

DESN 275 Digital Sound Unit 1.2

Assignments: Week 2-3

- Read A Virtual Room with Reverbs on the Audacity web site. Find the link on drbraukmann
 - Review the reverb and EQ notes posted.
 - Read the two articles on monitor speakers.
- Read Ch5: Digital Audio Data, pp 72 - 85

Audacity Assignment 1: Create an MP3

You are given the assignment to create a sample sound track for the following sound only scene.

1. It starts with a typical street scene, nothing special happening: ambient sounds are typical cars, street sounds.
2. A door opens. And closes to a quiet space.
3. Footsteps are heard for a person walking slowly through a large room with hard surfaces such as stone (about 5-7 seconds).
4. Then a door is opened into a wood-paneled hallway. The very faint sound of music is coming from somewhere down the hallway.
5. This second door closes behind. The music is muted and indistinct.
6. Footsteps accompany the listener down the hallway for about 7-10 seconds while the music, still muted, gets a little louder.
7. A latch is turned and a door is opened allowing the music to be heard clearly as if the band is playing in this next chamber, along with the sounds of many people partying (5-7 seconds). This chamber has softer surfaces.
8. You need to choose your own ending for this scene.
- 9.

Tips for Assignment 1:

- Avoid footfall files that have a "built-in" room sound.
- Calculate for a large room about 100ft. square. Use reverb, delay, possibly EQ.
- As the first door closes, the acoustics change. Recalculate or guesstimate reverb delay and EQ.
- "Muted and indistinct" music would be dramatically limited in frequency range, especially lacking upper frequencies, because it is heard through a closed door.
- Always consider using fades on sound elements, even if the fades must be very quick.
- A "softer" room would not have nearly as much delay or reverb.
- Don't rush the transitions. Take a few seconds to set the scene. It takes time to open and walk through a door.

Audacity Assignment 2: Create an MP3

You are given a music file that annoys listeners. Use equalization to improve it so that it sounds more balanced across the frequency spectrum, even when played over inexpensive computer speakers.

Quiz Next Thursday: Week 1 study questions, plus EQ, spatial effects, and monitors speaker topics.

Study Questions on EQ - Equalizing Sound

What are the six general uses for EQs?

Which frequency range would you try to adjust if the sound was too harsh, too brilliant, too heavy/boomy, or not warm enough?

too harsh 500 Hz *too brilliant* 10K Hz
too heavy/boomy 40 Hz
not warm enough? 200 Hz

Which frequency range usually needs only slight adjustments because the human ear is most sensitive to this range? 1K-3K

What is usually better with EQ, *cutting* or *boosting*, and why?

If you were given a sound file that needed EQ help, be able to sketch an EQ "curve" that would roughly match one that you would use on Audacity's EQ tool to solve the problem, and provide the EQ help.

What EQ would you use to make a sound stand out more?

What EQ to make a sound blend in more?

What does a *spectrum analyzer* tell you?

Questions on Spatial Effects

Describe *delay*, *echo*, and *reverb* (also called *reverberation*).

What do these settings do to the sound?

| | |
|-----------|---------------------|
| Delay | Reverb Time |
| Damping | Bandwidth |
| Dry – Wet | Hall – Room – Plate |

How can delay and reverb help you simulate room size and surface types?

What does reverb do to an instrument or object sound's *placement* in a stereo mix?

Does reverb change the original sound? Explain

What physical characteristics of a room affect reverb time?

Why might you want to EQ the reverb?

Questions on Monitor Speakers

Terms to learn:

Close-Field or Near-Field,
Minimizing Room Effects,
Characteristics of Home Stereo Speakers,
Frequency Response (on and off-axis),
Frequency Response Specifier,
Sweet Spot and Soundstage
Transient Response,
Distortion, THD,
Woofers Tweeters Midrange Drivers,
Speaker Timing Problems,
Passive and Active,
Sound Pressure Level or SPL,
Necessity of "Practicing with Monitors"

Why is speaker placement in the room an important consideration?

What dB levels do professional engineers recommend listening to your mixes?

What to watch out for when comparing speakers, and why are these issues important to you.

Questions on Psychoacoustics and dB

What options would make a particular sound seem loud to a listener?

What options do you have to fix sound masking in a mix?

What is the smallest change in loudness that a person can generally detect?

How many dB decrease makes a sound seem like it is coming from twice as far away?

How many dB boost makes a sound seem twice as loud?

(Next Week ->) Questions Chapter 5 Digital Audio Data

Explain sampling rate. What are common rates?

What is the common sampling rate for audio that accompanies video? *48kHz*

What are the higher sampling rates used in recording?

Explain sampling resolution. What are common resolutions?

What is high-definition audio?

What is the file size of a typical CD quality stereo sound file, per minute? *10MB*

Discuss the following sound file formats: Which equipment/uses do they work the best with/for? Which has more compression? Which is lossy?

AIFF

WAV

WMA

MP4

MP3

AAC

FLAC

Ogg and Ogg Vorbis

Core Audio

As a sound editor, when should you use uncompressed files?

What is really going on with perceptual encoding? In your own words.

What is sound masking?

How does bitrate affect sound quality?

What are audio loops?

What are Acid loops and Apple loops?

What is metadata? Where have you seen a metadata dialog box?

What are REX files?

A type of loop that has advantages when changing speed (Propellerhead)

What is meant by *headroom*?