

## Using audio as a medium for asynchronous and semi-synchronous online teaching – a comprehensive guide (v1.1)

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This is a comprehensive guide to the use of audio in asynchronous online teaching (where students study in their own time) and semi-synchronous (where they do a continuous mix of class-based learning, group work and individual work). Topics covered are:

- A. Why use audio?
- B. Top tips.
- C. Recording and editing software.
- D. Recording interviews remotely over the internet.
- E. Publishing/sharing recordings.

Some of the details have been based on guidance provided by the [Buzzsprout](#) podcasting service. Their resources cover most aspects of spoken-word audio production and podcasting. We are still researching the following, and will add details as we come to conclusions:

- I. Automated transcription.
- II. Transcription-based editing with Descript.
- III. Remote recording on a single device.

### A. Why use audio?

The audio-only medium is well suited to some disciplines, topics and teachers, if used appropriately. The students may focus on a single stream of communication, rather than having to interpret images, text and audio in combination. Audio recordings are particularly good for students with dyslexia, and may help with anxiety, being a calm and relaxing medium (especially when supported with a transcript).

Video should not be the default medium. In many cases, only a small number of images may be required for a lecture, so you should resist the temptation to add extraneous images or bullet-point slides to pad it out into a video. You can always provide carefully selected texts and images as files to accompany an audio recording, and refer to them in the recording. Without the extra burden of preparing and editing visuals, audio is a simpler and quicker format to produce.

A well-written script, read by an expressive and interesting voice, may convey information clearly and with precise meaning. Audio adds a human and personal element to online asynchronous teaching. This helps us to overcome one of the barriers to accepting asynchronous activities as a valid and valued option: when we simply provide text, students feel less convinced that they are actually being taught by a real person; using audio we can project a greater sense of presence and authenticity into remote learning.

Podcasting encourages students to develop their listening skills and their own spoken-word abilities (following the good examples they hear in recordings). Students may also be encouraged to produce their own podcasts. Listen to the [Common Room Philosophy](#) series

for a great example from the Philosophy Department. These audio recordings of conversations between experts are especially engaging. However, recordings of groups of people speaking are less useful, as the listener finds it hard to identify who is speaking at any given time.

There is a tendency for some listeners to multitask. This might be a good thing. There is some anecdotal evidence that doing trivial physical tasks (e.g. ironing) when listening reduces stress and may help sustain concentration over longer periods. Podcasts may also be listened to when travelling, thus optimising the time available for learning. For students who have complicated or even disrupted timetables, being able to listen to audio recordings, saved to their mobile phone, is a great benefit. They listen anywhere, anytime, without the need to keep a power-hungry laptop charged-up. This is especially effective when a transcript is provided with the audio. The student may listen first for understanding, and then use the transcript to focus-in on detail, with visuals provided in addition if necessary.

Transcripts should be provided so as to support hearing-impaired students, and to comply with accessibility laws. They can be automatically generated using Word online ([watch this video demo](#)).

Also consider how your students will use and respond to the podcast. Give them clear guidance, and perhaps link it to a discussion forum or other activity.

Bryan Brazeau of Liberal Arts has used podcasting in teaching:

“I've used podcasting in IP304: Posthumous Geographies I, Underworlds. I used it because it was an easy way to get students up to speed on some of the more complex elements of Dante's underworlds while keeping the class time free for in-depth problem-based-learning activities. We did one circle of hell each week in the podcast (which was never more than 20 minutes). I would encourage students to listen to the podcasts while walking to class, or while doing the dishes, literally anything BUT sitting down at their desk. I was actually impressed not only by how many had listened to the podcasts, but by how many had absorbed the information (which often contained references to classical and medieval literature and philosophy), and how many used the information as part of their blog posts for the module. In their module evaluations, students underlined how much they enjoyed the podcasts.

This might not apply to all classes, the podcasts were optional for them to listen to, but most did anyway. They weren't tested or examined on the knowledge therein, but it was meant as scaffolding to help them have a greater and more complex understanding of the issues we were examining.... it's possible that because it wasn't linked to an assessment per se, and because there was no pressure, it was actually **more** effective (though I know that sort of flies in the face of constructive alignment orthodoxy.”

Bryan has kindly provided an [example podcast](#) for us, made with Audacity editing software and a Samson Meteor Mic (£50-£80).

B. Top tips:

Create a quiet, acoustically-dampened, comfortable recording space. Softly furnished lounge spaces can give a nice warm sound. Small bare offices will give a harsh sound. If you speak towards a window that is too near-by, the sound may rebound with a harsh effect. Use fabrics and boxes if necessary to create an ad-hoc recording booth. Simple recording booths and panels are available from Amazon for as little as £30.

Make sure your chair is not squeaky!

Some people like to record when standing up, to get their best performance. But make sure you can see your script, can change pages easily, and can pause the recording when required. A cheap book stand can be used to help position the script at the right position. Or use autocue software to display a scrolling script on your screen (lots available for all platforms).

If possible, get a good condenser mic such as the [Blue Yeti](#) (about £100), and some good headphones so that you can listen-back to your recordings – there is also a case to be made for using cheap headphones, so you can hear what it would be like in all circumstances. [Read more about mics and microphone techniques here](#). Johannes De Kamm of Foundation Studies recommends the Maono Elf lapel mic as a cheaper alternative (around £20) – “very straight forward in use and a more accessible alternative (particularly in the current cost-cutting climate)”.

Some laptops have good quality mics and sound processing built-in. MacBooks work well, but are prone to occasional clipping and pops. Set the levels carefully and experiment with positioning. Voices vary so much there is no ideal set-up that works for everyone. You might also find that your voice changes quite a lot when you are “performing”.

Mobile phones usually have very good mics and sound processing (as their main purpose is voice communication). Again, the trick is to try out positioning and settings. Editing on phones can be tricky, so you may want to transfer your recordings to a computer for more detailed editing (details on software options below).

Experiment with the position of the mic and the recording levels. 2” to 4” away from the mic is usually best. Some people benefit from a pop-screen or a foam cover.

Speak clearly and not too fast. Remember that your audience cannot see your face or non-verbal gestures. Do a test recording, and review it for clarity and pace.

Plan for minimal or no editing. You don’t have to record in one take, you can use the pause button on your recording software. Break the script up into sections, so that you can refer students to specific parts of the recording. Write your script so that there are natural breaks – this is good for you and for the students. Include [segments](#) – short sections where you change tone, summarise, answer questions from listeners etc.

Perhaps add brief musical interludes ([free music is available from many sources](#)) to give your listeners time to think. Using a familiar intro, with music and a “hello” from the presenter, helps to put the listener into the right frame of mind.

### C. Recording and editing software

**For Windows and Mac** the free [Audacity](#) software is the favourite. You can record directly into Audacity, easily edit, process the sound, and export. Audacity is available through the managed desktop at Warwick. A good tutorial is available from the [Podcasting company Buzzsprout](#).

Apply the following processes using Audacity for improved results<sup>1</sup>:

- **Amplify:** Your peaks should spread pretty evenly through the 1 to -1 (dB) range.
- **Equalization:** Boost the lower frequencies (anything under 200Hz) to between 10dB and 20dB. Next you'll lower the higher frequencies (anything above 4,000Hz) to between -3dB and -6dB.
- **Compressor:** Somewhere between -10dB and -16dB and preview until you're happy

**For iPhone and iPad** the Twisted Wave app is popular. It includes editing tools and processors (inc. amplify, normalize, EQs, peak limiter, filters).

**For Android based devices** try the Lexis Audio Editor.

Files should then be exported as .mp3 format at 96 kbps CBR for mono, or 128 kbps CBR for stereo (go higher if you need higher quality for special purposes).

**Portable MP3** recorders are another option, especially useful if you do not have a permanent recording space, or want to record at conferences or in other locations. They record onto SD cards, which may then be transferred to a computer for editing. They often have good quality microphones, which can give good results if used well. I have used recorders by Zoom, Edirol and Roland, all of which are reliable and effective.

#### D. Recording interviews remotely over the internet

This has proven to be a great format for academic work. But conducting and recording an interview over the internet, with good quality audio, is not straightforward. Give the interviewee guidance on their own set-up, based on this document.

You might find that it is best to conduct the interview using a video conferencing such as Teams. Seeing each-other's non-verbal cues makes it much easier. Plan the interview together first. The plan may be shared as a document, visible to both parties during the interview. You might also share supporting visual resources, such as diagrams and texts, to help focus the conversation.

For best audio results, each person should wear headphones and record their own audio separately on their own device (use the same settings if possible to match the audio quality). Then combine the two files into one using Audacity, adjusting volume and quality to match.

#### E. Publishing/sharing recordings

There are three different ways in which we can provide access to audio recordings:

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<sup>1</sup> From Buzzsprout

1. Podcasting with downloadable files played on a podcast app – ideal for supporting students to listen wherever and whenever they are.
2. Online audio players embedded into web pages – ideal if you want to put the audio into the context of text and online activities such as quizzes, and if you want to monitor student progress.
3. Cloud based file stores – a quick and simple technique that allows students to download audio files as needed, or have them automatically synchronised for offline use.

Details for each of these and how they are supported at Warwick are provided below.

## 1. Podcasting

Podcast listening apps are available for all computer platforms and mobile devices. These apps are used to “subscribe” to podcast series – audio recordings published in sequence over time through an online channel. Apple devices come with an app called Podcasts (previously part of iTunes). These apps help users to know when new recordings are released, keep track of progress, and manage downloads. **Podcasting is ideal for supporting students to listen wherever and whenever they are.**

The process works as follows. The podcast publisher uploads audio recordings in the .mp3 file format, to a publicly accessible online location. The system on which the recordings are hosted needs to automatically provide an updated RSS feed that describes the available files (as a .xml file). The url for that file, and the files themselves, must be publicly accessible (not password protected). The listener uses the url to subscribe to the podcast series using their podcast listening software, which then allows the listener to play recordings whenever they want, and if required (and this is the key feature), download the files to the device. The podcasts may then be listened to at any time, even without an internet connection. When new podcasts are added to the series, the listener is notified.

Podcasts of this type are popular with students, as they offer greater flexibility.

Most teaching platforms, such as Moodle, do not allow podcast listening software to access audio files that are uploaded to courses, which are protected behind an authentication system, requiring the user to sign-in to access them. Moodle can be used to list and play available podcasts (using an RSS block), but not to automatically download files for mobile use.

At Warwick, the Sitebuilder web publishing system includes a podcasting type page that may be used with podcast listening apps. Create a new page of type Podcast. Add permissions to the page that allow anyone to access it. Upload audio files when they are ready, include a link to a transcript file in the description.

Commercial podcasting and audio platforms exist, such as Buzzsprout and Soundcloud. They have not been “approved” by the university, but can be used for content where security is not an issue. No support is available for this from IT Services.

## 2. Online audio players

Many systems allow for embedding audio files.

In Moodle, we can add short audio files into any block of text. This may be done by uploading an audio file. Or audio may be recorded directly into the page using a feature in the Moodle editor. Be sure to provide a text of the audio, so as to comply with accessibility law. **This approach is ideal if you want to put the audio into the context of text and online activities such as quizzes, and if you want to monitor student progress.**

Students can download audio files individually to their own device for off-line listening, but there is no option for automated synchronisation.

Audio files may also be attached to Moodle Forum posts. Add the transcript to the body of the forum post. If you create a forum specifically for this task, and enable RSS, a block may be added to the homepage of your Moodle (on the right) displaying all of the latest recordings. The Moodle Forum email notifications system may be used to alert students when new audio files are added. However this cannot be synced to podcast listening apps for offline listening on mobile devices.

### 3. Cloud Based File Stores

A quick and simple technique that allows students to download audio files if they want to.

#### **Microsoft Teams**

In Microsoft Teams, we can share audio files in the Files tab of a channel. Audio messages may also be recorded into messages in the Posts tab. Use the Teams @ notifications system to tell students that a new recording is available. Remember to provide a transcript.

Files may be downloaded individually by the student for off-line listening. It is possible for students to access Teams files through the OneDrive app, and set-up automatic download and synchronisation of whole folders. However, this seems to be quite tricky to get right.

### Resources

- The Podcasting Book <https://chrishuskins.com/podcastingbook/>