

All SBIR I-Corps™ Summer 2020 *Syllabus*

Host Node District of Columbia/Maryland/Virginia (DMV) Node

Teaching Team

Instructors: Edmund Pendleton, Julie Collins, Grant Warner, Dan Kunitz, Mike Abbott, Bob Storey
Teaching Assistant: Lindsey Smith

Days and Times

Opening Workshop: August 11-14, 2020
5 Interim Classes: August 20, 27 September 3, 10, 17
Closing Workshop: September 24-25, 2020

Required Texts

- *The Startup Owner's Manual*, Steve Blank and Bob Dorf
- *Business Model Generation*, Alexander Osterwalder and Yves Pigneur

Recommended Texts

- *Value Proposition Design*, Alexander Osterwalder, et al.
- *Talking to Humans*, Giff Constable and Frank Rimalovski

Course Management Software

[Innovation Within](#) (an account will be provided to you)

Course Overview

This course provides SBIR I-Corps™ companies with real-world, hands-on learning experiences that improve the odds for successful products and processes that benefit society. The entire Team will engage with industry stakeholders – including customers, partners, and competitors.

Goals

1. Provide SBIR I-Corps™ companies with an experiential learning opportunity to help build and validate key elements of their business models.
2. Give companies an opportunity to iterate or pivot direction as they progress through Phase I efforts.
3. Enable companies to develop clear Next Step decisions regarding their commercialization efforts.

Teams

This is a team-based class. Everyone is considered a "founder" and equal on the team, and all team members are expected to participate in the customer discovery interviews. Each week you will test hypotheses (i.e., your best guesses related to business model elements) related to your evolving business model.

This course also challenges teams and you may encounter issues working together. The teaching team will help you navigate some of these issues, but teams must take the primary responsibility in working out differences. We also encourage teams to recruit extra help and to use all additional resources available to them.

Course Culture

The Teaching Team will be respectfully direct and open throughout the process. Their comments are intended to provide rapid learning for the entire cohort of teams – and should not be taken personally. Entrepreneurs need to learn and evolve quickly in highly uncertain environments, and this class is structured and taught to improve this skill. The Teaching Team encourages you to question, challenge, and engage throughout the process.

Attendance and Participation

1. All team members are expected to attend ALL sessions of the course.
2. If any team member anticipates missing a class during the course, the team must get NSF approval. Generally, NSF does not approve absences except for unexpected medical or family emergencies.

Deliverables Summary

1. Documented entries in Innovation Within that capture the information, learning, and contact information from your customer discovery. (Training will be provided on how to use the platform.)
2. Class presentations that summarize your customer discovery and evolving business model. Your slide decks should not contain any proprietary information.
3. Minimum Viable Products (MVPs). This course will use a "broad definition" of MVP and will include anything you put in front of a customer to test a hypothesis (e.g., diagram, simulation, physical prototype). Instructors will provide guidance on when and how to use MVPs in your discovery efforts.
4. Incoming assessment (at beginning of the course) and outgoing assessment (end of the course) of key commercialization metrics for SBIR companies. These pre-class and post-class surveys will enable each team (and NSF) to track key learning and progress in the course.

Course Structure and Format

Opening Workshop

This initial workshop introduces teams to the I-Corps™ approach, the Teaching Team, and their peers in the cohort. Teams also will meet with customers (online) and will present what they learned to the class. During each presentation, the Teaching Team will offer observations and guidance intended to help all teams in the cohort.

Interviews

Throughout the course teams will be required to “get out of the building” (virtually, through online meetings) and test business model assumptions. Over the full course, each team must conduct at least 100 total interviews, which equates to approximately 15 interviews per week. Teams also are required to record interviews in Innovation Within (IW). The Teaching Team may limit presentation time if a team does not meet the required interview number for the class, and teams only receive “credit” for the interviews recorded in IW.

5 Interim Classes

During the period between the Opening and Closing workshops, teams attend weekly online classes. Teams present lessons learned from interviews, receive guidance from the Teaching Team, and participate in a weekly discussion about elements of their business models.

Closing Workshop

This final meeting provides teams an opportunity to present summaries of their lessons learned – over the full course – and to share expected “next steps.” Teams also will meet individually with the Teaching Team to discuss their specific plans.

Office Hours

The Teaching Team will be available for “office hour” meetings throughout the course at various times. These sessions allow for specific and individual responses to questions and comments. The Teaching Assistant will provide guidance on how to register for these meetings (typically available through IW). Office hour sessions are mandatory for the first two days of the Opening Workshop and then once a week between the opening and closing workshops.

Pre-Class Assignments

Reading

- *Business Model Generation, "Definition of a Business Model", pp. 14–51*

Course Videos

Each team member must access and watch the videos using your Innovation Within (IW) account. The course TA will send out directions on how to access these videos.

- Lectures 1.5A and 1.5B: *Business Models and Customer Development*
- Lecture 2: *Value Propositions*
- Lecture 3: *Customer Segments*
- Customer Discovery Best Practice (short videos) – ALL

Introductory Presentation

In addition to the pre-class assignments above, teams must prepare an introduction presentation for the first day. Please see "Class 1 Assignments" below.

Class 1 Assignment

In addition to the pre-class video and reading assignments above, teams must prepare an introduction presentation for the first day. Please follow the format below.

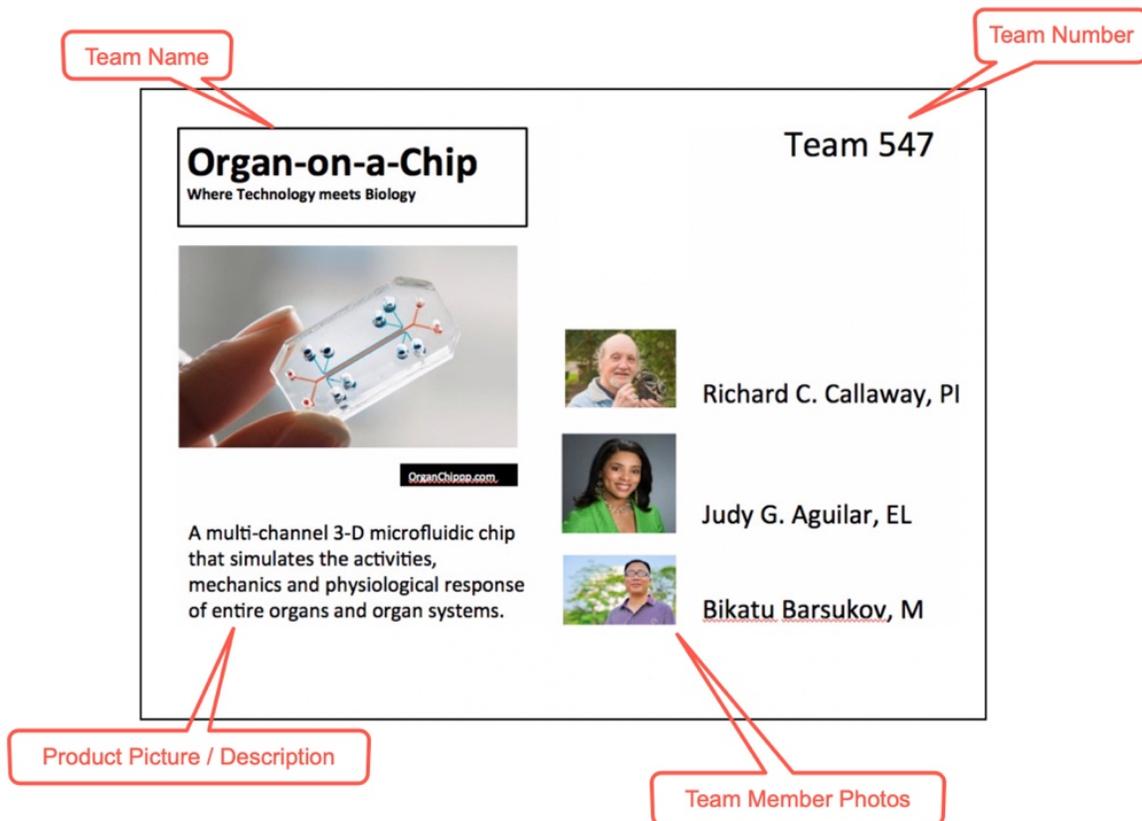
Presentation Format

Slide 1: Team name, team number, photos of team members, and product (or technology) picture and description (see example below).

Slide 2: As you understand it today, who is your target customer (see example below).

Slide 3: List of 15 *or more* customer / stakeholder contacts you plan to interview during the “Get out of the Building” time on Day 1 and Day 2 of the Opening.

Slide 1: Team Slide Example



The example slide is titled "Organ-on-a-Chip" with the tagline "Where Technology meets Biology". It features a photograph of a multi-channel 3-D microfluidic chip. The slide also includes three team member photos and their names: Richard C. Callaway, PI; Judy G. Aguilar, EL; and Bikatu Barsukov, M. The slide number "Team 547" is displayed in the top right corner. Red callout boxes identify the "Team Name", "Team Number", "Product Picture / Description", and "Team Member Photos" sections.

Slide 2: Target Customer

1. Business or consumer?

- (a) If a Business, what type of company? What Industry sector? Will they use your product directly or embed into another product and sell to others?
- (b) If a Consumer, what type of person (consumer demographic, etc.)?

2. Do you think the End User and Decision Maker(s) will be the same person? If they work in a business, what would be their typical position titles?

3. The "Job" (or Jobs) the *End User* might "hire" your solution to do? Describe this job from a customer's perspective (this is not a description of *how* your technology works or *does* the job).

You will ONLY have 3-minutes to present, so plan to be concise. SBIR companies that participated in a Beat-the-Odds Boot Camp will use their learning as a starting point of this course.

Upload your presentation (in PPT format) to Dropbox by 6:00 AM EASTERN TIME

Use the naming convention: TeamNumber_TeamName_Date (e.g., 195_DataComm_05062019)

Class 2 Assignment

- Formulate questions to test customer hypotheses
- Conduct a minimum of 5 in-person customer interviews and enter summaries of them in IW
- Prepare presentation (details below)

Presentation Format

Slide 1: Team name, team number, photos of team members, and business thesis (who is the customer, what is your product, why will customers buy it). Please include interview count table provided by the TA.

Slide 2 - n: What did you learn about customer needs? What do they care about most (in their words)? Are they significantly unsatisfied with other solutions today?

Use this narrative to convey your learning:

Hypotheses: *What We Thought*

Experiments: *What We Did*

Results: *What We Found*

Slide 3: Current business model canvas with any changes marked. **Note: Course TA will communicate preferred format to use.**

Slide 4: Discovery Plan for today – who will you meet? How do you plan to reach at least 10 total interviews (combined from yesterday and today) by tomorrow?

Slide(s) +/-: Instructors may add and/or subtract slides from this assignment at their discretion. Any such changes will be detailed by the course TA prior to class.

Upload your presentation (in PPT format) to Dropbox by 6:00 AM EASTERN TIME

Class 3 Assignment

- Refine interview questions to test customer and value proposition hypotheses
- Conduct at least 5 more interviews (your total from yesterday and today should be 10 or more) AND enter summaries in IW
- Update your BMC in IW (guidance will be provided by TT)
- Prepare presentation (details below)

Presentation Format

Slide 1: Team name, team number, photos of team members, and business thesis (who is the customer, what is your product, why will customers buy it). Please include interview count table provided by the TA.

Slide 2 - n: For which customers will your proposed solution deliver value? Can you translate how your features or capabilities might provide “value” from the customer’s perspective (i.e., do not simply list product features or capabilities, explain *why* the customer may want them)?

Questions to Consider: Did customers mention their requirements for any solution that they would consider? Did they identify pain points with existing solutions? Do you think these customers will care about all of your potential value propositions or a subset? Will some be more important to them? Will any be unnecessary? Are there customers that may see little or no value in your solution?

Use this narrative to convey your learning:

Hypotheses: *What We Thought*
Experiments: *What We Did*
Results: *What We Found*
Iterate: *What We Plan to Do Next*

Slide 3: Current business model canvas with any changes marked. **Note: Course TA will communicate preferred format to use.**

Slide 4: Discovery Plan for next week. How do you plan to reach 15 new interviews by the next class?

Slide(s) +/-: Instructors may add and/or subtract slides from this assignment at their discretion. Any such changes will be detailed by the course TA prior to class.

Upload your presentation (in PPT format) to Dropbox by 6:00 AM EASTERN TIME

Class 4 Presentation & Video Assignment

- Conduct as many interviews as you can AND enter summaries in IW – *the expectation is 15 new interviews each week*
- Update your BMC in IW as suggested by teaching team
- Prepare presentation (details below)
- Watch *Lectures 4-6: Channels, Customer Relationships, and Revenue Models* in course videos on IW

Presentation Format

Slide 1: Team name, team number, photos of team members, and business thesis (who is the customer, what is your product, why will customers buy it). Please include interview count table provided by the TA.

Slide 2 - n: What did you learn about your prospective customers and related value propositions? How has your thinking evolved since the beginning of the course? (See prompts from prior presentations related to customers and value propositions.)

Questions to Consider: Did you identify separate roles / responsibilities for your customers (end user, decision maker, payer, influencers, other)? Can you describe a customer archetype (prototypical customer)? Did you learn anything about the purchasing decisions customers make? Do you understand the customer ecosystem (key industry players) and how customers are organized if you plan to sell to other organizations (where do you find key stakeholders / roles inside these organizations)?

Use this narrative to convey your learning:

Hypotheses: *What We Thought*
Experiments: *What We Did*
Results: *What We Found*
Iterate: *What We Plan to Do Next*

Slide 3: Current business model canvas with any changes marked. **Note:** Course TA will communicate preferred format to use.

Slide 4: Discovery Plan for next week. How do you plan to reach 15 new interviews by the next class?

Slide(s) +/-: Instructors may add and/or subtract slides from this assignment at their discretion. Any such changes will be detailed by the course TA prior to class.

Upload your presentation (in PPT format) to Dropbox by 12:00 AM in YOUR TIME ZONE (midnight prior to your presentation)

Class 5 Presentation & Video Assignment

- Conduct as many interviews as you can AND enter summaries in IW – *the expectation is 15 new interviews each week. In addition to customers, talk to people in your potential channels (e.g., salespeople, distributors, OEMs)*
- Update your BMC in IW
- Prepare presentation (details below)
- Review *Lectures 4-6: Channels, Customer Relationships, and Revenue Models* in course videos on IW

Presentation Format

Slide 1: Team name, team number, photos of team members, and business thesis (who is the customer, what is your product, why will customers buy it). Please include interview count table provided by the TA.

Slide 2 - n: What did you learn about your prospective channels? Did you continue to refine your understanding of customers and related value propositions?

Questions to Consider: How do the customers want to be reached? Where do they buy similar products / services today? How integrated are sales, distribution, and support? Does your offering extend or replace existing products sold by the channel? How are salespeople compensated? How do your customers find out about similar products / services? How will you create awareness of your offering?

Use this narrative to convey your learning:

Hypotheses: *What We Thought*
Experiments: *What We Did*
Results: *What We Found*
Iterate: *What We Plan to Do Next*

Slide 3: Current business model canvas with any changes marked. **Note:** Course TA will communicate preferred format to use.

Slide 4: Discovery Plan for next week. How do you plan to reach 15 new interviews by the next class?

Slide(s) +/-: Instructors may add and/or subtract slides from this assignment at their discretion. Any such changes will be detailed by the course TA prior to class.

Upload your presentation (in PPT format) to Dropbox by 12:00 AM in YOUR TIME ZONE (midnight prior to your presentation)

Class 6 Presentation & Video Assignment

- Conduct as many interviews as you can AND enter summaries in IW – *the expectation is 15 new interviews each week.*
- Update your BMC in IW
- Prepare presentation (details below)
- Watch *Lecture 7 Partners and Lecture 8 Resources, Activities, and Costs* in the course videos on IW

Presentation Format

Slide 1: Team name, team number, photos of team members, and business thesis (who is the customer, what is your product, why will customers buy it). Please include interview count table provided by the TA.

Slide 2 - n: What did you learn about how you will get, keep, and grow customers? Did you continue to refine your understanding of customers and related value propositions?

Questions to Consider: Can you estimate a “customer acquisition cost”? How does your Channel selection (prior week) impact this cost? Can you estimate the “lifetime value” of a customer? What revenue models are your customers familiar with today? How do they buy similar products and services? What are they paying for similar products and services? What are their typical budgeting and sales cycles? What are the expected “payment flows” (timing and amount) between you and the customer?

Use this narrative to convey your learning:

Hypotheses: *What We Thought*
Experiments: *What We Did*
Results: *What We Found*
Iterate: *What We Plan to Do Next*

Slide 3: Current business model canvas with any changes marked. **Note:** Course TA will communicate preferred format to use.

Slide 4: Discovery Plan for next week. How do you plan to reach 15 new interviews by the next class?

Slide(s) +/-: Instructors may add and/or subtract slides from this assignment at their discretion. Any such changes will be detailed by the course TA prior to class.

Upload your presentation (in PPT format) to Dropbox by 12:00 AM in YOUR TIME ZONE (midnight prior to your presentation)

Class 7 Presentation & Video Assignment

- Conduct as many interviews as you can AND enter summaries in IW – *the expectation is 15 new interviews each week.*
- Update your BMC in IW
- Prepare presentation (details below)
- Review *Lecture 7 Partners and Lecture 8 Resources, Activities, and Costs* in the course videos on IW

Presentation Format

Slide 1: Team name, team number, photos of team members, and business thesis (who is the customer, what is your product, why will customers buy it). Please include interview count table provided by the TA.

Slide 2 - n: What did you learn about how your customers buy products and services today? Did you continue to refine your understanding of customers and related value propositions?

Questions to Consider: What will you focus on versus outsourcing to others? What drives decision to do internally or outsource? What are your core competencies...what kind of company are you building? Do you need a Key Partner to develop part of your “full solution” for customers? What other types of partners might you need now and in the future? Will you need Key Suppliers for important components? How dependent will you be on these external entities? Did you continue to refine your understanding of customers and related value propositions?

Use this narrative to convey your learning:

Hypotheses: *What We Thought*
Experiments: *What We Did*
Results: *What We Found*
Iterate: *What We Plan to Do Next*

Slide 3: Current business model canvas with any changes marked. **Note:** Course TA will communicate preferred format to use.

Slide 4: Discovery Plan for next week. How do you plan to reach 15 new interviews by the next class?

Slide(s) +/-: Instructors may add and/or subtract slides from this assignment at their discretion. Any such changes will be detailed by the course TA prior to class.

Upload your presentation (in PPT format) to Dropbox by 12:00 AM in YOUR TIME ZONE (midnight prior to your presentation)

Class 8 Presentation & Video Assignment

- Conduct as many interviews (including with potential partners and suppliers) as you can AND enter summaries in IW (15 new)
- Update your BMC in IW
- Create an initial estimate of your market size
- Prepare presentation (details below)
- Review Final Deliverables in the Syllabus; this will be covered by your instructors.

Presentation Format

Slide 1: Team name, team number, photos of team members, and business thesis (who is the customer, what is your product, why will customers buy it). Please include interview count table provided by the TA.

Slide 2 - n: What did you learn about potential partners and suppliers? What are they looking for in a typical relationship? Did you continue to refine your understanding of customers and related value propositions?

Questions to Consider: What will you do (your Key Activities) versus asking others to do? What did you continue learn about potential partners and suppliers? What are they looking for in a typical relationship? What are the risks for you *and* the partner? Where will your likely cost drivers come from...consider cost of goods sold (COGS), general and administrative (G&A), customer acquisition cost (CAC), and research & development (R&D). Fixed & variable costs?

Use this narrative to convey your learning:

Hypotheses: *What We Thought*
Experiments: *What We Did*
Results: *What We Found*
Iterate: *What We Plan to Do Next*

Slide 3: Current business model canvas with any changes marked. **Note:** Course TA will communicate preferred format to use.

Slide 4: Initial market size estimate (teaching team will provide direction)

Slide 5: Discovery Plan for next week. How do you plan to reach 15 new interviews by the next class?

Slide(s) +/-: Instructors may add and/or subtract slides from this assignment at their discretion. Any such changes will be detailed by the course TA prior to class.

Upload your presentation (in PPT format) to Dropbox by 12:00 AM in YOUR TIME ZONE (midnight prior to your presentation)

Class 9 Assignment – Closing Workshop (Penultimate Day)

- Conduct as many interviews as you can AND enter summaries in IW – *the requirement is that ALL TEAMS will reach 100 by the start of the Closing Workshop.*
- Update your BMC in IW.
- Watch the David Riemer series of videos on using storytelling <http://venturewell.org/i-corps/llp/videos/david-riemer>
- Watch sample videos from previous cohorts <http://venturewell.org/i-corps/team-materials>
- Prepare and submit a draft of your 2-minute Lessons Learned video (see instructions at back of syllabus). The video file should be < 50 MB (editing software can compress file size) and submit according to the TA's instructions.
- Prepare a draft of your Lessons Learned presentation (see presentation format on the following page).

Class 10 Assignment – Closing Workshop (Final Day)

- Prepare and upload final versions of Lessons Learned Video and Presentation
- Practice presentations to perfect message and keep within 10-minute limit

Final presentations and videos must be uploaded by 6:00 AM EASTERN TIME.

Final Lessons Learned Presentation

This objective of the Final Lessons Learned Presentation is to **tell the story of your journey** through the entire Customer Discovery process of the course – *in no more than 10 minutes!*

The presentation should:

- Tell a story of what you did and what you learned
- Focus on aggregate insights rather than singular data points
- Highlight your “a-ha!” moment(s)
- Include images and graphics that support your story
- Use brief and legible text (i.e., large enough to be read when projected on-screen)

The presentation slide deck must also include the following **NSF-required** content:

- Introduction at the beginning (Team name and number, member names and roles, total interviews completed, and total in-person interviews).
- Initial and final business model canvas iterations. Guidance will be provided by instructors on how to prepare and present
- Next Steps after the cohort.

Once again, the presentation should be a dynamic and engaging delivery of a Team’s story; it should not be a simple narration of slides or findings.

NOTE: The Teaching Team will provide a suggested presentation guide and template for teams to use prior to the Closing workshop. The final deliverables will be discussed during Classes 7 and 8 (two weeks and one week prior to the Closing).

Lessons Learned Video

This two-minute video should tell a story about your journey through I-Corps™. The video is not a demonstration of scientific knowledge or a marketing video. We want to hear how I-Corps™ impacted your thinking about the potential business opportunity. The more personal and specific you make the story, the better. Use the brief outline below to frame your narrative:

- *Introduce the Team (your names and team name).*
- *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 over the class, who was the most interesting customer you met? Where did you meet? What happened and what did you learn?*
- *Now that the class is over, what was the most surprising thing you learned?*

Please do not spend any time thanking the Teaching Team or the NSF. This video is about you and your company. The time limit is 2 minutes, so be concise. Teams are not expected to become video production experts; however, please refer to the Basic Video Production Tips section of the syllabus for specific recommended best practices.

Watch the David Riemer video series on storytelling. These will help you to communicate your I-Corps™ learning journey <http://venturewell.org/i-corps/11pvideos/david-riemer>

Sample videos from previous cohorts are available for your reference <http://venturewell.org/i-corps/team-materials>

Sharing Instructions

1. Final videos should be < 50 MB in file size (video editing software can compress files)
2. As a backup, please also (a) upload videos to YouTube and include links in your final presentation, and (b) email links to your TA.

All final presentations and videos must be uploaded by 6:00 AM EASTERN TIME on the final day of the course.

Basic Video Production Tips

You do not need professional video production skills, fancy recording equipment, or expensive editing software to produce a high-quality I-Corps™ video. The following recommendations and best practices will help you improve the quality of your videos – using freely available tools.

Video:

- Smart phone cameras are good enough – a dedicated video camera is nice to have, but not required.
- Use a tripod or stable platform to ensure steady and properly framed video footage.
- Built-in computer cameras (“web-cams”) may also work in some instances but can be more difficult to control – if using one, try to frame the scene and avoid sitting too close to the camera (i.e., avoid “talking head” effect).
- Generally speaking, use animations selectively to enhance your message.

Audio:

- Find a quiet space or reduce competing noise before recording (listen for ventilation systems, machinery humming, wind, background activity, etc.)
- Get the microphone as close to your subject as possible.
- Have subjects speak toward the camera as much as possible.
- Use music selectively – if at all – and ensure that it complements the message. Your narration (voice-over) should be the primary video sound-track. Music may provide a nice transition or background, but it can also distract – particularly if too loud.
- Please do *not* use the “silent movie” approach – we want to hear your voices!

Lighting:

- Adequately light the scenes prior to recording (if in doubt, go brighter).
- When interviewing people, balance the lighting (equal on both sides) when possible to avoid dark shadows / high contrast.
- When recording outdoors, avoid direct sunlight in the camera or interview subject’s eyes (i.e., no squinting required!).

Presentation:

- Smile and show enthusiasm for your subject (when recording your team).
- Before you start talking, take a deep breath, pause and smile – this will prepare you for recording and will provide a natural spot to trim excess video during editing.
- Speak slowly and clearly.
- Use hand gestures slowly and deliberately – if at all (avoid erratic motions).



Editing:

- Consider recording segments multiple times and pick “the best one” during the editing process. You might even change the perspective (up close, farther back) between recordings so that you can splice together a more interesting scene with a variety of perspectives.
- Consider adding “transition effects” throughout the video to soften the transitions between various elements (video, photos, animations, etc.).
- Learn and experiment with the “basic” editing and file saving features of your video editing software (online tutorials are typically available).

Editing Software:

- Basic (and free) – iMovie for Mac and Camtasia (30-day trial) for PC
www.camtasiastsoftware.com
- Advanced (paid – though some universities / employers provide) – Abode Premiere (Mac and PC)
- Smartphone / Tablet Apps – wide range, varying capabilities, prices, and quality.
Not recommended over desktop applications.

