WEB: Audio and Video
Sound

- Sound consists of pressure waves moving through air
- Without air, there is no sound
- Our ears are sensitive to pressure waves and transmit these signals to the brain
Periodic Sound
Clap Sound
Sound Recording - Microphones

- A microphone consists of a small membrane that vibrates
- Movements of the membrane are translated into electrical signals
- Higher pressure typically corresponds to higher voltage
Digital Audio - Analog to digital

- An audio signal is an analog (continuous) format
- The electrical waves must be converted to digital information for computational processing
- Digital recording is accomplished with an analog-to-digital converter (ADC)
- The ADC captures a snapshot of the electric voltage on an audio line and represents it as a digital number
- Capturing the voltage thousands of times per second creates a good approximation of the original audio
Digital Audio - Analog to digital

- Level
- Filling in the blanks
- Bit Depth and Amplitude Accuracy
- Clock Accuracy and Jitter
- Time
Digital Audio Playback Digital to analog

- All computers must give us analog signals to be useful
- The screen converts digital information to light
- The digital-to-analog converter (DAC) takes the sample and sets a certain voltage on the analog outputs to recreate the signal
- This voltage is conveyed to the speakers which create pressure waves in the air
Standard Digital Sound File Format

- MP3
- WAV
- AIFF
- FLAC
- Ogg Vorbis
- WMA
Audacity

- Free, open-source software that can be altered and redistributed
- Multilingual
- Easy to use
- Records live audio
- Cuts, copies, splices and mixes sounds together
- Exports to different formats (with appropriate plugin)
HTML5 Audio and Video

- HTML5 now supports audio and video natively in the web browser
- For years, it was necessary to rely on a third party to deliver this kind of content
- Now we can use the `<audio>` and `<video>`
Web Supported Audio Formats

- MP3
- WAV
- OGG
Web Supported Video Formats

- MP4
- OGG
- WebM