



## Lecture 4 - Convolution (Before Lecture)

**Prelude:** to import an audio file to Matlab, use the function `wavread` or `audioread` for newer versions. Notice that only `.wav` archives could be imported with `wavread`, however `audioread` supports many formats. `audioread` has two outputs: `x` which is the vector where the audio information is stored, and `fs` the sampling frequency associated with the `.wav` file

```
1 [x,fs]=audioread('test_signal.wav')
```

Remember always to write the extension when passing a file as an argument. Once in workspace, to reproduce the audio in Matlab, use the function `sound(x,fs)`, where `x` is the vector containing the information of the signal to be reproduced, and `fs` is the sampling frequency of the sound.

```
1 [x,fs]=audioread('test_signal.wav')
2 sound(x,fs)
```

1. Select a precinct (i.e., a classroom, a living room, etc) and record its impulse response. The recording archive must be in `.wav` format using a sampling frequency of 16000 Hz
2. Reproduce the impulse response in Matlab (Hint: use functions `audioread` and `sound`)
3. Plot the amplitude of the impulse response versus time in Matlab
4. Download the file "SyS 1 - Lecture 4.rar" from the Google Classroom of the course