer Relationships: Get/Keep/Grow (BMC-4)** How do you create end user demand? How does it differ on the web versus other channels? Evangelism vs. existing need or category? General Marketing, Sales Funnel, etc. How does demand creation differ in a multi-sided market?
3:00 – 4:00 pm EDT	**Office Hour**

Assignment for Class 5 – Friday, July 29nd – Team Progress Report – Status of Search for a Sustainably Scalable Model

Reflect on and prepare responses to the following progress report items. Evidence that the team is able to:

- Apply the BMC to think strategically about an innovation in one's own ecosystem.
- Formulate specific Value Propositions and specific Customer Segments.
- Align Value Propositions with Customer Segments
- Develop a Customer-Focused vs. Feature- or Innovation-Focused perspective.
- Conduct effective customer interviews.

UPDATE FORMAT:
- **Slide 1:Title Slide**
    - Team name
    - Team members
    - Team number
    - 1 to 2 sentence description of your innovation
    - Number of customer interviews for the current week and the total
- **Slide 2:** Current business model canvas with any changes marked
- **Slide 3:** Current Value Proposition Canvas for one VP-CS
- **Slide 4:** What did you learn from talking to your customers? What are your proposed experiments to test customer segment and value proposition hypotheses?
    - Hypotheses: Here's What We Thought
    - Experiments: So Here's What We Did
    - Results: So Here's What We Found
    - Iterate: So Here's What We're Going to do Next
- **Slide 5:** Diagram of Customer(s) workflow
- **Slide 6:** What are your Customer Archetypes?
- **Slide 7:** Draw the channel (Get/Keep/Grow) diagram - Annotate it with the channel economics

    Upload your update to Dropbox by 10:00 am EDT on July 29th

REMEMBER:
- Talk to ~15 potential customers face to face.
- Record what you learned from the customer interviews in LaunchPad Central

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Friday, July 29th – Class 5 – Team Progress Report – Status of Search for a Sustainably Scalable Model

Location: Adobe Connect

Time	Session
12:00 - 1:00 pm EDT	**Test Adobe Connect** The online classrooms will be open for one hour prior to Team Updates. Log on during this time to test video, sound and troubleshoot technical issues.
1:00 – 2:30 pm EDT	**Team Updates** Teams present their business model canvas in four concurrent tracks (break-out groups). Each team is allotted about 12 minutes for a critique of their customer discovery and business model canvas, specifically focused on Customer Segments and Value Propositions, and Customer Relationships.
2:30 – 3:00 pm EDT	**Discussion: Team Progress Report – Search for a Sustainably Scalable Model.** **Evidence that the team is able to:** ● Apply the BMC to think strategically about an innovation in one's own ecosystem. ● Formulate specific Value Propositions and specific Customer Segments. ● Align Value Propositions with Customer Segments ● Develop a Customer-Focused vs. Feature- or Innovation-Focused perspective. ● Conduct effective customer interviews.
3:00 – 4:00 pm EDT	**Office Hour**

Assignment for Class 6 –Friday Aug 5th – Key Activities (BMC-5) & Key Resources (BMC-6)

READ:

- *SOM* pp. 169-175 resources, pp 267-269
- *BMG* pp. 36-37 key activities

WATCH:

- Online lesson *8 – Key Resources* on LaunchPad Central:

UPDATE FORMAT: (Note – focus of teaching team interaction will be on Team Progress Report – Search for a Sustainably Scalable Model)

- **Slide 1:Title Slide**
  - Team name
  - Team members
  - Team number
  - 1 to 2 sentence description of your innovation
  - Number of customer interviews for the current week and the total
- **Slide 2:** Current business model canvas with any changes marked
- **Slide 3:** Current Value Proposition Canvas for one VP-CS
- **Slide 4:** What did you learn from talking to your customers? What are your proposed experiments to test customer segment and value proposition hypotheses?
  - Hypotheses: Here's What We Thought
  - Experiments: So Here's What We Did
  - Results: So Here's What We Found
  - Iterate: So Here's What We're Going to do Next
- **Slide 5:** Draw the Get/Keep/Grow diagram - Annotate it with the key metrics

Upload your update to Dropbox by 10:00 am EDT on August 5th

REMEMBER:

- Talk to customers
- Record what you learned from the customer interviews in LaunchPad Central

Friday, August 5th – Class 6 – Key Activities (BMC-5) & Key Resources (BMC-6)

Location: Adobe Connect

Time	Session
12:00 – 1:00 pm EDT	**Test Adobe Connect** The online classrooms will be open for one hour prior to Team Updates. Log on during this time to test video, sound and troubleshoot technical issues.
1:00 – 2:45 pm EDT	**Team updates** Teams present their business model canvas in four concurrent tracks (break-out groups). Each team is allotted about 15 minutes for a discussion of the Team Progress Report – Search for a Sustainably Scalable Model – and a critique of their customer discovery and business model canvas, specifically focused on Customer Segments and Value Propositions and Customer Relationships.
3:00 – 3:30 pm EDT	**Discussion (Whole Group): Key Activities (BMC-5) and Key Resources (BMC-6)** What resources do you need to scale and sustain your innovation? How many people are needed to be considered at-scale? Who are they? Any hardware or software you need to buy? Any IP you need to license? How much money do you need to raise? When? Why? Importance of cash flows? When do you get paid vs. when do you pay others?
3:30 – 4:00 pm EDT	**Mentor Meeting (Mentors only)** This is an opportunity for mentors and the Teaching Team to check in. How is your Team progressing? How can we support one another?

Assignment for Class 7 – Friday, August 12th – Key Partners (BMC 7) & Distribution Channels (BMC-3)

READ:

- BMG 109-113 open business models
- SOM pp. 176-179 partners, pp. 484 partner's checklist. pp. 484 partner's checklist.
- *The Startup Owner's Manual,* pages 98–105 Channels, 242-244 meet the channel, 332-337 Channel Roadmap, 406–411distribution channels, 478 channels checklist
- See Mark Leslie *Value Chain* slides at http://www.slideshare.net/markleslie01/070801-value-chain-and-sales-model
- Review Startup Tools: http://steveblank.com/tools-and-blogs-for-entrepreneurs/

WATCH:

- Online Lesson *7 – Partners* on LaunchPad Central
- Watch: online lesson 4 –*Distribution Channels* - on LaunchPad Central

UPDATE FORMAT:

- **Slide 1:Title Slide**
- Team name
- Team members
- Team number
- 1 to 2 sentence description of your innovation
- Number of customer interviews for the current week and the total
- **Slide 2:** Current business model canvas with any changes marked
- **Slide 3:** Current Value Proposition Canvas for one VP-CS
- **Slide 4:** What did you learn from talking to your customers? What are your proposed experiments to test customer segment and value proposition hypotheses?
  - o Hypotheses: Here's What We Thought
  - o Experiments: So Here's What We Did
  - o Results: So Here's What We Found
  - o Iterate: So Here's What We're Going to do Next
- **Slide 5:** Rough diagram of activities and resources/partners needed to accomplish them

Upload your update to Dropbox by 10:00 am EDT on August 12th

REMEMBER:

- Talk to customers
- Record what you learned from the customer interviews in LaunchPad Central

Friday, August 12th – Class 7 – Key Partners (BMC-7) & Distribution Channels (BMC-3)

Location: Adobe Connect

Time	Session
12:00 – 1:00 pm EDT	**Test Adobe Connect** The online classrooms will be open for one hour prior to Team Updates. Log on during this time to test video, sound and troubleshoot technical issues.
1:00 – 2:30 pm EDT	**Team Updates** Teams present their business model canvas in four concurrent tracks (break-out groups). Each team is allotted about 12 minutes for a critique of their customer discovery and business model canvas, specifically focused on Customer Segments and Value Propositions and Key Activities & Key Resources.
2:30 – 3:00 pm EDT	**Discussion (Whole Group): Key Partners (BMC-7) & Distribution Channels (BMC-3)** Teams will join a single Adobe Connect classroom for a discussion. Who are partners? Strategic alliances, competition, joint ventures, buyer supplier, licensees. What's a channel? Physical versus virtual channels. Direct channels, indirect channels, OEM. Multi-sided markets. Different channels and sales in the education ecosystem.
3:00 – 4:00 pm EDT	**Office Hour**

Assignment for Class 8 – Friday, August 19th Revenue Streams (BMC-8) & Cost Structure (BMC-9)

READ:

- *SOM* pp. 180-188 revenue and pricing hypotheses, pp. 260-269 verify business model, pp. 438 metrics that matter, pp. 437-456 Pivot or Proceed?, pp. 457-459 financial model, Pp. 526-527 assemble data, pp. 528 Validate Financial Model

WATCH:

- Online lesson *6 – Revenue Models* on LaunchPad Central
- Online lesson 8 - *Resources, Activities, and Costs* on LaunchPad Central

UPDATE FORMAT:
Slide 1:Title Slide
- ▪ Team name
- ▪ Team members
- ▪ Team number
- ▪ 1 to 2 sentence description of your innovation
- ▪ Number of customer interviews for the current week and the total
- **Slide 2:** Current business model canvas with any changes marked
- **Slide 3:** Current Value Proposition Canvas for one VP-CS
- **Slide 4:** What did you learn from talking to your customers? What are your proposed experiments to test

customer segment and value proposition hypotheses?
- Hypotheses: Here's What We Thought
- Experiments: So Here's What We Did
- Results: So Here's What We Found
- Iterate: So Here's What We're Going to do Next
- **Slide 5:** Final diagram of activities and resources/partners needed to accomplish them

Upload your update to Dropbox by 10:00 am EDT on August 13th

Remember:
- Talk to customers
- Record what you learned from the customer interviews in LaunchPad Central

Friday, August 19th – Class 8 – Revenue Streams (BMC-8) & Cost Structure (BMC-9)

Location: Adobe Connect

Time	Session
12:00 – 1:00 pm EDT	**Test Adobe Connect** The online classrooms will be open for one hour prior to Team Updates. Log on during this time to test video, sound and troubleshoot technical issues.
1:00 – 2:30 pm EDT	**Team Updates** Teams present their business model canvas in three concurrent tracks (break-out groups). Each team is allotted about 12 minutes for a critique of their customer discovery and business model canvas, specifically focused on Customer Segments and Value Propositions, and Key Partners and Distributions Channels.
2:30 – 3:00 pm EDT	**Discussion (Whole Group): Revenue Streams (BMC-8) & Cost Structure (BMC-9)** What revenues and resources are necessary to sustain your innovation? What are the expenses? How do you generate revenue streams? What is your revenue model to reach scale?
3:00 – 4:00 pm EDT	**Office Hour**

Assignment for Class 9 – Thursday, August 25th - Entire BMC & Lessons Learned

WATCH:

- **Before your team starts working on your videos**, please watch *Getting Started with Video Production for I-Corps™ L* by Craig Protzel: http://youtu.be/M8oCqrH2nhI
- Watch Ira Glass' *Storytelling (Part 1 of 4)* video: http://www.youtube.com/watch?v=loxJ3FtCJJA

PRESENTATIONS

10-minute Lessons-Learned Presentation

- **Slide 1:Title Slide**
    - Team name
    - Team members
    - Team number
    - 1 to 2 sentence description of your innovation
    - Number of customer interviews for the current week and the total
- **Slide 2:** Business Model Canvas, Initial. Here was our original idea.
- **Slide 3:** So here's what we did (explain how you got out of the building)
- **Slide 4:** So here's what we found (what was reality) so then, …
- **Slide 5:** Business Model Canvas, Mid-point We iterated or pivoted… explain why and what you found.
- **Slide 6:** So here's what we did (explain how you got out of the building)
- **Slide 7:** So here's what we found (what was reality) so then…
- **Slide 8:** Business Model Canvas Final. We iterated or pivoted… explain why and what you found. "So here's where we ended up."
- **Slide 9:** Value Proposition Canvas for at least one VP-CS
- **Slide 10:** Market Size diagram (i.e. what is your definition of what scale means for your innovation)
- **Slide 11:** Customer Archetypes diagram
- **Slide 12:** Customer Workflow diagram
- **Slide 13:** Distribution Channel diagram
- **Slide 14:** Competitive Players
- **Slide 15:** Revenue Model diagram (i.e. what do you need in order to sustain your innovation
- **Slide 16:** Summary:
    - what did you learn
    - whether you think your innovation is viable to scale and be sustained, Go or No Go.
    - whether you want to pursue it after the course, etc.
    - include links to your Lessons Learned and Technology videos on YouTube.

Sample presentations from previous cohorts will be made available to you for reference at http://www.asee.org/i-corps-l/resources.

Upload your update & videos to Dropbox by 6:00 am EDT on August 25th and August 26th.

VIDEO PREPARATION ASSIGNMENTS

- A 2-minute Lessons Learned Video
- A 1-minute Technical Video

2-Minute Lessons Learned / Story Video

Create a two-minute video that tells a story. This is not a demonstration of scientific prowess. We want to hear about your journey through the NSF I-Corps™ L as it relates to your innovation. The more specific you can make it, the more specific details you can include, the more specifically you can describe answers to the question below, the better. Here's a quick outline that should point you in the right direction:

- What are your names and what is your teams' name? Introduce yourselves. Pan the camera around your office so we can see where you work.
- What scientific discipline are you working in?
- When you started the class, what was the most important thing you thought you would have to do to successfully launch a scalable startup? How do you feel about that now?
- Thinking back across the class, who was the most interesting customer you met and where did you meet them? What happened?
- Now that the class is over, what was the most surprising thing you learned in the class?

Please do not spend any time thanking the instructor team or the NSF. This video is about your team and about you. Time limit is 2 minutes, so keep it short and to the point. And no need to get high tech. Grab an iPhone and shoot with the camera.

Note that **everyone should have video editing software on their laptops so that we can make edits and adjustments to your video during our day together**, and so you can work on this in the evening too.

Sample presentations from previous cohorts will be made available to you for reference at http://www.asee.org/i-corps-l/resources.

1-Minute Technical Video

NSF and the I-Corps™ L teaching team would also like you to produce a short video focused on the details of your educational innovation. This assignment challenges you to use what you have learned to concisely describe the educational and innovative aspects of your project with the value proposition and customer archetype in mind.

The ability to do this effectively will be critical when making future pitches.

This will **not** be part of your final presentation, but you will make them publicly available for viewing. NSF will also retain this video as a record of where your innovation stands today.

Consider the audience for this video to be people who are well-versed enough to understand your project, your process, your lab, your equipment, and your approach at a general level; perhaps like someone you might meet at a conference focused on your general area of expertise. This video is a great place to include hero shots of your learning apparatus, your lab filled with bubbling students and chemistry experiments, or awesome shots of students creating computer simulations of their experiments running on the International Space Station in zero gravity.

Sample presentations from previous cohorts are available to you for reference at http://www.asee.org/i-corps-l/resources.

Basic Video Production Tips:

Your videos do not require high production value. You need not purchase fancy recording equipment or expensive editing software. You *DO* need to adequately convey your message. Here are a few things you can do – for free – to improve the quality of your video.

Audio:
- Find a quiet space or reduce competing noise before recording (listen for ventilation systems, machinery humming, wind, background activity)
- Get the microphone as close to your subject as possible
- Have subjects speak toward the camera as much as possible
- If you add background music, make sure that it complements, not distracts from, your presentation (and if it's too loud, it will definitely distract!)

Lighting:
- Make sure there is adequate light where you are recording. When in doubt, go brighter.
- For interview subjects, alter the lighting, or identify an interview location, where the subject will be lighted equally on both sides (otherwise one side of the subject will be in shadow and the contrast enhances the perception of darkness)
- If you shoot outdoors, make sure that the sun doesn't shine directly in your subject's eyes or directly into the camera

Presentation:
- Smile and show your enthusiasm for your subject
- Before you start talking, take a deep breath, pause and smile – this not only will prepare you for recording but will provide a natural spot to trim off any excess video during editing
- Speak slowly and clearly.
- Use hand gestures if you like, but not too wildly.

Other production tips:
- Use a tripod, or rest the camera on a stable platform to ensure that the video is steady and not crooked
- Consider recording some segments twice – once close up and once farther away, so in the "editing room" later, you may cut together the shots to provide some variety, or you can select the version for which

picture and audio turned out best

Looking to use free editing software?

- iMovie comes free with Apple hardware
- Apple and WinTel users can download a free, 30-day trial of Camtasia: www.camtasiasoftware.com
- Windows Movie Maker is free for WinTel users - http://windows.microsoft.com/en-us/windows-live/movie-maker

Thursday, August 25th – Class 9 – Prepare and Practice Final Presentations

Time	Session
9:00 – 9:30 am	**Welcome Back**
9:30 – 12:00 pm	**Practice Presentations** Teams practice their Lessons Learned presentations in three concurrent tracks to get ready for their final presentation. Each team is allotted 15 minutes total to include 10 minutes for presentation and 5 minutes for teaching team comments.
12:00 – 1:30 pm	**NSF Session (Working Lunch)**
1:30 – 4:30 pm	**Working Session: Refine and Finalize Your Presentation** Teams work on their presentations. The teaching team will be available to provide feedback.
4:30 – 5:30 pm	*What's Next?* **Panel**
5:30 – 7:00 pm	**Networking Dinner**

Friday, August 26th – Final Presentations

Time	Session
8:00 – 8:15 am	**ASEE Presentation**
8:15 – 12:00 pm	**Team Presentations, Part 1** Teams present to the entire class. Each team is allotted 15 minutes total, to include their 2-minute Lessons Learned Video, 10-minute Lesson Learned Presentation and 3 minutes of teaching team comments.
12:00 – 12:30 pm	**Lunch**
12:30 – 4:00 pm	**Team Presentations, Part 2**
4:00 – 4:30 pm	**Closing Session**

Teaching Team

Core Instructors

Karl Smith, Lead Instructor

Emeritus Professor
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Karl Smith is Emeritus Professor of Civil Engineering, Morse-Alumni Distinguished Teaching Professor, Executive Co-Director STEM Education Center, and Faculty Member, Technological Leadership Institute at the University of Minnesota. He also is the Cooperative Learning Professor, School of Engineering Education, College of Engineering, Purdue University

Dr. Smith's research and development interests include building research and innovation capabilities in engineering education; faculty and graduate student professional development; the role of cooperation in learning and design; problem formulation, modeling, and knowledge engineering; and project and knowledge management. Karl has over 30 years of experience working with faculty to redesign their courses and programs to enhance student learning. He adapted the cooperative learning model to engineering education, and in the past 15 years has focused on high-performance teamwork through his workshops and book *Teamwork and Project Management* (2014). His bachelor's and master's degrees are in metallurgical engineering from Michigan Technological University and his Ph.D. is in educational psychology from the University of Minnesota.

Dean Chang

Associate Vice President for Innovation & Entrepreneurship
University of Maryland
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Dean Chang is committed to helping students and researchers discover and cultivate the innovator and entrepreneurial mindset inside of them. He is the University of Maryland's (UMD) founding Associate VP for the Academy for Innovation & Entrepreneurship (AIE), reporting to the President and Provost and tasked with engaging every student in all 12 colleges in innovation. He is also a lead PI and instructor in the National Science Foundation's (NSF) I-Corps Node program. In addition of serving as a Core Instructor, Dean also serves as I-Corps™ L Teaching Team Advisor and I-Corps™ National Faculty Representative.

Prior to UMD, Dean spent 15 years in Silicon Valley where he served dual roles as the Chief Technology Officer and Vice President, Gaming Business of Immersion Corporation. He joined Immersion as employee #4 and helped transform the venture-backed, Stanford University robotics lab spinout into a publicly traded (NASDAQ: IMMR), world-leading licensor of haptics technology embedded in hundreds of millions of products from companies like Microsoft, Apple, BMW, Samsung, and Electronic Arts. Dean holds over 40 patents, a B.S. degree from MIT and M.S. and Ph.D. degrees from Stanford, and an MBA from Wharton.

Todd Morrill

Managing Director
Venture Management Group
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Bay Area NSF Innovation Corps

Todd Morrill has been building and leading bioscience companies since the first biotech boom in the early 1980s. He has been employee number 500, number 10 and number 2 (several times) of venture-backed startups, as well as a founder of three companies. He spent seven years in investment banking for pharma and biotech, and has worked at multinational pharma, diagnostics and tools companies. His roles have included sales, product management, marketing, R&D, business development and CEO. He has been an independent Board member of three companies.

Todd taught at the Haas School of Business, UC Berkeley from 2001 to 2009, where he is a Richard C. Holton Teaching Fellow. His courses included Entrepreneurship in Biotechnology; Mergers and Acquisitions; and Entrepreneurship. He has taught in the Intel Program in China and Japan, the Malaysia/UCSF program, and in biotech programs in Estonia, Australia and Abu Dhabi. Todd received an MBA from Haas and his BA in Biology, with Highest Honors, from Dartmouth College. He returned to teaching in 2013 because of his excitement with the NSF Innovation Corps (I-Corps) program.

Russell Korte

Associate Professor
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Colorado State University

Russell Korte is Associate Professor, Organization Learning, Performance, and Change, School of Education, Colorado State University. Dr. Korte's research focuses on understanding the socio-cultural processes affecting the learning and performance of engineering students, graduates, and faculty. Recent work included developing innovative educational experiences for engineering students as a Fellow with the Illinois Foundry for Innovation in Engineering Education and a member of the Academy for Excellence in Engineering Education (faculty development program) at the University of Illinois. He has been active for over 20 years in designing and delivering educational programs across a range of industries and educational institutions. He also has experience working with professionals in activities similar to this program. Dr. Korte received his B.S. in Education, an M.B.A. in Marketing, and a Ph.D. in Human Resource Development, with a doctoral minor in Business Administration and a Graduate Certificate in Adult Education from the University of Minnesota.

Adjunct Instructors

Ann McKenna

Professor and Director
Arizona State University
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Ann F. McKenna is a Professor and Director of the Polytechnic School in the Ira A. Fulton Schools of Engineering at Arizona State University. Prior to joining ASU she served as a program director at the National Science Foundation in the Division of Undergraduate Education, and was on the faculty in the Department of Mechanical Engineering and Segal Design Institute at Northwestern University. Dr. McKenna received her B.S. and M.S. degrees in Mechanical Engineering from Drexel University and Ph.D. from the University of California at Berkeley. She has been an active participant in creating, teaching, and evaluating educational innovations for over 20 years, and is particularly interested in how to scale and sustain educational innovations to help tell the story of impact. Her colleagues tell her she is overly preoccupied with the term "ecosystem" and she uses it frequently in the context of the Business Model Canvas. Dr. McKenna was a co-investigator on the first I-Corps-L project and has been an instructor in the program since the first cohort in January 2014.

Perry Samson

Professor
University of Michigan
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Perry Samson is a Professor at the University of Michigan in the College of Engineering Department of Climate and Space Sciences and Engineering in the College of Engineering and Professor in the School of Information. Prof. Samson has been honored as an "Arthur F. Thurnau Professor" for his contributions to undergraduate education and has been named "Professor of the Year" in the State of Michigan. His coursework includes both atmospheric sciences and entrepreneurship. As an entrepreneur he is co-founder of The Weather Underground, acquired by The Weather Channel and IBM and LectureTools acquired by Echo360 Inc. and he heads an accelerator for educational entrepreneurship in Ann Arbor.

Grant Warner

Managing Director
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Dr. Grant Warner is the Managing Director of the HowU Innovate initiative at Howard University. HowU Innovate is an interdisciplinary initiative which provides campus-wide innovation programming, including the Bison Startup and Bison Accelerate courses, in which students are guided through the process of founding technology startups. He also directs the Howard University – Hampton University I-Corps Site which focuses on commercializing university research from HBCUs in the DMV area. Additionally, Dr. Warner is a member of the core faculty of the NSF I-Corps program. In that role, has provided innovation and entrepreneurship training to 100+ teams and companies from across the nation. Dr. Warner is an established technology entrepreneur. He is the co-founder of ConnectYard, a social analytics platform integrated into leading learning management systems and e-learning platforms. He is also a co-founder of XediaLabs, a DC-based incubation firm that provides training and technical consulting to local startups. Dr. Warner received a B.S. degree from Cornell University, an M.S. degree from Penn State University, and a Ph.D. from Columbia University all in Mechanical Engineering.

Nancy Kamei

Entrepreneur in Residence
UCSF Innovation, Technology & Alliances
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Nancy Kamei is firm believer in the for-profit model as the most effective vehicle for creating change in the world. She is an experienced investor and serial entrepreneur who has attempted to build a life which will accomplish both doing good and making money: a compassionate capitalist. She is currently an Entrepreneur in Residence at UCSF, teaching (National Faculty for NSF I-Corps™), and launching various ventures.

After receiving her Doctor of Pharmacy degree from UCSF, she joined Merck in sales. She returned to California to get her MBA from Stanford and was then recruited to the biotechnology industry. Over six years, she was an Entrepreneur in Residence at Institutional Venture Partners and on the start-up teams of four successful biotechnology companies - the most notable was Onyx Pharmaceuticals (recently sold to Amgen for >$10b). She then moved to the investor side of the table: first in public equities at Capital Group Companies (Biotechnology, Healthcare IT, Hospitals) and then in corporate venture capital at Intel Capital (Digital Health).

She investigated Global Health for Aberdare Ventures and served as the Venture Capital Fellow for the Bill and Melinda Gates Foundation. She has over forty years of uninterrupted service to the non-profit sector including: Trustee and Chairman of the Investment Committee for the Marin Community Foundation (>$1b endowment) and Governor of the Japanese American National Museum. She lives in Marin County and has one son, who has started his own career as an investor in New York City.

Teaching Assistant

Lindsey Mitchell

Program Manager
DC I-Corps
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Lindsey manages the logistics of coordinating and conducting the regional I-Corps programs for the DC node. She oversees the region's social media and outreach efforts and assists in the behind-the-scenes work in coordinating team screening, managing venues, training teaching assistants, and organizing several regional cohorts and workshops per year. She has served as the lead Teaching Assistant for 12 NSF I-Corps and I-Corps L programs nationally and internationally in Mexico, South Korea & Brazil. Lindsey holds an M.Ed in College Student Personnel Administration and has over a decade of experience in event and conference planning.

Evaluation Team

Gary Lichtenstein

Principal
Quality Evaluation Designs

Dr. Gary Lichtenstein, QED Principal, is an expert in mixed-methods research and has participated in research and evaluation studies in STEM education for over a decade. Clients have included the Carnegie Foundation for the Advancement of Learning, and the Center for Advancement of Engineering Education, an NSF funded, a four-year, longitudinal study of cohorts of engineering undergraduates. Dr. Lichtenstein is lead author on a chapter in the Handbook on Engineering Education Research that summarizes national policies and practices related to retention and persistence of underrepresented minorities and women in STEM.

Cathleen Simons

Senior Research Associate
Quality Evaluation Designs

Dr. Cathleen Simons, QED Senior Research Associate, earned her doctorate in biophysics at the University of California, Berkeley. She has extensive experience in higher education policy, analysis, and pedagogy as an accreditation coordinator, institutional researcher, program evaluator, corporate trainer, and adjunct faculty. She has also worked in K-12 education as an assessment specialist. Dr. Simons was the evaluation lead on the I-Corps™ L Pilot.

Sheri Sheppard

Professor
Stanford University

Dr. Sheri Sheppard is a nationally recognized expert on engineering education. She led a three-year study of engineering education, "Educating Engineers," in the United States at the Carnegie Foundation for the Advancement of Teaching. For the last decade, she has been the faculty adviser to the Mechanical Engineering Women's Group at Stanford, which holds an annual seminar series and a welcome program for all female engineers. In 2010, she received the Stanford Gores Award, the university's highest award for excellence in teaching, and in 2014 was selected as a fellow in the prestigious Minerva Project. Dr. Sheppard is a PI of the EpiCenter, an NSF initiative to teach entrepreneurship to engineering students. Dr. Sheppard was instrumental in framing recommendations in the I-Corps™ L Pilot report.

Logistics Team

Rocio C. Chavela Guerra

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Rocio Chavela is Director of Education and Career Development at the American Society for Engineering Education (ASEE). She holds a Ph.D. in Engineering Education from Purdue University, a B.S. and a M.S. in Chemical Engineering from Universidad de las Americas, Puebla in Mexico. Rocio's current efforts focus on engineering faculty and graduate student development, with particular emphasis on the adoption of evidence-based instructional practices.

Ray Phillips

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Ray Phillips is an assistant program manager at the American Society for Engineering Education (ASEE). He received his B.S in Computer Information System from Livingstone College. He serves as a meeting coordinator, website designer and photographer for projects such as Maker Summit, Virtual Communities of Practices (VCP), and Transforming Undergraduate Education in Engineering (TUEE).