UW ChemE Classroom Recording Guide

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Executive Summary

During the 2022–23 academic year, due to a rise in DRS accommodation requests and increased student feedback on the subject, the issue of lecture recording in classrooms was examined by the DEIA Committee. Simultaneously, members of the student body self-organized to compile survey results on their desire for recordings and the reasoning behind that desire.

Results from the DEIA Committee's investigations, and particularly those of Prof. Stu Adler, revealed that classroom recordings provide substantial benefits to student outcomes, summarized below. Of main concern from the faculty was the impact that recordings would have on student class attendance, which had decreased alarmingly since the start of the pandemic. However, while literature data did suggest that the availability of recordings may decrease attendance, evidence from both literature and anecdotal feedback from faculty suggests that this is not the primary cause of student disengagement. Based on these results, the DEIA committee plans to follow up this work to better understand student disengagement.

Results from the student surveys suggested that students primarily used recordings to reinforce material learned in class or to avoid attending class in person when sick. Recordings were also used to support those students with registered or unregistered accommodations.

Based on these results, a discussion was held in the final faculty meeting of 2023. During this discussion, it was concluded that recordings provide substantial benefit to student learning while only minimally impacting student attendance.

Therefore, this report summarizes several approaches that the faculty may use to implement the use of recordings in their classrooms. Each strategy comes with a description of its implementation, and a list of pros/cons for each approach. Generally, approaches were considered based on three criteria: (1) is the approach **effective** at improving student outcomes, (2) does the approach support students **equitably** from different backgrounds (students with disabilities, parents, commuters, students with jobs, etc.), (3) how much **effort** does the approach require on the part of the instructor?

As the DEIA Committee, we recommend that the faculty provide basic recordings which are disseminated broadly to the class, as this approach is believed to have the greatest positive impact on student outcomes, is the most equitable approach, is least likely to disengage student attendance, and involves the least time and effort on the part of the faculty.

Summary of the Benefits of Recordings

Benefits to Faculty

- Meet the multitude of required DRS accommodations with reduced effort.
- Manage fewer individual decisions regarding when and how to disseminate missed information (e.g., sick day requests, travel requests).
- Create a more equitable and accessible classroom and learning opportunities.
- Students are not pressured to come to class sick.
- Create a library of recorded course material, which can be useful to instructors when they need to miss class due (e.g., travel, sickness)

Benefits to Students

- Remove the need to disclose to faculty the need for accommodation, especially if they haven't registered through DRS, which has been reported to be under-utilized by students.
- Easily access class content for excused absence (e.g., sickness, travel).
- Improved outcomes through ability to review material, study for a test, catch missed notes (e.g., notes too fast, ESL, visual/hearing/writing impairment).

What does the literature say about the use of recordings in classrooms?

Prof. Stu Adler surveyed the education literature to determine what the positive and negative impacts of lecture capture/recordings were on student learning, summarized below. He also included some of his observations and conclusions regarding his experience with recordings, flipped classroom structures, and attendance.

Lecture capture benefits individual students who use it.
- Improves assessed learning. (41 studies)
- Improves academic performance. (39 studies)
- Allows a better work-life balance. (31 studies)
- Helps fill in lecture notes. (21 studies)
- Aids revisiting difficult concepts. (19 studies)
- Helps overcome language barriers. (17 studies)
- Enhances student interest in lectures. (10 studies)

Lecture capture can have negative aggregate impacts.
- Access to recorded lectures may reduce attendance. (20 studies)
- Technical difficulties can interfere with learning. (19 studies)
- Students tune-out during [online lectures] more than with live lectures. (12 studies)
- Recorded lectures lack instructor-student interaction. (10 studies)

Observations from Stu's Chem E 325 (flipped class structure).
- Engagement and attendance were highly dependent on the choice of in-class activities. When students felt attendance was useful, they attended.
- Student attainment was statistically uncorrelated to attendance.
- Although lectures were entirely prerecorded, in-class engagement was high (including 97% attendance on ungraded quizzes).
- Following the pandemic (Fall 22), attendance in Chem E 330 (which had no lecture recording) was significantly lower than most recent flipped sections of Chem E 325 (Fall 19) with same instructor.

Stu's Opinion: Lecture Capture is Not the Problem.
- Most negative impacts of lecture recording stem from lack of engagement.
- Post COVID-19, we cannot rely on social norms to ensure attendance.
- If students perceive attendance as valuable/necessary, they will attend.
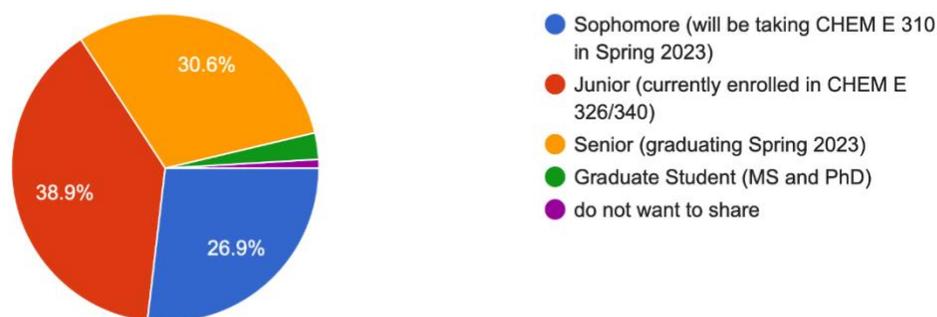- Active learning is always better than passive observation.

What do students say about how they use recordings?

A representative portion of the undergraduate study body filled out a survey

In Spring 2023, the UW ChemE undergraduate students, led by senior undergraduate Emily Crum, teamed up with Nicole to create and administer a survey about the uses of classroom recordings by our own students. A representative population of all cohorts filled out the survey.

What is your class standing in Chemical Engineering?
108 responses

- Sophomore (will be taking CHEM E 310 in Spring 2023)
- Junior (currently enrolled in CHEM E 326/340)
- Senior (graduating Spring 2023)
- Graduate Student (MS and PhD)
- do not want to share

30.6%
38.9%
26.9%

This data represents 29 sophomores, 42 juniors, 33 seniors, and 4 graduate students & miscellaneous.

Students miss a lot when taking notes

Students were asked "How do you use the lecture recordings? (For example: reviewing for exams, taking better notes after class, watching at home when sick, using the closed captions feature to improve understanding, etc.)"

Some representative quotes from students:

- "I use them when **reviewing for exams and revising my notes** that I took during the lecture."
- "...Sometimes you don't remember the context for your notes and looking back at the lectures is really helpful. Also I think that I would **retain more information** if I could rewatch the lectures as there is a lot of material that would need to be covered."
- "...Also to **help with homework** when I'm stuck I go over the lecture that discussed the topic at hand. "
- "I will review my notes to make sure I wrote down everything I needed to. Sometimes **the professor writes too fast** and I need to add to my notes. I get sick often and use the recorded lectures for days that I missed. I also live in Tacoma so it's nice to have the option to **stay at home during inclement winter weather** and watch lectures remotely."

Students skip class due to challenges with time management, mental health, and outside demands on time

Students were asked "If you skip class (without a specific reason like missing a bus or staying home when sick), could you please share why?"

Some representative quotes from students:

- **"Sometimes it's better to go at a different pace than the lecture is at.** I get distracted when the professor talks too slow or need to rewind when it's too fast, so **having a recording is sometimes more helpful than going in person"**
- "Some factors that would prevent me from coming to class are **personal family issues** (i.e. having to stay home to assist relative when they are sick). Sometimes it is just due to **mental health**. **This needs not to be underestimated**. Sometimes it is just hard to get out of bed and attend class. Another reason for why I skip class is because **the deadlines for the assignments are odd**. Having something due at 12pm or something due at 8am is not a good deadline. Most students work up until the last minute so they will skip class to complete the assignment or would stay up all night then miss class so they can catch on sleep."
- **"Sometimes I have to prioritize classes over one another** depending on midterm and final schedule so its nice to be able to still watch a video. Videos also provide students the ability to pause and take accurate notes, rewind, and learn concepts more efficiently than just sitting there. **Videos also allow students to learn in different models beside the "standard" creating inclusivity."**
- **"Because my commute is 1.5 hours (one way)**, I will sometimes want to watch a recorded lecture to save time. This is especially the case if I only have one class that day."

Students hold diverse identities, and many benefit from recordings

Students were asked to "Please check any personal identities you hold and feel comfortable sharing".

Personal identities	Number of responses (#)	Percent of responses (%)
English is not your first language	27	28.7
Student who receives UW DRS accommodations (for any reason)	13	13.8
Student who does NOT receive UW DRS accommodations	59	62.8
Impacted by chronic illness and/or mental health concerns	26	27.7
Deaf, Hard of Hearing	1	1.1
Long commute (more than 30 minutes to campus)	30	31.9
Parent or caregiver (illness of a dependent requires missing class)	4	4.3
Other	5	5.5
Total	**94**	

Some of the "Other" responses included:
- "Overlapping Classes"
- "Slow learner, dyslexic"
- "ADHD"
- "Homeschooled through 12 grades. Not a lot of lecture experience. I'm not saying it's like, an identity, but out of the homeschool community necessarily comes a group of students that did not grow up in a real-time lecture environment, and subsequently will do worse when other resources are not available."

Students don't skip class because a recording is available, but the availability of recordings encourages students to stay home when sick to prevent illness spread and aid in recovery

Students were asked "Are you more likely to miss class if you know a recording will be available?"

Are you more likely to miss class if you know a recording will be available?
52 responses

In total, 44.2% of students said "No" or a custom "Other" response with equivalent sentiment, while 55.8% of students said "Yes" with varying reasons.
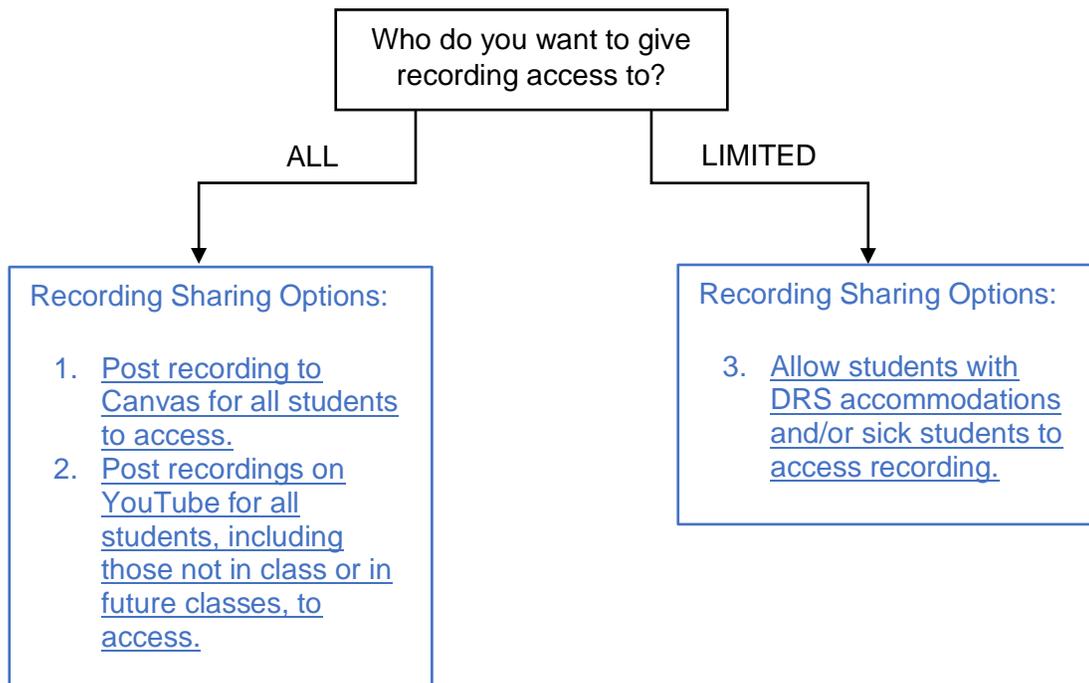
In breaking down the 57.7% "Yes" responses:
- 50% said "Yes, I don't skip classes without reason, but I am more likely to stay home when sick if a recording is available"
- 5.8% said "Yes, I skip classes when I know I can review the recording" or a custom "Other" response with equivalent sentiment

Deciding How to Share Recordings: A Flowchart

There are many different options for how to provide recordings of your classroom, so that students can use them as a resource for learning. These options include (1) different methods of actually recording the material and (2) who you want to give access to those recordings. The following sections provide options supported by the DEIA and Undergrad Committees for how to distribute your recorded material.

The following flow chart outlines recommended options for determining with whom to share classroom recordings. Clicking on the option of interest will bring you to the detailed instructions for each option.

The DEIA Committee recommends that faculty disseminate recordings to all students in the class through Canvas/Panopto, as this option gives students the greatest benefit, equitably benefits all students, and requires the least effort on the part of the faculty.

Who do you want to give recording access to?

ALL

LIMITED

Recording Sharing Options:

1. Post recording to Canvas for all students to access.
2. Post recordings on YouTube for all students, including those not in class or in future classes, to access.

Recording Sharing Options:

3. Allow students with DRS accommodations and/or sick students to access recording.

Option 1: Post Your Recording to Canvas for All Students to Access

Steps

> For information about how to upload videos to Canvas/Panopto, see the [Additional Step-by-Step Tech Support and Customizations](#) section and respective subsections.

Pros
- Simple and low effort on your part. You need not worry about restricting who has access.
- Decrease in the number of requests (via email or otherwise) you need to spend time handling for specific exemptions (e.g., illness, travel).
- Decreases the chance that student will attend class while sick.
- Gives all students the opportunity to review past material.
- Material is inherently restricted to students only in class, which avoids FERPA violations for more broadly distributed material.

Cons
- Requires non-zero effort to manage in Canvas/Panopto (e.g. uploading, linking videos).
- Materials not broadly distributed outside the class, reducing their impact.
- Broad access to videos has non-zero correlation with a decrease in student attendance.

Technical Complexity: Low

We expect that this will require little technical expertise on the part of the faculty member. Once the video is uploaded, very little additional work is required, and uploading of the recording to Canvas can be delegated to TA or hired student worker, who can be trained in advance by department staff.

Expected Time/Effort: Low

We expect that this process will require little time and effort by the faculty member, as the work could be performed by the TA or hired student worker and otherwise be minimal.

Option 2: Post Your Recording to YouTube for All Students to Access

Steps

1. For information about how to upload videos to YouTube, see https://support.google.com/youtube/answer/57407. To download a video from Panopto for uploading to YouTube, navigate to the video. In the Panopto browser window, look for the download icon, shown here:
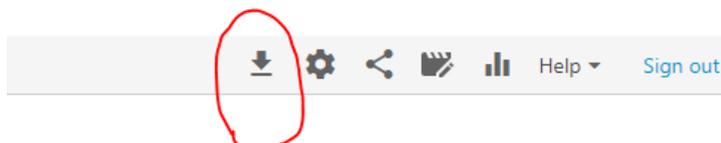
Pros
- You need not worry about restricting who has access (or you can restrict access, such as to your students only, by requiring login or changing privacy settings).
- Decrease in the number of requests (via email or otherwise) you need to spend time handling for specific exemptions (e.g., illness, travel).
- Decreases the chance that student will attend class while sick.
- Gives all students the opportunity to review past material.
- Material is broadly disseminated.

Cons
- Requires more effort and technical expertise to upload to YouTube than to Canvas, though this could be managed by a TA or hired student worker.
- Due to broad dissemination of material, FERPA considerations are required (e.g., not showing student faces).
- Broad access to videos has non-zero correlation with a decrease in student attendance.

Technical Complexity: Medium

We expect that this will require some technical expertise on the part of the faculty member if no TA is used. Rather than being uploaded directly to Canvas/Panopto, uploading to YouTube, though relatively straightforward, requires additional steps, such as exporting the video to a format that YouTube accepts. Once the video is uploaded, very little additional work is required. Uploading of the recording to YouTube can also be delegated to TA or hired student worker, who can be trained in advance by department staff.

Expected Time/Effort: Low

We expect that this process will require little time and effort by the faculty member, as the work could be performed by the TA or hired student worker and otherwise be similarly minimal compared to uploading to Canvas/Panopto.

Option 3: Only Allow Students with DRS Accommodations or Excused Absences Access to Videos

Steps (for both Canvas and YouTube)

   For Canvas:

1. The default setting for Canvas is that any video uploaded to Canvas is viewable for all students in a class. This must first be disabled. From Canvas, select the Panopto Recordings folder. At the top, select the *settings* icon for the entire folder.
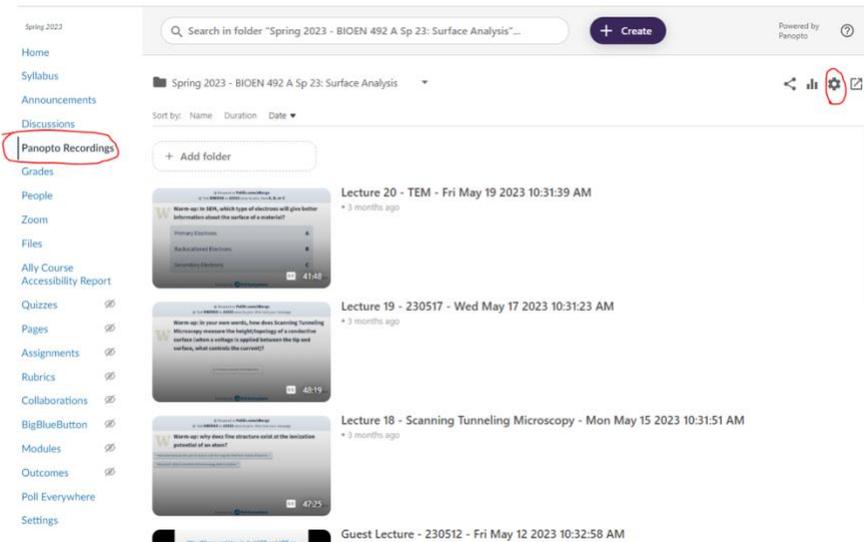
2. From the new Folder Settings window, select "Share" and then click the "x" next to "Viewer". This will prevent the class from generally viewing videos.
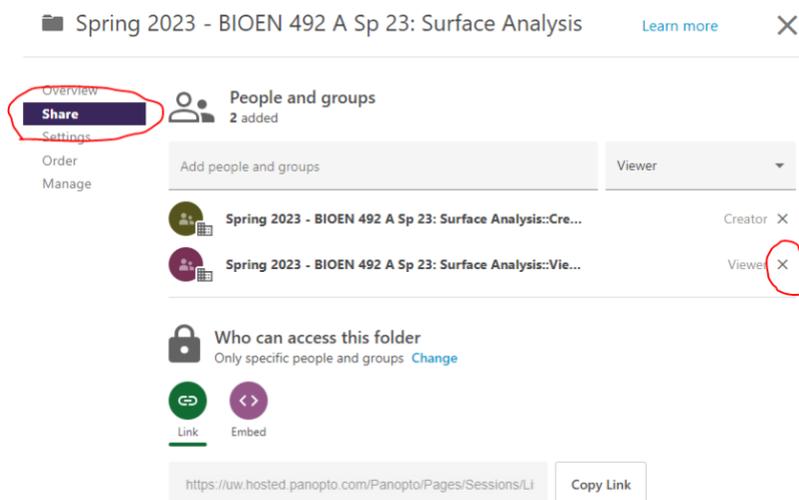
3. To grant access to view a particular video for a particular student, return to the Canvas Page, select Panopto Recordings, and then click on the settings icon for the relevant video.
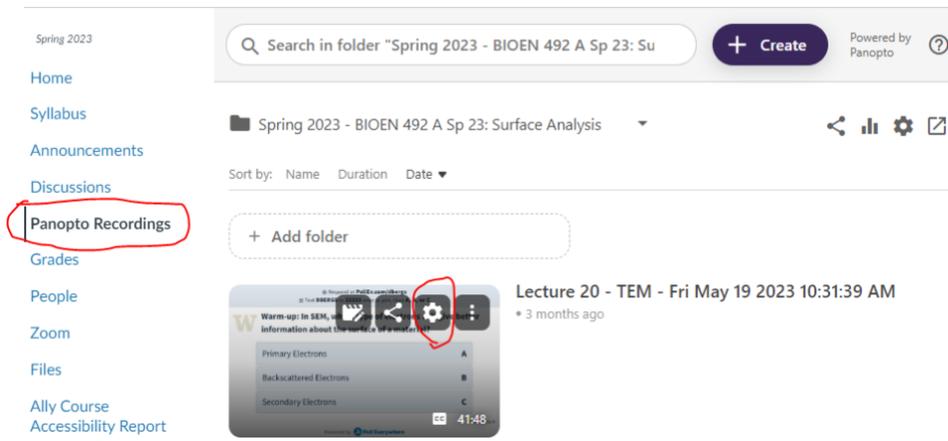
4. Under "Share", you can then add specific individuals to have access to the video.
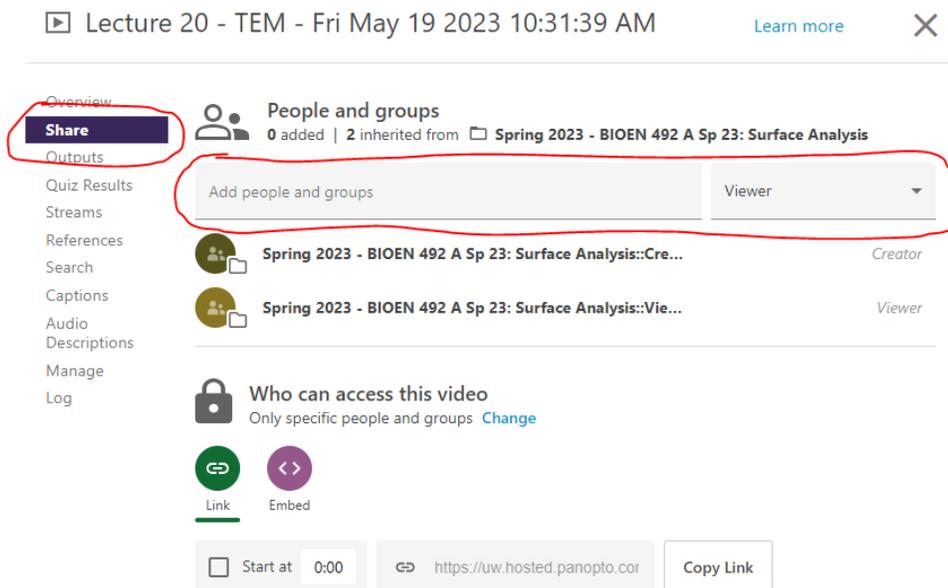
Note that each student must be added for every video. For DRS students, these students can instead be granted blanket permission to access any videos in the course folder by following the instructions above for removing all students from the course folder, then adding DRS students individually to the folder.

For YouTube:

1. To only grant access to certain YouTube videos, you will have to make each video "unlisted". Students with a direct link to the video will be able to access it, while students without this link will not be able to find it online.

   For more information about making a video unlisted, follow the instructions listed here: https://support.google.com/youtube/answer/157177

   For each video uploaded to YouTube, you will need to send a link to that video to each student who should have access.

Pros
- Students with excused absences or DRS accommodations will have access to recorded material.
- Inhibited access to these materials may encourage more students to attend class, but the impact on student attendance is likely to be small.

Cons
- More effort is required to grant specific students access to recordings.
- Students are likely to share access to recordings broadly with their cohort, in spite of these restrictions, creating equity issues because sharing will happen unevenly so students who are determined to follow rules, who have limited social capital, or whose social connections do not have access will be left without, while other students will benefit.
- Additional Equity issues include the socioeconomic barriers to accessing diagnosis and thus DRS accommodations and barriers to first generation students and other students further from the center of justice who may not know how to navigate systems, or that these accommodations may be available to students like them. Additionally, stereotype threat is a documented phenomenon that may make the students for whom the recordings are intended less likely to utilize resources that are seen as "special".
- You will receive and be required to respond to a greater volume of requests for recording access due to sickness, travel, etc.
- Students are more likely to attend class while sick, which may make others sick.

Technical Complexity: Medium

We expect that this will require some technical expertise on the part of the faculty member if no TA is used. If uploaded to Canvas, permission to view a particular video can be given only to a subset of students or individual students, rather than to the whole class. If uploading to YouTube, the video can be made unlisted and sent only to certain individuals. Both require some technical expertise. This work can also be delegated to TA or hired student worker, who can be trained in advance by department staff.

Expected Time/Effort: High

We expect that this process will require significantly more time and effort by the faculty member. In addition to fielding more requests via email and more decisions about what absenses are excused, setting up the limitations on videos requires additional challenges outside of class that will take additional time and effort. Part of the work could be performed by the TA or hired student worker, though deciding who can receive access would likely fall to the instructor.

Selecting a Recording Strategy: A Flowchart

Use the flowchart below about your own teaching style to determine your options for recording lectures. Clicking on the option of interest will bring you to the detailed instructions for each option, along with a list of pros, cons, considerations, and a rating for the technical complexity and expected time/effort on your part each on scales of Low-Medium-High with rating explanations. Detailed instruction for how to record via Panopto and Zoom are provided in the Additional Step-by-Step Tech Support section. If using Zoom, we recommend configuring a Panopto Zoom integration to automatically record and upload lecture to Canvas, as this only requires a task once at the start of the quarter and greatly minimizes later work to upload recordings.

Do you write on a whiteboard during class?

YES →

NO → **Do you walk around during class?**

YES →

NO →

Recording Options:

1. Request and use Lecture Capture Classroom.
2. Have TA or hired student record with camera.
3. Use your laptop as a camera to record with Panopto or Zoom + Mic or Owl for audio.

Recording Options:

4. Screen record with Panopto or Zoom + Mic or Owl for audio capture.

Recording Options:

5. Screen record with Panopto or Zoom with built-in computer or tablet microphone.

Recording outside of class:

Recording Options:

6. Record an abbreviated or full lecture outside of class using Panopto or Zoom.

Customization: recording with two device screens (e.g. to swap between a laptop with Python/ MATLAB/Excel/Mathematica/web browser/Aspen and written notes). Use with Options 4-6.

Customization Option:

- Record by logging into Zoom on both devices and swap screen share as needed.

*Please note specific considerations for PC vs Mac. We have found that Mac computers and windows computers can both use Panopto directly. However, while Microsoft tablets can use Panopto, iPads cannot and must use the Zoom recording options provided instead.

Option 1: Lecture Capture Classroom

There are specific classrooms at UW that have the capability for lecture capture built in.

Devices Required & Program Usage
- Lecture Capture classroom (which handles Panopto and Canvas automatically)
- Optional but recommended: Lapel microphone (alternatively, use podium mic)

Steps

1. Before the quarter, when classrooms are being requested, ask staff to request a classroom with Lecture Capture. A list of these classrooms on UW's campus can be found here.
2. The following steps may be completed by the instructor, a TA, or department staff shortly before the quarter begins:
   a. Schedule your lecture capture for the classroom in Canvas
   b. Set the recording settings to your preference.
   c. Double check that your recordings are being saved.

Pros
- Lecture capture is automatic and requires no further effort after the beginning of the quarter.

Cons
- Lecture Capture rooms may not always be available.

Considerations
- If you use a whiteboard, make sure you use a dark colored marker for enhanced visual pickup.
- Please use a microphone for enhanced audio pickup.
- Test out the lecture recording in advance of the quarter to determine the quality and if any adjustments, such as adding a microphone, need to be made.

Technical Complexity: Low

We expect that this will require little technical expertise on the part of the faculty member, particularly if the faculty member receives support from a TA or staff to set up the recordings at the beginning of the quarter

Expected Time/Effort: Low

We expect that this process will require little time and effort by the faculty member, as the lecture will automatically upload to Canvas.

Option 2: TA or Hired Student Worker Record Lecture

Devices Required & Program Usage
- Camcorder
- Optional but recommended: Lapel microphone
- Panopto or Zoom
- Canvas

Steps

1. Ask your TA or hire a student worker to record the lecture. *We recommend using a camcorder, rather than a phone, for increased video quality.*
2. Optional but recommended: Use a lapel microphone to ensure good audio projection and pickup by camera.
3. Upload to Panopto on Canvas using one of the following options:
    a. Option 1: Have the TA/hired student worker share the file with you to upload to Panopto within Canvas in a similar manner to steps 5-10 of the Zoom Recording/Uploading instructions.
    b. Option 2: If using a TA, you can have them upload it themselves using steps 5-10 of the Zoom Recording/Uploading instructions.
    c. Option 3: If using a hired student worker, you can add them to Canvas as a Designer, Guest Teacher, or Librarian (all of which can manage course content, such as uploading videos, but cannot see student grades) and have them upload the recording using steps 5-10 of the Zoom Recording/Uploading instructions. To add them to Canvas with one of these roles, follow the step provided in the link above.

Pros
- Simple and low effort on your part.

Cons
- Variable video and audio quality depending on camera, mic, room, marker (if using white board), position of recorder.
- If you use TA, could take away from their grading time per week.
- More challenging and/or steps required to get recording onto Canvas.

Considerations
- Consider having an assigned seat for the recorder. Upfront means the video will be more clear but could be distracting to students.
- What camera will they use? A recorder/camera, a phone? Test out various options and see how the quality works. We recommend against using a phone.
- How will you get the recording off the device and into Canvas? Or will you assign the TA/hired student worker to do so?
- Consider getting a microphone to ensure the volume is audible in the video.
- If you use a whiteboard, make sure you use a dark colored marker.

Technical Complexity: Low

We expect that this will require little technical expertise on the part of the faculty member. Uploading of the recording to Canvas can be delegated to TA or hired student worker, who can be trained in advance by department staff.

Expected Time/Effort: Low

We expect that this process will require little time and effort by the faculty member, as the work would be performed by the TA or hired student worker.

Option 3: Record Whiteboard with Device + Audio Support

Devices Required & Program Usage
- Laptop with Panopto or Zoom
- Lapel microphone or Owl device for audio pickup
- Panopto or Zoom
- Canvas

Steps

1. Using your laptop with camera, open up Panopto (either Desktop application or within Canvas) or Zoom and point the camera at the whiteboard.
   a. If using Zoom, set View (upper right corner) to Speaker View.
   b. If using Panopto, set the Primary Source to the computer camera, and the Audio to the computer audio as seen below. You will not have a Secondary Source.
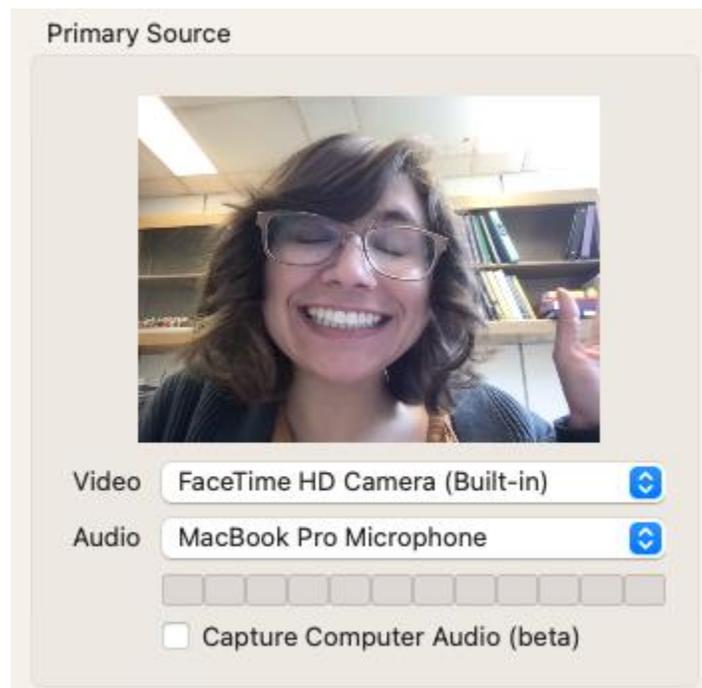
2. Set up a lapel microphone or Owl to ensure the audio quality is good.
3. Record the lecture. Make sure to start and stop the recording along with lecture and make sure your audio and/or video are not muted. If using Zoom, we recommend selecting "Record to the Cloud" instead of to your device.
4. Upload lecture to Panopto on Canvas. See the Additional Step-by-Step Tech Support section for instructions if needed.

Pros
- Simple and low effort on your part.
- Fewer steps to get recording from device onto Canvas.

Cons
- Variable video and audio quality depending on camera, mic, room, marker (if using white board), position of device.
- The angle of the device may not capture the entire board and cannot track you while walking.

Considerations
- If you use a whiteboard, make sure you use a dark colored marker for enhanced visual pickup.

Technical Complexity: Medium

We expect that this will require moderate technical expertise on the part of the faculty member. The faculty must be comfortable interfacing with Panopto and/or Zoom, setting up the audio device (microphone or Owl), and interfacing with Canvas to upload or transfer the video.

Expected Time/Effort: Low

We expect that this process will require little time and effort by the faculty member, as it only requires effort during normal class time to set up.

Option 4: Screen Record with Device + Audio Support

Devices Required & Program Usage
- Laptop, Tablet, and/or other device with Panopto or Zoom
- Lapel microphone or Owl device for audio pickup
- Panopto or Zoom
- Canvas

Note: if you're using an iPad, Panopto is not compatible with iPads specifically, but they're compatible with Zoom.

Steps

1. Using your device (computer, tablet, etc.) that you're projecting your content from (such as via HDMI), open up Panopto or Zoom.
2. Configure the correct screen to record. If using Panopto, set the Secondary Screen to be the screen that is being projected/the device screen and set the Audio to the computer audio. If using Zoom, Screen Share your device screen.
3. Set up a microphone or Owl to ensure the audio quality picked up by your device is good.
4. Record the lecture. Make sure to start and stop the recording along with lecture and make sure your audio and/or video are not muted. If using Zoom, we recommend selecting "Record to the Cloud" instead of to your device.
5. Upload to Panopto on Canvas. See the Additional Step-by-Step Tech Support section for instructions if needed.

Pros
- Simple and low effort on your part.
- If using Zoom, can swap between multiple devices as needed.
- Fewer steps to get recording from device onto Canvas.

Cons
- Variable audio quality depending on mic and position of device.

Considerations
- How far is your walking range to maintain good audio?

Technical Complexity: High

We expect that this process will require substantial technical expertise on the part of the faculty member. The faculty must set up a device, project their screen, capture the screen with Panopto/Zoom, optionally capture video of the faculty, set up an audio capture device (microphone/Owl), and interface with Canvas to upload the video.

Expected Time/Effort: Low (Panopto), Low-Medium (Zoom, depending on upload method)

We expect that this process will require little or minimal time and effort by the faculty member. While Panopto will automatically upload file to Canvas (see instructions below), Zoom requires time after class to upload the recording to Canvas (see instructions below) unless you configure it to upload automatically by following a one-time procedure before the course starts (recommended, see instructions below).

Option 5: Screen Record with Device + Computer Audio

Devices Required & Program Usage
- Laptop, Tablet, and/or other device with Panopto or Zoom that you'll be standing next to throughout class
- Panopto or Zoom
- Canvas

Note: if you're using an iPad, Panopto is not compatible with iPads specifically, but they're compatible with Zoom.

Steps

1. Using your device (computer, tablet, etc.) that you're projecting your content from (such as via HDMI), open up Panopto or Zoom.
2. Configure the correct screen to record. If using Panopto, set the Secondary Screen to be the screen that is being projected/the device screen and set the Audio to the computer audio. If using Zoom, Screen Share your device screen.
3. Record the lecture. Make sure to start and stop the recording along with lecture and make sure your audio and/or video are not muted. If using Zoom, we recommend selecting "Record to the Cloud" instead of to your device.
4. Upload to Panopto on Canvas. See the Additional Step-by-Step Tech Support section for instructions if needed.

Pros
- Simple and low effort on your part.
- If using Zoom, can swap between multiple devices as needed.
- Fewer steps to get recording from device onto Canvas.

Cons
- Must stand close to device throughout class.

Considerations
- None

Technical Complexity: High

We expect that this process will require substantial technical expertise on the part of the faculty member. The faculty must set up a device, project their screen, capture the screen with Panopto/Zoom, optionally capture video of the faculty, and interface with Canvas to upload the video.

Expected Time/Effort: Low (Panopto), Low-Medium (Zoom, depending on upload method)

We expect that this process will require little or minimal time and effort by the faculty member. While Panopto will automatically upload file to Canvas ([see instructions below](#)), Zoom requires time after class to upload the recording to Canvas ([see instructions below](#)) unless you configure it to upload automatically by following a one-time procedure before the course starts (recommended, [see instructions below](#)).

Option 6: Record Lecture Outside of Class

Devices Required & Program Usage
- A device you'll present from or write on or Lecture Capture room
- Panopto, Zoom, or PowerPoint
- Canvas

Note: if you're using an iPad, Panopto is not compatible with iPads specifically, but they're compatible with Zoom.

Steps

1. There is a lot of customizability here. You can record a full or abbreviated lecture, record via any program you choose (including PowerPoint where you can record individual slides and embed the audio on the slide), or you can record in a Lecture Capture room or alternate in-person technology like a Light Board if you have access.
2. Record the lecture. Make sure to start and stop the recording along with lecture and make sure your audio and/or video are not muted and that your audio quality is good. If using Zoom, we recommend selecting "Record to the Cloud" instead of to your device.
3. If used Zoom or Panopto, upload to Panopto on Canvas. See the Additional Step-by-Step Tech Support section for instructions if needed. If used audio recording in PowerPoint, upload PowerPoint file with embedded audio to Canvas directly.

Pros
- If using Zoom, can swap between multiple devices as needed.
- If using Zoom or Panopto, fewer steps to get recording from device onto Canvas.
- Can choose to record full or abbreviated lecture.

Cons
- Variable audio quality depending on mic and position of device.
- Requires additional lecture time outside of class.

Considerations
- How detailed of a lecture will you record?
- Will you post this before class or after class? This might depend on if you want to use this as pre-work, a light/minimal overview, or lecture supplement.

Technical Complexity: High

We expect that this process will require substantial technical expertise on the part of the faculty member. The faculty must set up a device, capture the screen with Panopto/Zoom, optionally capture video of the faculty, and interface with Canvas to upload the video.

Expected Time/Effort: High

We expect that this process will require substantial time and effort by the faculty member. Time outside of class must be set aside to record the lecture. Additionally note that while Panopto will automatically upload file to Canvas (see instructions below), Zoom requires time after class to upload the recording to Canvas (see instructions below) unless you configure it to upload automatically by following a one-time procedure before the course starts (recommended, see instructions below).

Additional Step-by-Step Tech Support and Customizations

Creating Panopto Recordings Directly within Canvas

1. Log into your course's page on Canvas.
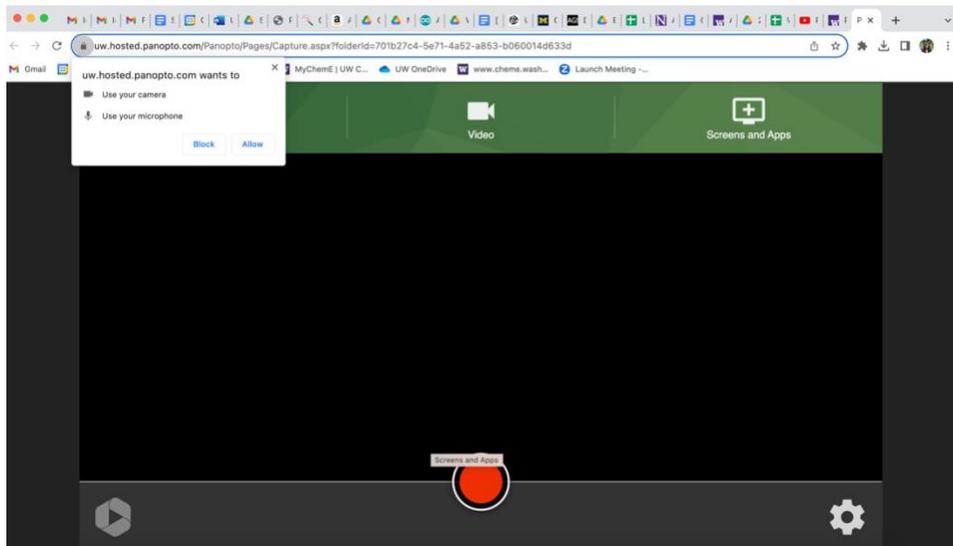2. Within the navigation, click on "Panopto Recordings".
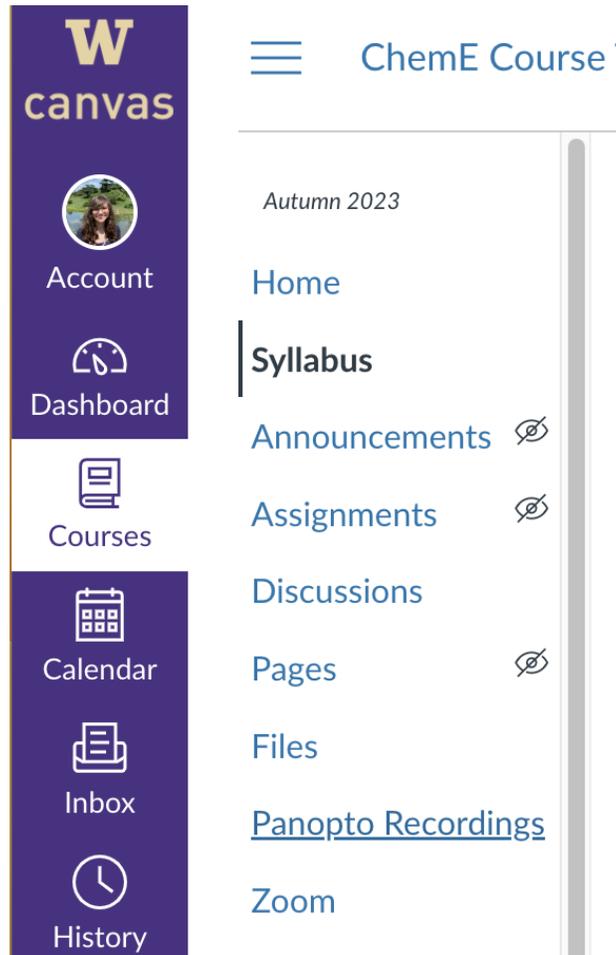
3. Once in Panopto Recordings, and the corresponding folder if you wish to organize your videos, click "+Create".
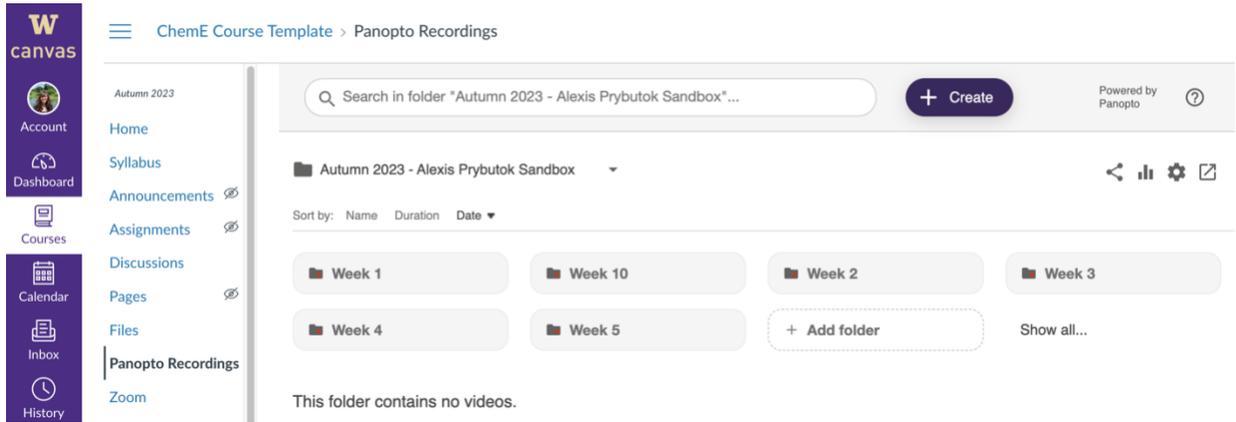
4. Now click "Panopto Capture" from the options provided.
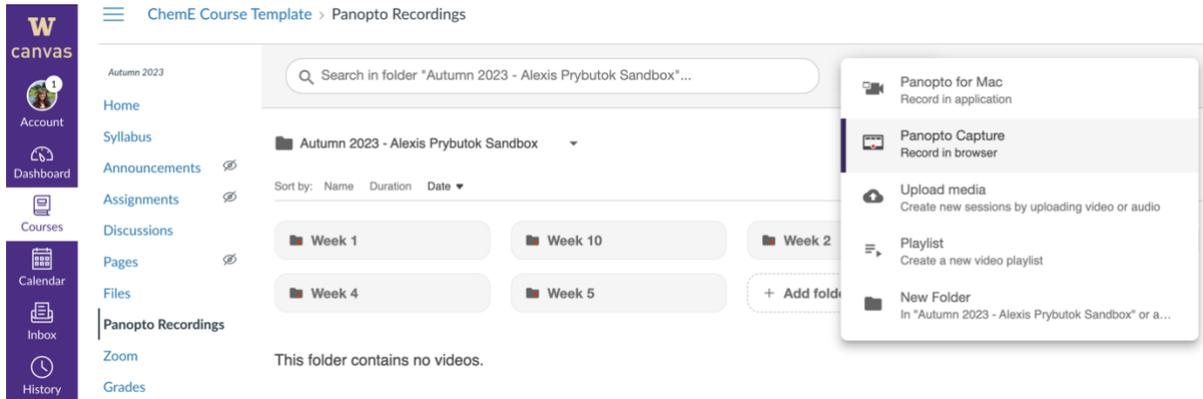
5. This will open up a new browser. Make sure to allow your microphone and video.

6. Once you allow this, you can record a video and change your "Video" and "Audio" settings to different devices or to remove video (as seen below).
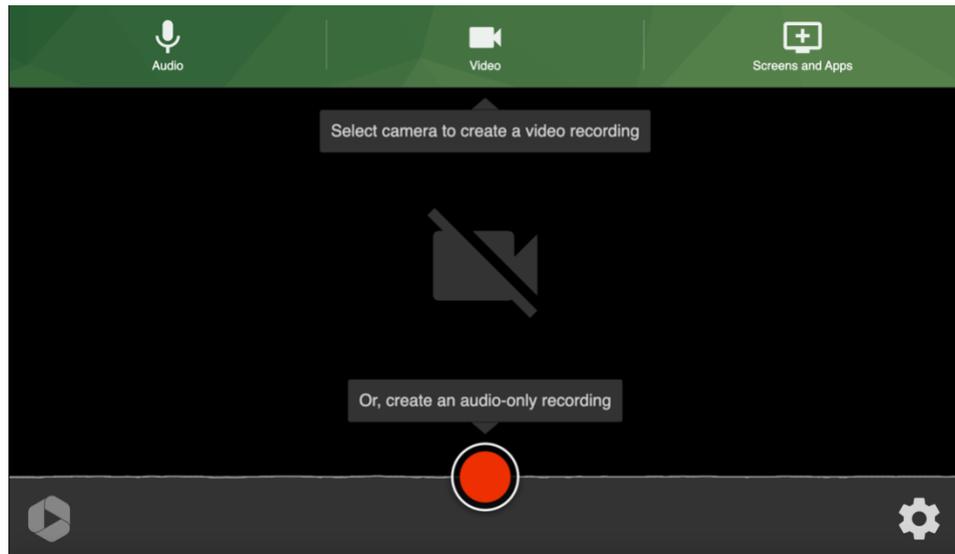

7. You can use the "Screens and Apps" to share specific content from your device either with options for sharing from your Browser, Window, or Entire Screen.
8. When you're ready, hit the record button.
9. Your recording will automatically be uploaded to Canvas in the folder you were in when you created it.

Creating Panopto Recordings using the Desktop Application and Uploading to Canvas

You can record directly within Canvas or using the Panopto app on your computer.

1. Download the Panopto application onto your device.
2. Open the application.
3. You'll be prompted to log into the program using your UW credentials. This is the screen you'll see after you've logged in. You'll see all the recordings you've done on this device.
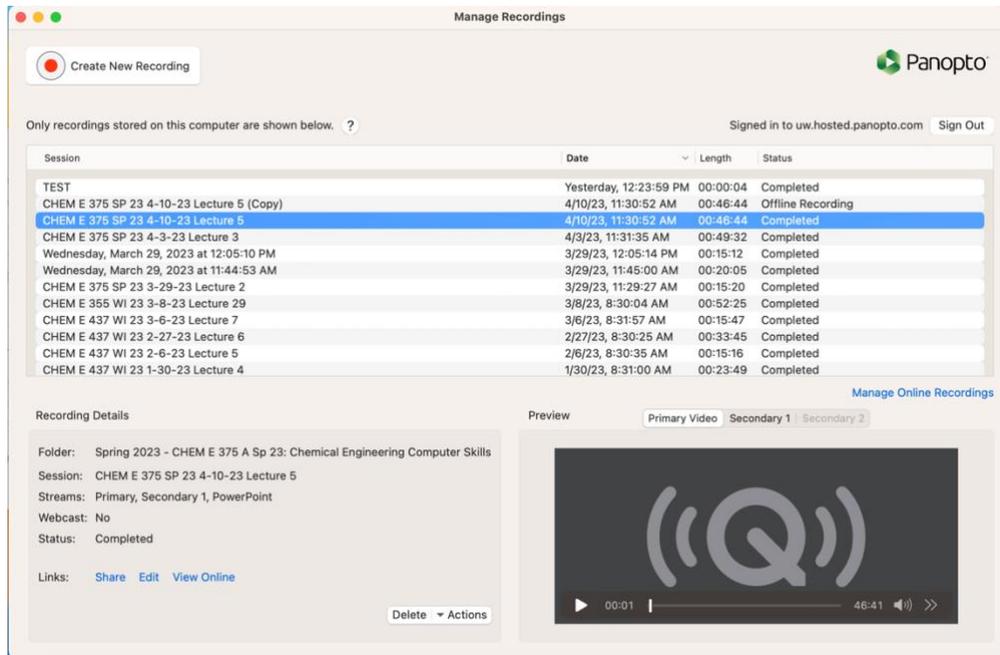

4. Click "Create New Recording" in the upper left. You'll be directed to this window.
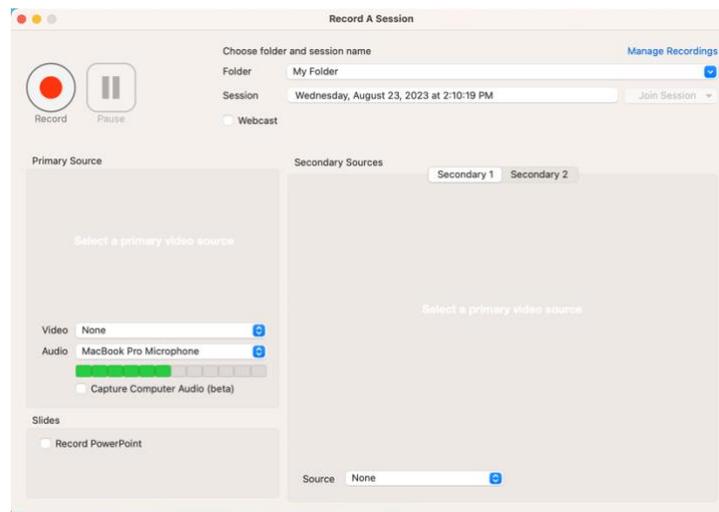
5. Select various options to record the desired screen and have it upload to the correct folder within Canvas.
   a. If you want your face in the video, under "Primary Source", from the dropdown "Video" options, select your computer camera.
   b. Ensure your audio is working. Under "Primary Source", the green bar below the audio selection is the audio pickup. Select the desired audio pickup.
   c. If you want to share your screen, under "Secondary Sources", select "Built-in Display" (as shown below); this option works well if you're recording outside of class or if your displays are mirrored instead of extended. If you're hooked up to a projector/screen, you can select that device (often "Creston"); this option works well if you're connected to a projector and your displays are extended instead of mirrored.
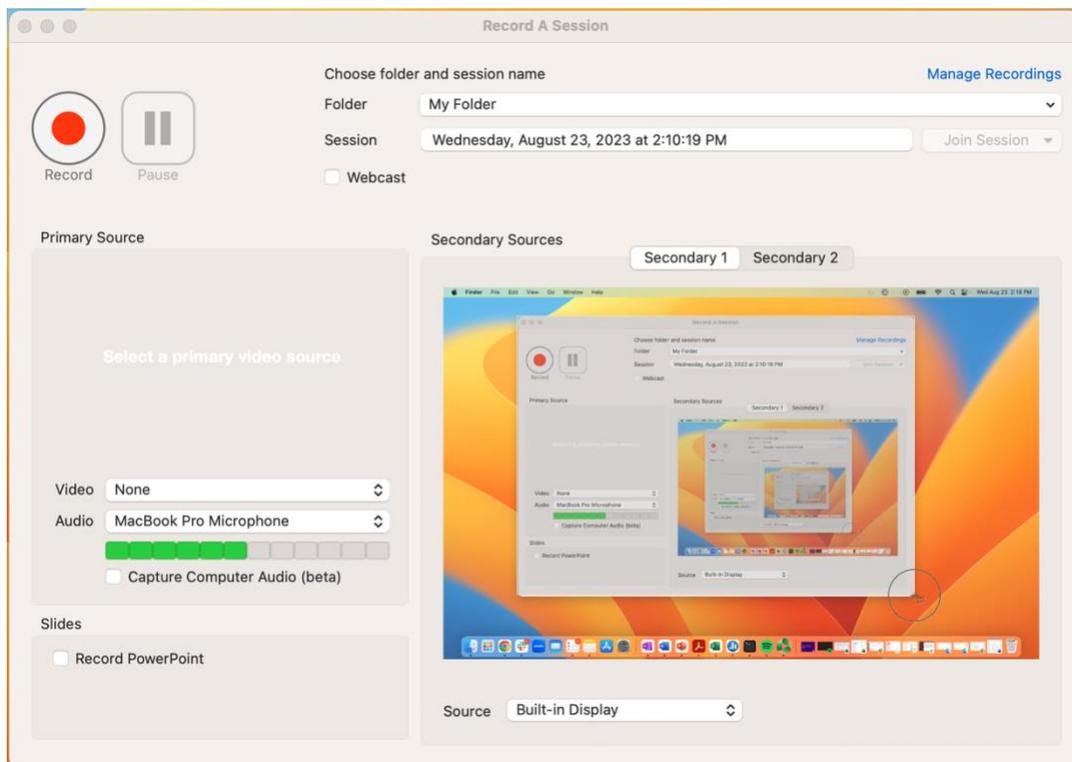
   d. Select the associated course folder for the recording to save in and upload to. To access different course folders, use the dropdown menu. Course folders within Canvas are nested under a series of folders within UW, such as: "University of Washington (private)" > "UW Courses (private)" > "University of Washington Seattle (private)" > "College of Engineering (private)" > "Chemical Engineering (private)" > "Chemical Engineering [CHEM E] (private)" > [subfolder for various quarters] > [folder for desired class]. Folders you can't save in are grayed out/in a lighter color. Folders you've accessed recently will appear at the top. The last folder you saved into will be the default folder the recording will save in if you don't change it.
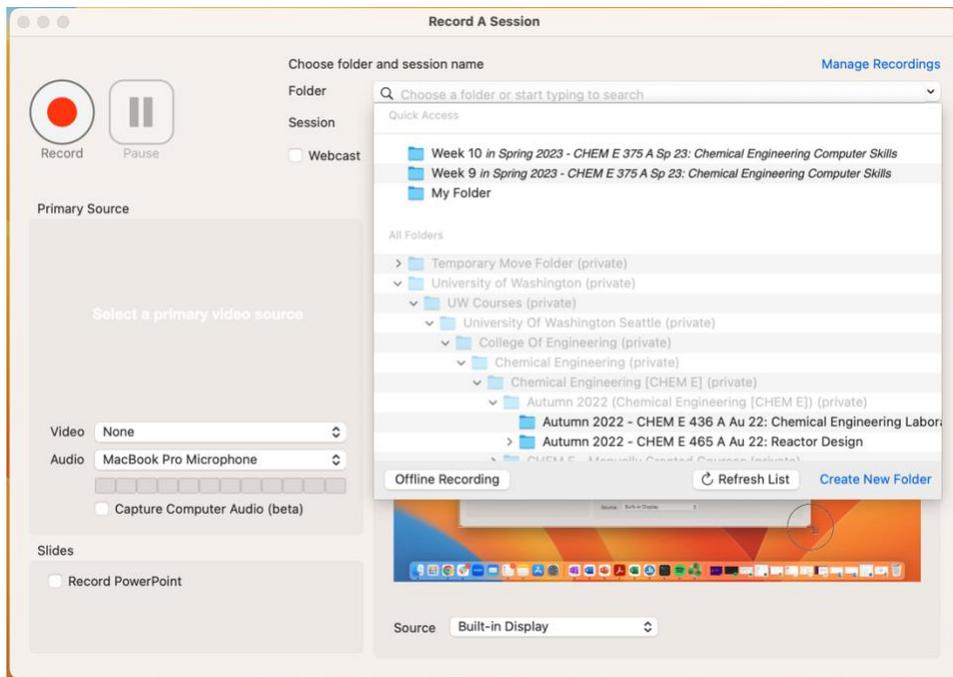
6. Click "Record" in the upper left when you're ready!
7. When you finish recording, your file will automatically process and upload to Canvas in that course's Panopto Recordings section and under a corresponding folder if you created and/or selected one within that course's folder.

Creating Panopto Zoom Integration to Automatically Record and Upload to Canvas

Usage and Benefits

This option enables creating a Panopto Zoom Integration that "allows instructors to set up their course Zoom recordings to move automatically to their course folder in Panopto or map Zoom recordings in Panopto so they are moved to a specific Panopto folder. Previously created Zoom cloud recordings will not be moved to Panopto automatically. You may specify when the recordings will be available for viewing. Before starting, familiarize yourself with the integration."

> -- from UW IT website

This only requires setup only at the start of the quarter and then no further effort on the part of the faculty member. You will be able to set up specific Zoom meeting IDs that occur at your regularly scheduled class time that automatically record the lecture and upload it to Panopto Recordings within Canvas. During class, you just have to log into the Zoom meeting with your device and screen share what you're projecting to students.

This is the recommended option for using Zoom since it minimizes time spent after class uploading recordings since it removes the need to do it manually.

Steps

1. Once before the start of the quarter: follow the steps provided here by UW IT to connect a specific Zoom meeting ID that is tied to your regular class time to automatically record lecture and upload to Panopto within Canvas.
2. During class: log into Zoom with your device, screen share your content, and lecture.

Pros
- Efficient, automatic, and specific to your course time.

Cons
- None

Considerations
- Consider creating a pass code or waiting room so that only you can enter the meeting.

Technical Complexity: Medium

We expect that this process will require some technical expertise on the part of the faculty member to follow the steps above. But this setup will is only required once, and minimizes the time it takes to get recordings onto Canvas.

Expected Time/Effort: Low

We expect that this process will require minimal time and effort by the faculty member. Once you configure this at the start of the quarter, you don't have to worry about recording or uploading the recording to Canvas, as this process is automated.

Creating Zoom Recordings and Manually Uploading to Canvas

1. Record your lecture using Zoom suiting your needs (either using Speaker View or Screen Share). We recommend selecting "Record to the Cloud" instead of to your device. Make sure to start and stop the recording along with lecture and make sure your audio and/or video are not muted.
2. Close out the Zoom meeting when you're done.
3. Zoom will email you when your recording is ready. Once you receive this email, click "View Detail".
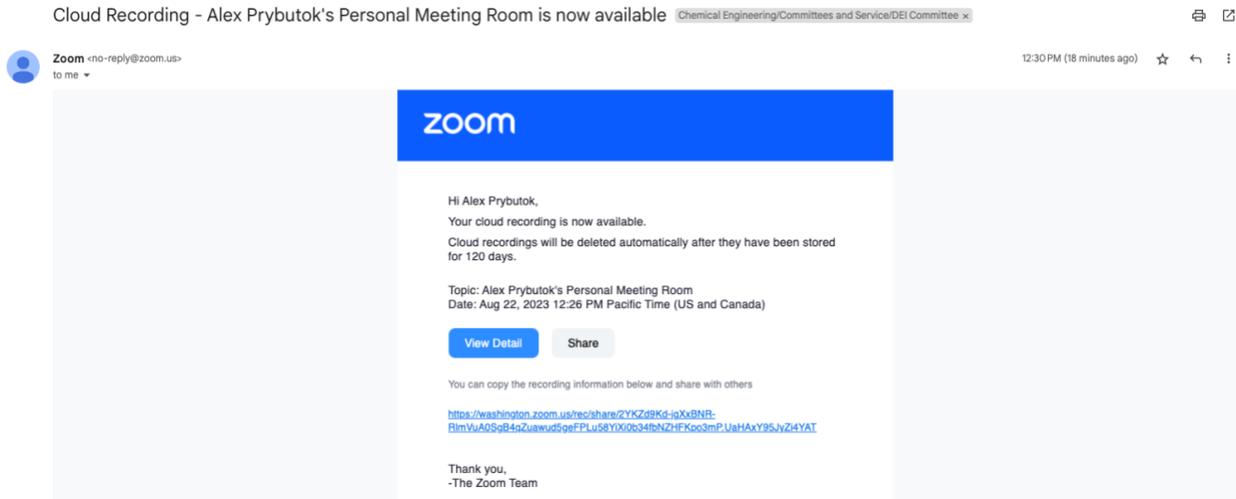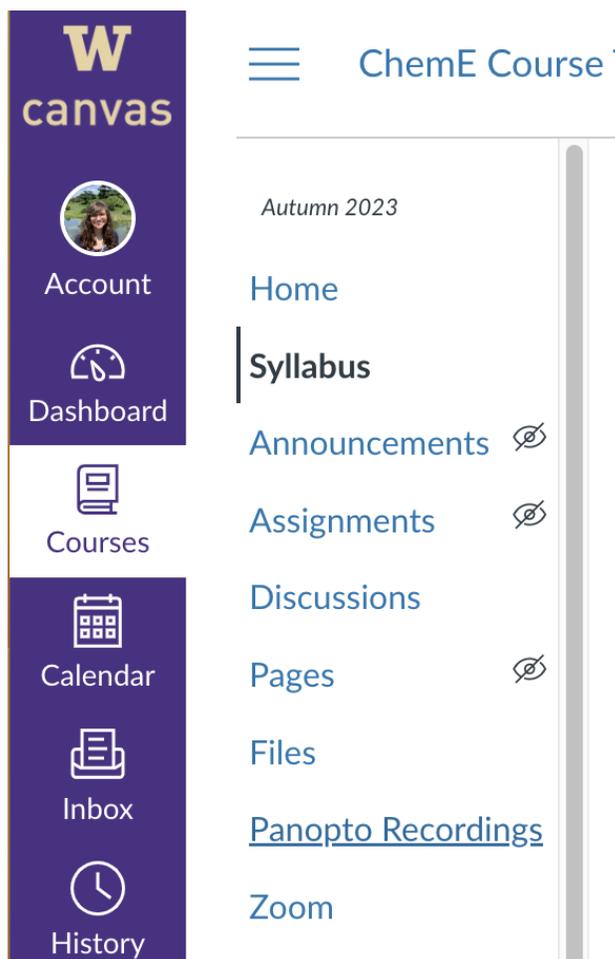

4. Download the "Shared screen with speaker view" file as shown in gray in the picture below by clicking on the down arrow button.
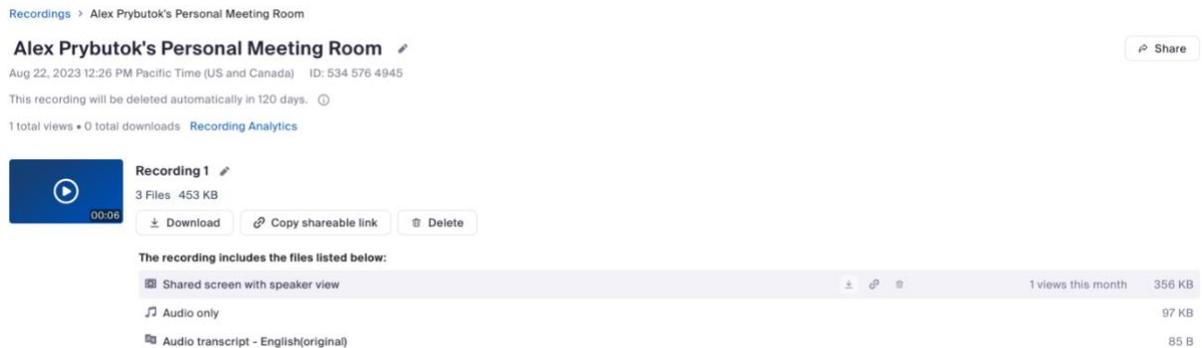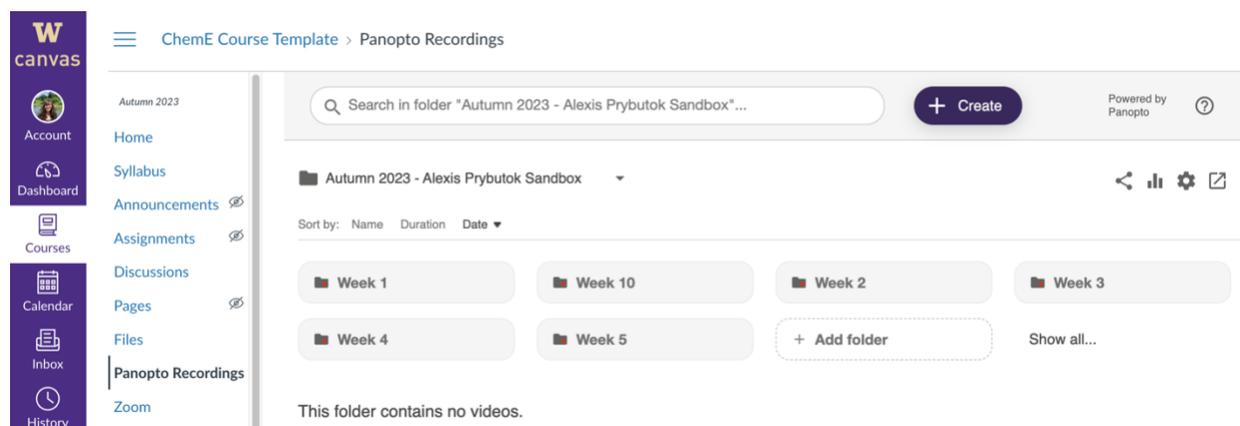

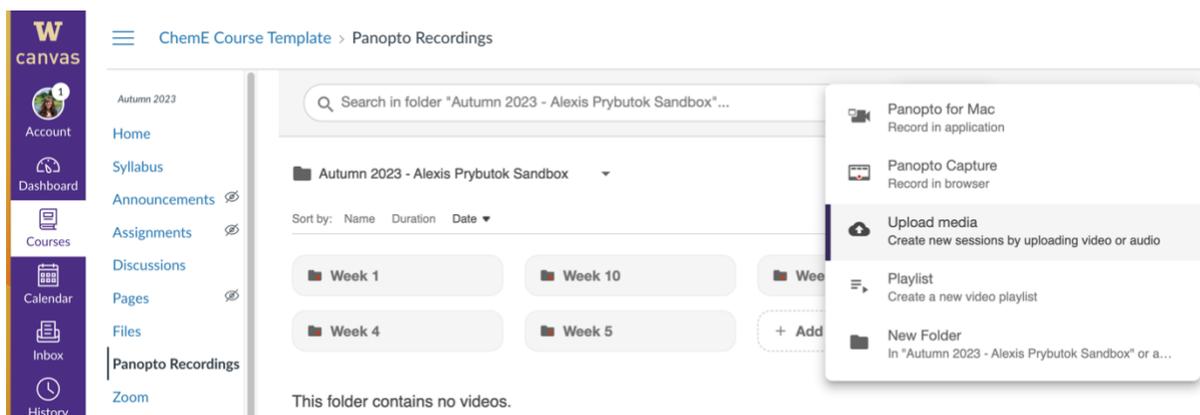5. Navigate to your corresponding course's Canvas page.

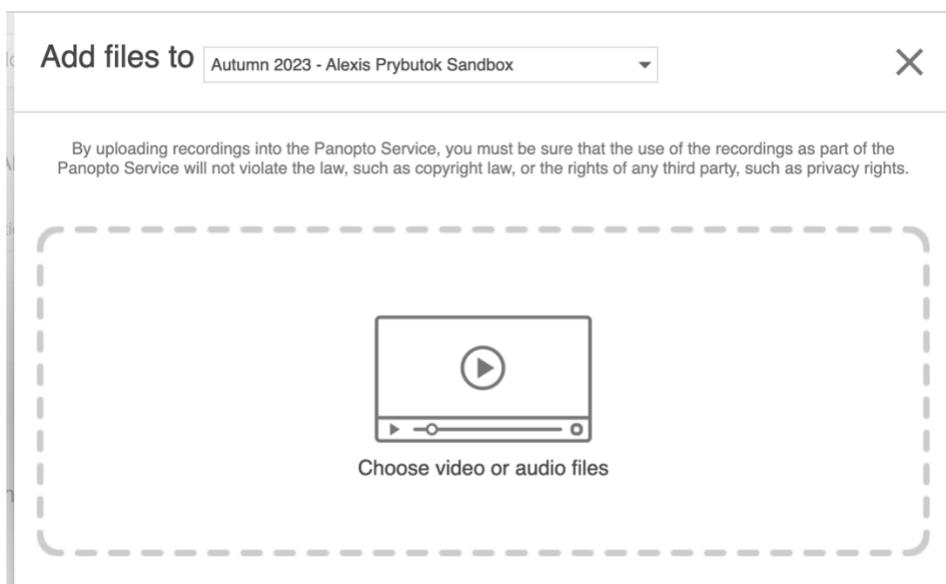6. Within the navigation, click on "Panopto Recordings".

7. Once in Panopto Recordings, and the corresponding folder if you wish to organize your videos, click "+Create".

8. Now click "Upload new media" from the options provided.

9. Drag your Zoom recording .mp4 file from your computer into the dashed box or click on the box to select your file from your folder navigation.

10. The upload will take some time to process, but you're done! You can now share it with a link or students in your class can access it via the Panopto Recordings section of Canvas directly.

Additional Platform Option: Record with Explain Everything and Upload to Canvas

Devices Required & Program Usage
- iPad with Explain Everything app
- Zoom
- Canvas

Steps

1. Record your lecture using Explain Everything on an iPad (available at Apple App Store). Explain Everything is an electronic whiteboard that projects and also records your handstrokes and audio as you write. Besides a blank canvas, you can also import graphics with with variety of file formats (JPEG, PDF) and annotate them.
2. After class, edit your recording as needed (handstrokes and audio can be edited using the app before rendering as a video). This is useful if you need to add material, or correct any mistakes you made during class.
3. Render your Explain Everything recording as a .mp4 file.
4. Upload to Canvas by using [steps 5-10 of the Zoom Recording/Uploading instructions](#).

Pros
- Unlike a video recording, handstrokes and audio are retained as editable source material.
- The whiteboard is a flexible medium that can incorporate figures and other media.

Cons
- More steps to get recording from device onto Canvas.
- Must stand close to device throughout class, particularly the device with the audio capture.
- Audio is tied to individual whiteboard pages. This makes it difficult to hop back and forth among slides asynchronously.
- The recording does not include other things you showed in class on a computer or other apps.

Considerations
- Explain Everything is best with pre-prepared material. It is not so good for extemporaneous improvisation or whole-class discussion.
- An electronic whiteboard is only as good as the system used to project it. Some classrooms have screens that are very small, or that don't work well with an iPad.

Technical Complexity: High

We expect that this process will require substantial technical expertise on the part of the faculty member. The faculty must set up two devices, each pre-prepared with what you'll need on them and logged into the same zoom meeting, capturing one of the screens with Zoom, muting the other device, optionally capture video of the faculty, and interface with Canvas to upload the video.

Expected Time/Effort: High

We expect that this process will require substantial time and effort by the faculty member. This requires more time to set up at the start of lecture. Also note that this requires time after class to upload the recording to Canvas (see instructions above).

Customization: Recording with Multiple Devices

Use Case: Multiple programs/lecture formats

This option is good for you if you wish to swap between two formats on different devices, such as a laptop (e.g., Python, MATLAB, Excel, Mathematica, web browser, Aspen) and a tablet (e.g., written notes).

Devices Required & Program Usage
- Two separate devices: Laptop, Tablet, and another device each with Zoom
- Zoom
- Canvas

Note: if you're using an iPad, Panopto is not compatible with iPads specifically, but they're compatible with Zoom.

Steps

1. Using both devices (computer, tablet, etc.), log into the same Zoom on each device.
2. Mute the device microphone and Zoom audio on *one* of the two devices, but ensure both the Zoom audio and device microphone are both on for the other device. Keep Zoom video muted on both devices.
3. Connect your HDMI, VGA, or other projection method to only one device.
4. Screen Share the device you wish to start projecting from.
5. Record the lecture. Make sure to start and stop the recording along with lecture and make sure your audio and/or video are not muted. On Zoom, we recommend selecting "Record to the Cloud" instead of to your device.
6. Swap which screen is shared as needed to alternate between devices.
7. End recording and end Zoom meeting when lecture ends.
8. Upload to Panopto on Canvas. See Additional Tech Support Section for instructions if needed.

Pros
- Can swap between multiple devices as needed to share many programs.
- Fewer steps to get recording from device onto Canvas.

Cons
- Must stand close to devices throughout class, particularly the device with the audio capture.

Considerations
- Which device will do the audio capture? Which has a better microphone?
- Which device will you project to the screen? This might depend on available ports, cables, and/or projection methods.

Technical Complexity: High

We expect that this process will require substantial technical expertise on the part of the faculty member. The faculty must set up two devices, each pre-prepared with what you'll need on them and logged into the same zoom meeting, capturing one of the screens with Zoom, muting the other device, optionally capture video of the faculty, and interface with Canvas to upload the video.

Expected Time/Effort: High

We expect that this process will require substantial time and effort by the faculty member. This requires more time to set up at the start of lecture. Additionally note that while Panopto will automatically upload file to Canvas (see instructions above), Zoom requires time after class to upload the recording to Canvas (see instructions above) unless you configure it to upload automatically by following a one-time procedure before the course starts (recommended, see instructions above).