UCL
CENTRE FOR TEACHING
& LEARNING ECONOMICS

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Guide for moving to an adaptable learning design in economics

PRINCIPLES, TIPS AND TOOLS

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CENTRE FOR TEACHING AND LEARNING ECONOMICS

This Guide reflects research undertaken by the CTaLE team. It should not be read as policy of UCL or the UCL Department of Economics at the time of publication (May 2020)

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1. Introduction

This document provides guidance for instructors looking to move to an adaptable learning design for their economics course. We use the term "adaptable" as it embraces both online and face-to-face elements and is designed to make moving in between the two delivery methods relatively easy. This is of course particularly relevant in light of the COVID-19 crisis but may also be considered to be a helpful direction of travel in an uncertain world in order to make the higher education system more resilient to shocks.

The basic principles of adaptable learning design, distilled from the research on the topic, are set out in Section 2. In the rest of the guide, these principles are used to develop practical advice for economics instructors. Everything in this guidance is based on research and links are provided for further references, additional technical advice and examples. We are grateful to colleagues in CTaLE, UCL Arena and UCL Digital Education for the wealth of advice and resources that they have provided over a number of years that have informed our thinking for this Guide.

We recommend that you read the Principles in Section 2 and then use the Contents page to go to the Sections that are most relevant to your needs.

When reading this Guide and adapting your course, make sure you are familiar with local regulations and support from your own institution which may vary from what is here. Colleagues at UCL will find Teaching Continuity advice for 2019/20 here and planning for 2020/21 here (login required). Support from UCL's Digital Education Team can be accessed here, including Teaching Toolkits here. We also recommend that you access any training that is provided at your institution. UCL colleagues can find details of planned training sessions from UCL Arena and Digital Services here.

If you have recommendations for edits or additions to this Guide please email ctale@gmail.com. We are all learning about adaptable learning and we value insights from our #teachecon colleagues around the world. Version 1 is no doubt just the beginning.

2. Principles

P1. *Invest time upfront in planning the (re)design of your module for adaptable learning.* To deliver a high-quality learning experience for students and teaching experience for yourself, simply switching to delivering a two-hour lecture or one-hour class virtually is unlikely to suffice. You will need to reflect on your content and learning outcomes and think about how to best teach and assess in a way that can be adapted to changing circumstances and institutional requirements, potentially at short notice. (Reference)

P2. *Use a mix of synchronous and asynchronous approaches to meet the varying needs of students*. With an adaptable approach you need to have materials that can be accessed at a time that works best for the student and other activities that are live at a specific time to enable human contact between students and the instructor. Even if you are teaching students face to face, using asynchronous materials can free up valuable time in class for working on interactive or applied activities ("flipped lectures"). This approach provides the flexibility to switch to remote teaching at any time. (Reference)

P3. *For synchronous and asynchronous teaching, design short and interactive materials and methods*. To keep students engaged and to manage the fact that virtual sessions can be more tiring for lecturers and students, break your content into 'chunks' e.g. with a video on each concept rather than putting multiple concepts in one video. With asynchronous materials, pair any passive reading/watching/listening task with an active task such as working out problems, discussing what they have reviewed on a forum or taking a quiz. For live sessions, plan for interaction to keep students engaged and to give yourself a break from talking to the camera. Including interaction in your class is best practice for face to face teaching as well. (Reference)

P4. *Make your materials engaging and accessible.* Use colour animations and images in your materials to keep the learner's attention. Make sure that all learning materials are accessible to all learners, following your institution's guidance in this area. This applies to materials used online or in a face to face session. (Reference)

P5. *Design your assessment so that not everything rests on one 'exam' at one point in time.* In-term assessments keep students engaged with their studies, provide feedback on their progress and reduce exposure to external shocks (like COVID-19) disrupting exams at particular points in the year. This applies whether students are working online or if you are teaching face to face. If you would prefer to have a closed book exam, consider how to design questions that could be adapted to an open book (online) setting should the need arise. (Reference 1 and Reference 2)

P6. *Communicate frequently and clearly with students*. Particularly when students are learning away from campus, it is important to give students clear instructions about what is expected of them and when. Your communications should help students connect the course learning outcomes, the synchronous and asynchronous activities and their assessment. Plan to communicate early and often. This is best practice for face to face teaching too. (Reference)

See the Principles in action in this video from Prof Jonathan Meer (Texas A&M University) who teaches a large first year microeconomics course online and highlights the basics of getting it right: https://www.youtube.com/watch?v=4WcexNl3dPw&feature=youtu.be

3. How to (re)design your course to be adaptable

If you are moving to an adaptable format, with some online teaching, because you have to rather than out of choice, it may be tempting to keep your materials and approach to teaching the same as you would do face to face. This is technically possible but is unlikely to work well for you or your students. For example, you may decide to continue to deliver ten two-hour lectures on your university's preferred video conference platform at the same time that they have been timetabled in the past. You may also encourage a teaching assistant to continue to teach one-hour sessions every two weeks, at the same times as before, where they present answers to problem set questions. And at the end of the year you will assess the students with a closed book exam with problem questions similar to those covered in the small group classes. This is particularly tempting if you are teaching face to face some of the time and/or teaching some of the cohort face to face and some online.

There are several reasons why this is unlikely to be satisfactory for you or your students.

- It is **harder to concentrate**, as learner and teacher, when on an online platform than in a live room. Long sessions will be draining, and you are likely to lose learners' attention. This will be particularly the case if the session is passive for the learners, where they are simply listening to you presenting.
- You can not 'read the room' online in the same way that you can in a physical classroom and it is more difficult for you to gauge understanding and engagement, making it **harder to connect with your audience** (the learners).
- If you are not on campus, you, and your teaching assistant, may not have **access to the same equipment** that you normally use in a classroom such as a whiteboard/blackboard or visualiser, making it difficult for you to teach the material in the same way online.
- You, and your students, are likely to have a range of **issues with technology** that make the delivery of live sessions more prone to interruption. This leads to frustration on both sides and risk of not getting through the material you want to cover. The longer the session, the more likely problems will arise.
- Technology issues are more likely to arise if many lecturers or teaching assistants choose to use an institution's system at a similar time. The **pressure on these systems,** which have not been designed for heavy usage simultaneously, could be immense and create its own risks.
- If you have international students attending sessions from different countries, they may not be **available at the time** that you have scheduled teaching. This may also be true for learners with other commitments including caring responsibilities or who potentially are unwell.
- In an ever-uncertain world, your plans for teaching and assessment may be interrupted by **events outside of your control** (eg, Covid-19) and you will need to make significant changes to a rigid approach in a short space of time.

This is why moving to an adaptable approach to teaching and assessment merits attention **now**. It is worth emphasising that taking the time now to make changes to how you teach and assess does not mean wasted effort for the future. What is key here is 'adaptability', having an approach which works face to face, online or a mixture of the two. It is also worth emphasising that many of the methods you might want to use for adaptable learning are consistent with best practice pedagogy recommended by experts in economics education in any case.

So how do you turn your existing course into something that is more adaptable?

1. ***Remind yourself of the course aims and learning outcomes***. If your institution allows it, you may want to change these for an adaptable course, for example incorporating skills-focused learning outcomes linked to the fact that students are learning in different ways.
2. ***Consider the total amount of time that students are expected to spend on your course***. For example, a 15-credit module at UCL equates to 150 hours of learning time. Decide how much of that you think should be spent in live sessions, bearing the advice in Section 4 in mind, how much should be spent on asynchronous materials that you have provided including formative assessment, how much should be spent on the summative assessment and how much (the remainder) should be spent on student independent learning. You might want to establish if your Department or university provides guidance or rules on this breakdown.
3. ***Consistent with the principles in Section 2, consider what elements of your content is best taught live and what can be learnt through asynchronous resources***. As part of this you should think about how synchronous and asynchronous materials connect to each other and that everything connects to the assessment. This is about what content works best in different formats but also how to engage learners with different approaches.
4. ***Review your existing content and the resources that you and students have used before for the course.*** Consider what can be re-used and what might need to be changed. You will probably find that you want to produce new content or source new materials. This step is best considered in parallel to the choice about what to teach live and asynchronously.
5. ***Decide the most effective and feasible way to assess learning***, taking account of your adaptable approach to teaching and the course learning outcomes. Include the design of individual assessment components in your thinking, such as the structure of an exam paper, and how you might adapt these if circumstances change. For example, how might you write questions for a closed book exam that would work as an open book take home exam. You should include plans for how you prepare students for the assessment components.
6. ***Plan how and when you will communicate with students.*** Organisation is important for adaptable learning. Students value the ability to plan their learning, e.g. a timeline showing what is expected of them and when. They will also need information on when and how they can approach you, and any teaching assistants, for support.

It will definitely take time and effort to adapt how you deliver your existing content, or new content, but it is worth it for you and students. If the approach you take is adaptable then it should work in different situations and be usable for many years. Links on how others have adapted their course as an emergency response to Covid: Behavioural Economics and Applied Econometrics.

You can find a template to help you plan, on a Topic by Topic basis, in Section 9. An illustration of how this tool could be used for one topic in a Regulation Economics is provided on the next page. You can also watch a video from Dr Jenkins that reflects the 'work in progress' thinking that goes into making a course adaptable. You may also find this UCL Knowledge Lab Learning Designer tool useful. If you are concerned about how to allocate time across activities you could use this workload estimator from Rice University.

If you are designing a new course then you can follow this approach but you will have additional thinking and planning to do. In some ways starting with a blank sheet of paper may be a benefit.

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Example plan for adapting an existing course in regulation economics

Teaching and learning time (total and breakdown)	**Learning outcomes (what should students know and be able to do by end of module)**	**Objectives for teacher and learner experience:**	**Plans for communication with students and student support**	**Assessment**
150 hours (15 credits) *Before* 32 hours live - ten 2-hour lectures, five 2-hour tutorials, two 1-hour practical lectures for case study support 20 hours homework (formative) – 2 pieces 51 hours assessment 47 hours independent reading and practice quizzes *Adaptable* 15 hours live - ten 1-hour lecture (all recorded), five 1-hour tutorials 40 hours asynchronous – pre-watch videos, pre-reading, engage in discussion forum (formative), weekly practice quizzes, and case study support 50 hours assessment 45 hours independent work	(no change, except add 'online') Able to explain economic concepts and models to a peer Able to discuss the value of economic models for designing regulatory tools in practice Able to present ideas in writing for non-expert audience Able to provide robust evidence for arguments, using appropriate referencing Able to work with peers Able to deliver engaging and informed oral presentation	(with adaptable) Same amount of time hearing ideas from 'me' as before Effort put into preparation can be used next year Create peer community early	(with adaptable) Two one-hour office hours at different times of day Week by week plan on VLE Email end of week about what learned this week and what coming next week Email before reading week and towards end of term to check-in Set-up automatic reminders for live sessions Set-up reminder of pre-booked office hour Email when new materials live Email when feedback available on work submitted Email about assessment in chunks All messages through VLE so record on course page	*Before* Three 20-minutes in class closed book quizzes (25%); 1200 word essay (35%); group case study project (40%) *Adaptable* Mid-term and of term 30 minutes timed online open book test, using question bank (25%); 1200 word essay (35%); group case study project (40%)

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	Privatisation (before)	**Privatisation (adaptable)**
Learning outcomes (for Topic)	Able to explain pros and cons of private ownership Able to identify evidence needed to analyse case Able to apply theory and evidence to consider ownership of a different sector Able to work with peers and communicate ideas	Able to explain pros and cons of private ownership Able to identify evidence needed to analyse case Able to apply theory and evidence to consider ownership of a different sector Able to work with peers online and communicate clearly in different formats
Asynchronous work pre-live session (what do students work on before the live session – identify what is essential to do and what can be done before or at another time) (reading, watching, doing)	Textbook chapter (pre-lecture)	Textbook chapter Lecturer recorded videos on models External resources (media) on two case studies Labour 2019 Manifesto on nationalisation Student-only discussion forum on directed question about topic (eg, global examples)
Live session (what is it most important students hear from lecturer; what is it most important students do in lecture; how check understanding)	*Lecture (2 hours):* Present privatisation models, two case studies and ask students to apply lessons in think-pair-share at various intervals *Tutorial (2 hour):* in-class closed book quiz; discussion activity on rail privatisation; Q&A; project update	*Lecture (1 hour):* summarise how assess case for privatisation; work in small groups (breakout rooms) on unseen example with lecturer moving around rooms; plenary discussion on pros and cons (chat plus hand raise to talk) *Tutorial (1 hour)*: opportunity to ask questions (chat plus hand raise to talk); breakout rooms to discuss Labour 2019 Manifesto; project catch-up
Asynchronous work post-live session (how embed what learnt so far; practice/apply; checks on understanding)	Independent reading (catch-up + additional) Assessment Q&A discussion forum	Directed further research (find out about….) Discussion forum on topic material Assessment Q&A discussion forum (all term)
Formative assessment (some to submit for feedback; other practice)	Practice quiz on VLE – not marked	300-word blog (Op-ed) on Labour 2019 Manifesto (for peer review, does not count, after tutorial) Practice quiz on VLE – not marked
Link to summative assessment (how assess knowledge/skills)	Essay could be linked; part in-class closed quiz	Essay could be linked; part end of term open test

4. Designing and delivering online live sessions

Before making decisions about how you want to deliver live sessions make sure that you understand your institution's policy and guidance on what is required and what technologies are recommended and supported. What we provide here are tips based on research on best practice pedagogy for face-to-face and online live sessions. We recommend that you discuss these practical and pedagogy issues with your colleagues and IT experts in your institution.

How long should a live online 'lecture' session be?

As emphasised in the Principles in Section 2, live sessions should be kept relatively short and be as interactive as possible. Of course, you need to make a trade-off here between wanting to cover the material and activities that you think need to be delivered live and keeping the session to a reasonable length. Around an hour is a recommended maximum for one session. This may mean that you want to run more than one session on a topic.

Given this time constraint, be realistic about how much you can cover and how many activities students can engage with. Bear in mind that you may run into technical difficulties and that you may need to talk at a slower pace than you would in a classroom. Give students time to digest what you are saying from time to time. Don't be afraid of silence/breaks.

When should I run my live online 'lecture' session?

The question about when to run a live session is most likely going to be made at programme or institutional level. Students will be taking multiple courses so need live sessions to be at different times if they are expected to attend all of them. Find out your institution's plans on central timetabling of these sessions. You may also need to let them know how many live sessions you want to run and of what length for their wider planning. Your institution will be considering a range of factors here including the fact that students may be working in different time zones and, if on campus for some of the time or for some students, availability of suitable teaching spaces. Whenever the session is run, make sure it is recorded so that students who cannot make it at the time can access the material later.

Can, or should, I run the same live online 'lecture' session more than once?

If you teach a large group of students (eg, 150+) you may want to consider teaching the same lecture session twice to reduce the number of students online at any one time. This may help with interactivity and, if you run those sessions at different times of the day, give options to students who cannot make it at a particular time. It may also be necessary if there are limits on how many people can be in one virtual event in the software that you are using and how much pressure the technology can take at one point in time. You would need to consider whether to assign students to a particular slot or to allow them to choose when to attend. The latter option has the benefit of flexibility for the student, but the downside is that you may end up with unbalanced groups.

How should I organise live online small group teaching sessions?

For tutorial/seminar sessions it is recommended that you organise these in small groups (eg, 10-15 people) and run multiple sessions. This would be the case face-to-face normally and can be replicated online. You, or the person in your institution normally responsible for allocating students to tutorial/seminar groups, may need to consider where students are located when timetabling sessions if you are going to have fixed groups per session. An alternative approach would be to have open sessions so students can go at the time that is most convenient to them, subject to a maximum number of students

in the group. This may be difficult to coordinate/police if there are multiple small group teaching assistants. It is worth discussing with colleagues what they are doing and consider having a Department-wide approach, so students see consistency across their courses.

What content should I include in live online 'lecture' sessions?

Look at each topic that you have taught in the past. Ask yourself, which parts students struggled with most, what parts are fundamental to understanding the module as a whole and what parts are crucial for meeting the learning outcomes? This is all about considering whether the students need to hear *you* explaining that material live, or can they learn it, potentially better, through a pre-recorded video or other asynchronous material.

The added value of you explaining something live comes from you providing your insights on material, maybe linked to your research. You can also use the live opportunity to get students thinking about the main intuition behind models and concepts, as well as covering any short technical material that links to that intuition and/or student questions.

It is important that students have the opportunity to ask questions and discuss concepts. That is the part they don't get working on asynchronous material. Do bear in mind however that there is also merit in using asynchronous discussion forums as the live session may not be sufficient time to cover everything, you may miss students who are uncomfortable engaging in the live session and you miss students who can't make the live session.

When deciding how much you are going to cover, remember the live session is important as the opportunity for human contact between the lecturer and the students, and between the students themselves. Having less material to cover and more time for discussion ties in with this.

How should live online small group sessions be run?

Advice on the timing and approach of live small group teaching is the same as for larger 'lecturer' sessions; keep it short and interactive. Smaller group sessions can be used for students to engage together, in groups, on activities and to ask questions on course materials covered asynchronously or synchronously. As much as possible, hand the room over to them and encourage the person running the sessions to give students space to work together and discuss. Active learning of this type is beneficial for learning and skill development no matter whether online or face to face.

If you normally use face-to-face tutorials/seminars to provide answers to problem set questions that students prepared as homework, you can still do this online. However, it can be difficult for the teacher to keep going on an online whiteboard or similar for a whole live session. It is also difficult for students to stay engaged if they are simply watching someone present answers to questions they have seen before. It may be best to provide answers asynchronously, either typed or in a video. You can also provide verbal group feedback in the live session, pointing out aspects that many students struggled with and making sure students understand these concepts.

This frees up time in the live session and ensures everyone has access to the answers whether they are online or face to face or a mix. You could use this time to get students to work on new problem questions, maybe in small groups, that they can ask the teacher about. They can also ask questions about the provided answers to homework problems.

You may also want to use the small group live session for students to present work that they have prepared in advance. This could be a group presentation on a topic, a poster presentation, a multimedia recording or even a debate. If you allow them to share their screens in the teaching software this is

certainly feasible although may be prone to technological issues. It is certainly worth experimenting with although for assessed presentations it may be helpful to have students pre-record the presentations so that there is at least a fallback option if problems arise. If you are doing this, you should provide students with guidance on how to record and share their presentations, making sure that you give them some options that are either free to use or that your institution subscribes to.

What technology is it best to use for online live sessions?

The video conference platform that you use will probably be one recommended and supported by your institution, often integrated into your VLE. For example, at UCL we use Blackboard Collaborate or MS Teams. Zoom is another popular video conferencing software, and the settings can be adjusted to improve security of the session (avoid 'Zoom bombing'). Universities continue to learn about what software works best and it is a good idea to keep an eye on what is developing in the sector and how your institution is incorporating new features into existing technology. For example, ECHO360 is adapting to the needs of adaptable courses.

It is best to use a software that is supported by your institution and that you are familiar with. Getting comfortable with one rather than using multiple options is the best idea if you are new to using online teaching software. When choosing one, think about what you want to do with it, both in terms of activities in the live session and any recording requirements. If you are reasonably confident you may prefer one software large group teaching, another for small group teaching and indeed another for one-on-one sessions like office hours. Talk to your colleagues about what works for them in different situations. Try things out with each other before going live in your course.

How do I present my materials in an online live session?

Depending on what you are teaching you will want to think about how you are going to present materials in the live session. We set out below some of the most common approaches to teaching economics face-to-face and explain what the online adaptations for live sessions delivered off-campus could be. Of course, if you are live streaming from a campus classroom you can continue to use whatever technology you are used to for teaching and recording in your institution.

- *Using pre-prepared slides:* you can share your slides online with the video conference software. With some, including Zoom and MS Teams, you need to do this by sharing your screen and choosing the file you want to use. With others, such as Blackboard Collaborate, you can upload the file in advance (up to 60MB) or screen share.
- *Writing on a whiteboard or blackboard*: if online, your video conference software probably has a built-in whiteboard that can be used. You will need to use your mouse or have a touch screen device and use your finger or preferably a decent stylus (*e.g. Meko or an Apple Pencil)* that works with that screen. This can be difficult at times and takes getting used to. Sharing the whiteboard can also be unstable at times depending on the reliability of your technology. It may be better to use the draw option on Powerpoint especially with equations and detailed graphs. If your computer does not have a touch screen then you may have to link to a phone or tablet, as discussed below.
- *Writing on a visualiser*: if you like to write on a visualiser, perhaps where you are filling in gaps in a slide or similar, you may want to consider getting a visualiser at home if that is where you are teaching from. Your local IT advisor should be able to guide you on models to purchase. Alternatively, you can use the whiteboard methods mentioned above or connect with a separate device as discussed next.
- *Sharing materials on a tablet or phone:* you may use your tablet or phone in face to face sessions, either to share prepared slides and/or to write new material. Some of the video conference

software can share directly with a second screen including a tablet. You can get instructions for Zoom sharing with an ipad here. For some software, and some hardware, the process for sharing the tablet screen can be slightly more cumbersome with a screen mirroring approach but once set up it should work for you for all live sessions. Here is one approach for using your smartphone like this. For these options to work your tablet/phone and computer that you are teaching from need to be set up for screen mirroring.

These blogs from the UCL Digital Education team provide useful advice on using these tools and other ideas on designing adaptable courses. Many of the tools are useful for preparing asynchronous materials, although there are a wider range of options for this as discussed in Section 5.

Should I record the live online session and how do I do this?

Whenever you run the live lecture session, you should record it and make it available shortly afterwards so that anyone who could not join has access. They will of course have missed the opportunity for interaction but at least won't have missed all the material.

If you are on campus in a classroom, make use of the recording software that your institution uses such as Echo360. This link discusses how this technology, called Lecturecast ALP at UCL works. If you are teaching online away from campus, most of the software discussed earlier will allow you to record and will have a clear button to press to start and stop the recording. This link discusses how to record a Zoom session.

You should find out where the recording is saved and consider how to share it with your students. For recordings linked to a campus room, your institution should provide guidance on how to link this to the class page on your VLE. This guide discusses how to do this with Lecturecast at UCL. If you are recording via online teaching software that is built into your VLE, it is possible that the recording will automatically be stored on your class page. If the software is separate from the VLE you will need to download the file from where it is stored and share it on your class page.

Many VLEs will limit the size of a video file you can upload. One alternative is to upload this file as an unlisted YouTube video and share the link on your class page. Alternatively you could upload to cloud platform run by your institution. UCL recommends uploading to MediaCentral.

If you are doing a mix of recordings, some from a classroom and some from an online software, over the term/semester it would be a good idea to get advice from a local technical expert on whether there is a way to store all the recordings in one place on your class page. For example, as happens at UCL, you may have a link on your VLE page to your Lecturecast recordings from the classroom. If for some of the term, you have recordings from online software you can upload those video files to your 'class' in the Lecturecast library so everything is one place.

When recording you should decide, and let students know, if you want to record the chat part of the session. Be clear on how this will be shared, if at all, as it may not be embedded into the video of the session itself. For example, this guide discusses how to save the chat in a Zoom meeting. Make sure that all participants understand whether or not you are recording the session and exactly how the recording will be shared.

For live tutorials/seminars, recording is less important if the main material being discussed is available asynchronously and if there are multiple sessions that students can choose to attend. Having smaller group sessions without recording may help with interaction if any students are put off by the fact that the session is recorded.

How can students ask questions in online live sessions?

For large or small groups, you will need to decide how you want students to ask and answer questions if teaching online. Most of the video software used by universities includes a 'chat' function where students can ask questions in writing. You can decide if you are going to answer the questions as they come or at particular points in the session, or potentially even after the session if you run out of the time. Some software also has a 'hands up' feature where a student can wait to be invited to ask their question orally.

You can decide for yourself what approach, or mix of approaches, you are most comfortable using in different settings. Whatever you use, make sure to explain to students how they can ask questions. Even if teaching face-to-face you can use technology to get students to post questions in writing online for you to answer at a time that works best in the live session. This is particularly useful if there is a very large group of students. Of course, in smaller groups, the hands up approach is likely to be standard face-to-face. Some interactive teaching software, like Echo360, offer the ability for students to flag slides or give other alerts where they are confused.

Inquire with your institution's Digital Learning team to find out which technologies they suggest.

How can I keep students engaged in live online 'lectures'?

If you have a large group, and you have quite a bit of material to cover, you may want to use 'whole class' methods for keeping the students engaged and to check that they are keeping up. There are many options that economics lecturers use in large face-to-face sessions that can be also used online. These include:

- *Asking quiz questions*, potentially for credit: there will normally be quizzes built into your VLE (eg, this guide discusses how to do this in Moodle). You may also be able to set up quizzes in the polling software discussed below. Some platforms, such as ECHO360, also allow you to build the quizzes into your slides and then upload them integrated with other materials.
- *Running polls*: the teaching software you are using may have built-in polls but they tend to be quite limited. An alternative is to screen share a separate polling website that has more functionality built in. Popular software that can be used in online or face to face sessions includes: Polleverywhere, Slid.do, Mentimeter and Socrative and Kahoot. For some of these you need a paid account for large groups. Find out which software your institution recommends and if they have a paid account that you can use. Using the same software as colleagues may help as students get used to using it.
- You could also run a poll on Twitter. This edweek blog provides some thoughts on using Twitter Polls in teaching.
- H5P is another technology used for a range of interactive activities at UCL.

This discussion of various case studies gives you ideas for how to use in-class questions or polls effectively.

It may also be possible in the software to break the class into smaller groups to discuss an issue between themselves and report back. This can be done in large and/or small group teaching sessions using 'breakout rooms'. Some options for activities to consider for breakout sessions include:

- Ask them to get in small groups and come up with two questions that they have about material already covered, either asynchronous or in the live session, to direct what you cover.
- Take a pause after you have covered some material and ask students to discuss a question linked to that material in small groups.
- Set a question, maybe involving application of theory or empirical concepts, as part of the asynchronous material and get them to work on that question in the breakout session.

- Use a quiz or poll (see earlier) but get them to discuss the questions, or even the replies, as a small group and then ask them to answer the question (or reanswer).

All these activities engage the students and can be used in face to face or online sessions.

How do I set up breakout rooms for small group activities?

Breakout rooms are a useful way to get students working online in small groups in either a large group 'lecture' live session or a smaller group tutorial/seminar live session. This is helpful for discussion and also to let students get to know each other away from the lecturer. If you have some students online and some in the classroom you can still use the online technology to get those in the room working with those online.

The approach for setting up breakout rooms varies by software. You can find instructions for Blackboard Collaborate here and for Zoom here. If you are using a different software, check with your institution if breakout rooms are feasible and how to set them up. You will normally be setting up and opening the breakout rooms during the live session, so it is a good idea to practice at least once before doing it with students. This provides an opportunity to learn together with your colleagues.

There are a number of things to decide about your breakout room set-up.

- *Do you want students to be randomly assigned to rooms or do you want them to be pre-assigned to groups?* The latter may be useful if they are working on a group project or similar over a number of weeks. Random assignment can be useful to get students to get to know different people in the class. If you want pre-assigned groups, it may be possible to link this to groups already established on your course page on your VLE. This link explains how to do this in Zoom.
- *Do you want students to be able to change the room they are in?* This will normally be an option you can select when setting up the rooms. Students might find it easier to interact within groups they choose themselves. However it is possible that some students are left alone or with a group where everyone else knows each other. You might also end up with some very large groups although you can set a maximum size.
- *What are you, and any other teachers in the live session, going to do when students are in breakout rooms?* Like in a face to face session, it is a good idea to move around the groups by moving in and out of rooms to check that everyone is working on what was asked and they understand what is expected. Let students know you will be doing this.
- *How long will the session be for?* You can set the timing of the session and provide students with a warning of when it is about to end (eg, one minute left).

Breakout room sessions are generally not part of a session recording. If you want the students in a group to share a record of what they discussed, you should specify an output that they need to share. For example they could be asked to attach a file, or a link to their collaborative work online, in the chat. You can of course ask one person from a group to give an oral summary of what they discussed, although this is best suited to small group sessions.

Should I have a 'netiquette' policy?

When you run face-to-face live sessions you no doubt have an implicit, or explicit, policy about what is acceptable behaviour for students and what they can expect from you. It is important to set something up for online live sessions as well so that there is no misunderstanding about what is expected. Some ideas on what you can include in such a policy are as follows.

- Turn off all of your devices, other than those you are using for teaching, and ask attendees to do the same.

- Ask anyone presenting in the session to use a headset, including yourself, for sound quality.
- Mute everyone's mic except your own. You may be able to pre-set this as a default in the software. For large groups you may also want them to turn off video but then you lose some of the human-side of the live session.
- Let students know what the policy is for them unmuting themselves and speaking out. For example, you may ask that they use a 'raise hand' button and then call on them to talk at a point that is convenient.
- Explain that the session will be recorded and give people the opportunity to turn off their video if they would prefer before you start recording. Be clear on whether the chat is being recorded. Explain how the video will be shared, including chat.
- Provide instructions on how you want students to ask questions during the session.
- Explain to students what the 'chat' function is for, letting them know that as the lecturer you can see everything in what appears to be 'private' chats in some software.
- Provide information on what is considered unacceptable in the chat, including use of inappropriate language or comments on the teacher or other students.
- If you are using breakout rooms, explain how they will work and how students are expected to behave in them.
- Ask students to upload a photo of themselves to the VLE, or teaching software platform, so that you can 'see their face' even if they have their cameras switched off. You should do the same to give a better sense of human contact.
- Recognise that people may have technical issues, including yourself, and provide advice on what they should do.

You may want your policy to also cover acceptable behaviour in online discussion forums and similar. There are some examples of these policies online, including this one from Oxford University and this from University of Florida.

Your institution may have provided general advice to students as well. You should make sure you are consistent with this. You should share the policy with students at the start of term. We recommend that you also repeat key messages at the start of every live session as well, particularly around recording, muting and 'chatting'.

What do I do if my internet connection is unstable when I am live?

Try not to panic. Everyone suffers from unreliable connections from time to time and people are increasingly getting used to this disruption when online. Sometimes, switching off your video can help although this is not ideal if you are sharing materials on the screen. Coming out or going back into a session can help. Let your students know this is what you are doing as they may also have to re-join the session depending on what software you are using.

If it is a problem with your wifi, that can't be fixed quickly, you may need to switch to a mobile device or set up a hotspot with a mobile device, for the rest of the session. Of course, if you are near the end of the session you may also choose to call it a day and let the students know what you will do to provide any remaining material asynchronously.

To limit the pressures on your wifi, when delivering a live session try to ensure that the number of devices connected in your household at that time is kept to a minimum. You should turn off your phone and any other devices you have as well as asking other members of the household if they can work offline at the time. This is of course not always feasible. You may also want to check with your institution's IT team if there are any known issues with the university infrastructure as this may be causing the problem.

And of course, remember to be sympathetic to your students when they are also suffering from unstable connections. It happens to us all!

Where can I get further support for delivering online live sessions?

Make yourself aware, before the start of the teaching term, what support is available at your institution and how you can access it when needed. This could include IT support and advice on the design of your live sessions. Most institutions have training courses, online materials and advisory sessions that you can attend to help. For example, UCL provides this guidance for its staff. You should also know where students should go if they are having difficulties connecting and provide them with advice on this. UCL provides this guidance for its students.

For the live session itself you may also want to consider whether it would be helpful to have a colleague or a teaching assistant to attend with you, for example to help moderate the discussion in the online chat. You will need to find out from your Department if this is feasible given the resource available overall. It would be advisable to have a colleague on hand at the very least for a practice session before you go live with students. This is a useful form of peer review.

5. Designing and delivering asynchronous materials

University degrees, by their very nature, involve students spending most of their time on independent learning away from the classroom. This is true whether you are face-to-face or online or a mix of the two. As explained in the Principles in Section2 and in the discussion on designing an adaptable course, in Section 3, it is important that students are guided in their independent learning through a mix of passive and active materials. When you are online it is likely that you are replacing some live contact time with asynchronous materials and they should be prepared and delivered remembering that context.

In this Section we discuss what kind of materials could be provided asynchronously and how to design and share them with students. As with the discussion on live sessions, Section 4, it is important to make yourself familiar with what tools are available at your institution and with local regulations and guidance on the provision of asynchronous materials.

What kind of materials can I upload for students to read/watch/listen to?

There are a wide range of materials and media that you can use to share content with your students to review in their own time. This can be a mix of resources that you have identified and curated on their behalf (secondary sources) or material that you pre-record yourself. It can be material that you have used before, potentially presented in a different way.

The variety of things that you could use include the following.

Secondary sources

- *Link to online textbooks, journal articles blogs and other reading material*. Moving online, partially or fully, does not mean the end of reading material if this is the most appropriate source of information for your module. Finding online sources will help students access the materials if they can't go to a physical library.
- *A podcast or video from external sources*. This is a useful way to share pre-existing economics material such as model derivations and save yourself the time and effort recording material yourself. For example, rather than recording your own video you might want to share a pre-existing video, such a LinkedIn Learning video on how to use Excel. It can also be a useful way for students to hear different perspectives on a topic from experts and to learn about applications of theory that you are teaching. For many learners, having the option to watch or listen,as well as reading traditional materials, can be helpful.
- *An image or set of images* from the internet can be shared. These can be used to make your course page and course materials more engaging. They can also be used to nudge students to think about a particular issue or topic.
- Use *Twitter or other social media sites*, and provide a link to your feed on your course page. This can provide up-to-date real world issues for students to reflect on and connect to the core course material. It can also be a useful nudge for discussion in live sessions.

Materials you record yourself

- *A 'Talking Heads' video* where you speak to the camera without any materials. This may be suitable for introducing yourself and the course, letting students see who you are.
- *Short 'bite size' videos of course material*, in chunks of around 10 minutes ideally. This can be a good way to share material like technical derivations or proofs. This blog suggests a maximum of 6 minutes according to an MIT study or no more than 15 minutes according to a different study from University of Wisconsin. The more engaging the video the more you can get away with the longer end of this range.

- A *voice recording* of you discussing original material. This could be useful if you want to provide students with your thoughts on a particular policy issue or a reading for example.
- *A podcast* that you record yourself. For example, you could interview a previous student or an employer about how the material in the course is useful for later courses or for work. Like with videos and voice recordings, keep it short.

Whatever you decide to use, the main question to ask yourself is what medium is most relevant for the content that you want students to engage with. Ensure it can be read/watched/listened to offline as well as online, can be accessed in different countries and is engaging for the learner. Think about how it works with what you are doing live, with other activities students are doing asynchronously and with how they will be assessed.

How do I direct students to textbooks, articles and other reading material?

Reading is an important part of independent learning in economics courses. You will no doubt want students to make use of textbooks, journal articles, newspaper articles, blogs and similar. If some of your students are learning online, some of the time, you will need to work with your institution's library team to find the best way to make the materials available to all students. Depending on the copyright restrictions of the materials you want to recommend, you may need to provide alternative textbook options that are available in E-book format (eg, The Economy, Doing Economics or Economy, Society and Public Policy from the CORE team). For some courses, and in particular, students in the early years of their degrees, it may be desirable to create an online reading list. Ask your library if they can help with this. For example, at UCL this guide from the library explains how to set up online reading lists. You will also need to explain to students how to access materials away from campus, for example explaining how to login for journal access.

Using more online materials may help with students being able to access the materials even if they are on campus, given resource limitations at many libraries. It also allows you to think about a wider set of reading materials beyond traditional books and journals if that is appropriate for your course. This can be particularly helpful if you want students to access materials on current topics that are more often available in newspapers, magazines, blogs or working papers.

One of the downsides of providing students with links to online materials, and online reading lists, is that they lose the important skill of finding references themselves and working out what is, and is not, a reliable source. You are providing support and assistance by curating the resources for them and introducing them to what are considered reliable sources in economics. As students move through their higher education degree you may want to encourage them to also find wider reading for themselves, to ensure they have the opportunity to develop this important research skill.

What kind of images and other media can I share with students?

There are no rules on what kind of images or other media are suitable for teaching and learning. Your role is to curate external sources, finding ones that are most relevant and reputable. Some commonly used resources in economics are the CORE Project, VoxEU, Marginal Revolution University and IFS websites. You will know what is appropriate for your course, both content wise and the level that you are teaching. It can be time consuming to find suitable external sources. You might find it useful to ask colleagues in the field what they use and also follow some experts on social media. The #teachecon hashtag is useful for getting ideas, finding resources and asking for advice.

The main thing to be careful of when sharing images and other media is ensuring you have the right to use them for educational purposes. This is a time when you need to demonstrate to students the importance of copyright laws and appropriate referencing. When searching for materials online it is a good idea to add phrases such as 'open access', 'free to use' or 'Creative Commons'. You can generally find free to use images and/or videos on websites such as Creative Commons, Wikimedia Pexels or Flickr. YouTube materials that are 'public' can be shared. You can also check with your library what newspaper, magazine and TV channel subscriptions students have access to through the university library. If you are unsure, check with the author of the original material. Fellow academics are often happy for their materials to be shared for educational purposes.

What is the best way to share images and other media from external sources?

You can embed images, videos, podcasts and other media on your VLE course page using the website link. This guidance discusses how to do this in Moodle at UCL. This allows students to access them easily. It can also make your course page more engaging. It is a good idea to embed the link and have the source open in a new window/page.

If you have multiple online sources to share for one topic you might want to organise them in one place. External platforms, that you link to on your course page, can be useful here. Options you might want to investigate include pearltrees, padlet, or pinterest (images). If you have multiple images you might want to consider putting them together into an infographic. There are many tools available for this, for example Piktochart. You can also find out from your institution if you are permitted to share materials with students on university drives (eg, onedrive) or external platforms such as Dropbox or Googledrive. At UCL you can also upload materials to mediacentral and share the link on Moodle.

How can I use social media for asynchronous learning?

If you want students to engage with academic debate and wider discussion on current real world issues linked to your course materials, it can be useful to encourage them to follow stories on social media. One way to do this is to use a # linked to the course name or code on your own posts and encourage students to search for items with that #. Of course, you must be careful that you are directing them to reliable sources when doing this. UCL's International Trade course for example uses the #uclinternationaltrade tag.

You may want to create a social media account just for your course, that is separate from your personal account. If you use a personal account, be mindful of the need to show students how to be responsible and professional on social media.

Many VLEs allow you to embed Twitter on your course page so that students see your feed directly there. UCL provides instructions on how to do this in Moodle. You can find out how to get the Twitter code to embed from Twitter help. You can also embed your Facebook feed to a html block on your VLE.

How do I record a video of myself presenting material?

You can do this in many different ways using screencast technology, showing your face or not. It can be talking over a powerpoint slide show or a mix of you and other visual aids on the screen. Much of the advice given on the technology and approach for delivering a live session, in Section 4, is relevant here. You should find out what works best for the devices you have (eg, Office-based or Mac, tablet or phone or computer) and what your institution recommends. You will also want to identify what you can avail of for free, again taking advice from your institution on what they have subscribed to. When you have a set

of feasible options it is a good idea to experiment with a few to see what you like best, given the content you want to record and what you feel comfortable with.

Please note that it is probably not appropriate to simply post a full length recording of a lecture from a previous year. The material needs to be organised in a way that is easy to engage with and works with other asynchronous material and any planned synchronous event. We set out alternative options to use instead. Whatever option you use, make sure to use a good quality microphone and camera to ensure that the final video is of good quality. This will make you want to keep it and use it in future years and will ensure your students want to engage with it.

If you can access a classroom on campus that has lecture recording software enabled, such as Lecturecast, you could record yourself delivering the material. This may be to an empty room or to some or all of your students. After the session, you can access the recording and edit it. For example, if you have recorded 40 minutes of material covering 4 different models you can break it into four ten-minute videos, one for each model. If you have a recording of a lecture covering similar material from a previous year you can also access and edit that to break it down into smaller chunks more suitable to asynchronous learning. You can access UCL's instructions on how to set up a lecturecast recording and how to edit it here. Your own institution will no doubt provide similar instructions for their own software.

You can make use of any of the live session softwares discussed in Section 4, such as Blackboard Collaborate (UCL Guide), MS Teams (Microsoft Guide) or Zoom (Zoom Guide). Simply start a session by yourself and record yourself presenting, as if you were teaching but to an empty classroom. Follow our recommendations in Section 4 for writing or drawing freehand as part of your presentation. There are a number of advantages to this approach. You only have to get used to one software for both live and asynchronous recordings. If the recording goes straight to your VLE, as is the case with Blackboard Collaborate in UCL's Moodle for example, then you do not need to worry about how to upload the video for students. The main downside is that many of these softwares are quite limited in their presentation settings and, as mentioned, built in whiteboards can be difficult to use. You are also putting additional strain on the university system when using the same software as those teaching live which may affect the quality of your recording if it leads to technological interruptions.

There are many different screencast technologies available as well including, but not limited to, the following.

- Echo Universal Capture
- Loom
- Quicktime (on a Mac)
- Streamlabs
- Prezi video

With this software you can edit the video recording and save the file in different formats which can help with reducing its size. For some of the platforms you can store the video on the site and share the link with students on the VLE. This helps with concerns about uploading large files onto VLEs.

If you prefer to write by hand rather than on a computer or other device, you can ask someone to record you from behind/above writing on large paper, probably flip chart size paper with a whiteboard marker, and explain what you are doing loudly so your voice is captured by the video. You can find an example from drfrostmaths.

You can also record a narrative presentation without showing your face, using Powerpoint presentation tools, presentation tools in Sway or apps on your tablet such as Explain Everything. This allows you to explain your materials with a voice over. These will often be smaller in size and help with bandwidth issues for you and your students.

If you do show your face make sure to engage with the audience by looking at the camera and presenting in a lively way. Ensure there is appropriate lighting so your students can see you properly and that there are no distractions in the background. This is particularly important if the video is only of you, as would be the case in a well produced 'Talking Head' video, but also applies if you are on part of the screen.

Keep in mind that accessibility requirements may imply the need for closed captioning or transcripts. Zoom provides closed captioning capability. On Youtube you can upload a video made using any software and use the platform's voice recognition technology.

It may be tempting to pre-record lots of videos ahead of term but it is worth preparing the first two or three 'topics' first. See how you and students get on. This allows you to learn and vary what you are doing as you go along. Have a plan of what you would like to do for the whole course but hold off on pre-preparing everything and give yourself time to keep adapting.

How would I record a podcast?

A podcast is a voice recording. Students may like having something to 'listen to' rather than watch on a screen from time to time. They work best when you are providing a short discussion of a subject yourself that does not require visual aids. You can do this by using voice memos on your phone or tablet or by using any of the video software discussed above but with the camera turned off and a still picture on the screen.

Podcasts can also be a useful tool for interviewing guests on a topic. If you want to record a podcast for your students then this lifehacker introduction on how to do this is useful.

How do I upload pre-recorded video or voice recordings to my course page?

If you are recording materials in a classroom on campus the recording from Lecturecast, or similar software, can be made available directly on your VLE. Follow your institution's direction on how to do this. These will be similar to the instructions we get at UCL for Lecturecast.

If you are recording on a device away from a classroom you will need to upload the material to your VLE. If you have used embedded software, for example Blackboard Collaborate in Moodle, the recording is made automatically available on your page.

Recordings from other software that are small can be uploaded as a file to your VLE, depending on the file limits set by your institution. If this is not possible then you will need to upload them to an external source and provide the link to that source on your class page on the VLE as a URL link or, if the VLE allows, as an embedded file. Popular external sites to store video on include YouTube and vimeo. Some of the screencast software, such as Loom and Prezi, allow you to store recordings on their site, up to a size limit, and provide a link as a url.

When using these sources make sure to use settings that allow your students to access the materials. If you have students working in other countries on the material you should check if there are constraints on what sites they can access. This website provides information on what can be accessed in China, for example. If you want to make it difficult for others to access the material there is normally a setting for

this such as making a video unlisted on YouTube. Your institution may also have a cloud platform for staff to upload media for use by those with institution login only. For example, UCL staff and students can upload material to UCL Mediacentral. Here is a tutorial on how to do it from Dr Silvia dal Bianco's Public Economics course.

If you have a mix of Lecturecast recordings and recordings from another software, for example because you are able to access a classroom some weeks and not others, you may be able to upload everything to the same Lecturecast course page for your students. You can find information from UCL's Digital Services team on how to download material from a Blackboard Collaborate recording and upload it to your course lecturecast page here.

Should I provide interactive activities for students to complete asynchronously?

When students are working through materials in their own time it is important that there are opportunities for them to:

1. Check their understanding of the material they have covered so far
2. Ask questions if anything is unclear
3. Discuss the material with others, to deepen their understanding
4. Reflect on what they have read/watched/listened to
5. Apply what they have learned to a new problem/context

You can use time in live sessions, discussed in Section 4, to cover many of these aspects of student learning. Given time constraints of live sessions, and the potential for some students to be unable to attend at the assigned time, it is important to have asynchronous activities that provide these opportunities as well. Incorporating activities alongside reading/watching/listening materials also breaks-up the learning experience for the students which is important for keeping them engaged, particularly if they are working online only.

What types of asynchronous activities could I use?

There are many types of activities that you can use. They should take a relatively short amount of time to complete, alongside the material reading/watching/listening, and should connect with that material and any live session.

Quizzes: as discussed in the context of live sessions in Section 4, you can set-up short quizzes in most VLEs that allow students to check their understanding of course materials. This is UCL's guide for adding quizzes to Moodle. Multiple choice or short answer questions can be particularly useful as they don't require grading and students get immediate feedback. If quizzes are part of the course assessment it is a good idea to use similar question styles in these practice quizzes. This guide from Brigham Young University provides some basic guidelines for writing "good" quiz questions.

Polls: you can also check student understanding, and encourage them to think about what they have read/watched/listened to using polls in your university VLE and/or on social media. These are particularly useful if you want to refer to the outcome of the poll in a live session.

Assignments for submission: you can ask students to submit answers to homework assignments that they work on independently or in groups. Where submission is required it is important to be clear on what type of feedback they can expect and by when. It is a good idea for all work to be submitted online, using assignment tools in your VLE. We provide more information on this in our discussion of assessments in Section 6.

Discussion forums: you can set up a discussion forum linked to a specific topic. You should kick-start the discussion by posing a question for students to discuss. You can find advice on how to use a discussion form effectively from Advance HE and some thoughts on what can go wrong in this Architela Blog. The discussion forum can be one built into your VLE (e.g. on Moodle) or an external platform, such as Piazza, that you can provide a link for on your course page. You will need to make choices, and explain them to students, about settings like whether posts are anonymous, whether the instructor(s) will be involved or not and how long the forum will be open for. You will also need to think about how to incentivise students to contribute. If you are concerned about accessibility you might want to try a voice discussion forum such as Voice Thread. These forums provide an opportunity for students to reflect on materials, apply what they have learnt to a specific issue, explain their ideas in writing and learn from each other. It can also help create a sense of community.

Q&A forums: you can also set up a forum that is specifically used for students to ask clarification questions, rather than for discussion. You can set this up to allow students to answer each others' questions and/or for the instructors to provide answers. Again, this can be a forum built into your VLE or an external platform. The examples and advice for discussion forums applies here.

Produce a collaborative summary of the topic: you may want to ask students to work together to produce a summary of the topic they have been studying, possibly with a specific question to answer. This could be done by asking them to write a wiki on a topic. Vanderbilt University provides a useful guide on how to use wikis. You should be able to find a wiki tool embedded in your VLE (e.g. on Moodle). You can instead ask students to work together on a written document, in google docs or similar, or a presentation. howtogeek.com has a guide on how to use google docs that you may want to share with your students. You need to consider what works best for the content and what is manageable in terms of student time and ease of collaboration.

Write their own MCQ questions: you could use a software like Peerwise, to encourage students to write their own MCQ questions that they can answer for formative assessment. This allows them to demonstrate that they understand the course material and gives them a good sense of how assessment works. It also help create a peer community.

Sharing additional materials and ideas: you may want to ask students to curate additional materials or ideas from external sources to extend their understanding of the topic. You could provide a repository for what they find by creating a page for the topic on a platform such as pearltrees, padlet, or pinterest (images). This can be particularly useful if access to these extra resources would be useful for later assessment or discussion in a live session. It is important to keep the exercise focused to manage its scale for the students.

Personal reflection opportunities: you can create spaces, such as a blog, for students to keep a log or similar reflection on what they have learnt. This article from Faculty Focus provides some ideas on how to do this. You can consider whether it is best for these to be private, between student and instructor, or open to the class or even, with student agreement, the wider public. Edublogs is one possible place to create a blog for your class to work on. There may be something suitable built into your VLE (e.g. on Moodle). elearningindustry.com provides useful ideas on how to use blogs.

You should try out different activities when planning your adapted course and see what you find easiest to use and what you think is most suitable for your course. You might use a mix but don't try and use everything all the time as this is likely to lead to overload for you and your students. Remind yourself, by going back to your overall plan, how much time students should be spending on a particular topic or in a given week. Adjust what you ask for accordingly. You can also decide if activities will be formative or

part of the summative assessment. This could include providing 'participation' marks for engaging with materials and activities. We will discuss this further in Section 6.

How should I organise all this material on my course page?

Whether you teach face to face or online or a mix your course page on the university VLE is a key resource for students. The look of the page and the ease with which learners can find things is extra important when they are working online. It is worth giving your course page structure some thought and getting feedback from your peers and/or student reviewers.

The look and feel of the page can have a big impact on how students engage with it. It is worth putting in the effort to make sure it is user-friendly and visually attractive. This can include things like colour coding different types of activities, or indenting them in different ways and using clear labelling of sections/topics. Use images to make it interesting but make sure they are relevant to the content. Keep the text that is initially visible short and embed more of the detail in sub-pages.

Make sure that all the materials you use are accessible to all audiences. Your institution will no doubt have guidance on how to do this, similar to what is provided by UCL. Software providers, including Microsoft, also provide advice on how to make outputs from their products accessible.

Organise your page so that students can find the asynchronous materials and activities, and links for the synchronous sessions, easily. If the assessment is also online you should have a separate area for this. Sign-post where materials are and when they should be accessed as much as possible.

You may want to get advice from the Digital Education experts in your institution, who may have a baseline model for you to follow. At UCL, we have a baseline Moodle to help all lecturers ensure their course is engaging and accessible for students.

Will my students know how to learn from the asynchronous material?

Most students will be unused to learning online. Your institution will no doubt give them general guidance and you should make sure you are familiar with the advice they have been given. Imperial College London and UCL provide nice examples, but best to stick to what your institution uses.

You should supplement the institution's advice with your own guidance on how to learn the materials provided in your course. Make sure to explain to students how the parts of the adapted course fit together.

You should explain what materials and activities are being provided asynchronously and when they will be available. You should be clear on what you consider compulsory, essential and 'nice to have' material. If there is a timeframe over which they should work with this material that should be emphasised. You may want to provide them with a suggested plan of what order to work through the materials.

It is important to let students know why it is important to engage with these materials, making connections to any live sessions, where students may be asked to discuss asynchronous materials or answer questions on it, for example. You should also make clear if any of the activities are part of the assessment itself or if they are similar in style to what students can expect in the assessment. It is a good idea to let them know when you will be checking on their engagement with activities and let them know how you can review their activity on the course page.

Watch how much time you are expecting students to spend on this material as well. It is easy to fall into the trap of bombarding them with everything you find is interesting and relevant. You need to pick and choose what is most relevant for them. Once you have done this you should provide them with guidelines

on how long they should spend on different material and different activities to help them plan. This of course will be an average guide as some may take longer and others may work more quickly.

Students are more likely to engage if they feel inspired and supported. We provide suggestions on how to support students with their learning in Section 7. The main thing to remember is that you should be regularly in contact with them and expect to repeat your advice regularly and in different ways (eg, office hours and a Q&A Forum). Creating a community of learners who collaborate with each other on the course will also help as peers can support and guide each other.

6. Adaptable assessment and feedback

Assessment needs to be adaptable for an online or face to face environment, for example with exams being written in a way that can be delivered in invigilated closed book settings or switched to online open book setting if required. This will make your adaptable course more resilient to exogenous shocks, similar to Covid-19. The assessment also needs to incentivise students to engage with asynchronous and synchronous activities on an on-going basis. This is in addition to the standard pedagogy of assessment needing to be connected with the course learning outcomes and teaching and learning strategies (Biggs, 2003)

When should I assess students?

To diversify risk, for students and your institution, you should aim to have at least some summative assessment during the term. This will also help incentivise students to engage on an on-going basis. This can be instead of or in addition to an end of year (or end of term/semester) exam. You should choose the weight attached to each assessment component so that it reflects the proportion of course content and learning outcomes assessed and the proportion of students' overall time spent on assessment. You should also check if there are local rules and guidelines on what % to attach to different types of assessments (eg, for essays with different word counts).

What type of summative assessments should I use during term?

The type of assessment(s) that are appropriate for your course is a matter for you to decide, in discussion with your colleagues and in line with your institution's regulations and guidance. You will need to make choices about the number and types of assessment components you will use and the timing of each component. You will also need to design the components to be consistent with the other elements of your adaptable course.

You can attach marks to many of the asynchronous activities discussed in Section 5. You can also, if your institution allows, consider awarding marks for participation in activities in the live sessions discussed in Section 4.

You can also, or instead, ask students to submit problem sets, essays, projects, presentations or multimedia assessments during the term and make them count towards the overall mark for the course. These can be done in groups or be individual. This chapter from the Economics Network's Handbook discusses different types of summative assessment, with further references on different types of assessment provided in Section 8.

How can I set and assess group work online?

Students learn a lot from working with each other. They get different perspectives, new ideas and develop team-working skills. Group work can also help create a peer community which is extra important if some or all students are learning away from campus. They will be more incentivised to work together if it counts towards the assessment. You will need to ensure that you design the activity to limit the risk of free-riding and to ensure that the group activity requires input from all group members. You might want to consider having individual contribution marks, or an individual part to the assessment, to help. At UCL the iPAC consortium provides support in this area. You may also want to try software like Teammates. Further references on group work can be found in Section 8.

Online learning in an adaptable course opens up the possibility of using new tools for group work. This includes collaborative wikis, discussion forums where every group member has to participate and online collaboration platforms like Google Docs. You should decide what platform or tool is best depending on what kind of output you want the students to produce and whether you want to be able to observe

individual contributions to the output. You should also consider what is the most stable platform, to allow for different members of the group having different technology quality.

Whatever platform you choose, you should expect the group to find their own ways of working together and communicating away from the course tools. This happens with face-to-face group work as well. When setting deadlines and expectations you should also consider how students in different time zones might work together.

How can I assess a presentation online?

If you are teaching face-to-face it is most likely that you would assess a presentation, either individual or group, in a classroom. If some or all of the class are working online, or there is a risk of them being online at some point during the course, you will need to think of different ways to assess presentations.

One option is to ask the student(s) to deliver their presentation in a live online class session. This comes with the risk of technology problems which may create extra stress for the student(s) and can be time-consuming particularly for big classes. If you are recording the presentations in a live session you should make sure to have student permission. You should also ask students to submit any presentation materials separately so that you have a record of these.

An alternative option is to ask the student(s) to deliver their presentation to just you in an online meeting. The technology risk remains but it may be less of a concern for the students, and you, in a one-on-one setting particularly if the presentation can be rescheduled if needed. Again, this is time-consuming for you. If you are recording the presentations you should make sure to have student permission. You should also ask students to submit any presentation materials separately so that you have a record of these.

A third option, which loses the value of presenting to a live audience but reduces the risk of technology problems, is to ask the student(s) to prepare a recording of their presentation and to submit the video online. If you want to have the option of asking the student(s) questions 'after the presentation' you could do this in a live class session or in a live discussion forum.

Whatever option you choose you should make the format clear to students and provide clear guidance on what they need to do and by when. For the video presentation they may need additional advice on technological aspects. For any live presentation they may need additional guidance on aspects like 'screen sharing' their materials.

Can I use an exam for summative assessment?

In most scenarios, when we refer to an 'exam' we mean an assessment that takes place in an exam hall, with invigilators, where students don't have access to the course materials. This closed-book setting is generally only feasible if students are able to be in a room together.

For many economics courses, and for some learning outcomes, an exam may be the best way to assess students. This could be a multiple-choice exam or a written exam with short or long answer questions of a quantitative or essay-based nature. It is unlikely to be the best way to assess all learning outcomes so, as emphasised earlier, it is a good idea to have other assessment components in addition to an end of course exam.

If you are planning on assessing using an exam there is a risk, as we learnt in 2020, that the closed-book exam hall setting will not be feasible. To ensure your assessment is adaptable it is therefore important to design your exam so that it can be run online, in an open book setting should the need arise. You should plan for this rather than having to make changes in a hurry should the situation arise.

How can I write an exam suitable for online assessment?

Multiple choice (MC) assessments are tempting as they are easy to mark but remember that it is very hard to write "good" MC questions which accurately measure understanding. This guide from the University of Manchester provides guidelines for this process. If you are preparing MCQ questions for your exam, you should prepare a bank of questions. You may get ideas from other resources including your textbook publisher's website. This means that if the exam has to be run online you can have different questions for different students. It is also a good idea to have a mix of questions, including ones that require deeper thinking and can not be found simply by looking up course materials or doing an internet search. Having questions that relate to material that is quite specific to your course, that might be hard to find in a general search, is also a good idea.

For written mathematical questions, you should avoid asking students to prove something that is directly produced in the course materials and limit questions that are similar to ones done in class or for homework. You should ask at least some questions that require students to apply methods that they have learnt to new content and therefore can't look the answer up in course materials. You should ask them to explain what they are doing and why in all steps so that you can check their understanding of the method. This is particularly helpful if they might use online tools to solve the problem. You should also have at least part of the question requiring students to interpret the answer to their mathematical working from an economic perspective and/or to consider how the situation in the question might be relevant to the real world.

For written short or long answer essay style questions, you should ask questions that cannot be looked up directly in course materials or on the internet. These are likely to be open questions that do not have a straight-forward right or wrong answer. This means that something like a definition should only be a small part of a question. The questions should require students to use material they have learnt but have to think about how to use it to answer a question they have not come across before. Where students are using mathematical derivations or graphs to support their written answer you should require them to produce them (ie, not cut and paste from another source), to explain what they have produced and to link the analysis to their discussion. You should be clear on whether you expect literature references.

Whatever format of exam you have, make sure to prepare clear instructions for students in the event that it will be run online. This will include information about word limits, late submission penalties, what to do if they run into technology problems, the deadline for submission, other submission requirements and how to access help if they are facing any extenuating circumstances affecting their ability to complete the work. Your Department or institution will no doubt provide guidance on what should be in these instructions. Make yourself familiar with them early in the academic year so that you can explain them to students early on.

Write your exam like this from the outset, even if expecting it to be closed-book. That way, should the need arise to move online you will have questions that can still be used.

If you are running the assessment online you can upload the file, including questions and submission instructions, to the VLE. You can do this in advance and restrict access until a certain time. Instructions for doing that in Moodle are here. Make sure, as with all your materials, that the assessment paper is accessible to all learners.

How much time should I allow for online assessed work?

You should set reasonably wide time windows to allow for students working in different time zones and/or for running into technological problems. However, you may want to limit the time if you think a longer

window will increase the risk of student cheating or indeed simply put more pressure on students if they think more effort has to be put into the work than intended. You should ensure you follow any institutional requirements.. For example, at UCL for Term 3 2020 assessment all open-book exams had a 24 hours submission window. For open-book courseworks, students had at least a 15 days submission window.

Whatever overall time window you use, you should also provide an indication of how long you expect students to spend on the online assessment. For a timed closed book exam the time per question is normally determined by applying the proportion of the marks to the overall time. If you have to move to an open-book setting, with no time constraint or a longer than normal time constraint, it may be appropriate to also provide word or page limits per question so students have an understanding of how much is expected in an answer. You could also give students an estimate of how long they should spend on the work, so that they have a good sense of what is expected in terms of workload.

What tools should I use for online submission of assessed work?

MCQs can be built into your VLE, generally using the Quiz tool. You need to ensure settings are appropriate for an 'exam' setting. Your institution may have specific guidance on this, similar to what is provided at UCL.

Typed exams and other assessment outputs like essays and reports can be submitted online, using your VLE assignment tools (e.g. Moodle assignment). If available, use plagiarism checking software such as Turnitin is recommended so that you have at least some information about whether students copied material from another source. This may be built into your VLE, such as Turnitin Assignments in Moodle. This software should be used carefully as there can be many reasons, not about plagiarism, that lead to a high similarity score. Markers should ensure they look into the detail of the score to understand what might have happened.

Maths-based answers can also be submitted online using the same tools. Students will generally find it easier to write these by hand. They will need to scan them into a suitable document format and attach a typed cover sheet so the document is recognised by the assignment software. As mentioned earlier, it is a good idea that they provide explanations alongside calculations.

The VLE assignment tool will have a range of settings. Make sure you are familiar with them all and make choices consistent with your institution's regulations and what you want for your own assessment. For example, as discussed below, you may want to set-up the assignment for anonymous marking. You may also want to set it up so late submissions are allowed. You can also build in your marking rubric or grading form.

If you are setting a multiple choice assessment, go through the instructions in this UCL guide on how to set up a quiz on Moodle. Note that if you are using this for summative assessment, you should also go through the guide on Moodle quiz for online exams which includes guidance on notifying UCL of such an exam and other important regulations.

How do I ensure students do not plagiarise or cheat in other ways?

Making use of plagiarism software can help with typed written work but it has its limitations. It is most important that you teach students how to reference appropriately and make sure they understand what is considered a breach of academic regulations at your institution (e.g. UCL's Academic Integrity policy). This will help deter those who break the rules without even knowing that they are doing it.

You also need to incentivise students to agree to abide by these academic regulations. This is difficult to do. Options include requiring them to sign-up to an honour code system, making the rules and penalties very clear on all assessment documents and/or having the option of 'random viva' checks or similar as a

threat. This mix of carrots and sticks are relatively blunt but should at least deter those who are nervous about consequences of being caught.

It is very difficult to stop a student from asking someone else to write their answers for them, or to buy them from an 'essay mill'. Some universities are making use of proctoring software, although that is not without its own downsides as discussed in this Washington Post article.

If someone is determined to cheat, in a closed-book or open-book setting, there are limits on what can be done to prevent it. This is another reason for having more than one assessment component, so that cheating in one component is not sufficient to affect the overall mark. Indeed, if you see a high performance in one component and poor performance elsewhere this may raise alarm bells and suggest the need for further investigation.

Stefania Paredes Fuentes and Tim Burnett wrote this guide to (mostly online) assessment which covers many of these issues.

How do I ensure normal assessment quality assurance measures are adhered to?

Online assessment and marking requires quality assurance in the same way as paper closed-book exams. Any quality assurance measures that you take at your institution for exams should apply to all components that are summatively assessed. This could include, for example, anonymous marking, scrutiny of assessment papers before students get them, double-marking of answers, checking the consistency of marking across students and other quality assurance checks by external examiners.

The assignment submission tools in most VLEs allow for the submission to be set up for anonymous marking. This is UCL's guide to anonymous marking in Moodle assignments. Once you set it up appropriately you will be able to mark without seeing student names or other identifiers. If you wish to record marks in a particular format, such as a unique exam candidate number, you can ask students to name their files with that identifier to help you keep track.

All materials will be on your course page on the VLE and, assuming your institution allows, the relevant people involved with quality assurance can be assigned as 'tutors' or 'instructors' on your course with the same access rights as you. It is then relatively straight-forward to provide them with instructions of where they can find the relevant material that they are checking. It is a good idea to have a separate area on your course page for all assessment materials to help with this process. As noted earlier, this is also helpful for the students.

Should there be formative assessment as well?

There should be formative opportunities for students to test their understanding of course content, develop skills, curate materials (ideally to prepare for summative assessment) and practice what is needed for summative assessment. We set out ideas of activities that could be useful in the discussion on asynchronous activities in Section 5. Aim for small scale, low stakes, activities that students engage with regularly.

How much time should be spent on assessment?

One of the big challenges, for student and lecturer, is getting the balance of formative and summative assessment right so that students are not overloaded and there is a sufficient mix of assessments that count to diversify risk. This can be hard to do, particularly if you have short terms/semesters.

Incorporating low stakes assessment into synchronous and asynchronous learning can help here so that at least a proportion of the summative assessment is linked to the time already spent on wider learning.

It is also a good idea to get feedback from colleagues on what they are doing in other courses and from students during the term.

How should I provide feedback on online work?

Feedback should be provided on all formative and summative work to help the student move forward with their learning for the next piece of work. Principles of good feedback, similar to these from UCL Arena do not change if your assessment is online rather than in a campus-based setting. This one-page guide from Surrey University Learning Lab provides useful insights on alternative ways of giving feedback online.

You should be clear to students throughout the course what type of feedback they can expect to get and in what timescales. For example, you should be clear if you will be providing individual feedback on a piece of work or feedback to the whole group only.

'Whole group' feedback might be provided in a live teaching session, through a recorded video (asynchronous) and/or by uploading a document with points on what went well and what could be improved for everyone. Providing guide answers to problem questions, in a written document or as a video, can help students self-assess their own answers using these and the group feedback.

Having some or all of the assessment online opens up additional opportunities for individual feedback. Quizzes will be self-marking, with the option of revealing answers to students after the quiz has closed so they can work through their submission themselves.

For work submitted in 'files', you can use the feedback tools in the VLE assignment tools. Information on using Turnitin in assignments in Moodle, from UCL can be found here. You can also find advice on marking on the Turnitin website. You can also upload rubrics or grading forms to allow for quicker and more consistent feedback . You can get some ideas on using rubrics from EdTechTeacher. Many assignment tools also allow for you to provide voice rather than typed individual feedback. References that explain the merits of voice feedback are provided in Section 8.

There is also scope for peer feedback, for example using Moodle workshop or Blackboard peer assessment. This may be most appropriate for formative work. This video from UCL Institute of Education provides useful ideas on how to organise peer review. This SERC overview of peer-led team learning is also useful.

What's the best way to prepare students for adaptable assessment?

Whether you are teaching online, face to face, or a mixture of the two, you must ensure students understand how they will be assessed and what is expected to do well. Preparation is important, particularly if the nature of assessment and learning is new for your students and for your course.

You will need to provide details of the overall assessment plan from the start of the course, if not earlier if it is an optional course they choose. For each assessment component you should provide an example of what it will look like and information on how it will be graded such as a rubric or grading form. It may also help to provide examples of previous students' work (anonymously), particularly if the nature of the assessment is unfamiliar to the students. All these materials should be available from the start of the course.

If there is a possibility of an assessment component changing at short notice (eg, from closed book to open book exam) you should explain the possibilities to students from the outset and explain how you are managing this with an adaptable approach. This includes explaining to them from the start what might be different if the exam is online, for example if your expectation of the literature references they need to provide will be different and/or if they need to stick to a word count if the exam is online. Unlike

in 2020, you can prepare students for the possibility of assessments being adaptable rather than making emergency changes that they are not prepared for.

It is also a good idea to give students opportunities to engage with formative activities that are similar in style to the assessment components. They should be working on questions similar in style to what might arise in an exam or other assessment component. This can be through asynchronous activities, in live sessions or through submitted formative work. You can also provide further practice opportunities, such as past exam papers, that students can work on in their own time.

You should also explain to students how to make use of any feedback that they receive. Encouraging them to reflect on their own work relative to guide answers, marking criteria and individual or group comments is the best way to help them learn. This is not something that students coming into higher education are used to and it is important to explain the value to them of using feedback effectively.

You should provide regular reminders and updates to students about the assessment throughout the course. Expect to have to repeat yourself. It may also be helpful to establish a specific Q&A forum for assessment so that students can pose specific questions on the assessment there. This will save your email being flooded with queries and allows all students to see your answers to questions asked.

7. Supporting your students

As a course instructor, you have responsibility for ensuring your students understand what is expected of them in your course and how they can access help on the course when they need it. This is the case whether you are teaching on campus, online or a mix of the two.

You should make sure you also understand any specific Department or institutional expectations of your role in student support, particularly around their general welfare. If students are mainly working online it is a good idea to keep track of their activity, for example by reviewing Moodle logs and engagement with asynchronous activities, and let your Department know if you have a concern about any student's welfare. It may be best to be overly-cautious when students are not on campus.

How should I support students in an adaptable course?

Your approach to student support should also be adaptable. Apply the idea of having a mix of asynchronous and synchronous support opportunities. The general principle should be providing students with forward guidance and assisting them at every stage of their learning experience.

When communicating with students about what is expected of them, what they should be doing when and what events and deadlines are coming up you can use a mix of the following.

- Announcements in live sessions, that are recorded, both orally and in chat
- Notices on a "News" discussion forum, ideally with email notifying students of the Notice
- Emails to the class
- Uploading of documents such as a Student Planner for the week, month, term
- Reminders on other platforms that you use to communicate with students, for example social media

When offering help with the course material, it is a good idea to combine live 'office hours' with asynchronous support through discussion forums. There should also be opportunities to ask questions in live teaching sessions. If you have a Teaching Assistant you should encourage them to similarly offer support through office hours and contributions to any discussion forums.

When should I communicate with the students about the course?

Little and often is a useful motto here. If you are not meeting with students face-to-face, it is extra important to keep in regular contact with them. Keep communications short and to the point. Focus on what they need to know at a particular point in time. Expect to have to repeat yourself about activities, and consider presenting the instructions in different formats to keep students engaged with the announcements you make.

At the start of the course you should make an attempt to Welcome students with a communication that explains how the course is structured, what the learning outcomes are and what is expected of them. This can include information on what they can expect from you too. This might be best done as a video, with a document (your syllabus) alongside.

Many students will also appreciate having a clear plan of action for the whole course from the outset. Providing them with a week by week plan, with the caveat that it is subject to change, at the beginning of the course can be helpful. This can be the plan that you have prepared for yourself, discussed in Section 3.

Reinforce the big picture plan with *regular communications* throughout the course. At the start of each week, send students a message specifying the main learning outcome for the week and explaining the

activities for the week and how they should go about completing these. At the end of the week, send students another email summarizing the activities completed and the learning outcomes, and a brief indication of how this relates to what they will do next. You may also want to make connections to upcoming formative and summative assessments to motivate the students.

Of course, if anything changes and you need to adapt the plan you should let students know about the new arrangements as soon as possible. We are all familiar with this from sudden changes to teaching in Spring 2020. An example of text you could send to students when changing the mode of teaching is provided below.

> **Example instructions to students when you have to introduce a new way of teaching**
>
> As you know, we are no longer able to teach on campus and are switching to online teaching for the remainder of term. This is an update about the lecture and tutorial on Thursday. The lecture will go ahead at the planned time of **2pm GMT but will be entirely ONLINE/LIVE STREAMED**. The setup is similar to video calls (Skype, Zoom etc) but is through the Moodle page so that you have all the information/content related to this module in one place. If you are unable to attend the live session, don't worry as it will be recorded and made available immediately. The same applies to the tutorial, but only the first scheduled tutorial (starting at 9am) will be livestreamed. Anyone who wants to (whether or not you usually attend that tutorial) can attend, and if you can't, as with the lecture, it will be recorded for you to watch when you can.
>
> In order to access the live streamed lecture, **go to the Lectures tab on the M oodle**, **scroll all the way down and click on the link with this logo** and **the label "March 20th Lecture".** On the next screen, you will see a button saying "Join Session" - clicking on it will take you straight into the live session. Make sure to **mute your microphones** so that everyone can hear me clearly. If you have a question, **use the chat window in this link to post it**, and I will get to it as soon as possible. If you would like to know a bit more about this technology (it's called Blackboard Collaborate), take a look at this guide: https://wiki.ucl.ac.uk/pages/viewpage.action?pageId=131381287. **For the tutorial, cick on the link which says March 20th tutorial**. **The recording of the lecture/tutorial will be available through the livestream links**, after the livestream has concluded.

Build in opportunities for students to give feedback to you about the course through the term/semester. The timing and format for formal course feedback may be fixed by your institution/Department but you could also approach students for informal feedback at other times. This is particularly important when you are trying out new things.

How should I answer questions about the course outside of live sessions?

You could allow students to email questions to you and answer that way. This raises an expectation that you will answer individual queries on a 24-7 basis which you need to decide if you are willing to meet. It also runs the risk that you will be answering the same question from individual students a number of times.

An alternative popular option is to have an online Q&A discussion forum. This would be a place where you tell students to post questions and where you or your Teaching Assistant answers them. You should be clear with students when you would be answering the questions (eg, I will check the forum every Wednesday afternoon). You can also decide if you want to allow peers to answer each others' questions, with some oversight by the instructor. You have the option of making posts anonymous or not. Anonymous posting may encourage students who are shy about asking their questions, although this tends to be less of an issue than having to ask a question in a live class. However, it can also encourage students to be less careful about their behaviour on the forum.

The main advantage of the discussion forum is that all students can see the questions and answers and learn from each others' questions. You also only have to reply to a question once and there is a record of all the interaction in one place. The repository of questions will also be useful for you to identify areas where students are confused with course material, to guide what you focus on in any live sessions for example.

This Q&A discussion forum would work the same way, using the same technology, as the discussion forum activities mentioned in Section 5 in the context of asynchronous activities.

How should I run office hours in an adaptable course?

Office hours are a key way to provide one-to-one, or group, support to students. You can run these online if you have some or all students learning away from campus. Indeed even if students are on campus some of the time, having an online option may be useful for them.

You should check what technology your institution recommends for meetings as these are most likely to be suitable for office hours. Popular options include Zoom, Skype and Microsoft Teams. You should double check what software students can access in their home country if they are overseas. It is a good idea to use a technology that you and students have access to through your institution and use one that you are comfortable with, perhaps the one you will do live sessions on.

If you want to hold 'pop in' office hours at a fixed time and let students join on a first come first served basis you simply provide them with the link of where to join and the time that you will be available 'in the room'. You will need students to be able to access a link and sit in a waiting room or lobby until it is their turn, similar to queuing in the corridor. This can be done on both Zoom and MS Teams. You should explain the waiting room situation to students and make it clear how long they might have to wait (eg, I will give each student a maximum of 10 minutes). If you are running over time you can send a message to students in the waiting room to keep them updated.

You can also, if you want, ask students to book a specific time slot to talk to you. Using a scheduler in your VLE, such as the Moodle Scheduler, is a useful option here. You can provide the link for where the meeting will be held (your office, Skype details, Zoom room) on the scheduler. The scheduler can be set-up to fix the length of time that each student has, to give you breaks in between meetings and to send reminders to students. You can also set it so that more than one student can book a session at a time if you want to talk to students in groups. You should let students know that they will be meeting as a group if you do this. You can also set up repeated meetings for the term/semester.

When should I run office hours?

Try to find a time when students are less likely to be in other classes, checking the programme timetable for example. If your students are located around the world you will need to consider different time zones. A good time window is 12:00 noon to 4:00 pm GMT. You can see below what time it is for students in different regions relative to the UK.

Los Angeles: -8 hours GMT

New York: - 5 hours GMT

UK time= GMT

India Time: +5 hours 30 min GMT

China Time: +8 hours GMT

Depending on the size of your class, and also how available students are at different times you might need to run more than one office hour per week, maybe varying the time of day. Alternatively you may allow students to email you to arrange an alternative time if they cannot make your office hour.

Should I do anything extra around the time of assessments?

For assessment components that you hold during term-time, the general support that you are providing through discussion forums, office hours and live sessions will probably be sufficient to cover queries about the summative assessment itself. You may want to have a stand alone Assessment Q&A Discussion Forum if you want to keep questions relating to the assessment in one place. You will of course need to ensure you provide guidance about the assessments through documents and your weekly communications. You may also want to hold a specific live session about the assessment to explain what is expected and answer queries if that is appropriate.

If you have an assessment component that happens after your normal teaching period it would be a good idea to provide additional support during any 'revision and assessment' period. For example, at UCL we have end of year assessments in Term 3 and finish teaching in Term 2, with a long break in between the two.

The type of support that you could offer specific to the assessment component in an 'exam period' includes the following.

- Assessment Q&A Forum which could be run asynchronously and/or that you could engage with live at particular scheduled times
- 'Exam' Office hours
- A 'revision lecture' as a live session, that would be recorded for those who cannot attend
- Asynchronous revision materials such as additional practice quizzes or questions for students to work on in their own time
- Reminders of marking rubrics and how they are used

You may have the option to ask a Teaching Assistant to also host office hours and engage with the Assessment Q&A Forum.

You should host all these revision support activities in the same area as the 'Assessments information' on your course page. For example, in your VLE you may want to create a tab or page for the Assessments that includes all the support information, and access to the various activities, as well as the information about the assessment itself. This makes it easy for you and students to have one area to focus on.

Whatever support you decide to offer it is important to communicate with students what will be happening and when. An example of the type of synopsis you could provide to your students is given below. As this example shows it is a good idea to structure the order in which you share information with students and when you offer more 'live' online support. One idea is releasing first the assessment-related information for students to read. Then offering them the possibility to ask questions in a Q&A forum. Finally, offering a revision lecture, that can happen synchronously or asynchronously. In the

latter case, it is important to offer students office hours, in the case they wish to have a face-to-face e-chat. As part of the plan you should also make it clear at what point support will no longer be available. This will most likely coincide with the time that the assessment goes live. You may want to indicate that you will not answer queries on a discussion forum slightly earlier to avoid students asking questions up to the last minute and expecting late replies.

A*ssessment support offered for a UCL Economics of the Public Sector course in exam term*

Calendar date	***Action***	***Where***
5th May	Release coursework coversheet	Moodle: Summer Term Coursework Tab
	Release of revision material	Moodle: Revision Tab
	Release of Q&A Forum on Summer Term Coursework	Moodle: Revision Tab
5th-12th May	Students post their questions on the Q&A forum	Moodle: Revision Tab
15th May	Revision lecture with answers to the posted questions will go live at 3:00 pm BST	Moodle: Revision Tab
	Office Hours bookable from Friday 15th at 5:00 pm BST	Moodle: On-line Office Hours
18th May	Dr Dal Bianco Office Hours, bookable from Friday 15th at 5:00 pm BST	Moodle: On-line Office Hours
22nd May	Coursework release at 12:00 noon BST. Due on 22nd June.	Moodle: Summer Term Coursework Tab

How can I help students become a class community?

It is difficult for students to connect with each other when learning at a distance, particularly those new to a course or programme who have not met in person. There is probably no substitute for meeting face to face but, as discussed in earlier Sections there are tools you can use to encourage them to share ideas with each other and learn from each other. These include for example, discussion forums group blog writing and working with wikis . If you use breakout rooms to allow students to work on group-work tasks in live sessions and/or set group formative or summative assessments this will allow students to get to know at least a few people in the course. Once you have established connections they no doubt have ways of 'meeting' with each other virtually away from lecturer view. Having interactions on your course page is important, to kick things off and to retain the link to the course learning outcomes and material.

8. References

[to be tidied up for Version 2]

Courses, seminars and conferences

Coursera course on online teaching: https://www.coursera.org/learn/getinmooc
CTaLE and University of Warwick EconTEAching seminars: https://ctale.org/econteaching-2/
CTaLE #TeachECONference: https://ctale.org/teacheconference/

General research on moving online and planning an adaptable course

Teaching online: a guide to theory, research and practice: https://muse.jhu.edu/book/38784
Guardian article on downsides of moving online quickly: https://www.theguardian.com/education/2020/may/20/universities-beware-shifting-classes-online-so-quickly-is-a-double-edged-sword
BBC article on the need to move online carefully: https://www.bbc.co.uk/news/technology-52647601
Why moving online quickly is different to planning a distance learning course: https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning
Tips for teaching online from Harvard: https://hbsp.harvard.edu/inspiring-minds/8-tips-for-teaching-online
Texas A&M video about setting up online: https://www.youtube.com/watch?v=4WcexNl3dPw&feature=youtu.be
University of London Panel discussion on experiences of using multimedia tools in teaching: https://youtu.be/YdDLUheudgc (#getintomooc)
University of London Panel discussion on incorporating multimedia techniques in teaching: https://youtu.be/UAW9Zy7PJhY (#getintomooc)
Understand different layers and levels of learning, summarised in the Conversational Framework: https://mediacentral.ucl.ac.uk/Play/4358
Overview paper on role of technologies in learning (focus on Further Education in US but lessons for learning in HE very similar): https://www.alt.ac.uk/sites/alt.ac.uk/files/public/A%20summary%20discussion%20of%20the%20use%20of%20learning%20technologies%20in%20FE%20%20V04%20(2).pdf
New York Times reflection on downsides of moving to zoom classroom: https://www-nytimes-com.cdn.ampproject.org/c/s/www.nytimes.com/2020/05/04/sunday-review/zoom-college-classroom.amp.html
Using five-minutes in class to adapt to helping student learning and well-being: https://youtu.be/3lgcHpKZcxw
Understanding how technology can help with student learning: https://mediacentral.ucl.ac.uk/Player/4369
Making decisions about time and workload in your adaptable course: https://www.tandfonline.com/doi/abs/10.1080/01587919.2015.1055920?journalCode=cdie20
Times Higher Education piece on student outcomes when taught online relative to in-person: https://www.timeshighereducation.com/news/online-teaching-provides-same-outcomes-person-courses
Rethinking (employability) skills learning outcomes in the age of Covid-19: https://www.hepi.ac.uk/2020/04/11/redefining-the-employability-agenda-in-the-age-of-covid-19/
Lessons on how to engage students online: https://onlinelibrary.wiley.com/doi/full/10.1111/bjet.12235

Alison Yang blog on dos and don'ts of teaching online: https://alisonyang.weebly.com/blog/online-teaching-do-this-not-that
An example of a move to adaptable teaching (Simon Halliday): http://simondhalliday.com/2020-03-10-online_teaching_covid19/
Dublin City University (2019) on how teaching online is different (literature review): https://drive.google.com/file/d/1h7fZ6RZLfoWyPDkQ6DFkHR0oBx0lFJyH/view
Teach Better podcast on the value of active learning: https://teachbetter.co/blog/2019/04/22/tbp-episode-80/
Ideas on how to evaluate on-line teaching: https://www.sciencedirect.com/science/article/abs/pii/S1096751604000405?via%3Dihub
Economics Network resources for distance learning: https://economicsnetwork.ac.uk/themes/distance
Blended learning to mix the values of synchronous and asynchronous. Bringing in experts for asynchronous lecture and then synchronous session for discussion (https://sk.sagepub.com/video/download/storytelling?promoCode=)
Engaging students online: https://www.edsurge.com/news/2020-05-06-how-can-educators-tap-into-research-to-increase-engagement-during-remote-learning
It takes instructors two times longer to prepare and teach online vs f2f. Does not matter about class size – small and large follow the same rule (https://journals.sagepub.com/doi/pdf/10.1177/0047239516661713)
Do not assume that a course with high-level face to face can be directly translated online. Virtual content should be organised in a way that students need a minimum amount of hand-holding from instructors. Break down the steps to creating an assignment by providing feedback at each level. (https://journals.sagepub.com/stoken/default+domain/10.1177%2F1524839915588295/full)

Research on synchronous learning and activity suggestions

Teachbetter blog on teaching large class online with Zoom: https://teachbetter.co/blog/2020/04/13/big-zoom-classes/
Smaller group discussions (aka tutorials for UCL) encourages great quantity and quality of posts (https://sk.sagepub.com/reference/download/the-sage-encyclopedia-of-online-education/i9911.pdf)
Remind yourself what the point/value of a lecture is and what you have to offer live: https://amp.theatlantic.com/amp/article/272578/
Schedule recordings to remove pressure of going live and focus on engagement (https://echo360.com/21-ways-to-teach-with-echo360-3-how-to-schedule-recordings/)
Broadcast a class live to provide a synchronous experience (https://echo360.com/21-ways-teach-echo360-4-teach-broadcast-live/)
Incorporate polling activities to initiate discussion/topics (https://echo360.com/21-ways-teach-echo360-5-include-class-polling-activities/)
Messaging tools to drive discussion, though anonymity could be key (https://echo360.com/21-ways-to-teach-with-echo360-6-increasing-student-engagement-inclass-discussions/)
Introduce technology slowly for student activities (https://echo360.com/21-ways-teach-echo360-15-teaching-class-distance-learners/)
Confusion alerts for clarification points (https://echo360.com/blog-use-confusion-alerts-to-review-teaching-delivery/)
Mood-check via polling question (https://echo360.com/blog-encourage-active-learning-in-your-class/)
Ah-Ha discussion thread to encourage connection and understanding (https://echo360.com/blog-encourage-active-learning-in-your-class/)

Engaging Learners with anecdotes makes you personable and creates a relaxing learning environment (https://sk.sagepub.com/video/download/storytelling?promoCode=)
On slides highlight key points only – is enhancing or distracting learning? (https://sk.sagepub.com/video/download/storytelling?promoCode=)
Critical thinking: create video/presentation of one position on a topic and then play devil's advocate for another presentation (https://journals.sagepub.com/na101/home/literatum/publisher/sage/journals/content/hppa/2015/hppa_16_5/1524839915588295/20161119/images/large/10.1177_1524839915588295-table1.jpeg)
Key concepts: "Jeopardy" questions amongst students (https://journals.sagepub.com/na101/home/literatum/publisher/sage/journals/content/hppa/2015/hppa_16_5/1524839915588295/20161119/images/large/10.1177_1524839915588295-table1.jpeg)
For every hour of presentation, online students need two-three hours to go over the recording (https://www.tonybates.ca/2016/08/02/online-learning-for-beginners-7-why-not-just-record-my-lectures/)
Delivering 50 minute solid lecture is not best practice (https://www.tonybates.ca/2016/08/02/online-learning-for-beginners-7-why-not-just-record-my-lectures/)
Live lecture promotes more student-instructor interaction and an increase quantity and quality of discussion posting (https://search.proquest.com/docview/2080120197)
ABC model of facilitation (Acknowledge something the individual has said, Build by adding personal experience or observations or relevant course content, Conclude with a question to the individual/class) (http://sk.sagepub.com/Reference/the-sage-encyclopedia-of-online-education/i9847.xml)
MUSIC model of student motivation (http://sk.sagepub.com/Reference/the-sage-encyclopedia-of-online-education/i9847.xml)
Synchronous learning is not needed but can enrich discussions (https://journals.sagepub.com/doi/pdf/10.1177/2042753019882562)
Structure discussions with how they are supposed to look and roles for students can ease dysfunction (https://journals.sagepub.com/doi/pdf/10.1177/1052562912442384)
Useful panel discussions from University of London on value of online polls and quizzes: https://youtu.be/PdWaHcL6qjs and https://youtu.be/tZAB6sUaQLw
Understanding what students find interesting in face-to-face lectures may help you design your live sessions online: https://www.tandfonline.com/doi/abs/10.1080/03075079.2019.1665325?forwardService=showFullText&tokenAccess=YYIMDKPDNMYBU6ZJ5B2Q&tokenDomain=eprints&target=10.1080%2F03075079.2019.1665325&doi=10.1080%2F03075079.2019.1665325&doi=10.1080%2F03075079.2019.1665325&doi=10.1080%2F03075079.2019.1665325&journalCode=cshe20
Advice for you, or your students, on how to produce a narrated powerpoint: https://online225.psych.wisc.edu/wp-content/uploads/225-Master/225-UnitPages/Unit-13/PSY-225_NarratedPPT_Windows.pdf

Research on asynchronous learning and ideas on asynchronous activities

Discussion on the value of asynchronous learning: https://hybridpedagogy.org/affinity-asynchronous-learning/
Discussions could be enhanced with audio/video options particularly for community building purposes (https://journals.sagepub.com/doi/pdf/10.1177/0047239516661713)
Video on how to embed Twitter code into a Moodle page: https://www.youtube.com/watch?v=-jKBaNX1wFM&feature=youtu.be. You can find out more about the HTML moodle bloc mentioned in this video on the Moodle help site here: https://docs.moodle.org/36/en/HTML_block

Flipped activities before class, discussions/polling in class, review and revision after class (https://echo360.com/21-ways-teach-echo360-9-flipped-learning-flip-teaching-interactive-presentations/)
Asynchronous discussion can expand the range of students who respond and international students may feel more comfortable contributing. Instructors should facilitate and summarise the discussions. Help ensure students apply course concepts, analyse posts to provide solutions, evaluation posts to critique (https://journals.sagepub.com/doi/pdf/10.1177/1052562912442384)
Search out and use resources available in digital format (https://tomprof.stanford.edu/posting/1091)
Pre-recorded lecture may not include a way to verify that students have viewed it (https://search.proquest.com/docview/2080120197)
Visuals, colours, graphs help illustrate dry topics (https://sk.sagepub.com/video/download/storytelling?promoCode=)
Incorporate video-based learning (https://echo360.com/blog-create-video-based-learning-activities-in-your-lms/)
Guo, et al., (2014) on the effects of video production on student engagement (reference provided by UCL Arena)
Inman and Myers (2018) on practical but research-informed strategies (reference provided by UCL Arena).
If you are recording a screencast (video of your screen, with or without you), there are some useful ideas about how to do this and resources here: https://d3c33hcgiwev3.cloudfront.net/_e504814745f255540518a3eb79eb759f_How-to-Record-Your-Screen-and-Create-Engaging-Screencasts.pdf?Expires=1589241600&Signature=SB0nRz6R22OzFeKJjlOsRd5iKxA8PZzrvLTwdTugtx9XOOUcjRw46uyIxMI1gWgtfqO-e4xAx53r4M6v2XiTDXUMTQoFOo-84cRPhSqN~XWfUqc9cbe83DI5XhKwnzpKLNuMvvot7DkYMPIKNBOny2GXu8XtTjITsGzkayYMiuQ_&Key-Pair-Id=APKAJLTNE6QMUY6HBC5A
Panel discussions from University of London on use of Blogs, wikis and padlet to encourage student collaboration: https://youtu.be/-6H1ITps2cc and https://youtu.be/OYnUjPxhJHI (#getintomooc)
Panel discussions from University of London on use of discussion forums: https://youtu.be/JrRKyg8nRs8 and https://youtu.be/EmtugEPQZ-M (#getintomooc)
Edx blog on optimal video length: https://blog.edx.org/optimal-video-length-student-engagement/
Tips on making effective videos for higher education: https://www.insidehighered.com/digital-learning/views/2017/11/08/creating-effective-instructional-videos-online-courses
Principles for video recording to maximise student learning: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5132380/
How to get students talking in online discussions: https://prezi.com/v/blz1z9yrhxpd/how-to-get-students-talking-in-online-discussions/
Vanderbilt guidance on use of wikis: https://cft.vanderbilt.edu/guides-sub-pages/wikis/

Research on Assessments

Bloomsbury Learning Exchange book on assessment and technology: https://www.ble.ac.uk/ebook.html
Useful advice from University of Edinburgh School of Mathematics on moving from closed book to open book maths-style assessments: https://www.jiscmail.ac.uk/cgi-bin/webadmin?A2=HEMATHSTL;22fd5149.2004
Assessment that vary from traditional. Introduce VARK model: visual, aural, reading/writing, kinaesthetic (https://journals.sagepub.com/doi/pdf/10.1177/1521025116634104)
Graded journals to help transition students and provide support (https://journals.sagepub.com/doi/pdf/10.1177/1521025116634104)

Students need to remember that they cannot "hide in the back row" – participation is vital for there to be documentable proof of attendance. This could be in a form of anything with time stamps (discussion post, participation in polls/quizzes, etc.)
(https://journals.sagepub.com/doi/pdf/10.1177/1521025116634104)
Easy-to-read and feasible timeline of tasks will help students feel more in control
(https://journals.sagepub.com/doi/pdf/10.1177/1521025116634104)
If participation is graded (via chat rooms, discussion forums, emails) then instructors need to check them daily. (https://sk.sagepub.com/reference/download/the-sage-encyclopedia-of-online-education/i9911.pdf)
Increase student participation by making it a large part of the grade. Set min number of posts per lesson, responding to a number of posts, or students posting on specific days/topics
(https://sk.sagepub.com/reference/download/the-sage-encyclopedia-of-online-education/i9911.pdf)
Include an example of a good discussion post for students to know
(https://sk.sagepub.com/reference/download/the-sage-encyclopedia-of-online-education/i9911.pdf)
Using social media within assessment shouldn't be used as an add on but rather enhancing the learning material (https://journals.sagepub.com/doi/pdf/10.1177/2042753019899732)
Need to teach multimodal skills to meet new assessment criteria. If using blogs, there are other skills that come into play such as layout, hyperlinking, etc. which cannot be assessed by the traditional rules of essays/reports. Make such activities compulsory or else it is a lot of time and effort into blogs/social media that is not recognised (https://journals.sagepub.com/doi/pdf/10.1177/2042753019899732)
If you want students to use or create mindmaps for formative or summative assessment, or for their own study, this website with mindmap tools may be useful:
https://alternativeto.net/software/mindmaps/
You can help your students develop their referencing skills using tools like Refme (https://refmewebsite-ui.herokuapp.com/#/) or https://www.mendeley.com/?interaction_required=true

Limits of plagiarism tools, students will find ways around them if they really want to:
https://edintegrity.biomedcentral.com/articles/10.1007/s40979-016-0013-y (paraphrasing tools)

Value of rubrics: https://www.tandfonline.com/doi/full/10.1080/02602930902862859?src=recsys
Case for having a department policy on using Turnitin so that students and staff get used to using and have common understanding of its role: https://journal.alt.ac.uk/index.php/rlt/article/view/1273
Value of frequent low stakes practice assessments: https://www.edutopia.org/video/making-low-stakes-practice-tests-more-effective

Useful panel discussions from University of London on plagiarism checking software:
https://youtu.be/uu15eX8IfJA and https://youtu.be/dik98C4Kawg (#getintomooc)

Useful panel discussions from University of London on peer review: https://youtu.be/nOF9kBckl1Q and https://youtu.be/E_uiYA3MENg (#getintomooc)

Getting students to write quiz questions: https://www.lifescied.org/doi/10.1187/cbe.19-09-0189

Research on oral feedback:
https://www.tandfonline.com/doi/abs/10.1080/0969594X.2020.1748871?journalCode=caie20

Allowing students to choose their own assessment:
https://www.tandfonline.com/doi/full/10.1080/13562517.2020.1742680

Using audio peer feedback: https://onlinelibrary.wiley.com/doi/full/10.1111/jcal.12363

You may need to vary how you give feedback to cover needs of different students: https://journals.sagepub.com/doi/abs/10.1177/1469787419872393?journalCode=alha#articleShareContainer

Multimedia projects: https://www.journalofeconomicsteaching.org/lets-make-a-movie-introducing-economics-with-a-multimedia-project/

Ideas to reduce the risk of cheating in online exams: https://smhs.gwu.edu/impact/sites/impact/files/Firmani_OCEPs.pdf

No panic guide to designing online assessments: https://steffiepf.blogspot.com/2020/03/assessments-in-time-of-pandemic-no.html

Individual peer assessment contribution for group work: https://discovery.ucl.ac.uk/id/eprint/10092391/

Research on student support

Be mindful of time zones when in communication (https://journals.sagepub.com/doi/pdf/10.1177/1521025116634104)
Asynchronous office hours could come in the form of discussion threads and FAQ's (https://www.washington.edu/teaching/topics/engaging-students-in-learning/face-to-face-office-hours/virtual-office-hours/)

Online announcements, reminders and grading rubrics are beneficial to students (https://journal.alt.ac.uk/index.php/rlt/article/view/2319/2665)
Communicating expectations, netiquette rules outlines and holding students accountable leads to fewer issues (https://sk.sagepub.com/reference/download/the-sage-encyclopedia-of-online-education/i9095.pdf)
Critical for faculty to promptly reply to emails, participate in discussions and prove weekly announcement/email to recap unit and ready the next (https://journal.alt.ac.uk/index.php/rlt/article/view/2319/2665)

9. Template: ECONxxxx - Plan for adaptable teaching and learning

Teaching and learning time (total and breakdown) 150 hours (15 credits) ? hours live ? hours asynchronous ? hours homework (formative) ? hours assessment ? hours other independent	**Learning outcomes (what should students know and be able to do by end of module)**	**Objectives for teacher and learner experience: (what do you want to get out of the term and what do you want the student experience to be like)**	**Plans for communication with students and student support**	**Assessment**

	Topic 1	Topic 2	Topic 3	Topic 4
Learning outcomes				
Asynchronous work pre-live session (what do students work on before the live session – identify what is essential to do and what can be done before or at another time) (reading, watching, doing)				
Live session (what is it most important students hear from lecturer; what is it most important students do in lecture; how check understanding)				
Asynchronous work post-live session (how embed what learnt so far; practice/apply; checks on understanding)				
Formative assessment (some submit for feedback; other practice)				
Link to summative assessment (how assess knowledge/skills)				