# Chen Institute for Neuroscience 3-Minute Video Workshop for Graduate Students and Postdocs

**Class Syllabus** 



by Tatyana Dobreva, Jeremy Bernstein, and David Brown

## Overview

This short and intense 3-minute video workshop gets graduate-level researchers hands-on experience in getting out of their research presentation comfort zone and in front of a camera, developing creative language to communicate their science to a more general audience. It teaches skills that will make them mindful of their audience and structure their talk in an efficient, effective manner, and gives them tangible creative output after only a few work sessions. Students who participated in this workshop have since then used the skills obtained in lab presentations, conferences, and were able to showcase their work to both peers and a non-technical audience. With this packet, we aim to provide the mindset and materials needed to get up and running with a workshop in your school or institution!

## **Background/Motivation**

The key goal of the class is to guide participants in making a 3-minute video of their research passion and story that is targeted for a broad audience. During graduate research training (e.g. PhD programs), students learn how to present themselves at scientific conferences and lab meetings; however, often this training is limited to talking to people that are already familiar with their research area. This mindset of presentation, while critical for academic careers, limits the ability of science to be communicated between disciplines, between researchers and potential employers, and between researchers and the public. The goal of this workshop is to empower graduate-level researchers to overcome these barriers with a combination of teaching from professional science communicators (e.g. science YouTubers), and extensive hands-on training by guiding them through producing a real, professional quality video of their research. The workshop is designed to produce videos that will be composed of interspersed segments of students speaking in a professional camera setting, and their own animations/props/cell phone footage of their research.

Participants can use their video for:

- Sharing with the public to elucidate what goes on in graduate level research;
- Showing off in grant/job applications;
- Showing to fellow academics in your or other fields so they quickly know what you're working on;
- Showing to prospective students (high school or college level) to encourage them to work in your field/project area, or at your school
- Showing to your friends and family so they finally know what it is you're working on!

## Main Idea

The demands of this class are quite high; to get a group of graduate-level researchers to go from 0 content to a professionally edited video in a short timeframe and on a small budget. Given these demands, and the uniqueness of each person's research, it is critical that organizers are adaptive, dynamic, and accommodating. The details of class schedules and outputs and templates in the following packet are merely a guideline; you will need to adjust to your institution and participants' needs. However, the high level workflow of the class *is* something that we believe can be generally followed, regardless of the specific implementation.

The high level workflow of the workshop is as follows:

- 1. Guide students on establishing their research story that they want to share
- 2. <u>Find a science communicator</u> (e.g. science YouTuber) to teach students <u>how to</u> <u>communicate to a broad audience via camera</u>, tricks for keeping audiences

engaged, editing videos, making props, and the full toolkit of what's needed to make a cool video

- 3. Guide students on <u>establishing a 3-column script of their video</u> being very explicit about what they want to have shown on screen and heard on audio. Do they want a clip of their lab robot here? A molecule showing up in the corner of the screen? A sped-up whiteboard animation of some equations?
- 4. Provide resources, time, and space for <u>students to go out and film parts of their</u> <u>video on a cell phone</u>, with high quality audio, making a bucket of clips to pull from for the final video
- 5. Organize time for students to be <u>filmed by a professional filmographer</u> for portions of their video where they will be speaking and looking at a camera; you want your students looking and sounding their best!
- 6. <u>Coordinate with a video editor</u> to take the professional shots, cell phone shots, and any other video/audio assets the students want, and turn them into a cohesive video, under the guidance of the students' three-column scripts

And that's the main idea! The remaining pages share materials and suggestions for how to execute on this vision.

## What will be taught

- How to present oneself
- Speaking to a camera
- Techniques for storytelling
- The exposition of scientific ideas in an exciting way from science communicators

#### Time Commitment

- This class has a minimum 15-hour time commitment for participants; participants can commit any additional time outside of class to improve/edit their videos, and there are optional class sessions for learning additional skills (e.g. video editing)
- Time commitment for the organizers is substantially more; on the order of 40 hours
- This class is designed to be as self-contained as possible; that is, participants can show up on day 1 of the class with little to no idea of how to make a video or what they want to share, and by the end of the 3rd session, will have all the footage and script for a full video

## **Schedule Overview**

The class is broken down into the following sessions, ideally over a short period of time (e.g. 3 consecutive Saturdays)

- Introductory Meeting: Introduce the class to potential interested students; gather feedback
- Class 1: Establish Your Story: Guide participants in developing their initial story
- Class 2: Presentation and storytelling skill building: Semi-formal training from science communicators and refining video scripts
- Class 2.1: (Optional) Video Editing: Training on using video editing software
- Script Peer Review Session: (Optional) Script table reading in preparation for filming
- Class 3: Final filming: Each participant has a time slot with a filmographer
- Video Draft Peer Review Session: (Optional) First draft critique session

## Materials

- Markers of various colors
- Storyboarding paper
- External microphone to plug into cell phone (Audio is critical). E.g. <u>https://www.amazon.com/gp/product/B074MBD643/ref=ppx\_yo\_dt\_b\_asin\_title\_006\_s00?ie=UTF8&psc=1</u>
- Whiteboard
- Scissors
- Hard drive to store all the video content

## **Estimated Costs**

Two Science YouTubers Full Day Lecture: \$2000 Creative Instructor for 3 class days: \$1500 Equipment rentals, lodging for filmographer: \$2000 Filmographer camera shoot: \$2500 Video editing: \$6000 Food for participants: \$750 Supplies for workshop: \$250 **Total cost (for 12 students): \$15,000** 

# Class-by-class Agenda

## **Introductory Meeting**

To kick off the class, hold an introductory meeting (e.g. over dinner) with the course organizers and interested students that establishes the goals of the class and what students will gain from taking the class. Is is also an opportunity to get feedback from students on what they are looking to get out of it. By the end of the meeting, instructors should have a sense of what they may need to tweak in the class agenda to meet the needs of students. Also, this is a good time to get an idea of possible head count, as well as what dates and times work for people.

#### Goals

- Answer questions people may have
- Get people excited about it!
- Get feedback on what participants want
- Get an idea of how many people may participate

#### Preparations

- Establish a crew!
  - □ Find a storytelling/presentation coach (e.g. Brian Brophy, Caltech Theater Arts Director)
  - **Gradienter Find a filmographer (e.g. Tim Matsui)**
  - □ Find science communicators (e.g. Trace Dominguez, Alex Dainis)
- □ Establish available dates for filming and teaching
  - Note: Editing can take weeks. In our case Tim Matsui edited 9 videos in two weeks.
- Send out an e-mail (template) announcing the workshop and asking for RSVPs
- □ Have a way for students, instructors, and filmographers to share, comment, and evaluate content. We ended up setting up a Google Doc folders in which each student had their own folder with their respective content

#### Materials

• PowerPoint presentation giving an overview of the class (<u>template</u>)

#### Schedule

- 18:00 18:15: Grab food and have everyone introduce themselves and say what enticed them to attend
- 18:15 18:25: PowerPoint presentation giving an overview of the class

- 18:25 18:45: Exercise: have people pair up (tell them to pick someone that doesn't know their research) and tell them to pitch their research passion to their partner in 3 minutes. Set a timer for 4 minutes, then have the partners switch. Set a timer for 4 minutes again, then go around the room and ask each person to say what their *partner's* research passion is
- 18:45 18:55: Questions, open discussion
- 18:55 19:00: Put potential dates and times on the whiteboard and have students place tick marks for date/times that work for them
- 19:00 Disband. Encourage the students to invite their friends. Friends are a big motivator for someone to do an event like this!

Output

- Head count
- Dates
- Funding allocation

## Class 1—Establish Your Story

Goals

- Do some relaxation exercises. Relax and feel comfortable in your new group!
- Establish and shape your story!
  - What is the goal of your video?
  - What audience do you want to reach?
  - How do you want to tell your story?
  - Why do you do what you do? What motivates your science story?
  - What significant moments in your life led to your pursuits?
- Create your storyboard!
- Tell it to the camera!
  - Getting practice talking to the camera early on is great
  - Have a friend record you
  - Get over your fear of the camera! It is liberating



#### Preparations

- Organizers:
  - Generation Send an e-mail blast (<u>template</u>) soliciting RSVPs for the class
  - □ E-mail participants that have RSVP'd the date for the first class (template)
  - □ Get external microphones so students can practice recording high quality audio
  - Create a folder for each participant in the class cloud storage (e.g. Google Drive)
  - □ Reminder e-mail to participants a day or so before class for what they should expect (<u>template</u>)
- **Creative coach:** 
  - □ Prepare relaxation and posture exercises
  - Introduction to storyboarding presentation
- **G** Filmographer:
  - □ Send introductory e-mail to participants

#### Materials

- External microphone to attach to cell phone
- Storyboarding paper (big sheets)
- Large monitor/projector
- Markers of various colors
- Presentation slides (<u>template</u>)



Timed schedule

- 10:00 10:10: Intro relaxation exercise
- 10:10 10:20: Introduction/overview of the workshop
- 10:20 10:30: Let's jump straight into it! Attempt #1 share your 3-minute pitch. You do not need to prepare for this.
- 10:30 10:40: Reflect and refine on your partner's comments/suggestions/etc
- 10:40 10:50: Breathing exercise (To help you control the tempo of your speech!)
- 10:50 11:00: Attempt #2
- 11:00 11:10: Introduction to storyboarding and script writing
- 11:10 12:00: Storyboard your 3-minute video
- 12:00 13:00: Working lunch! Share and critique each other's storyboards
- 13:00 13:15: Gesture and movement in front of the camera
- 13:15 14:00: Go out and shoot your rough 3-minute video with a partner
- 14:00 15:00: Share and discuss the videos!



Output

• Rough drafts of storyboards for each participant

• Initial raw footage of participants talking about their science story

Homework for participants

- Solidify the storyboard of the 3-minute video. They need to think about what is realistic to film given the short period of time.
- If they need any props for their video, they should bring the requested item to the workshop leaders for the second class.

## Class 2—More Story-telling + Video Editing 101

In this session, students will start putting together the vision established in Class 1 into words, and will learn methods for telling a story from science communicators.



Goals

- YouTubers will teach how to make a good script:
  - How to structure your story
  - How to write it at the correct reading level... not too complex!
- Break out and work on your script more!
  - YouTubers go round and answer questions
- Collectively critique the YouTubers' early videos
  - Which videos do they now cringe at?
- Optional video editing workshop!
  - How to use simple software like Adobe Rush
  - Edit students' clips or stock footage
  - Make simple on screen graphics

#### Preparations

- Organizers:
  - Get science YouTubers!
  - □ Send email to students with info (<u>template</u>)
  - □ Try to minimise set up time during class by asking students to install editing software beforehand
  - Prepare stock footage for students to edit, if they don't have their own yet
- □ Science YouTubers:
  - □ Presentation to teach the art of story-telling
  - □ Video editing basics class!

#### Materials

- □ Science YouTuber Presentation (<u>template</u>)
- □ Adobe Rush (<u>link</u>)
- □ Stock footage to practice editing (<u>link</u>)
- □ <u>3-column script template</u>

#### Timed Schedule

- 10:00 10:15: Breakfast and speaker Introduction
- 10:15 10:35: CONTENT I: Story Basics
- 10:35 10:50: CONTENT II: Pitching & Reading Level
- 10:50 11:10: ACTIVITY A: Complexity Simplified Write script at a specific reading level
- 11:10 11:40: CONTENT III: Pacing & Engagement
- 11:40 12:10: Video Critique
- 12:10 12:30: Grab lunch
- 12:30 13:00: CREATION I: Basic content strategy
- 13:00 13:10: ACTIVITY D: Audience Selection
- 13:10 13:30: CREATION III: Animations & Props
- 13:30 13:40: CREATION IV: Field Shoots, On-Location
- 13:40 14:45: Guided script writing time Students go and write their scripts, and instructors come around individually to discuss
- 2:45 3:00: Q&A, Anything we didn't get to?

(Optional) Video Editing Workshop

• 3:30 - 6:00: Hands-on video editing workshop

#### Output

A rough three-column script of the 3-minute video. Column 1 is the intended timestamp associated with the script listed in the corresponding row of Column 2. Column 3 shows describes what will be shown on the camera. Example below.

Time (m)	Audio (Speech)	Video/Music (Description of Scenes)
0:20	<ul> <li>Inspired to study the science of fluid mechanics from watching that plastic bag scene in American Beauty</li> <li>What guides the fate of the bag? Hint at deep philosophy of bags</li> </ul>	<ul> <li>Face shots</li> <li>Switch to plastic bag scene</li> </ul>
0:20	<ul> <li>My childhood in chicago made it really easy to test fluid mechanics, always windy</li> </ul>	<ul> <li>Random clips of crazy Chicago weather</li> </ul>
0:30	<ul> <li>Started experimenting with different objects. Is the flowing of a Hefty bag as beautiful as the plastic grocery bag?</li> </ul>	<ul> <li>Scenes of different bag types in wind         <ul> <li>Hefty</li> <li>Ziploc</li> </ul> </li> </ul>
0:30	<ul> <li>How this has something to do with aerospace engineering</li> </ul>	<ul><li>Face shot</li><li>Airplanes</li></ul>
0:15	Clever conclusion tying back to some comment from the beginning	Face shot

#### Homework for participants

- Complete and share their 3-minute script with instructor(s) and filmographer
- Shoot any content they want included/edited in the final version of the video
- Acquire props they want to use for shooting
- Clear the script content with the Research Advisor. Any unpublished work can be of concern to such individuals.

## (Optional) Day 2.5: Script Table Reading Dinner

Find a time for students and at least one instructor/organizer to get together and give feedback on each other's scripts over dinner.

Make sure someone times each student and stays stringent.

Go around the table with each person reading off their script for 3 minutes, followed by a few minute feedback from other students. If conversation/feedback is lively, encourage students to comment on each others' scripts in google docs.

## Day 3—Rehearsal and Shooting

Day 3 is the final day of the workshop, and is where all the professional filming takes place. Students are assigned a time slot to do the shots for their video; during down time, students are encouraged to hang around at the home base. Before their time slot, they can prepare and practice their script, with help from the creative instructor, and after their time slot, they can work on any additional clips they will shoot on their own.

Goals

- Lights, camera, action!
- Get the scripts, props, and clips that students want incorporated in their final videos to filmographers/editors!
- Take a breath!



#### Preparations

- Organizers:
  - □ Work with the filmographer to identify and reserve filming locations
  - □ Schedule 30-minute slots for each student
  - **□** Reserve a room near the filming location to act as home base for the day
  - Assign a dedicated person to help out the filmographer
- **Creative Coach:** 
  - Provide feedback on the students' scripts before the filming day
- □ Filmographer:
  - **G** Filming preparation, equipment rental, etc. (you know what you need)
  - Review students' scripts prior to filming day and offer feedback and ask for clarification

Timed Schedule:

• 10:00 - 3:00: All day filming and self-guided work session at the home base

#### Output

- Finalized scripts from students
- Raw videos from the filming session
- Additional student-filmed clips

#### Homework for participants:

- Each student should hand off their final bucket of clips to the editor
  - These raw videos will be compiled into a final video with the help of a script produced by the student and subsequent editing
- Each student should provide feedback on the drafts of the videos produced by the editor

## Editing

After all filming is completed, give students ~1 week to provide their final clips and script to the editor. Then, have the editor produce the videos in accordance with the students' scripts and send a draft to all students. Based on budget and participation, you may be able to do one or more rounds of edits.

# Reflections

- The final videos were nice and crisp at the end of shooting and editing, however they all had a bit of familiar background/theme to them. Instead of hiring a professional filmer, we recommend partnering with YouTubers for the third day to do the shooting. They know the tricks with props and how to make something very creative from something that is shot from a basic camera phone.
- There's a tradeoff between giving students full flexibility and the professionalism of the resulting video. Having the filmographer did guarantee a minimum level of quality per video, but added some restrictions on flexibility.
- Give students time and space to practice talking to camera/lights, *before* shooting day.
- Minimize and compress lectures and focus on exercises with concrete upshots.
- Day 1 was intentionally structured to maximize student creativity. Avoid having students watch "examples". By showing examples and establishing guidelines, you are minimizing individual voices and the unique character that is added to the story when the students brainstorm their raw unfiltered ideas.
- Learning basic editing skills turned out to be very useful for students who wanted to create their own shots and animations. It also helped students plan their shots better with more knowledge of how they could be cut together; however, video editing takes a very long time. Having a professional editor guaranteed high quality videos from all students, regardless of their time investment outside of class.