

## Recommended equipment for lecture recordings using Panopto

For a basic lecture recording, please download the Panopto **manual recorder**. The manual recorder works on both Mac and Windows. You will need a laptop (with MS PowerPoint) and a USB microphone.

To download, visit [help.it.ox.ac.uk/replay/downloads](http://help.it.ox.ac.uk/replay/downloads)

If you want to schedule recordings in advance or schedule in multiple rooms, you will need to download the **remote recorder**. This is only available for Windows. The recording computer will also need a USB Microphone attached.

To download this, visit [help.it.ox.ac.uk/replay/downloads](http://help.it.ox.ac.uk/replay/downloads)

You will need to setup a **WebLearn site** and be able to integrate Panopto with this. Replay Lecture Capture recommends that a new WebLearn site is set up for each individual course. You can then add the Replay link to the WebLearn site by going to Site Info > Manage Tools > Replay plugin button.

## Computer equipment

- PC (Windows 7 or 8, Core i7, 8GB RAM minimum, USB 3.0) - see Mac limitations listed under non-recommended equipment/software.
- Microsoft Office 2014 (PowerPoint) or later

## Microphones (for recording audio + slides)

- Low-budget microphones:
  - MXL ProCon Series AC-404 -<http://www.mxlmics.com/microphones/web-conferencing/AC-404/> - approx £70
  - Samson USB-1 boundary microphone – approx. £70
  - Easy to use plug-and-go solution: Beyerdynamic MPC 70 USB boundary mics; can be configured to be permanently switched on, once plugged into the PC, as well as a switch to provide +10dB more gain, so they'll pick up the lecturer's voice even when they wander well away from the microphone
- Higher-budget microphones:
  - Sennheiser EW112p G4 microphone set - approx £500 (provides much better-quality audio, but is more expensive and trickier to use (must be passed between speakers, probably requires an AV staff member on hand))

## Cameras (for recording video as well as audio + slides)

- Manual cameras:
  - Any camera with HDMI or SDI output, as budget dictates. This could be a professional Sony PXW-Z90 camera. New cameras are released constantly, and the Replay Team can advise on the best solution for your budget.
  - Webcam - either the built-in webcam of a monitor or laptop screen, or an external USB webcam such as a Logitech C920E (approx. £150)
- Automated cameras:
  - Automated cameras come in different shapes, sizes, resolutions and cost. Depending on the size and angle of your lecture theatre you may wish to look at a variety of cameras.
  - Network IP cameras. These transmit video over the network via an Ethernet cable. They can also be powered over the same Ethernet cable, and can be easily controlled from a remote

location. The recommended brand is Axis ([www.axis.com](http://www.axis.com)) and there are various models depending on your budget and needs. Contact the Replay team for the latest advice, but expect to pay between £500-800.

- Remote pan-tilt-zoom (PTZ) camera. We recommend either the Panasonic AW-HE38 (approx. £2500, HDMI & IP) or AW-UE70 (approx £4000, HDMI or SDI, & IP). This is a more expensive option than an Axis camera because of the PTZ functionality, whereby the angle and focal length of the lens can be adjusted. The quality is also higher than Axis cameras. A good option for large teaching spaces.

If using a camera, we recommend connecting it to an additional Windows PC of the minimum spec (possibly at the back of the room), and to use the Panopto remote recorder instead of the manual recorder. The remote recorder can be installed on both the back PC and the presenter's computer, and synced to deliver a single recording from both streams. Attaching a camera directly to the presenter's PC is usually difficult due to long trailing cables through the audience area, and will place more strain on the presenter's processor during the presentation, making the computer more likely to crash.

## Cables and connectors

Required when using HDMI or SDI cameras:

- Magewell XI100DUSB converter Version 2 – available in HDMI or SDI versions, and allows you to feed a camera with one of these outputs into a USB socket on a PC or Mac. Approx £250.
- Basic HDMI cables (try not to use greater than 30m – if you need to run a very long length, consider a Startech USB to CAT5 converter, and run the length as Ethernet). Consider the trip hazard of running a long length of cable from a camera at the back of a room to a computer at the front. SDI cables can be run for up to 60m.

## Non-recommended equipment

The Replay team has found that the following equipment/software does not work optimally, for the reasons given:

- Blackmagic Ultrastudio Mini recorder - this is appealing due to its low cost, the fact that it can be powered via a Thunderbolt port, and because it has both SDI and HDMI inputs. But we have noticed a significant lag (> 1s) between audio and video when using it with the Mac recorder. Panopto support has confirmed this as a bug, but do not know if it will be fixed.
- Logitech C930E webcam – Cardiff Law School reports this has an auto-focus bug, and the older C920E model is a better option as of July 2014.
- Revolabs xTag lipstick microphones – we found these to be very quiet and extremely poor quality when used with Replay. Avoid.

This list is extensive, but a little overwhelming. It contains Panopto recommended kit as well as equipment recommended by customers: <http://support.panopto.com/equipment>