

Quick Start Guide

Home Studio Setup

Center for Digital Education (CEDE)

Feedback and Support: flexible-teaching@epfl.ch

More information: <https://go.epfl.ch/flexible-teaching>

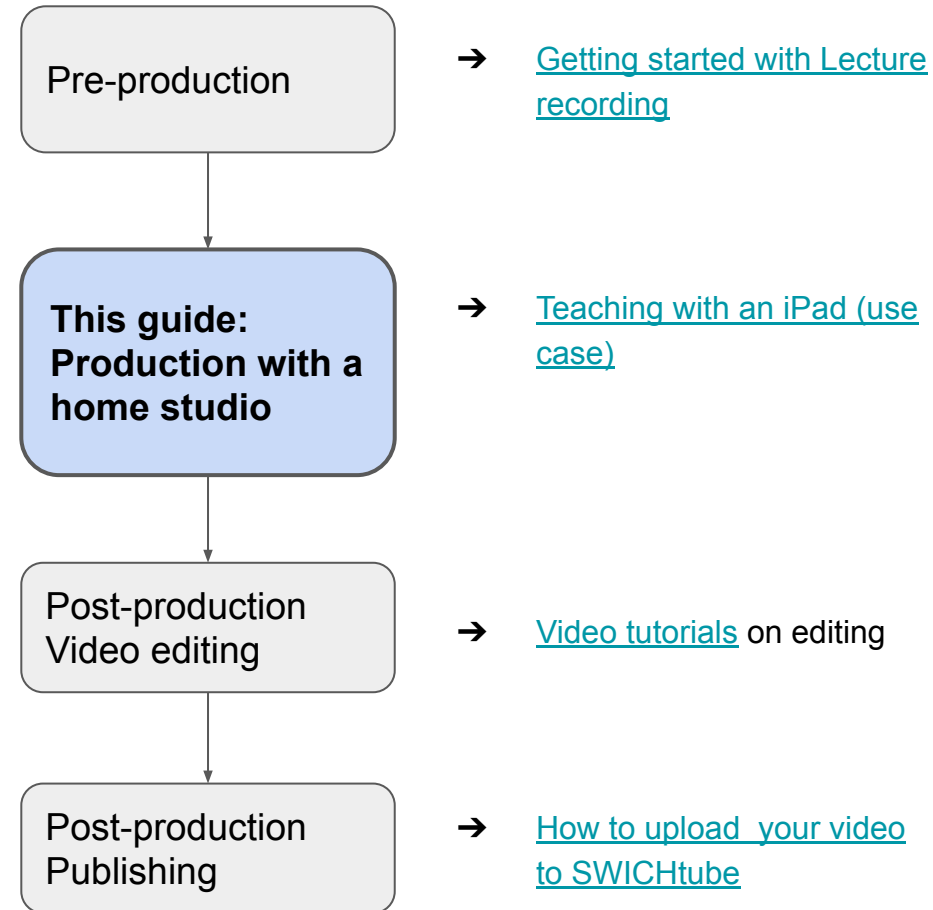


Record a lecture at home. Possible? Yes !

The purpose of this document is to help you record your lectures with the material you have at home (or with a minimum of purchases)

This document is structured in 3 parts

1. [Hardware](#) setup depending of your computer environment.
2. [Software](#) setup to explain the different settings needed to achieve a good quality recording
3. [Good practice](#) for location and recording setup



How pre-recording differs from “emergency” live teaching.

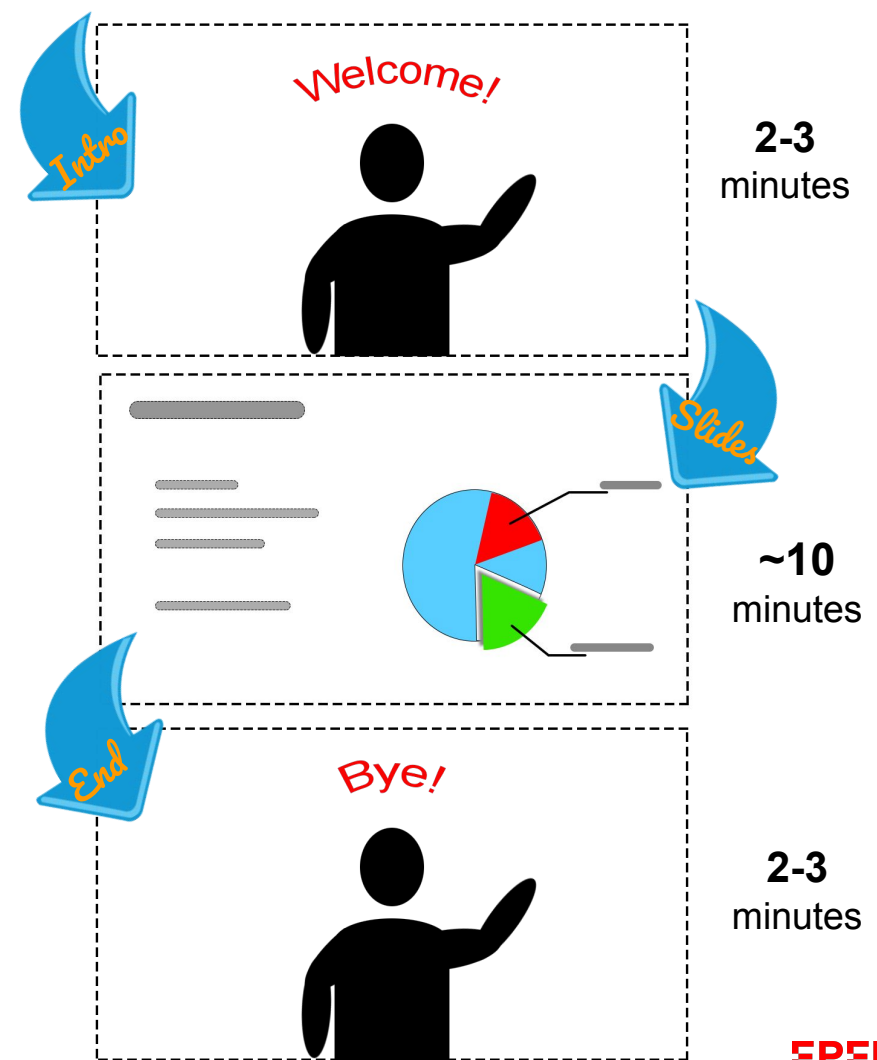
We are building on your past experience using ZOOM to teach online and propose a few modifications in the setup to enhance the quality of the result.

| | “Emergency” Live teaching | Pre-recording |
|----------------------|--|---|
| Time pressure | High, live audience | Low, you can take your time |
| Typical video length | 45’ | 15’ |
| Video quality | Low when recorded to the cloud | High when recorded locally (See software settings in this guide) |
| Audio | Some teachers did not have a good microphone | Better quality with a dedicated lapel microphone |
| Possibility to edit | No | Yes, using Adobe Rush (see video tutorials) |
| Software | ZOOM | ZOOM |

What are the components of a video lecture ?

A typical video lecture contains 3 parts









- An **introduction** presented in front of the camera, where you introduce the topic, set the context and explain the learning objective (think, “after this video you should be able to ...”). This part takes typically 2-3 minutes.
- The **content**, slides that illustrate your content with annotations (using a tablet with stylus or powerpoint with laser pointer). Your image does not appear. Ideally this part is 10 minutes.
- A **summary** of your lesson presented in front of the camera where you mention the key points and next activities. This part takes typically 2-3 minutes.



Hardware





Four options

We have tested **four different hardware options**.
Choose the one that suits your needs and available tools the best.

| |  |  |  |  |
|---------------|---|--|---|---|
| | Computer only | Computer + iPad | Tablet only | |
| | | | MS Surface | iPad |
| Advantages | Easiest to set up | Good overall combination | All in one solution | All in one solution Best image and sound quality |
| Disadvantages | No handwriting | | Needs OS update | Needs extra editing in post-production |
| Difficulty |  |  |  |  |





Hardware requirements

Shopping list

| | |  |  |  |  |
|------------|--|--|--|--|--|
| | | Computer only | Computer + iPad | Tablet only | |
| | | | | MS Surface | iPad (*) |
| Microphone | Wired mini jack trrs: iRig Mic Lav link | X | X | X | X |
| | Wired mini jack trrs: Rode SmartLav+ link | | | | |
| | Adapter trrs->USBC(* iPad Pro 2020) link | | | | |
| Webcam | Logitech 922 link | X | | | |
| Tablet | iPad Pro (link) + Apple Stylus 2 nd gen (link) iPad Air (link) + Apple Stylus 1 st gen (link) | | X | | X |
| | Microsoft Surface Stylus link | | | X | |

We also provide a list of advanced material for those who want to push the limits! [link](#)

Software requirements

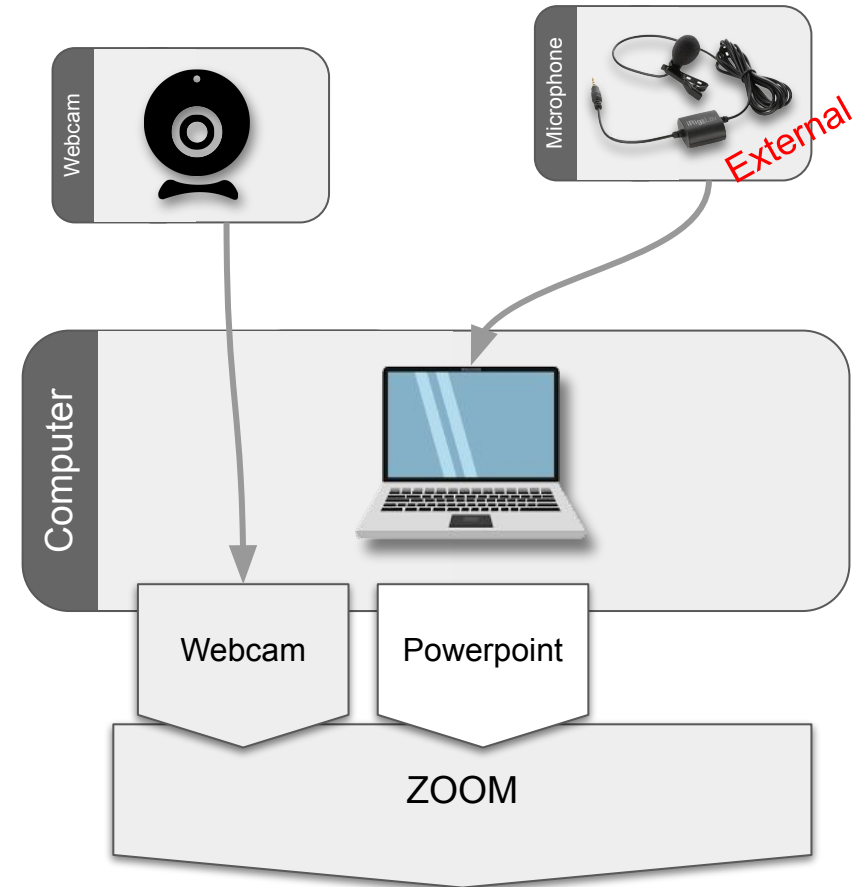
| |  |  |  |  |
|--------------------|---|---|---|---|
| | Computer only | Computer + iPad | Tablet only | |
| | | | MS Surface | iPad |
| Operating System | Apple OS MS Windows 10 | Apple OS MS Windows 10 | MS Windows 10 (Home/Pro) Needs upgrade of OS <i>(ZOOM does not work with Microsoft 10S)</i> | iPadOS |
| Recording Software | ZOOM | ZOOM | ZOOM | iPad Camera iPad Screen recording |
| Screen recording | Through ZOOM app | Through ZOOM app | Through ZOOM app | Directly on the iPad |
| Handwriting | No | Goodnotes <i>(on the iPad connected by Airplay)</i> | Powerpoint (or Xodo) <i>(for handwriting)</i> | Goodnotes <i>(on the iPad)</i> |



Computer only

Principle

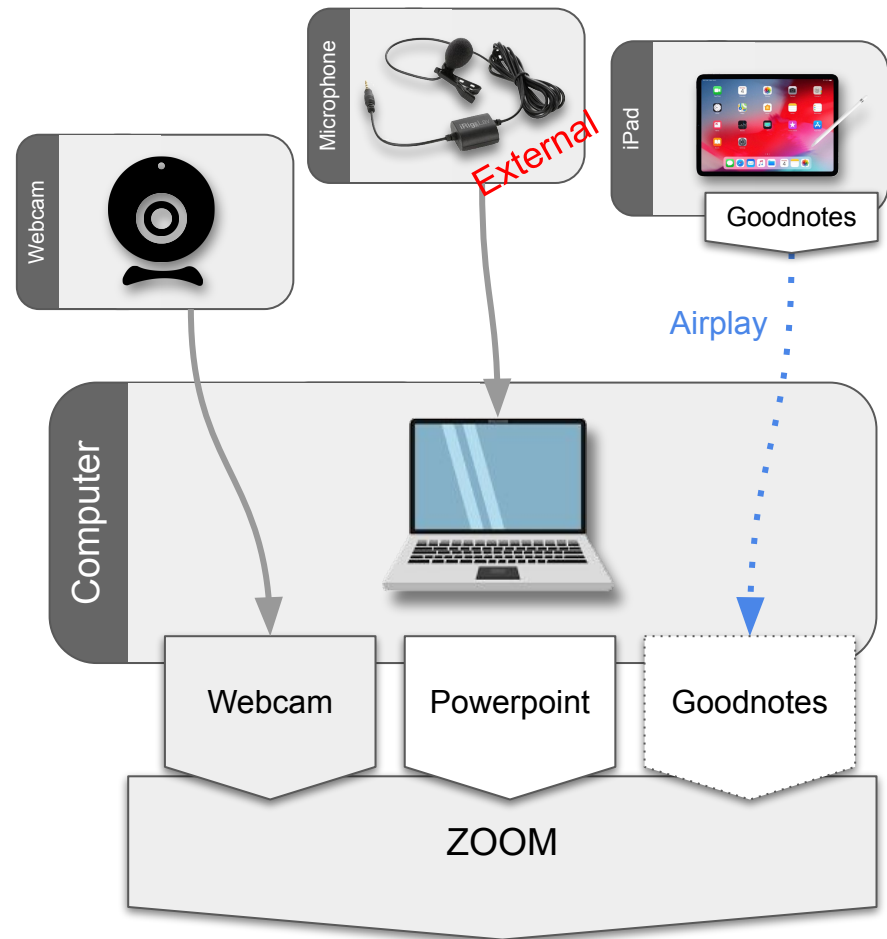
- This is the simplest setup used to record the screen of your computer. You cannot annotate or handwrite. To compensate for less presence, use your mouse to draw attention of students.



Computer and iPad

Principle

- You connect the iPad to your laptop (or desktop) via “airplay”. This wireless connection is available for both Apple and Microsoft computers within Zoom.
- Allows to switch from powerpoint slides or any application on the laptop to handwriting on the tablet.
- Facilitates post-production (editing) because all sources (slides, camera, and iPad) are in 16:9 format without seeing annotation tools or transitions (see next slide).



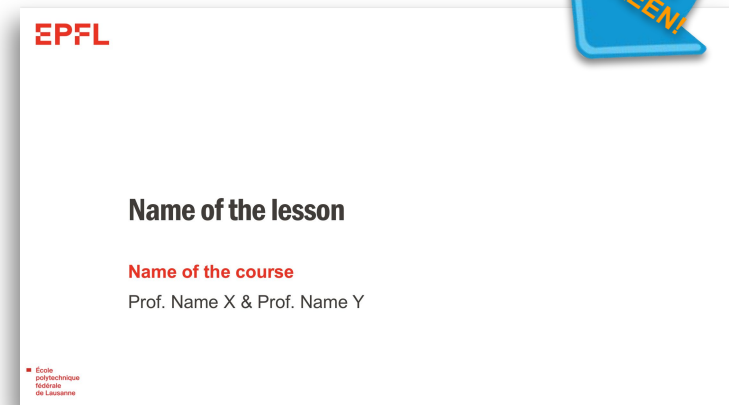
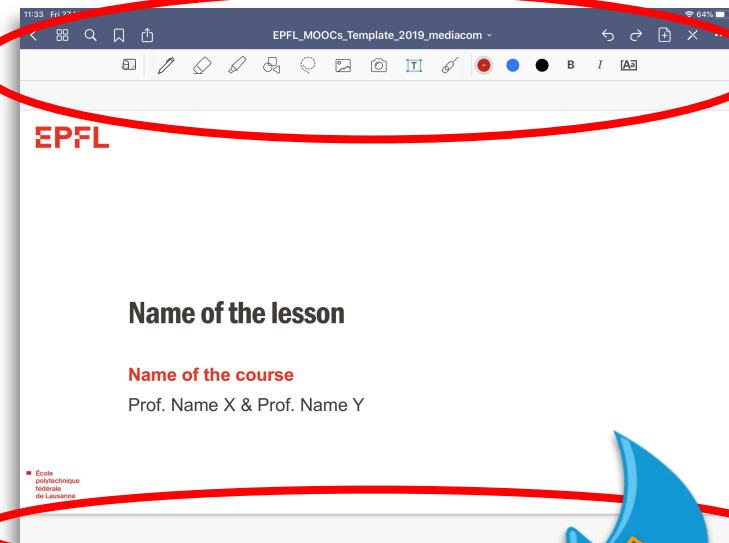
computer + iPad

Share your iPad screen with AirPlay

Connect your iPad via Airplay (not with a cable)

Doing so will allow Goodnotes to send only the slide to Zoom without clutters on screen (**the tools and other things**). It will also keep the screen ratio of your slides (should be 16:9) and this will match your HD video recording of your webcam in 16:9

To achieve this you need to have your computer connected to the same WiFi as your iPad. (it will not work on the EPFL Campus, because Laptop WiFi and iPad WiFi are on two distinct range IP). In this case you will need to use a USB cable to connect your iPad, thus without the benefits of the Airplay.

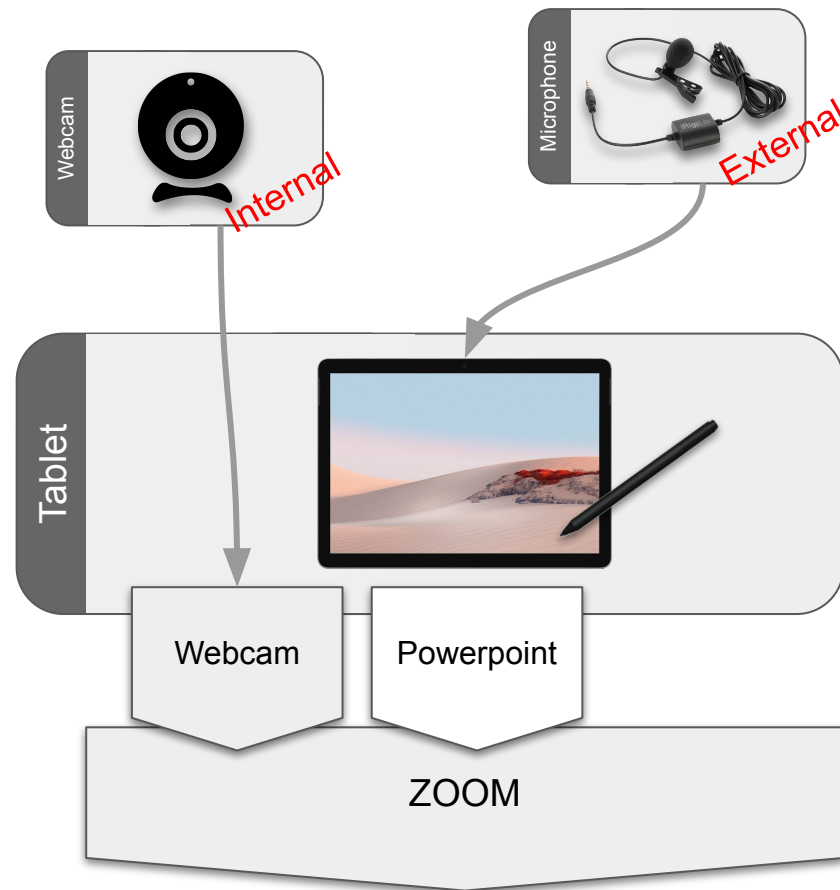
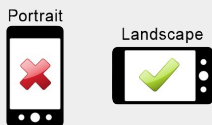


Tablet - Microsoft Surface

Principle

- This solution also works well for handwritten content as **blackboard replacement** (use the free application Xodo for MS Surface)
- Using a tablet computer (MS Surface) allows to annotate **Powerpoint** or PDF files with a stylus.
- The disadvantage is that you have to switch the tablet from a writing position on the table to the webcam compatible position when recording yourself. (*)

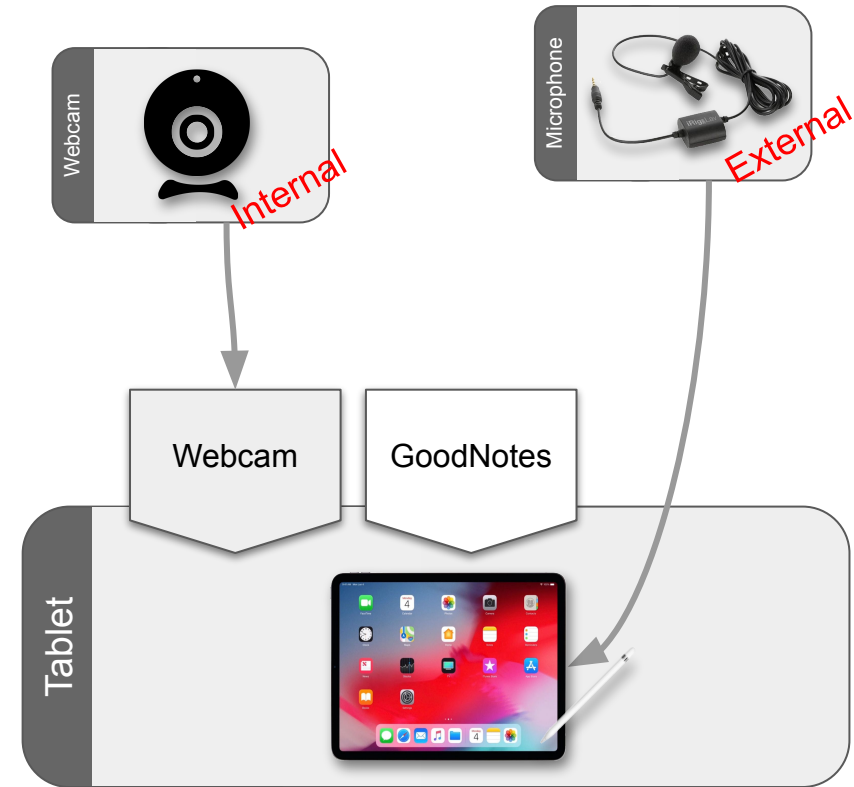
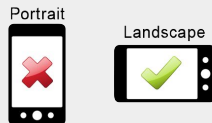
(*) **Reminder:**
Please let your tablet record in landscape mode!



Principle

- This solution also works well for handwritten content as **blackboard replacement** (use Goodnotes for iPad)
- Using an iPad allows to annotate **PDF** files with a stylus.
- The disadvantage with the iPad is that you will need to record using 2 different methods
 - Use camera software to record yourself (*Introduction and Summary*)
 - Use internal screen recording (with sound) to record your handwriting and speech (*Slides content*)
- Also you have to switch the tablet from a writing position on the table to the webcam compatible position when recording yourself. (*)
- The big advantage will be a pristine video quality without ZOOM codec compression and an excellent audio!

(*) **Reminder:**
Please let your tablet record in landscape mode!



Software Setup

Do only once to get started



Setup Zoom application

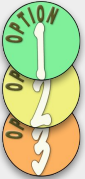
To achieve a good recording you need to setup the Zoom application with those options:

Go to Settings (leave settings by default if not mentioned otherwise)

- [General](#)
- [Video](#)
- [Audio](#)
- [Recording](#)

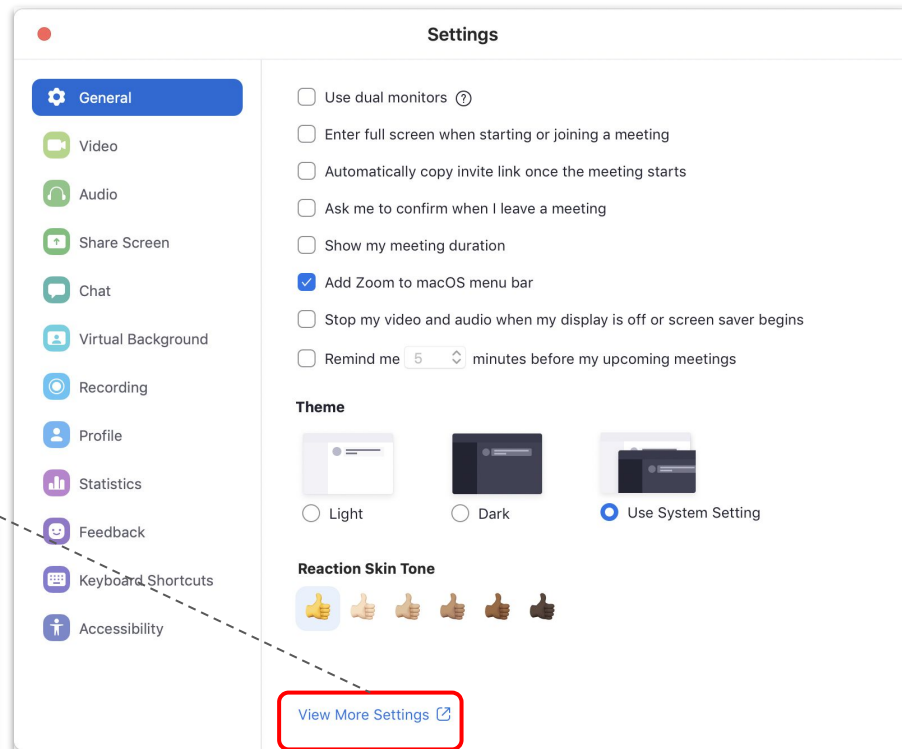
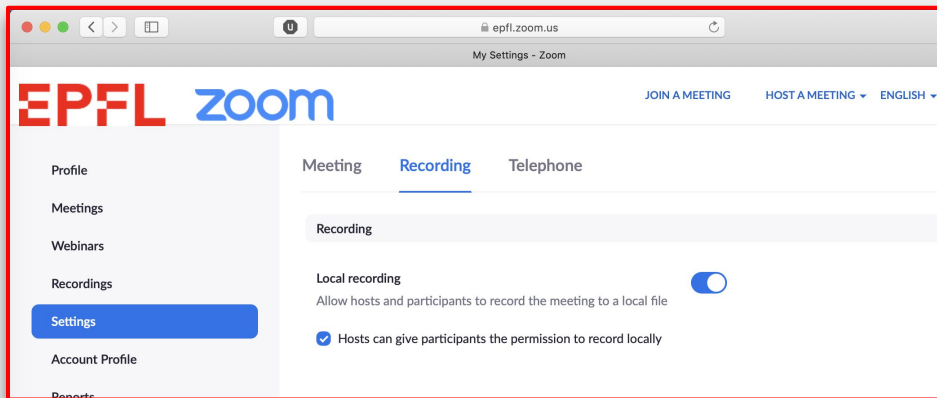
ZOOM is available [here](#)

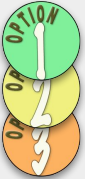




Setup Zoom application

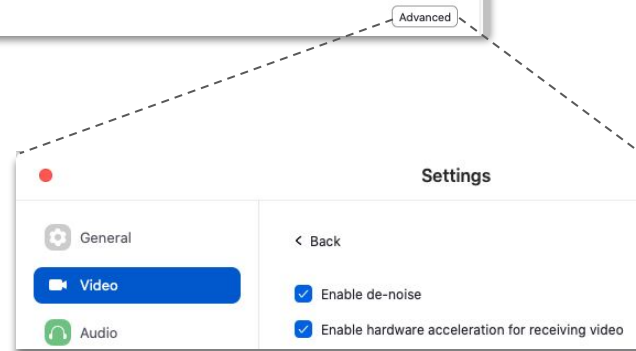
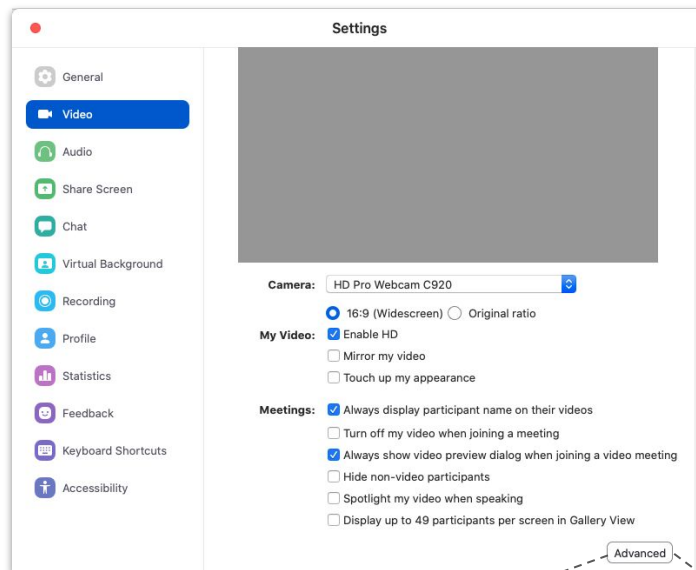
- Select the “General” tab
 - Go in More Settings
 - Select Recording
 - Check that Local recording is allowed

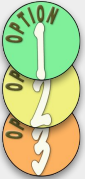




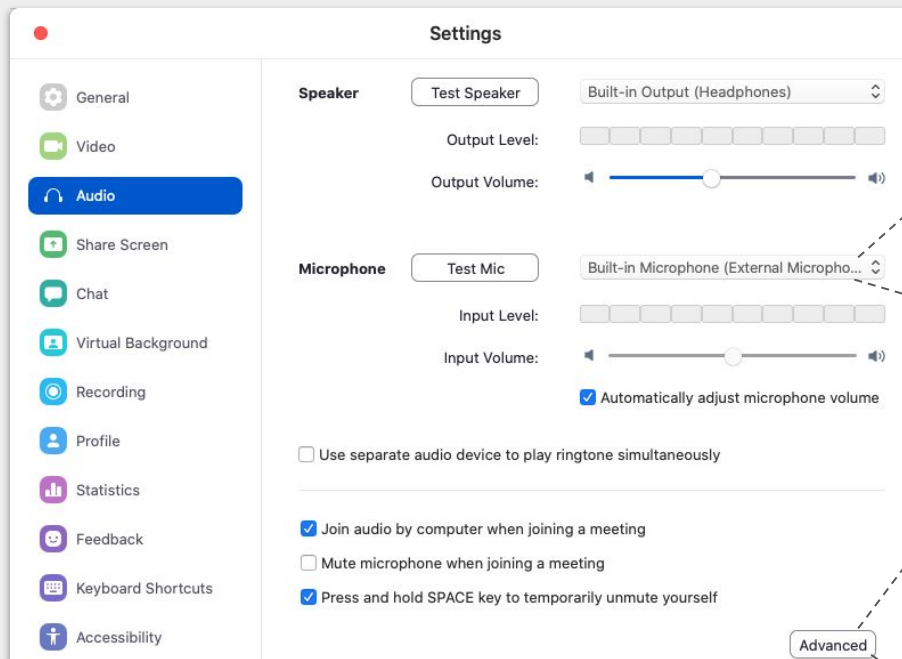
Setup Zoom application

- Select the “Video” tab
 - **16:9**: this format makes sure that you have a slide and webcam format that match. If you use 4:3 the webcam might be cropped left and right.
 - **Enable HD**: this setting ensures best video quality. However, this works only with **local recording**.
 - **Advanced**:
 - **Enable Denoise**. This setting allows zoom to get rid of small visual noises that stem from your Webcam (e.g. poor lighting)





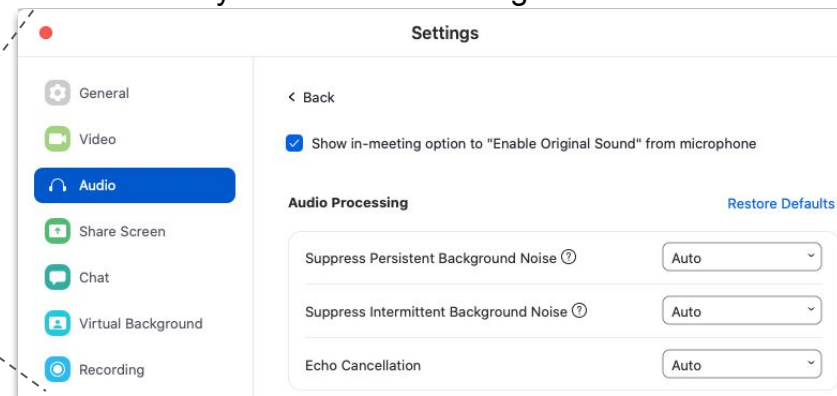
Setup Zoom application



- Select the “Audio” tab
 - Select your external microphone

Same as System
HD Pro Webcam C920
✓ Built-in Microphone (External Microphone)
Soundflower (2ch)
Soundflower (64ch)

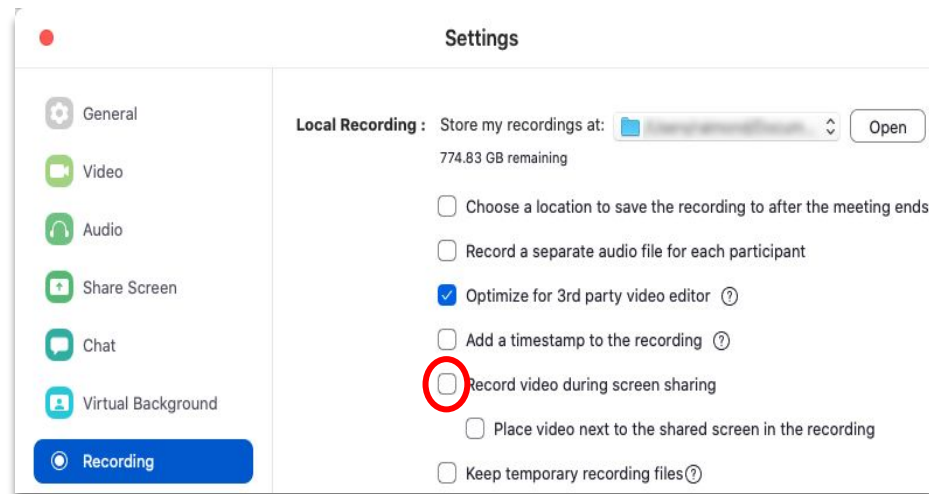
- Check that your advanced settings are set as below



Setup Zoom application

→ Select the “Recording” tab

- ✔ **Optimize for 3rd party video editor:** This will allow for editing the video in post production later
- ✘ **(unselect) Record video during screen sharing:** If this option was selected your sharing screen (your slides) would be scaled down and recorded with your front camera on the side. This is not what we want. We want to have your slides in full screen only for best quality viewing.



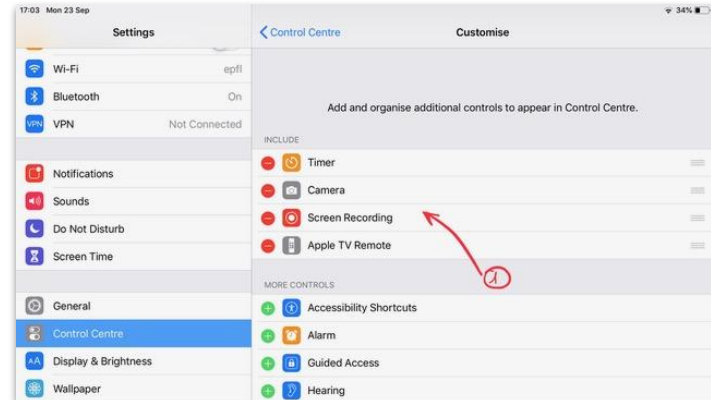
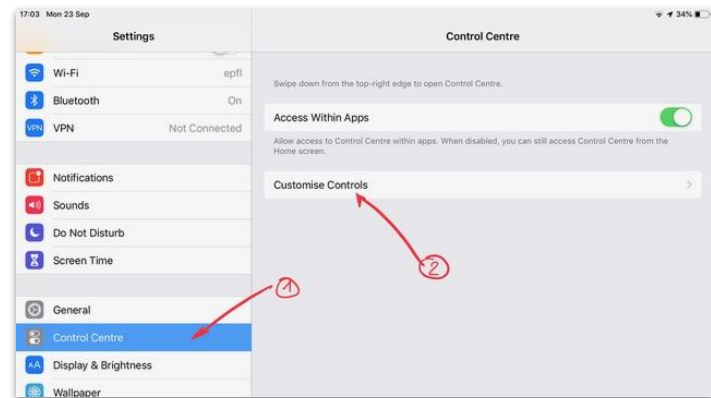
Setup iPad recording

Be sure that you have the latest iPadOS installed. (*At least version 12.0*)

- Go into **Settings**
- Select **Control Center** (1)
- Select **Customise Controls** (2)

If you never did it before, the Screen Recording option should be listed down inside the **More Controls** list.

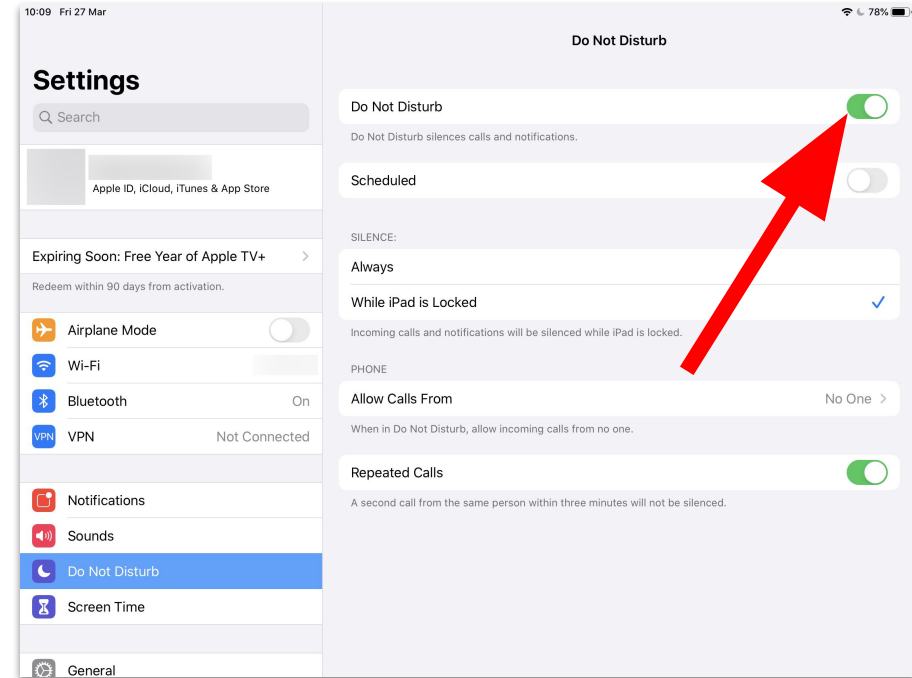
- Include **Screen Recording** (1)



Setup iPad recording

You don't want to be disturbed during a screen recording with pop up appearing from other application alerts.

Before a screen recording it is a good thing to always place your iPad in **Do Not Disturb** mode



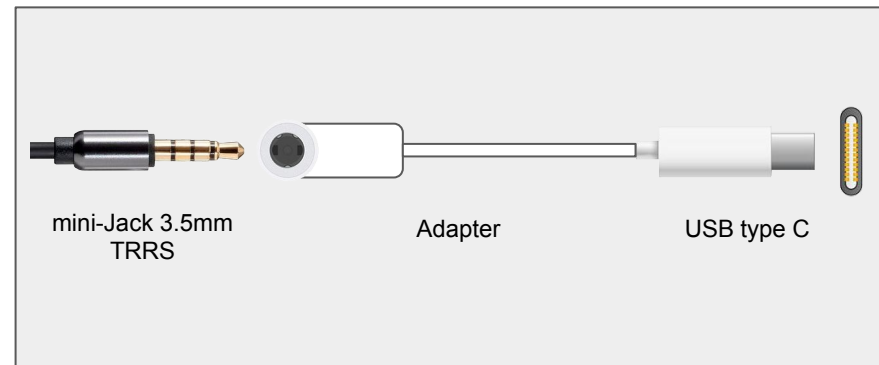
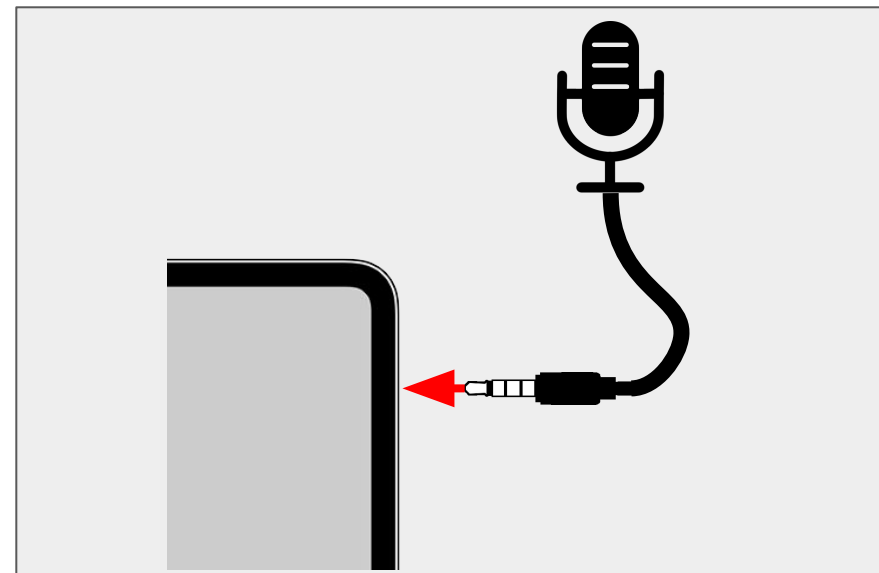
Software setup
Every time you record

Control your microphone

Before any recording it is a good practice to always control that your microphone is correctly placed on your collar and well connected to your device.

See tips about microphone placement [here](#)

Be aware that some device (new iPad Pro) need an adapter to connect the lapel microphone [mini-Jack to USB-C](#) connector.





Importing your PDF into your iPad using Email

The simplest way to transfer a document to your iPad is to use email (you need to setup email on your iPad).

1. Export your powerpoint to a PDF on the laptop
2. Attach your PDF to an email and send it to yourself
3. Open your email on your iPad
4. Open the file with GoodNotes app

Tips: If needed, you will find more info about GoodNotes [here](#)



Share your iPad with AirPlay

In the ZOOM application

- Click on Share Screen
- Select iPhone/iPad via Airplay (not with cable)

When using this option for the first time, ZOOM will add the AirPlay plugin directly to your OS (Apple or Microsoft)

- Click Install
- Then follow the instructions on screen and go on your iPad.

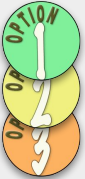


Share your iPad with AirPlay

On your iPad

1. Open your control screen (by sliding your finger down in the top right corner of the screen)
2. Select Screen Mirroring
3. Select the ZOOM option
4. Now your screen should be mirrored into your computer Zoom application





Start the Recording

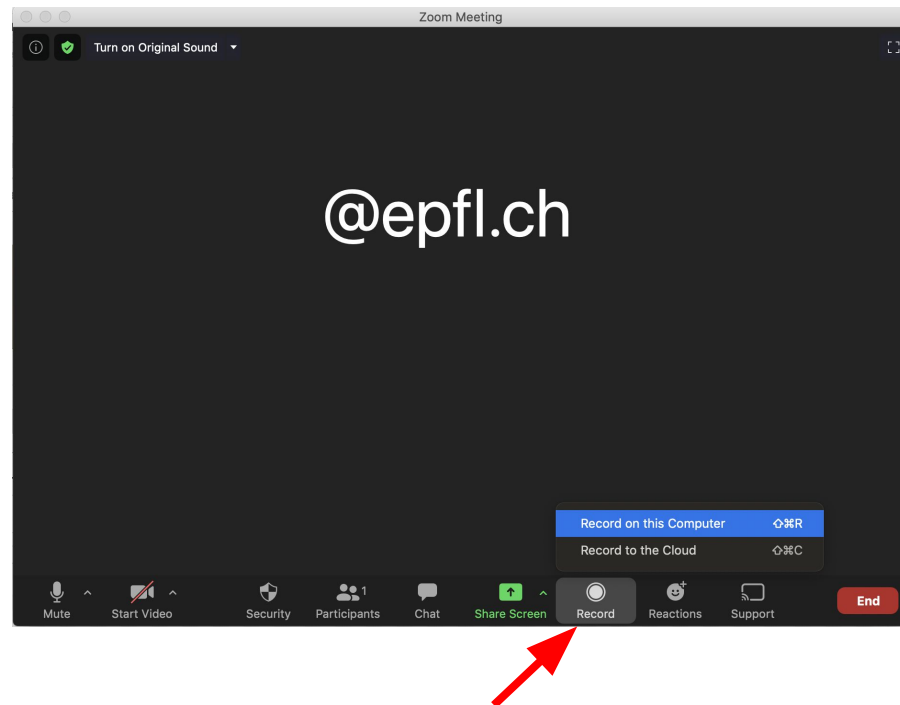
To start a recording using the application Zoom, click on the record button and select **Record on this Computer**

Important note:

There is a huge benefit to record locally over the cloud recording.

The cloud recording will compress your video to a 640x360 pixels screen size only. This is too small for a comfortable reading of information on slides.

On the contrary a Local recording will have a definition of **1280x720** pixels.



Start video Recording

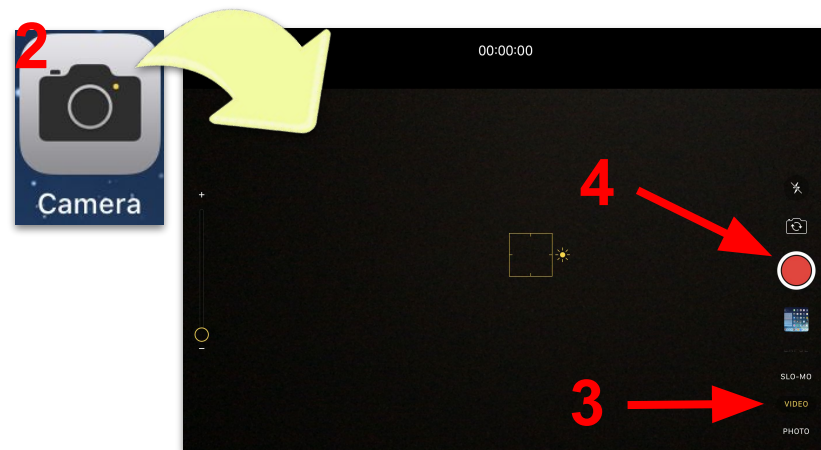
iPad only

To start recording yourself, for an introduction or summary, using your iPad you need to :

Plug your external microphone into the iPad (using an adapter if you don't have a mini jack connector in your iPad Pro)

1. Place your iPad in Landscape stand-Up position
2. Launch the application **Camera**
3. Select "Video"
4. Click the red button (start recording your video)

Your video will be recorded into the Photos app of the iPadOS



4 Start slides Recording

iPad only

To start recording your slides (screen recording) you need to:

1. Launch GoodNotes
2. Slide your finger in the right corner
3. Select Screen recording (but **keep your finger pressed 2 seconds** on the icon) to let appear the audio settings
4. Choose where you want to save your video (we recommend: **Photos**)
5. Include your audio in the recording
6. Start your screen recording



Good Practice (Microphone, Framing, Lighting)

Tips for achieving best quality video recording

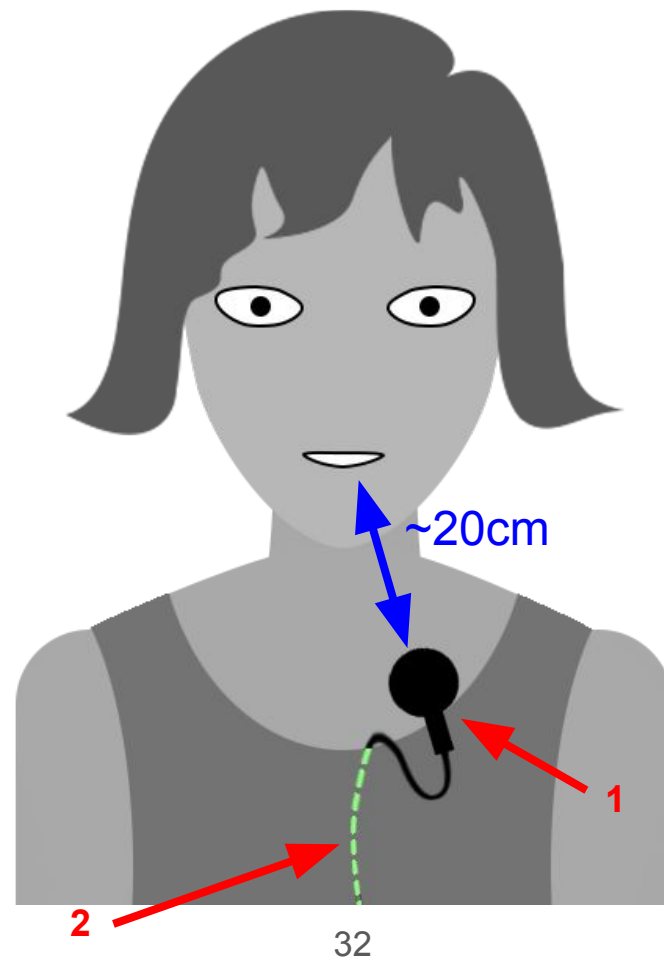
By following those few steps you will improve greatly the quality of your recording at home.

1. [Setup your microphone](#)
2. [Position your Webcam](#)
3. [Setup the lighting](#)
4. [Frame yourself](#)
5. [Mesmerize your audience](#)
6. [Sound Proofing](#)

Tips: Before soundproofing your room, choose the quietest room in your place.

Position your Microphone

1. Place your microphone on your collar pointing towards your chin
2. Hide your cable under your clothes

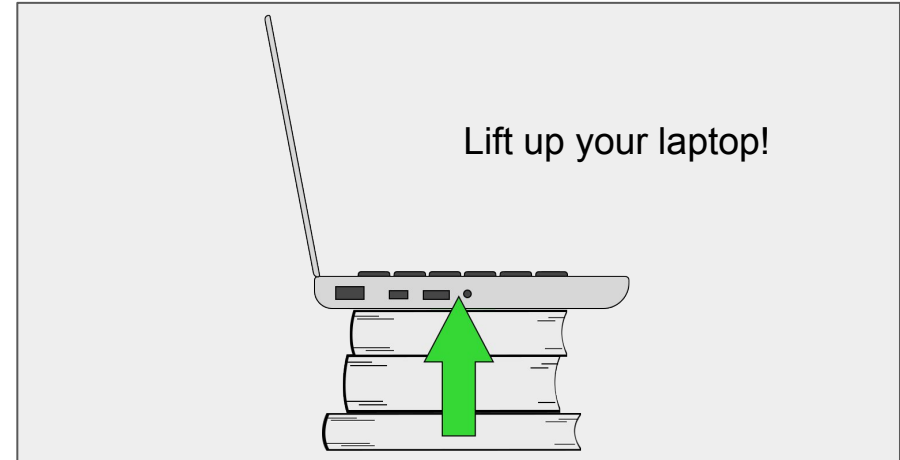
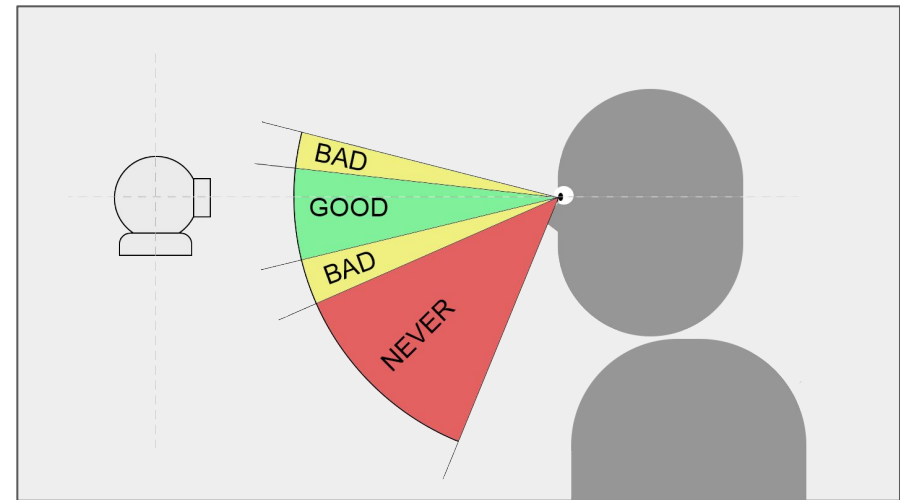


Position your camera and yourself

Place your camera in front of you at **eye level**

(don't place your camera too low, you don't want to film your nostrils) 😊

Tips: As a simple “tripod” replacement you can place some books under your laptop.



Setup lights

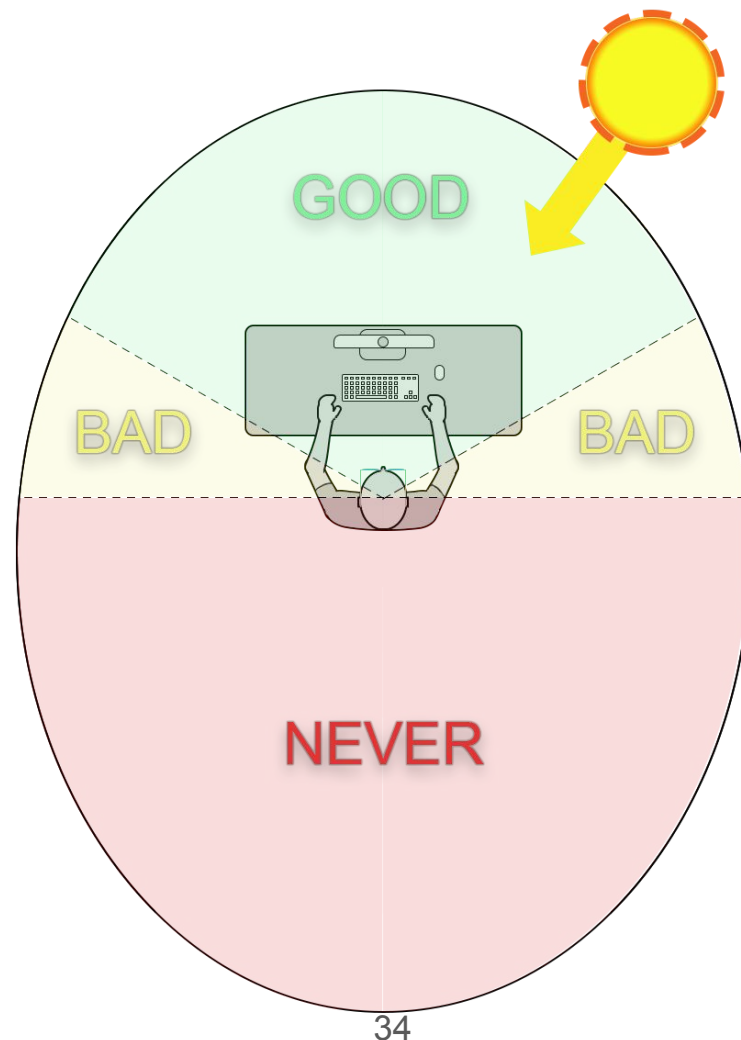
Place yourself with a light source in front of you.

You could have a main window with sunlight or one (or multiple) desk lights in front of you(1). But no strong light (or windows) should be behind you, otherwise your picture will be too dark on camera.

Also the background behind you will affect the lighting of your face on camera. A background too dark will force the camera to compensate and over expose yourself. A background too bright will do the opposite and underexpose yourself.

This is due to the camera averaging the full screen exposition to reach a 50% grey exposure in total.

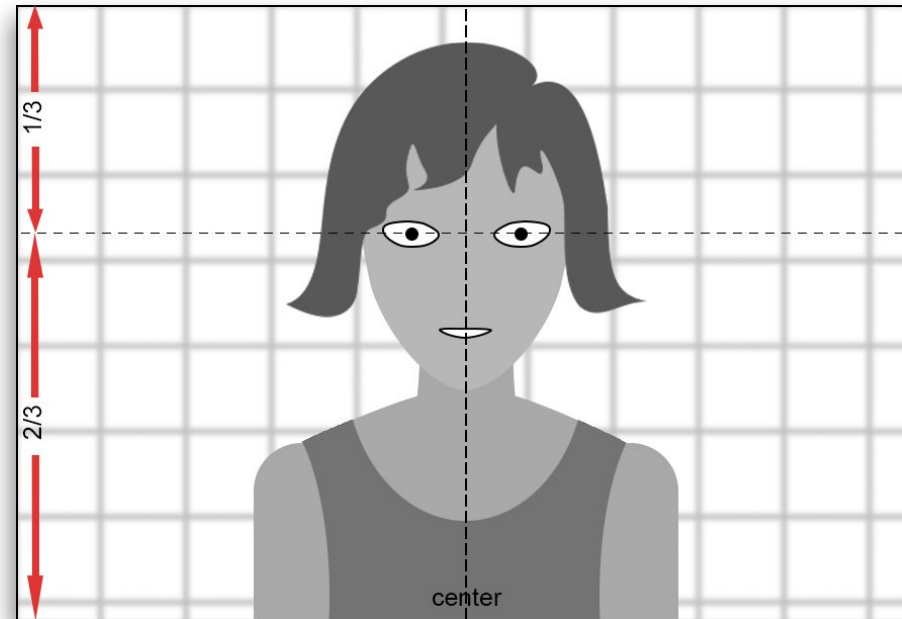
- (1) If you wear glasses you need to be careful that the lights are not reflecting into it. If so place the light a little higher.



Frame yourself

The recommended shot would be a Close Up with your eyes to be around $\frac{1}{3}$ from the top of the frame

Of course You can frame wider if you prefer, or if you need to show things on camera but your eyes should stay within the $\frac{2}{3}$ of the bottom of the frame.



Connect with your audience!

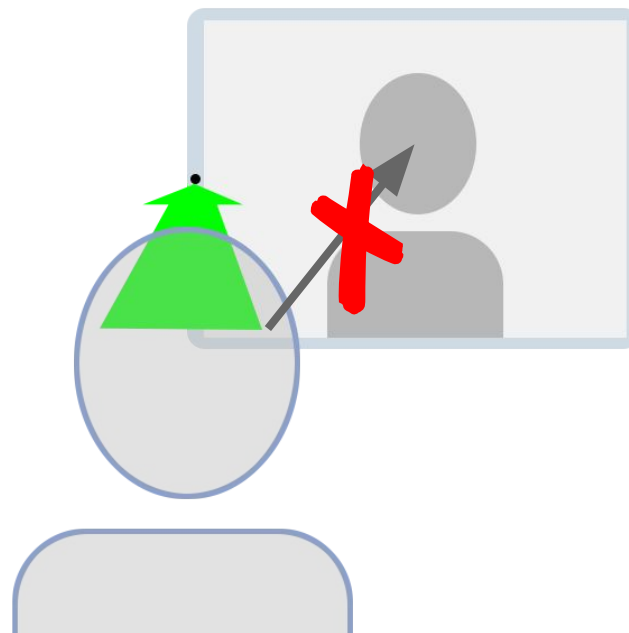
While recording in front of a camera, the most important thing to do is...

...**to always** try to **watch the camera** lens!

Do not watch yourself on the screen but focus your eyes on the tiny lens of the camera.

Doing so will help you have a nice eye connection with your audience!

Tips: after setting up your framing correctly, you can tape a paper over the screen (not the lens) to hide your face. This will remove the envy to watch yourself. You can even draw a big arrow on the paper pointing to the lens to force you remember to watch the lens.



DIY sound proofing

When recording at home or in an office, most of the time the surrounding is not efficient for good quality sound, because of windows, hard floors, desk plate, bare walls. All these surfaces have a tendency to reflect your voice and bounce it back to your microphone.

Using a Lapel microphone already improves a lot the quality of your sound but we can go one step further by doing this:

Tablet recording

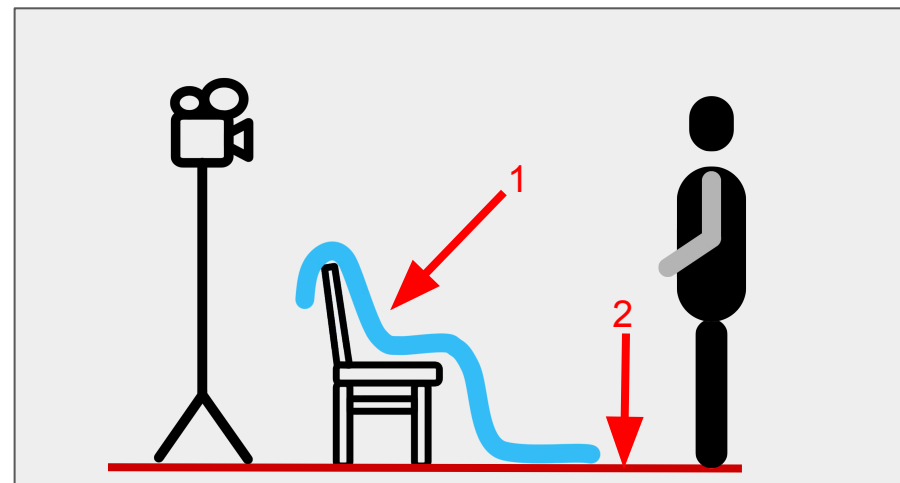
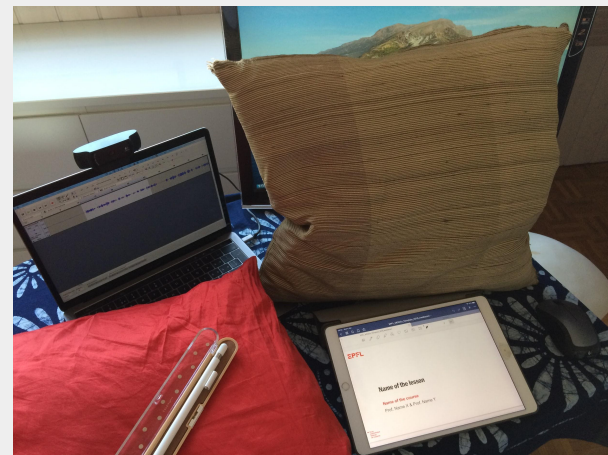
- Placing a pillow in front of you and on the side of the tablet (or computer)

Front recording

(If you are recording with a camera on tripod)

- placing a duvet or blanket over a chair in front of you (1)
- Use a carpet on the floor (2)

Simple desk sound proofing



Happy Recording !

<https://go.epfl.ch/flexible-teaching>

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Advanced shopping list

This is the (optional) advanced shopping list for those who want to explore more high-end solutions.

Pro setup (video)

- Camera (more versatile than a Webcam)
 - SONY ZV-1 [link](#) (webcam usb software coming in July 2020)
 - CANON Powershot G7X mark III [link](#)
- Tripod (optional but useful for camera)
 - MANFROTTO, Compact Action [Link 1](#)
 - MANFROTTO, Compact Advanced [Link 2](#)

Pro setup (audio)

- Record audio to an external device, e.g. your cellphone
 - Don't forget to **clap your hands**(*) at the beginning and the end of each segment
- Microphone
 - Wireless: Rode Wireless Go [link](#)
 - Adapter: Rode SC4 trs-trrs [link](#)

(*) The claps will allow you to sync your audio recording with your video recording during post production.