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Techniques for making online and hybrid classes more engaging

**A brief handbook on tools and strategies to ensure enhanced engagement
in online and hybrid classes**

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Introduction

Recently there has been a growing adoption of online and hybrid learning courses at LUMS, especially as has been the case around the world with increased proliferation of online degrees in a post-COVID era. An example of such a program that extensively deploys online/hybrid learning are the MS programs offered in the Suleman Dawood School of Business (SDSB).

What is a hybrid course?

A hybrid class/course can be any of the following:

- A portion of the class's student body is attending in-person and the rest are online (instructor is on-campus OR instructor can also be online with a digital presence)
- All students are online in some classes and all students are attending in-person on campus for the rest of the time (instructor can be online OR in-person)
- Any combination of in-person, online and offline lecturing and first introduction to content

One advantage of enabling a hybrid option for a course is that such a course can support greater student enrollment. In other cases, a hybrid option allows flexibility for students to take a degree/course remotely without having to travel frequently. As an example, (as of Fall 2023) the SDSB MS programs invite students to campus on one weekend a month and classes are online on the subsequent weekend two weeks later.

However, the general literature and feedback internationally on hybrid and online classes highlights clear challenges for keeping students engaged, creating equality of learning opportunity between online and in-person students and assessments. This handout aims to address some of those challenges and provide a concise list of interventions, techniques and recommendations that are generally accepted to improve learning and experience in an online and hybrid classroom setting.

The guide is divided into three sections, i.e., engagement, assessment and technicals, each of which address particular realms of instructional design in a hybrid classroom. Links to any relevant support resources are attached to facilitate easier access to detailed and elaborate reference material.





Addressing engagement in an online or hybrid classroom:

Retaining the attention of the students and keeping the classroom engaged when there's different spatial arrangements ongoing is one of the most important challenges of an online or a hybrid classroom. Substituting the physical presence in a classroom with a virtual one can quickly lead to deterioration of focus. Mental cognition tends to sway attention away from what's being taught and learnt in the classroom. Additionally, students often find it challenging to engage in a hybrid classroom and tend to prefer anonymity, thereby losing out on the intellectual rigor in the process. The following section details the various digital platforms which you can use to create an interactive digital community, along with tips and gestures which you can inculcate in your teaching practice to enhance engagement.

Recommended digital platforms for conducting an online session:

- Utilize user-friendly digital platforms such as Google Classroom, Microsoft Teams, and others (attached in a table below) for posting assignments, resources, and facilitating discussions. These platforms enable you to seamlessly create cohesion between the learning experiences of those who are online and those in-person.
 - Quick guide for deploying Kahoot for hybrid/hyflex learning can be found [here](#).
- Teams and other online discussion forums or chat features for collaborative learning and peer interaction.



Interactive Lessons:

Including and embedding elements like formative or summative quizzes, polls to create engaging presentations using tools like Google Slides or PowerPoint

- Encouraging student participation through virtual "*raise hand*" features or chat functions.
- For hybrid, synchronous lectures, use collaborative document editing platforms like Google Docs for group projects and collaborative note-taking.
- This encourages real-time collaboration and provides a space for students to contribute collectively.
- Breakout rooms may also be created in order to facilitate groupwork in their own time while being synchronously present in the class. Course TAs can be utilized to manage individual breakout room, simulating small-group learning

Software recommendations for lecture presentations if asynchronous:

Software	Recommendation	Integration options	Pricing
Zoom	Recommended software for recording lectures due to easy access and user-friendly UI. Tutorials for recording lectures and conducting webcasts are available on the Zoom website's forums. Limited options such as Polls available for in-class engagement interventions	Zoom library available for keeping a repository of stream recordings For poll and survey-integration to gauge student engagement, tools like Mentimeter or Poll	Free with premium options

		Everywhere (PollEv) can be used to create real-time interactive polls.	
Panopto	Another recommended software for recording lectures. Guidance is available on webcasting (live streaming) on the website. Its webcasts are very much ‘one-way broadcasts’, which can be delivered to an audience in the room as well as to others in an ‘overspill’ room, or remote location. UI is easy to grasp. Lesser options for formative assessment activities for engagement.	Canvas integration required for library/repository integration for recorded lectures	Free with premium options
Canvas	<p>Allows creating structured content and resources for students to access as well as a means of contacting students and receiving work.</p> <p>A number of Canvas course templates, including for tutorial teaching and lectures are available.</p> <p>Forums can be set up to have asynchronous discussions on a topic, and Assignments can be set up for students to submit work.</p> <p>SpeedGrader allows you to provide formative feedback to students in several ways – typed comments, annotations, audio or video.</p>		Free with premium options — Free-for-Teacher option allows greater functionalities free of cost

Microsoft Teams	<p>Provides the platform for live sessions using audio, video, screen sharing and polling.</p> <p>The chat functionality is good for informal discussions and Q&A (the text is retained in the Teams Chat app for later reference).</p> <p>You can also share files and links with students in Teams.</p>	Repository already integrated within the software design	Free
Kahoot	Recommended for gamified assessments, including formative quizzes and concept recaps. Can be hosted live at the start or end of the class.	Kahoot 360 allows for many software integrations, such as Powerpoint. API integration can be deployed for further 350+ integrations across various platforms	Free for student, teacher and personal use with multiple premium plans and pricing plans, starting from 1\$.
Google Meet	<p>Another recommended option for hybrid class hosting (requires Gmail accounts). Recording options when used, includes the active speaker and anything presented. You can also choose to record the meeting's captions. Recordings are saved to the organizer's Meet Recordings folder in My Drive. An email with the recording link is sent to the meeting organizer and the person who started the recording.</p>	<p>Automatic and convenient integration with Google Drive for library integration and hosting recorded material. Class material can simultaneously be shared through a Class Drive.</p> <p>Alternatively, integrations with Google Classroom also available, providing a bigger range of options such as assessments etc.</p>	1:1s and mobile calls do not have a limit, and invited participants limit also extends till 100. Time limit for other meetings can be extended, along with recording functionality using Google Workspace Business Standard account with varied pricing plans.

Crowdmark	Online grading and evaluation platform, which can be used in two workflows for in-person and online assessments: administered assessment and assigned assessment, which are proctored and take-home respectively.	Can be integrated a variety of LMS platforms and others, including Blackboard, Moodle, Canvas etc.	Two pricing options — Academic Year Subscription and Course Subscription
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Communication in a hybrid environment:

Introductions. Invite students to introduce themselves at the start of the session, so those who are joining the class remotely are brought into discussions from the start. This also helps identify early on if there are any connectivity issues for those joining remotely.

Encourage questions. If feasible, the lecturer or tutor could encourage active engagement by regularly prompting questions and inviting a participant to speak. Invite remote students directly, so that they do not feel alienated from the class. Approach students by name, whether in the room or online, rather than simply saying '*Does anyone have a question?*' (this usually results in an echoing silence). You may find it helpful to consult the large classes guide by LLI, here [\(insert guide link\)](#).

Use polls. Encourage students attending in person to bring along their laptop (or mobile device); then during the class, the tutor could post polls online which all the students will be able to engage with. In this way both in-person and remote students would be sharing the learning experience by doing the same task. The tutor may wish to ask a particular student to explain their

response to a poll question(s); aim to seek participation from students joining remotely as well as those physically present in the class to reinforce the collective learning experience.



Put students into small groups. If you are using breakout rooms in Teams, the students in the classroom can form in-person small group(s) and have a break from the screen, which is a benefit. In-person breakout rooms can take longer to come back than online ones. An alternative is to use Teams breakout rooms for all, with a mix of in-person and remote students, again to bring these groups together, rather than creating a 'divide' between those attending in person and those studying remotely.

Post links to resources for discussion. The tutor could post links to external resources in the Teams chat, for example, a website or any other such digital resource. Students could spend time on their devices looking at the website or an article, for instance, before the tutor starts the discussion.

Share the session plan in advance. A planned agenda will create some prior expectation of what the class will entail and prompt students to complete any key preparatory activities. Having a session plan doesn't mean that your class can't be spontaneous – for example, feel free to follow or expand a related discussion thread.

Record the session. We recommend that you should record the session and make the recording available via the LMS or upload it onto a private/public Youtube playlist (any other digital repository also works) so that all students can access it at any time. This is particularly important for revision classes.

Blending the Synchronous and Asynchronous Elements



In any blended or hybrid setting, a healthy mixture of synchronous and asynchronous assessment methods is ideal for maintaining effective engagement of the students in the classroom. While the paradigm of assessments in a hybrid classroom is a realm in itself, we can consider the delivery and deployment of assessments as a good opportunity to maintain engagement within a classroom. Formative assessments are optimal tools that can be used to serve the dual purpose of enabling engagement as well as testing learning in a hybrid setting. Some types of relevant formative assessments that can be thus deployed are as follows:

1. Polls, Surveys and Quizzes:

- Use online polling tools, or survey platforms such as PollEv, Flisti, Jotform or Zoom's poll function to gather quick feedback on understanding students' engagement levels and assessing them in the process.
- Ask multiple-choice questions, and discuss the results to address misconceptions. One popular deployment is to use them at the start of the class, as minute-quizzes to recap important concepts and enable students to retain information moving forward.
- Incorporate multimedia elements like images or videos to make the quizzes more engaging. All of the suggested softwares allow for creative visualisations to be integrated into the quiz itself, and later in the feedback cycles as well.

2. Interactive Whiteboard Activities:

- Use digital whiteboards such as Jamboard for collaborative problem-solving or concept mapping.
- Students can contribute in real-time, be assessed for their contributions and you can discuss and analyze the results together.



3. Discussion Forums:

- Establish an online discussion forum on LMS or Microsoft Teams or Piazza (can be integrated into LMS) or Slack where students can post thoughts, questions, or responses to specific prompts.
- Encourage peer interaction by requiring responses to classmates' posts. Marks and deadlines can be allotted to turn such contributions into quick assessments

4. Peer Teaching Sessions:

- Assign students small topics to research and teach to their peers in a virtual setting, such as breakout rooms in Zoom.
- This promotes active learning and allows students to engage with the material in a different way.
- TAs and instructors can observe and contribute when needed

5. Digital Concept Mapping:

- Have students create digital concept maps using tools like MindMeister, Miro, or Canva. This helps them visualize relationships between ideas and concepts.

There are various other options and avenues to explore when it comes to deploying hybrid assessment learning methods in order to achieve enhanced engagement and learning in a hybrid classroom. A curated application of teaching methods, softwares, and tools can ensure that increased engagement in the hybrid setting persists.



Curating assessments in an online or hybrid classroom:

Creating and administering assessment tasks such as assignments, quizzes, and exams during this remote and hybrid teaching period is a challenge, but also an opportunity to evaluate how to meet the learning objectives in your class. The options outlined in this guide will help you think about your decisions for summative and formative assessment tasks throughout the semester.

Some Key Terms

Summative Assessment

Summative assessment focuses on assessment of learning. This type of graded assessment happens periodically throughout the semester and checks student learning. Summative assessments are often associated with exams and midterms, but can also include other kinds of assessment tasks. This guide provides a variety of alternative summative assessment options.

Formative Assessment

Formative assessment focuses on assessment for learning. This type of assessment is ongoing throughout the semester, and often involves low-stakes, ungraded assessment tasks in and outside of the classroom. Timely feedback of these assessments assists in students' reflection of their learning, and provides opportunities for improvement in learning and teaching.



Guiding Principles of Assessment to enhance engagement:

As a preamble to any assessment task, focus on the ethical framework of learning rather than on cheating or plagiarism, but provide students with information about consequences for infringements of academic integrity as well. Assessments are a medium for interaction with course material for the students. So the more flexible and engaging the quality of the assessments is, the further enhanced you can expect engagement in your classroom to be.

- Maintain clear communication with students about the assessment requirements, including any changes to style or weighting of assessment. Student input will also be helpful as you make these decisions; therefore we recommend surveying students (e.g. anonymous Zoom poll, short, 1-2 question survey on Google forms, etc) throughout the semester about your assessment tasks. This will enable you to craft assessments that are attuned and attentive to the needs of the class, thereby helping them feel perceived and not disengaged from your end.
- Make sure students have opportunities to practice the style and format of your exams throughout the semester. Provide practice and trouble-shooting opportunities to ensure students can access all the technological components related to an assessment task (especially a timed exam) before the due date of the task.
- Be aware of the increased cognitive load for students in these unusual circumstances. This applies to both traditional exams that may be in a different format and alternative assignments.
- Consider equity for all students in your decisions about assessment tasks, including whether all students will have adequate access to the hardware and software that they will need to complete the assessment task. Consider being flexible, and providing other options for students to demonstrate their knowledge of the material.



Assessment in remote or hybrid courses is often continuous, multiphased with community input rather than episodic, concentrated and focused on the student-faculty dialogue (Moallem, 2005). This is pedagogically beneficial and makes cheating/plagiarism more difficult. These multi-phased tasks could range from short tasks that build up to lengthy tasks throughout the semester. Most importantly, these assessment tasks provide opportunities for learners to test and apply their knowledge and skills.

This practice allows for an '*assessment as you go*' approach, making it possible to scaffold learning and monitor students' progress and thinking throughout the semester, while learning more about the students' learning abilities and styles. The approach allows for more mentoring and coaching from the course instructors. Depending on your class size and the nature of your class topic, these assessment tasks may vary. Below are a few examples on how you may decide to include alternative assessment tasks in lieu of the traditional exam:

Papers

You may decide to have students write short papers on focused topics or problems. The paper assignment allows for application of concepts and shows the students' critical thinking skills. This assessment may be done synchronously or asynchronously depending on the length of the paper.

Presentations

You may decide to have students present synchronously or asynchronously (recorded previously) on a topic, reading, or problem set. Students may present collaboratively or individually. Set clear guidelines for student presentations in advance, and provide students with a rubric to communicate learning expectations.

Video Assignments

You may decide to have students create short videos on a topic, concept or show their thought process on solving a problem set. This assessment task works well for asynchronous assessment, depending on your course structure. Videos could be focused on content with no post-production/ editing, unless necessary. Students may be given the adoption to use BU-supported Adobe Creative Cloud Platforms for their post-production needs.

Student Portfolios

You may decide to ask students to gather a collection of class assignments, tasks and projects throughout the semester. Portfolios are often associated with written work, but they could be more multimodal and include audio and video clips, drawings, problem sets, etc. Because portfolios reflect an entire semester's work, they provide an accurate picture of a student's progress compared to one or two exams. You may have students write a one-page reflection introducing their work in their portfolios. Students often find this process valuable, as it is an opportunity for them to reflect on their learning.

Take-home Exams

You may decide to give students a set of questions or problems that will take longer than a class session for students to complete. Given that monitoring take-home exams is challenging, we recommend you design questions that students cannot easily google. In order to ensure academic integrity, these take-home exams may be assigned as collaborative group work or implemented in combination with the video assignments mentioned above.

To retain engagement in a classroom, formative assessments are the most effective option (Ammon et al., 2005).

Graded Assignments

Term Papers: Grading lengthy individual papers can be a burden many faculty teaching large classes would rather avoid. An alternative is to use a series of shorter writing response activities, including reaction papers, journals, or reflections, rather than a single long essay.



Essay Exams: While exams are recommended to combine short-answer and essay questions, grading these responses can be time-consuming. One way to control the length of responses is to give students limited space for their answers. Students are forced to get to the point when restricted to a specific space. In an online setting, this might be in the form of character/word limits, and while writing on paper, it may mean a limited length of pages (“respond in 500 words/make sure your answers don’t exceed one page”), etc.

For non-writing focused and STEM/business courses in particular, you may incorporate a handful of the following activities:

Concept Maps and Mind Mapping: Assigned both as a pre-assessment and a post-assessment strategy, with the option of giving it in groups or otherwise—concept maps and mind mapping can be a useful strategy to help students make sense of theoretically dense concepts. Provide a broad topic or theme, or unit from the course for which students should create a concept map. Ensure that the topic is sufficiently broad for meaningful connections and relationships. Explain that students should identify key concepts or ideas related to the topic, connect them with lines or arrows, and include brief descriptions or labels to show how these concepts are interrelated, which can later be presented to the entire class, followed by a Q&A. These can be created using paper and markers or digital mind-mapping tools like MindMeister and Miro. You may grade them on various metrics, such as conceptual clarity, relevance, creativity, preparedness for questions, etc.

Case study discussions: To review particular research for the entire class, you may select relevant case studies or research papers. Start by choosing relevant papers/case studies related to the course content and learning objectives. Ensure the scenarios are complex enough to challenge students and promote



critical thinking. Provide students with any necessary background information, including the context of the paper, relevant data, link with the course content and any additional resources required for analysis. Preferably done in groups, clearly communicate the instructions and expectations for the analysis. Include guidelines on the format of the analysis, such as length, structure, and the components to be covered. You may cover them as in-class presentations or as take-home assignments.

Ungraded/Formative Assignments

Ungraded writing assignments give students writing practice and offer instructors valuable feedback without the burden of heavy grading. Ungraded assignments ask students to share their understanding of the course material. (The instructor should be prepared to answer students' questions about this process). Instructors can use ungraded writing exercises to begin class by tying their topic to material covered in the previous class or to lead into the current day's topic. These exercises can also be used at the end of class to assess what students understand from the lecture and if the lecture was effective. As for grading, the assignments can be marked for either credit or full, partial or no credit. (See the list of references for activities not described below.) (Ammon et al., 2005).

Chain Notes: Students are given index cards at the beginning of class. During the class, students pass around a large envelope on which a question is written. Each student spends a few minutes writing a response to the question when the envelope reaches him or her. The instructor can then respond to what the students have written and will also have gathered feedback on the class.



One-Minute Paper or Daily Report: In the one-minute paper, students write responses to the questions, “What point(s) are most clear to you?” and “What point(s) are still unclear to you?”. In a daily report, students are asked to complete the following sentences: “The point of today's lecture is...” and “A question I have is...”. These reports can be graded or ungraded and provide a clear sense of which areas present students with the greatest difficulties. (See a sample one-minute paper template in Appendix B)

Three-Minute Thesis: After discussing an issue, have students write down their reactions and reasons to support one side or another. Circulate the responses and ask students to support and elaborate on their comments.

Five-Minute Entry: In a five-minute entry, students are asked to respond in writing to reading or a topic assigned for the day. Papers are marked satisfactory or unsatisfactory, and mechanics (grammar, spelling, etc.) do not count. Satisfactory entries demonstrate “beyond a reasonable doubt” that their authors have read and thought about the assigned reading. Dennis Holt gives this example: "We have been discussing Frederick the Great and Otto Bismarck. State one major contribution each leader made to the rise of modern Germany. In terms of their significance for German history, how do these contributions differ?" Similar questions can be modified and posed accordingly for STEM courses.

Reading Journals: Journals students keep chronicling their thoughts about the assigned readings and offer a way for an instructor to focus on student reflections about what they are studying. Journal assignments can ask students to summarise the main points of the reading and react to them. They might also be asked to pose questions for further study or to link the reading to the



lecture material. A certain number of journals may be required over the semester or for one unit in the course. A variation on this assignment asks students to draw a line down the centre of the page. On the right side, they write notes or summaries of the reading. On the left, they write down their reactions, questions, and disagreements. You may wish to collect them to get a sense of their understanding and provide feedback.

Group Projects: In a group project, each person contributes one part of the assignment. Another option is to have all parts worked on collaboratively.

Question and Answer Cards: Make index cards for every student in the class; half with questions about class content; half with the right answers. Shuffle the cards and have students find their appropriate partner by comparing questions and answers on their own cards. In an online setting this can be managed through direct messages to distribute virtual ‘cards’.

Pre-topic student learning checks: For theoretically dense courses (such as STEM and otherwise), it is beneficial to present pre-topic student learning checks which serve as a pre-assessment for the instructor, which they can use to modify the intensity of their lecture. Some particular techniques that can be used in this regard are:

Focused Listing: List several ideas related to the main topic. Helpful for starting new topics.

Background Knowledge Probe: Use questionnaires (multi-choice or short answer) when introducing a new topic.



There is no doubt that students perform better when they are engaged in regular, formative activities. As such, **low-stakes pop quizzes**, **online polls**, **discussion boards** and **chat boxes** have become popular tools for formative evaluations in online classrooms. These fast pulse checks assist teachers in ensuring that pupils understand essential concepts and help identify gaps in their knowledge. In any subject, good instructors should use this information to adjust their teaching based on what students know and need to learn.

Formative assessments are not only valuable tools for teachers, they also help students gauge and track their own progress throughout a course. Introducing formative assessments consistently additionally helps inspire students' confidence and mitigate the pressure and anxiety they face leading up to a high stakes summative exam.



The technical elements of curating an online or hybrid classroom:

Instructional Design Strategies:

- **Scripting your videos:** Write down what you intend to record in order to ensure your videos are concise, comprehensive and align with the learning objectives in a time efficient manner. This can be particularly important if recording content for an asynchronous online lecture.
- **Pay attention to visuals and animations** - Instructional design research shows that students learn better when words and visuals are presented together. So, incorporate relevant images, diagrams, and charts alongside textual content in your instructional materials. Recent generative Artificial Intelligence tools such as DALL-E and alternatives can help create custom illustrations quickly.
- **Use a conversational tone and style:**
 - The tone and style of narration should be conversational, rather than formal or robotic. (For example, you could use storytelling or real-world examples to make the content relatable).
- **Chunk the content, make brief and focused videos:**
 - Organize the content into smaller, manageable segments with clear start and stop points. Recorded videos should ideally be between 5-10 minute modules



- **Interactivity in Pre-Class Materials:**
 - interactivity into pre-class materials (check understanding and identify gaps) e.g. , use embedded questions, self-reflection quizzes, or preparatory activities.
- **Videos Should Be High-Quality:**
 - High-quality production values, clear audio, and engaging visuals in pre-class videos are associated with better learning outcomes.
 - Consider using high quality equipment or software to create these resources. Check with LUMS IST and LUMSx, depending on the particular course and availability of resources.
- **Technological flexibility:**
 - Ensure that pre-recorded content can be accessed on various devices E.g. file format and file size, or use YouTube or Vimeo
- **Accessibility:**
 - Ensure that all course materials are accessible to all students e.g. Enable captioning on youtube (different accents).
 - Use Black on White writing (color blindness)
- **Leverage Learning Management Systems (LMS):**
 - Make effective use of the LMS for organizing, content delivery, discussion forums, quizzes, and grade tracking. Ensure students are familiar with its functionalities.
- **Data-Driven Decision Making:**
 - Use learning analytics provided by LMS to track student performance and make data-informed decisions about course design improvements



How to self-record videos?

Prepare your lecture and slides

Planning your lecture content and preparing slides in advance can help maximize student engagement. Structure your presentation content in order to help your audience retain more of the material, and prune down content in your slides by eliminating anything that duplicates what you are saying in your lecture — use your slides to enhance your key points, not repeat them. Students will be more likely to pay attention to your lecture and watch it all the way through to the end.

Download your lecture capture software or app

You'll need to download lecture capture software to your Mac or PC, if you don't have it installed already. And if you plan to use a tablet or smartphone to record digital course material, be sure to download the mobile app, providing your lecture capture software has one. Options for lecture capture softwares are provided in the *Software Tools Recommendations* table above. Alternatively, Panopto's free online video and screen recorder app lets you record right from your browser.

Optimize audio and video quality

Your recording environment will determine any extra equipment or devices you may need to maximize the audio and video in your lecture recording. Choose a quiet, well-lit room or office, and position your webcam so that it records your head and shoulders and sits about eye-level.



In a quiet, well-lit environment, you should get good enough audio and video from the native microphone and camera in your laptop. Some things to watch out for when recording lecture videos outside the classroom:

Backlighting: If there is a lot of light behind you, or you sit in front of a window, you run the risk of looking like a shadow in a webcam video.

Low lighting: Webcams have small sensors and tend to make video look choppy and grainy in low light.

Loud fans and other background noise: Air conditioners, machines that hum, computers with loud fans, and even voices from outside the room can compromise the audio in your lecture video.

Visible clutter behind you: Avoid sitting in front of anything that can be busy or a distraction to your viewers. Alternatively, you can turn on virtual background blur and replacement when you record with softwares like Zoom or Panopto. This will ensure learners focus on the content in your presentation.

Additional Recording Equipment For Optimizing Video Quality

In the event that lighting and background noises are a concern, there are affordable, simple solutions that will improve the quality of your lecture recording.

External Microphones: Quality audio is of utmost importance when recording a lecture — if students can't hear or understand you, they won't be able to watch the video. To improve audio, you can add a microphone that plugs into your USB port, such as the Blue Snowball USB microphone, the Blue Yeti USB microphone, or the CAD U37 USB condenser microphone.

Additional Lighting: Making eye contact in your video is necessary to maximize engagement with students. Make sure that your face is visible and lit with soft light from the front.

Lecture Recording on Mobile Devices and Apps

You can also record lectures outside of a classroom with a tablet or smartphone, though these devices are typically more suited for field recordings or showing multiple viewpoints in a demonstration. Follow all of the above setup tips if you are recording with a mobile device and app, but also keep in mind the following:

- Most mobile device cameras have stabilizing technology, but you should consider using a small tripod or stand if you are recording yourself — it will create a better viewing experience for your students and free up your hands as you present.
- You can add a clip-on mic that plugs into a standard audio jack, such as the Rode smartlav mic, if the sound you are getting from your phone or tablet's built-in microphone sounds garbled or isn't loud enough.
- Maximize the light in the space where you are recording and avoid backlight. Video quality tends to degrade quickly in low-light or when there is backlight, since cameras on mobile devices have small sensors.

Record a test video to check the quality of your audio and video

Once you have your lecture materials and recording setup ready to go, record a test video. In this video you can not only practice your presentation, but also check to make sure you are happy with the sound, lighting, and overall video quality.



Record and edit with your lecture capture software or app

Load your slides into your lecture capture software, press record and begin your presentation.

Record all the way through without pressing stop in your lecture capture tool until the very end — if you make a mistake, simply stop presenting for a few seconds to leave a silent pause in the recording. This will make it easy to edit out the section you don't want later. Once you've captured your initial recording, you can begin to edit out the sections you don't want in your video.

When you are satisfied with your recording, click upload. Your lecture capture software will process, optimize, and upload your recording to your video library.

Share your lecture video to your LMS

As it's uploading, softwares like Panopto automatically transcribes every word spoken in your video and uses AI to make everything inside your videos searchable. You can also request 508-compliant captioning right inside Panopto to add human-edited captions to videos. After your lecture capture recording has been processed, you can share the link with students or add the video to your learning management system (LMS). Other softwares like Zoom and Canva have a built in repository for storing your lecture recordings, though they might be restricted to direct storage your PC/laptop if using the Free account. And if your lecture capture software includes video analytics, you can even evaluate the effectiveness of your recordings. For example, if you notice that students are dropping off at a certain point, you can re-edit your original video in your lecture capture software to improve the learning experience.

The most convenient option to sharing your lecture video to your LMS is to download and later upload it to a private Youtube playlist, which you can then share exclusively to your class on the LMS or through email via a private or public link.

Appendix A: Bibliography

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