CSU I-Corps™
Syllabus for Fall 2015 Cohort (Student-Led Teams)
TEAM PARTICIPANTS VERSION

From NSF guidelines: *The foundation of I-Corps™ Programs is the Lean LaunchPad® curriculum. The expectation for Sites is that the Lean LaunchPad curriculum will serve as a baseline for educating teams about commercialization.*

Fall 2015 Teams (as of June 15, 2015) w/ Teaching Team Member Assignments:

BAXTER TEAMS

- **LiveSorb: Ryan Kaplan (EL),** Elizabeth Bailey & Chris De Alba – Humboldt State University – bioremediation cartridge
- **Central Valley Biopharma: Matthew Ogbuehi (EL),** Chieh-Ju Lin & Ignacio Villanueva – CSU Fresno – nanoscale drug delivery system
- **Calcitronics: Shuja Sajjad (EL),** Wardak Aman, Tristan Jensen & Roy Thomas – CSU East Bay – osteoporosis test (w/MARTINDALE)
- **NeoPatch: Jonathan Tringali (EL),** Dana Marquardt, Dorian Martinez & Alex Murphy – Cal Poly Pomona – insulin patch
- **Cryogenix: Ariga Bianca Yaghoobi (EL),** Ali Alizada & Marlene Villegas-Ortega – CSU Los Angeles – tissue preservation method

DENOBLE TEAMS

- **Mobile Metrics: Aaron Blancaflor (EL),** Jayson Francis, Rima Hakim & Christopher Smith – CSU Sacramento – baby monitor
- **Biliblu Biomedical: Nathaniel Johnson (EL),** Josh Ayotte, Andrew Dubil & Doua Yang – CSU Sacramento – bilirubin monitor

MALOY TEAMS

- **OVON, Inc.: Mrudula Vemuri (EL),** Neda Nasr, Cynthia Ouanji & Gayatri Venkatesan – San José State University – antimicrobial fabric
- **BioNivia Tech: Jonathan Rey (EL),** Katherine Belknap, Kristine Belknap & Brian Lee – CSU Los Angeles – video game-based physical therapy
- **Vinci Diabetes: Madiha Shah (EL),** Guneet Bhogal, My Phan & Ashleen Sandhu - San José State University – insulin patch

MARTINDALE TEAMS

- **BioStream: Luis Rosa (EL),** Oscar Diaz & Michael Marquez – CSU Los Angeles & Cal Poly Pomona – cell incubation instrument

- **Proteiniacs: Celeste Rodriguez (EL),** Julia DeNamur, Estela Lemus & Uriel Rivera – CSU Los Angeles – antifreeze protein additive
- **Bioinorganic Medicinal Chemistry: Sheng Zhang (EL),** Leyla Farshidpour, Yoshikazu Miura & Xiaojie Zhang – CSU Fresno – small molecule cancer therapy (w/BAXTER)

PUCHER TEAMS

- **Fibrexsciences: Michael Amadi (EL),** Jason Cole & Ryan Smith – CSU East Bay – synthetic, engineered materials
- **SJBiomechanics: Kevin Bencini (EL),** Sean Arin, Val Razdyakonova & Ari Schwartz – San José State University – smart back brace
- **LaserClean: Zarina Munshi** (EL)**,** Alexander Jackson & Jason Peretz – San Diego State University – nicotine detector
- **Sacramento Monitor Assistance: Allen Poniente (EL),** Javier Ramos & Hannah Weakley – CSU Sacramento – wearable device

CSU I-Corps Site Program Learning Outcomes (Fall 2015 version)

Upon completion of the CSU I-Corps Site Program, participants should:

1. **Communicate biotechnology ideas in a non-confidential manner to preserve intellectual property**

Assessment methods: Teams will develop 3-5 minute descriptions of their biotechnology and its value proposition as part of Lessons Learned presentations at final meeting. Evaluation panels (subject area experts [SMEs] & patent attorney on teaching team) will assess effectiveness of non-confidential presentations.

2. **Deliver a presentation to a live audience and subject matter experts, including a lessons learned presentation deck and story**

Assessment methods: Teams will develop 10-minute Lessons Learned presentations and present them to evaluation panels at final meeting for each cohort. Panels will evaluate effectiveness of communication as part of final evaluation using score sheets.

3. **Use the Business Model Canvas (BMC) framework, focusing on Value Proposition Design, to evaluate an early stage biotechnology.**

Teams will describe The Problem (What customer job/pain/gain are they trying to address?), a Problem-Solution Fit (an overall metric of quality of work) and a Value Proposition (What competitive advantages does the biotechnology have over current solutions?).

Assessment methods: Teaching Team will collect CSU I-Corps application answers as initial baseline for learning. Teaching Team will evaluate One-Page Summaries submitted 2-3 weeks ahead of final

presentations. In addition, the evaluation panels will assess teams' Value Proposition Design based on final presentations.

4. **Apply evidence-based approach to business model design by using Customer Discovery process to iterate hypotheses and assumptions.**

Assessment methods: Teams design experiments and apply them on a consecutive basis by completing ~30 customer interviews over the course of the program. Throughout the program, the teaching team will track whether teams are completing interviews and learning from their experiments, based on the completed CSU I-Corps Interview Template for each interview. Feedback will be given in webinars, office hours and in comments on homework submitted. In addition, evaluation panels (SMEs) will assess teams' learning, based on final presentations. They will also evaluate teams' ability to synthesize their captured learning.

5. **Show how evidence from Customer Discovery activities results in key learnings, leading to "persevere" or "pivot" decisions in the business model and how they influence future plans.**

Assessment methods: Teams report their synthesis by submitting a series of completed Business Model Canvases (BMCs) throughout the program. The Teaching Team will assess whether BMCs are submitted and whether they are changing over time. Feedback will be given in webinars and in comments on the homework submitted. The one-page summary can be used to assess thinking, as well as evaluations of final presentations from panel.

To assess "go/no-go" decisions for NSF:
Teaching Team will review team's ability to meet deadlines, teams' participation level (attendance), the rubric scores from the One-Page Summaries and the scores from the Evaluation Panels. In addition teams will report whether they want to advance their ideas or not. Together these data will lead to the Go/No-Go decisions submitted to NSF by CSUPERB.

CSU I-Corps Website Evaluation Description
(http://www.csuperb.org/csuicorps/fall-2015/team-evaluation/)

BIOTECHNOLOGY PRODUCT / PROCESS / SERVICE CONCEPT & TEAM EVALUATION

I-Corps™ teams get out of their labs, innovation centers and classrooms and off campus to interview customers and consult with life science advisors, mentors and potential customers or partners. As a result, teams get feedback continuously so that they hone product concepts, improve their understanding of biotechnology markets, and formulate commercialization pathways. Teams typically conduct 5-10 customer, partner or expert interviews each month.

Using the key principles of the Lean LaunchPad approach to entrepreneurship, student teams learn about evidence-based business model design. Teams use the customer discovery process to test hypotheses and assumptions underlying their initial business models. During the fall, teams synthesize

key learnings to evolve their problem-solution fit. They present their biotechnology concepts and their learning stories at the final meetings.

Panels drawn from the CSU I-Corps' network of alumni, life science industry professionals, and experienced entrepreneurs evaluate teams' learning. Panels will review the teams' presentations to assess the problem-solution fit, biotechnology maturity and teamwork. Panels will give special recognition to teams who demonstrate significant learning over the course of the Challenge and/or who identify a compelling entrepreneurial opportunity.
Important evaluation criteria will include, but are not limited to:

- The Problem-Solution Fit
    - Value Proposition (What competitive advantages does your biotechnology have over current solutions?)
    - The Problem (What customer job/pain/gain are you trying to address?)
- The team's understanding of the initial customer segment served (early adopters/partners)
- The team's understanding of market size and aspects of a multi-sided market (regulatory issues?), if applicable
- The team's understanding of key partners needed (Which partners are important when?)
- The team's plan for developing the product (Is it feasible? What might be the capital investment required? What IP protection is needed? What milestones do you need to hit in the next 3-6 months to move forward?)
- The team's tenacity, enthusiasm and story-telling skills
- The team's arc of learning, demonstrated by evidence-based evolution of their product/solution concept (based on customer, partner and/or expert interviews)

SCHEDULE OF FALL 2015 ACTIVITIES

All webinars and office hours are held noon – 1 pm on Zoom, unless otherwise noted!

Date	Activities, Deadlines and Milestones	Teaching Team
Wednesday, May 27, 2015	Introduction to CSU I-Corps Webinar	Baxter
Wednesday, July 29	Summer Intellectual Property (IP) Workshop (11:30 am – 1:30 pm?)	Martindale / Baxter (& Marie Talnack, Cal Poly Pomona)
Friday, September 4	Webinar #1: Lean LaunchPad Principles	DeNoble / Pucher
Friday, September 11	Office Hours: Industry Mentor Interactions	DeNoble / Pucher
Friday, September 18	Webinar #2: Customer Discovery	Pucher / DeNoble (in Florida)
Friday, September 25	Office Hours: Customer Segments	Baxter / DeNoble
Friday, October 2	Webinar #3: Customer Development	DeNoble / Pucher
Friday, October 9	Office Hours: IP Follow Up	Martindale / Pucher
Friday, October 16	Webinar #4: Synthesizing the Results	Baxter / Pucher
Friday, October 23	Office Hours: Business Model Canvas Mechanics	Baxter / Pucher
Friday, October 30	Webinar #5: Telling the Story with Final Presentations	Baxter / Maloy
Friday, November 13	Office Hours: Partnering & Licensing	Martindale / Maloy
Friday, November 20	Office Hours: Key Partners and Activities	Baxter
Friday, December 4	One Page Summaries & BMC v3 Due Office Hours: More About Multi-sided Markets	Baxter / DeNoble
Friday, December 11	Office Hours: Regulatory Affairs	Baxter / Maloy
Friday, December 18	Office Hours	Martindale / Pucher
Thursday – Saturday, January 7-9, 2016	Preliminary & Final Presentations Hyatt Regency Orange County	Evaluation Panelists TBD

CSU I-Corps
Syllabus for Fall 2015 Cohort (Student-Led Teams)

CSU I-Corps Website: http://www.csuperb.org/csuicorps

Instructors: Susan Baxter, Alex DeNoble, Stanley Maloy, Tommy Martindale, Cathy Pucher & a series of invited guests

Texts:

Talking to Humans
https://s3.amazonaws.com/TalkingtoHumans/Talking+to+Humans.pdf

Value Proposition Design (Sneak Preview version only, 100 pages):
https://strategyzer.com/value-proposition-design

Business Model Generation (Preview version only, 72 pages):
http://www.businessmodelgeneration.com/downloads/businessmodelgeneration_preview.pdf

Resources and Video Libraries:

Lean LaunchPad Master Video Library: http://venturewell.org/i-corps/llpvideos/

University of Michigan Intellectual Property Video Library: http://www.cfe.umich.edu/intellectual-property/all-videos/

U.S. Food & Drug Administration Learning Portal:
http://www.fda.gov/Training/learningportal/default.htm

CSU I-Corps Resources: http://www.csuperb.org/csuicorps/biosciences-site/resources/

CSU I-Corps Shared Drive: Google Drive (folder links will be sent via email to ELs)

Webinar Platform: CSUPERB Zoom Meeting Room: https://zoom.us/j/6195942822

Prerequisites: Successful application to the CSU I-Corps Microgrant Program + curiosity and drive to learn how life science ideas become products + ability to attend all meetings & webinars + ability to conduct customer/expert interviews, deliver homework and make presentations.

Goal: An experiential, real-world learning opportunity!

Basic Program Structure

This is an intense program with a relatively high workload during the fall and winter break. The aim of I-Corps programming is to create entrepreneurial experiences "with all the pressures and demands of the real world." Teams will get feedback continuously so that they hone product concepts, improve their understanding of biotechnology markets, and formulate commercialization pathways. Previous teams report working between 40-100 hours over the term. This means teams spend 3-5 hours weekly reading, watching assigned videos, setting up and coordinating meetings with biotech experts, potential customers and partners, meeting with their industry mentor (IM), talking with customers, users and industry experts, and testing commercialization hypotheses.

This is a real-world, "flipped classroom," experiential learning program. That means we expect CSU I-Corps teams to view videos and do some reading and homework before attending webinars. It means we expect you to meet with your team and Industry Mentor weekly to synthesize what you're learning and make plans to move forward in a coordinated way. It also means that you must "get out the building" and interview ~30 experts, potential customers or partners between September and January 7th. Lastly, it means you'll attend the final immersion weekend at which all teams will come together to present their concepts to two evaluation panels and the 600+ audience at the CSU Biotechnology Symposium. This is what you signed up for when you accepted the National Science Foundation (NSF)-sponsored microgrant! Congratulations again!

CSU I-Corps Program Culture

- Before immersing teams in a start-up culture, there are some things we need to explain. Biotechnology commercialization is a time- and cash-constrained process. Likewise, we have limited time and we're planning to push and challenge you to learn quickly. Just like real-world companies, we have no time (or money) to waste! Your team will be evaluated based on your tenacity – that is - your ability to work as a team, deliver on time, use your budget effectively, and show up as promised.

- We'll be offering webinars and office hours during the fall to help you begin your search for a product-market fit. Each team needs to submit "homework assignments" before each webinar. Homework will be collected on an assigned, shared Google Drive Folder. Homework assignments and reports help us assess each team's arc of learning and whether they are keeping up with customer discovery activities (tenacity). Late submissions will be noted and go into the overall team evaluation shared with NSF. In addition, all instructors will assume you've done the homework and will discuss new topics based on that assumption.

- CSU I-Corps webinars are only one hour long. That means you'll need to show up early to log-in and make sure your video and audio connections are working; late arrivals will be noted. ELs are required to attend all webinars. If you cannot attend, you must contact Susan Baxter (sbaxter@mail.sdsu.edu) to schedule a separate feedback session; teams cannot skip webinars altogether. We will archive webinar content so that you can go back and review what was said,

but most instructors will be focused on pointing you to other resources so you can move ahead on your own. We think your time is best spent learning from the Lean LaunchPad Master Video Library (link above).

- During each webinar, the instructors will call on teams to present their lessons learned and homework – this means you'll need to be ready to present to the CSU I-Corps on what you've learned from your interviews between webinars. This means you'll learn to get comfortable with public feedback. But we also know teams will learn from each other – a classic "win-win!" CSU I-Corps is not a competition; be respectful of the other teams, listen to what they are learning and think about how it might apply to your own learning.

- This fall we will also be offering optional Office Hours. Many will feature industry experts available to answer questions on specific topics and business model canvas components. Like the webinars, we'll hold them using Zoom on Fridays at noon. If no one shows up for office hours by 12:15pm, we'll shut the videoconference session down.

FALL 2015 CSU I-CORPS PROGRAM SYLLABUS

HOMEWORK To Prepare for IP Workshop

Watch University of Michigan Intellectual Property Videos:
(http://www.cfe.umich.edu/intellectual-property/all-videos/): #6 (What are patent rights?), # 11 (What is Prior Art?), #14 (Public Disclosure Issues), #15 (Patent Application Process), #21 (Patent Inventorship), #24 (Patent Ownership), #30 (Freedom to Operate), #37 (Copyright Overview), & #42 (Works for Hire)

Talk with your campus Research or Tech Transfer Office about student IP and ownership policies. If your product concept is based on faculty research, ask about shared ownership.

Summer Intellectual Property (IP) Workshop

Wednesday, July 29, 2015 (11:30 am – 1:30 pm, Pacific Time)

Instructors: Susan Baxter, Tommy Martindale & Marie Talnack

- Introduction to IP Management – Martindale
- Introduction to Technology Transfer and Campus IP Policies – Baxter & Talnack
- Protecting Intellectual Property During Customer Discovery – Martindale & Baxter
    - How and what can you communicate about your biotechnology to customers, partners, others without compromising your IP position?
- Commercialization Research - Talnack
    - Using Google Patent and the Cal Poly Pomona databases to determine whether you've got a novel idea or if you're entering a crowded market.

HOMEWORK for Webinar #1

Reading to read *before* webinar #1: *Value Proposition Design* (free sneak peak version), pages 1 – 49 only:
https://strategyzer.com/value-proposition-design

Optional Summer Read: ***All In StartUp*** by Diana Kander (http://www.amazon.com/All-Startup-Launching-Idea-Everything-ebook/dp/B00JUUZP92/)

Video to watch *before* webinar #1: Steve Blank, Evidence-based Entrepreneurship (~25 minutes): https://www.youtube.com/watch?v=zjvEanpktEo

Webinar #1: Lean LaunchPad® Principles

Friday, September 4, 2015 (noon – 1 pm, Pacific Time)

Instructors: Alex DeNoble & Cathy Pucher

- Introduction to Lean LaunchPad - Pucher
- Customer Segment Identification - Pucher
- Value Proposition Development – Pucher

HOMEWORK for Webinar #2

Use the ad lib Value Proposition (VP) Card to articulate your team's starting VP. Refer to *Value Proposition Design* (pages 51-63, sneak preview version). As a result, you will have identified your first customer segment(s) to put into your first Business Model Canvas (BMC v1 – fill in VP and CS segments only). Submit to your VP Card and BMC v1 to the Google Drive team folder by noon, Sept. 16.

Videos to watch before webinar #2:

- Steve Blank's BMC video: http://steveblank.com/2014/06/23/keep-calm-and-test-the-hypothesis-2-minutes-to-see-why/
- Customer Segments in the Life Sciences: https://vimeo.com/125172371
- The Veritas Medical video (< 10 min): https://www.youtube.com/watch?t=30&v=-FGTTFMEDHU

Webinar #2: Evidence-based Customer Discovery

Friday, September 18, 2015 (noon, pacific time)

Instructors: Alex DeNoble & Cathy Pucher

- Homework Review (2-3 teams will be asked to present Value Propositions)
- Discuss Evidence-based Learning using Owlet video – DeNoble
- Customer Interview Template & Interview Practices - DeNoble

HOMEWORK for Webinar #3

Work with your industry mentor to generate list of people to interview and draft interview questions to test your key assumptions. Read pages 73-93 in *Value Proposition Design* (Sneak Preview Version).

Watch all four "Before Leaving the Building" videos: http://venturewell.org/i-corps/llpvideos/customer-discovery/before-leaving-the-building/

Watch all six "Outside the Building" (Rules of Customer Interviews) videos: http://venturewell.org/i-corps/llpvideos/customer-discovery/outside-the-building/rules-of-customer-interviews/

Read (& memorize?): *Ground Rules for Interviewing* poster (Strategyzer), http://blog.strategyzer.com/posts/2015/11/8-tips-for-conducting-interviews-that-deliver-relevant-customer-insights

Interview TWO (2) Experts, Potential Customers or Partners to test your value proposition! Complete CSU I-Corps Interview Report for each interview and upload to Google Drive by noon, September 30.

Webinar #3: Getting Out of the Building

Friday, October 2, 2015 (noon, pacific time)

Instructors: Alex DeNoble & Cathy Pucher

- Homework Review (2 teams will present lessons learned "outside the building:" How did it go, what did you learn?)
- Mock Interviews – Pucher
- Pivots – DeNoble

HOMEWORK for Webinar #4

Readings:

- ***Talking to Humans***
  https://s3.amazonaws.com/TalkingtoHumans/Talking+to+Humans.pdf

- ***Top 10 Ways Entrepreneurs Pivot a Lean Startup*** **(Martin Zwilling)**
  http://www.forbes.com/sites/martinzwilling/2011/09/16/top-10-ways-entrepreneurs-pivot-a-lean-startup/

- ***Business Model Generation*** (Preview version, pages 14 - 46):
  http://www.businessmodelgeneration.com/downloads/businessmodelgeneration_preview.pdf

Videos: Watch all 6 "Back in the Building" videos: http://venturewell.org/i-corps/llpvideos/customer-discovery/back-in-the-building/

Complete five (5) interviews with experts, potential customers or partners to test your assumptions about your problem-solution fit. Complete CSU I-Corps Interview Report for each interview and upload to Google Drive by noon, October 16 (Friday – not Wednesday!).

Webinar #4: Synthesizing Results

Friday, October 16, 2014 (noon, pacific time)

Instructors: Susan Baxter & Cathy Pucher

- Homework Review (2 teams present lessons learned from interviews and resulting pivots)
- Synthesizing Interview Results into Patterns of Learning - Pucher
- Kinds of Pivots - Baxter
- Review Business Model Canvas (& mark-up format to track changes based on evidence from market) - Pucher

HOMEWORK for Webinar #5

Complete ten (10) interviews with experts, potential customers or partners to test your assumptions about your problem-solution fit and a commercialization pathway. Work with your Industry Mentor to synthesize what you're learning. Complete CSU I-Corps Interview Report for each interview and upload to Google Drive by noon, October 30 (Friday – not Wednesday!).

Based on what you've learned, **Draft a Business Model Canvas (BMC v2; fill in all building blocks)**. Work with your Industry Mentor and upload your BMC to Google Drive by noon, October 30.

Watch Videos: David Riemer's Series on Getting Your Story Straight (Story Telling): (http://venturewell.org/i-corps/llpvideos/david-riemer/)

Webinar #5: Telling the Story with Final Presentations
Friday, October 30, 2015

Instructors: Susan Baxter & Stanley Maloy

- Homework Review (2 teams present): BMC v2
- Next (Independent) Phase of CSU I-Corps - Baxter
- Giving Presentations and Telling A Story – Maloy
- Team Feedback to Teaching Team – What have you learned so far?

HOMEWORK for Independent Team Phase of CSU I-Corps

Submit a 3-minute video by Friday, November 20 to describe your biotechnology (in a non-confidential way) and an overview of your problem-solution fit and value proposition.

Continue interviewing experts, potential customers & partners (for a total of ~30 or more by January 7!) to develop your BMC – develop and test hypotheses for all segments of BMC.

Submit one-page Summary with BMCv3. Submit both documents to Google Drive folders by 5pm on December 4. Teaching Team will provide feedback ASAP.

Develop a Final Presentation for Evaluation Panels (Jan. 7-9, 2016, Hyatt Regency Orange County). Slide decks must be available on Google Drive by noon January 6.