INTRODUCTION

THE BASICS OF TEACHING ONLINE

i. Technologies, accessibility and inclusion

ii. Some differences between online and in-person teaching

iii. Inclusive discussions

iv. Choosing between synchronous or asynchronous teaching

LEARNING FROM EXPERIENCE

PLANNING YOUR LECTURE, CLASS OR SEMINAR

i. Asynchronous, pre-recorded sessions

ii. Chunking and encouraging active learning

iii. Enhancing your asynchronous teaching

iv. Live, synchronous teaching

v. Enhancing synchronous teaching

vi. Blending synchronous and asynchronous teaching

Click on a section to find out more

www.cctl.cam.ac.uk
Larger-group teaching (lectures, classes and seminars) is central to higher education. When students sit in lecture halls or seminar rooms with us and their peers, they are both engaged in learning and also developing a more general sense that they are “doing university”. This sense arises from being physically present with others, engaging in conversations and exchanges, and pursuing a common endeavour together – factors that all contribute to student motivation and general wellbeing.

Since lectures and larger-group teaching at Cambridge will be online during 2020-21 (unless and until public health guidelines change), we will be creating a different university experience, and doing this will involve not only guiding learning but also being attentive to the social dimension of learning in an online setting. This does not mean you will need to transform your lectures, seminars or classes into fully developed online education courses, but neither does it mean simply translating in-person teaching to a digital setting.

Planning teaching will encompass considering how to design larger-group teaching and learning which encourages motivation to engage in learning in an online setting.

In particular, we recommend;

• taking time to identify the learning objectives for your students
• designing teaching and learning activities which address these learning objectives
• taking care to create inclusive educational environments and practices for all students
All synchronous and asynchronous teaching sessions must be accessible to all learners. There are benefits to all students, including students with hearing impairments and those for whom English is not the first language, in the availability of captioning and the production of automatic transcriptions. Follow the links from this page to fuller detail concerning accessibility, inclusive practices and recording teaching.

During the disrupted period, all lectures which are given live must be recorded and subsequently made available to students. This is to minimise the disruption to the education of students who are unable to ‘attend’ at the designated time. Note that copyright and intellectual property rights remain with the instructor and recordings may be used by students solely for their own study and must not be shared on social media.

We strongly recommend either recording using Panopto or creating your recording and then uploading it to Panopto afterwards. This is because Panopto enables recordings to be searched using text on slides, spoken word & transcripts and can be adjusted for accessibility requirements. You can also use Panopto to help your students understand the structure and narrative of your teaching: recordings are automatically divided into ‘chapters’, information can be added about timings and you can post questions in a ‘discussion’ box which sits alongside each recording.

With most students returning to Cambridge for Michaelmas Term, we can assume they will have access to some computing device and an internet connection. But with increased online traffic, connection difficulties might occur, ranging from delays in the transmission of sounds and images to longer interruptions. For students who will be unable to return to Cambridge, the quality and type of network connection may also vary.

When you plan your teaching, try to build in flexibility for both you and for your students. For example, if you will teach live, at some stage connection difficulties are likely, which may lead to intermittent pauses or loss of sound for you and/or for your students. If you have been reliant on live teaching only, you will need to find time to record interrupted sessions and to make them available to students afterwards.

This page is part of the section on The Basics of Teaching Online: i. Technologies, Accessibility and Inclusion. The key points are:

- The technologies available to your students
- Minimising disruption: flexibility, accessibility and inclusion
- Recording teaching: practicalities and policy during 2020-21
- Making teaching accessible to meet different learning needs

Next Page
Most digital platforms are equipped with simple recording mechanisms, which make recording easy. Many platforms also allow you to edit a recording however, it is important to read through the saving options carefully, as some platforms (Zoom, for instance) only allow editing on recordings saved to the Cloud and not on those saved directly to a device.

- DRC comparative assessment video conferencing
- Guidelines for creating accessible recorded online lectures
- Selecting which tool
- Small-group teaching: guiding inclusive discussion and interaction
- Use of recordings for remote teaching and learning policy
More generally, it is beneficial to reflect on the impact of where students learn, in addition to how they learn. A residential university experience is tied to space and the presence of others. Normally, in Cambridge students learn with us in lecture halls or in seminar and supervision rooms, by themselves in corners of the library or with friends in college. Even when students are studying alone in the library, they are unlikely to be alone.

Reflecting on what they’d struggled with in adapting to remote learning during Easter Term 2019, Cambridge students mentioned first problems with technological connectivity, followed by a sense of isolation. They also indicated ways in which a sense of connection could be created online, including integrating ‘chat’ functions into larger-group teaching, combining recorded teaching with ‘live’ Q&A, as well as fairly quick responses to emailed questions.

Similarly, Cambridge educators noted an increased desire among students to connect: “I definitely feel that the students are more responsive to all the interaction (mainly emails) I offer”. Another commented that they had worked “to make sessions more engaging, so [I] have asked students to prepare more presentations / lead particular parts of the discussion”. Others found that “controlled moderating of discussions”, “directing questions to students rather than using open questions”, yielded good results in terms of richer, more creative and inclusive discussions.

There are many practical and creative tools at your disposal for online teaching. In order to use these tools effectively, it is first worth considering some general differences between face-to-face and online teaching. In this section, we briefly review some of the elements of in-person teaching and learning which can go missing. The remainder of this guide provides examples and illustrations of ways in which active learning can be designed into online teaching.

If you taught during this past Easter Term, you may have experienced the challenges of teaching in an online environment where social cues, verbal and nonverbal feedback are either absent or greatly altered. Some lecturers described a feeling of ‘speaking into a void’. Others found that it could take longer to explain something online than it would in person and that it could be difficult to gauge students’ understanding while teaching.

KEY POINTS

- How online teaching environments differ from in-person settings
- Focus on learning to structure teaching
- Cultivating a sense of contact and presence online

1. For more on the concept of ‘presence’, see David White’s blog “The need for Presence not ‘Contact Hours’”.

THE BASICS OF TEACHING ONLINE: ii. SOME DIFFERENCES BETWEEN ONLINE AND IN-PERSON TEACHING
KEY POINTS

• Fostering inclusive interaction online
• The challenges of conducting group discussions online
• Inclusive practice: creating structure and clear goals for interactions

One of the most important teaching skills is the ability to guide students in discussion, or in shared problem solving — and to do so in a way that includes all students in contributing to and learning from the activity. Fostering inclusive interaction online takes forethought and planning as well as consideration of what ‘inclusive teaching’ looks like in an online platform.

In online settings, interactions can be slow or fragmented, as the non-verbal cues of in-person interaction are absent or altered. Delays in the transmission of sound and images can also make interactions feel stilted and you and your students may need to take a little time learn how to engage in discussion online and to become more confident in doing so. Video conferencing can also amplify challenges for students and staff for whom English is not a first language, and many disabled students, for example those with visual and hearing impairments and neurodiverse profiles.

In this new setting, it is therefore particularly helpful to work on creating structure for discussions and problem solving. This involves setting clear goals for discussion, thinking about what type of questions to use and when, and listening and responding to students thoughtfully. Using focused questioning and responding can lead to more equitable levels of contribution and increased levels of student-to-student interaction. You may find it helpful to guide discussions by directing students to speak in a certain order or to respond to each other according to a sequence. Try to word your ‘instructions’ clearly and, where appropriate, to communicate them in advance: this is likely to help you plan an effective and engaging framework for interaction. Understanding the purpose and structure of activities in an online environment can be challenging. This challenge can be addressed by sharing questions and activities in advance; doing so is particularly beneficial for students with neurodiverse profiles.

• Guiding inclusive discussions and interactions
• Guidelines for supervising and inclusive interactions with disabled students
While some students prefer pre-recorded sessions, others engage better with live lectures and classes. This seems to stem from students’ desire to be co-present with instructors or peers and to experience a lecture or seminar in the way they’re most familiar with, that is, as a group engaging together at the same time. This need for connection is real and should factor into your planning, but it is important to note that live teaching is not the only way to be co-present with students online. Other techniques for creating ‘presence’ with students are explored in later sections of this guide.

Your Department or Faculty may have developed guidelines concerning live or asynchronous teaching: if you aren’t already aware of these, please check with your Department or Faculty. If you are in a position of choosing whether to teach synchronously or asynchronously (or a combination of both, see below), it is important to ensure that your decisions constitute the best choice for creating effective and inclusive learning environments for all students.

As indicated above (The basics of teaching online: i. Technologies, recording, accessibility and inclusion), during the disrupted period all online larger-group teaching must be recorded and made available to students unable to attend, in order to minimise the disruption to their learning.
Beyond these considerations, there are a range of further questions which are always relevant when deciding whether to teach live or to pre-record:

• Is it necessary for students to engage with the material simultaneously with each other and with you?

• What synchronous and asynchronous options are available to you and to your students to enable interaction, collaboration, and making connections between topics, questions or concepts?

Further guidance

• [Selecting which tool](https://example.com)

• [Common activities: online challenges, tools and options](https://example.com)
To get started, identify the important learning objectives for your students, then develop a clear narrative to structure your teaching. Remember that attention spans are shorter online than in person and aim to pre-record elements which are no longer than 15 minutes: it may help to plan to address one learning outcome in each 15-minute element (see Planning your lecture, class or seminar: ii. Chunking and encouraging active learning). Once you have tightened up your narrative, aim for a conversational style of speaking, which will be engaging for your students to follow. Again, it can be helpful to imagine yourself actually speaking to your audience.

Obviously, when pre-recording you won’t be able to respond to verbal and nonverbal feedback from students. Some find that in the absence of an audience, they become prone to wordiness or over explaining a concept or idea. It helps to jot down some precise language to convey key points and it may be helpful to rehearse a few times before recording. Editing can become very time consuming and it’s worth putting some time instead into trying to get the recorded element right first time. Remember that your students are not expecting high production values, but pay attention to decent image quality, good sound quality and a clear narrative to your recorded elements.

For some, though not all, the practice of pre-recording lectures or classes will be a completely new endeavour with seemingly no likeness to in-person teaching. In particular, speaking a lecture or teaching session into a laptop or a mobile device while seated in your home office or dining room is very different from presenting it in person to students and even somewhat different from presenting it live online.

Recording lectures for students to listen to at a future date has a podcast feel to it—while recording you will be speaking to an imagined audience and presenting ideas or uncovering problems/questions without the benefit of any kind of immediate feedback or even the opportunity to make eye contact with someone. This method can initially feel awkward or stilted, but it has a lot of creative potential. As with face-to-face teaching, all pre-recorded sessions must be accessible and inclusive.
For sound clarity, you might want to use headphones or a microphone if you have one. It is a good idea to test these devices before recording, as some microphones or headsets can produce an unpleasant tinny sound, which can be distracting. Aligning your spoken commentary with your slides usually does not require advanced technological knowledge, as most platforms automatically synchronize the voice and visual recordings.

Your Department or Faculty may have guidelines on how to store pre-recorded sessions. We strongly recommend uploading recordings to Panopto. This provides important accessibility features for disabled students. You can also use features in Panopto to help your students to engage actively with recorded content, including timings for each topic covered, so that students may anticipate the structure and direction of pre-recorded elements, or posting questions in the ‘discussion’ box, which also sits beside the video.

Related information:

- Selecting which tool
- Guidelines for creating accessible recorded online lectures
- Panopto help on Moodle
To encourage richer student engagement, you may decide to frame each recorded segment around a question, and then conclude each segment by asking students to pause and think about their responses before starting the next recorded section. Depending on subject, you could end sections with a short quiz or a one-minute paper, where students take one minute to write an answer to a question or to write a description of the concept or material you’ve just presented. When you begin the next segment, you could briefly refer back to the important terms, concepts or ideas of the previous segment. Bookending the chunked segments of your lecture or classes in these ways will hold students' attention in a virtual setting and help them progress in the processing or sensemaking of the material you’re discussing. Doing this may take some practice, and it may feel awkward or over-structured initially, but it will likely enhance your students’ learning experience. Disseminating key questions or points prior to a teaching session can be a valuable way to give further focus to these activities.

When uploading your recorded sessions to Panopto, you can provide further structure and clarity to your teaching by titling each section and drafting a brief description or an overarching question in order to add further framing around each section.

KEY POINTS

- Recording in small segments ('chunking')
- Didactic exercises – short quizzes / the one-minute paper
- Organising the storage sit for recorded segments
- Combining pre-recorded segments and interactive discussions

Attention spans are shorter in online learning contexts, lasting usually around fifteen minutes before a student begins to drop off or become distracted. Splitting a teaching session into discrete ten- or fifteen-minute sections, inserting pauses at logical stopping points or constructing distinct learning segments, will make it easier for students to follow and remain engaged.

In organising the chunked segments, you may find it necessary to reduce your teaching goals and identify a few specific things you want students to learn or engage with. In an online learning environment, where students are compelled to learn through screens, sometimes the most effective teaching choice is to be succinct, abridging the content you would have taught in a face-to-face setting and where appropriate augmenting this with a reflective or collaborative activity.
For classes and seminars, which typically involve more discussion and student interaction than lectures, the practice of pre-recording brief teaching segments can be an effective and creative way of moving your teaching online. Indeed, in these teaching contexts, combining asynchronous and synchronous modes of teaching is an approach many people find particularly appealing. You might consider posting short, recorded segments that students watch on their own and following that up with live sessions in which you further explore the material, facilitate interaction with students or guide them through an activity.

- Selecting which tool
- Guidelines for creating accessible recorded online lectures
- Preparing for online learning (using quizzes in Moodle)
There is a lot of potential for experimentation with asynchronous teaching and using didactic exercises can be a particularly creative way to interweave the theoretical and applied elements of the material you’re covering and to encourage students to engage actively in their learning.

If you have time to further develop your online teaching, you may be interested in experimenting with short films to succinctly or imaginatively cover a topic, idea or concept. White board animation software or PowerPoint video editing have tools for making brief animations and films. These tools can be used in a variety of creative ways—explaining key concepts in your discipline, modelling modes of thinking or enquiry in your field, or using an analogy to illustrate a difficult concept. There are numerous possibilities. To add interactivity to short films (or to any pre-recorded teaching elements), you could prompt students with a question before they view the videos.

• Panopto tools to support active learning with video
• Preparing for online teaching
• Selecting which tool

If you have more time to plan and develop your pre-recorded sessions, there are several things you can do to help your students learn more effectively from them.

For example, you might want to consider the dynamic elements you could add to the recording. Students generally prefer to see their instructors so enabling your webcam for all or parts of your recording is helpful, though this might take some practice if you also intend to use a whiteboard.

Designing didactic exercises, such as the ones described in the previous section—brief quizzes, one-minute papers, short questions to consider—will also encourage your students to engage in active listening. You could follow up each chunked segment with a quiz or brief writing exercise, which you can then refer to or review briefly in the next recorded section.
Taking time in advance to share the session’s learning objectives with students – identifying what you think your students should learn and be able to do (for example, focusing on certain problem-solving abilities, or their capacity for interpretation or critical evaluation) – will help you to make the most efficient use of the time spent in a live session.

Try also to consider ways of building in interaction between students or of fostering a sense of community (see The basics of teaching online: ii. Some differences between online and in-person teaching). For example, you might encourage students to enter any questions or comments they might have in the chat box a few minutes prior to commencing a teaching session. Depending on the number of students attending, you might ask those who wish to do so to activate their webcams for a few minutes in the beginning in order to greet them, perhaps review the aims of the session or how it links to previous sessions, or to engage the questions and comments they may have entered into the chat box. You may try doing something similar at the end of sessions. Establishing a pattern of these brief moments of connecting with students can help cultivate in the online learning experience the feeling of being together and engaging in a common endeavour which is automatically built into the in-person experience when you’re in the same room with students.
During the disrupted period, if you teach synchronously, you will need to make accommodations for students who are unable to follow the session at the designated time. All live lectures must be recorded and subsequently made available to students. Disabled students with permission to record face-to-face teaching must be permitted to record online seminars or classes, to help to improve their learning. Students who wish to record a seminar or class should indicate this at the start of (or in advance of) the session. You should then ask whether the others are in agreement and confirm that the recording would be purely for study purposes and would not be posted online.

- **DRC comparative assessment video conferencing**
- **Guidelines for creating accessible recorded online lectures**
- **Selecting which tool**
- Small-group teaching: **guiding inclusive discussion and interaction**
- **Use of recordings for remote teaching and learning policy**
There are several things you can do to maximise the student experience of synchronous teaching. As we discussed above (‘Enhancing your asynchronous teaching’), you might consider dividing your teaching session into smaller segments (sometimes called ‘chunking’). Attention spans are shorter in online learning contexts, and so splitting your session into discrete ten- or fifteen-minute sections and constructing distinct learning segments, will make it easier for students to follow and remain engaged.

You may want to engage students after each segment. As we described above (‘Chunking your asynchronous teaching’), you could use questions at the beginning and / or end of each segment to ‘bookend’ them in ways which will hold students’ attention in a virtual setting and help them progress in the processing of the material you’re discussing.

You may ask students to take a minute to reflect on each segment or to enter answers to your questions or their brief reflections into the chat box. You may give a short quiz or ask a sensemaking question, such as ‘How does today’s topic connect to what we discussed last time?‘ in order to help students make connections. To give further focus to these activities, you could disseminate key questions or points prior to the session.

There are several ways to make creative use of the chat box during a live session by encouraging students to make comments, solve problems, pose questions, or answer your questions. This interactivity can be enhanced by providing students with a lecture or session outline, a set of questions or a few problems to think about ahead of time. Keep in mind, however, that it can be challenging and time consuming to follow chat box activity while you’re teaching. You may decide to check it only at designated times (in between chunked segments) and then to limit yourself to only one or two minutes of reading or responding live to students’ activity in the chat box.

Even if you are unable to engage or respond to every comment students enter into the chat box, it is good practice to copy its content post-session into a Word document and distribute it to students or post it alongside the session recording. Students usually find it helpful to see their peers’ questions, comments or attempts at problem solving. You might want to consider sharing your lecture notes with students or posting them as well alongside the recording of the session.
PLANNING YOUR LECTURE, CLASS OR SEMINAR: v. ENHANCING SYNCHRONOUS TEACHING

Most digital platforms include a function to create small breakout groups, which you can activate automatically. Assigning students to breakout groups is more likely to occur in classes and seminars rather than lectures. As the host of the discussion, you can dip in and out of small groups helping to facilitate their discussions, before bringing the whole group back together. In a digital environment, having students connect and work together is another way of cultivating a sense of presence with each other and with you. If you make regular use of breakout rooms, you will create a culture of interaction and co-working among your students.

- Forming and managing breakout rooms with Google Meet
- Common activities, some tools and some alternatives
Another approach to blending synchronous and asynchronous teaching is to consider creating a discussion forum via Moodle or another type of text-based chat. You could pose questions and post problems to solve in this forum and ask students to respond or to describe how they approached a given problem. You could ask students to take turns looking after it or curating it – posing questions or problems themselves and summarising it during teaching sessions. This is yet another way of encouraging group work, fostering active student engagement and building an intellectual community with and among your students.

Blending pre-recorded, offline and live elements is a creative way to bring about different forms of engagement with students in your lectures, classes or seminars. It might be helpful to aim for a balance among different modes of engagement: base your choices on your assessment as to which mode best addresses specific learning objectives. Take into consideration that teaching – whether online or in person – must be inclusive. Try also to build in flexibility so that you and your students can adapt to changing circumstances in a straightforward and timely way.

Finally: recognise that splitting up the elements of your teaching into recorded, offline and live elements takes time and planning. This may be an approach you work towards and develop after you have had a chance to grow more familiar with online teaching and learning.

KEY POINTS

• The benefits of combining pre-recorded and live teaching sessions
• Creating a video library of key terms and concepts
• Establishing discussion fora and encouraging student engagement

It is possible (and can be very beneficial) to combine live and pre-recorded modes of online teaching. You could post short, recorded teaching segments that students watch on their own and then follow that up with live sessions in which you further explore the material, facilitate interaction with students or guide them through an activity. For lectures, this approach would be similar to the practice of ‘flipped classrooms’, where students engage the material individually and then connect with the instructor to process it, ask questions about it or work through practical or applied exercises related to it.

Blending synchronous and asynchronous teaching is a particularly good strategy if there are fundamental concepts you need to explain and that students might want to refer back to for clarification. By pre-recording certain segments, you can design clear, succinct explanations, a video library of key concepts or terms. You might also consider continuing to use these videos after we return to in-person teaching. Pre-recording fundamental definitions or ideas can free you up to cover material in more depth in a live teaching session.

Blending pre-recorded, offline and live elements is a creative way to bring about different forms of engagement with students in your lectures, classes or seminars. It might be helpful to aim for a balance among different modes of engagement: base your choices on your assessment as to which mode best addresses specific learning objectives. Take into consideration that teaching – whether online or in person – must be inclusive. Try also to build in flexibility so that you and your students can adapt to changing circumstances in a straightforward and timely way.

Finally: recognise that splitting up the elements of your teaching into recorded, offline and live elements takes time and planning. This may be an approach you work towards and develop after you have had a chance to grow more familiar with online teaching and learning.
For many staff and students, teaching online is a new experience, and figuring out what works can take time. Exchanging and testing out ideas or questions with others will no doubt be helpful.

- Try to share questions, ideas and maybe resources with colleagues: doing so could help identify and address problems, could save time, and could even lead to innovation.
  - Your Department or Faculty may have a discussion forum
  - You might collaborate with others to set up an informal network
  - You might join Cambridge’s discussion forum

- Try to collaborate with your students: talk with them about what you’re trying to do, ask them what’s working for them, what do they think could help to iron out difficulties or enrich their learning? Your students may be able to give you ideas about what’s working and how to engage with challenges. (We’ve included one simple format on this page: ‘Commend and recommend.’)
  - The ‘chat’ function within Teams, or Forums within Moodle, or collaborative editing documents could be a way for students to develop their ideas and share them with you and each other.

**LEARNING FROM EXPERIENCE**

**A SIMPLE FEEDBACK TOOL: COMMEND AND RECOMMEND**

Basic format: at the start of a teaching session, explain to the students that at the end of the session you will ask them for two brief comments on what they have found helpful and one thing that they think could be changed and why they think this would help. The balance of ‘commendations: recommendations’ (2:1) encourages constructive feedback.

You can decide whether you want to do this ‘live’, during a conference call, or whether you will post the questions below and ask students to respond in their own time.

Be ready to collect your students’ responses, think about their ideas and then explain at or before the beginning of the next supervision what you’ve decided to do, and why.

Q1: Please tell me about two aspects of today’s lecture that you found helpful and briefly explain why.

Q2: Please tell me about one aspect of today’s lecture that you think could be done differently and briefly explain why you think this would make a positive difference.
This introduction to moving lectures online was developed by the Cambridge Centre for Teaching and Learning. We are grateful to colleagues who gave feedback and shared ideas, including Prof. Alastair Beresford (Computer Lab, Queens’). Our colleagues in University Information Services and the Disability Resource Centre were generous with their advice and time. The ourcambridge team provided invaluable design help.

We welcome comments and suggestions. If you would like to get in touch, please contact enquiries@cctl.cam.ac.uk.