DESN 275 Digital Sound for Week 2
Read Chapters 1 and 3 in your textbook
Chapter 1 is a review of our in-class material;
Chapter 3 is a more detailed discussion of EQ

Assignment 1: Create a Scene
Resources • Read *A Virtual Room with Reverbs* on the Audacity web site. The link is on drbraukmann.

Using object sounds from the course website, plus music (also available on course website), create a sound track for the following sound-only scene.

1. Start with typical street ambience. Nothing special or unusual is heard: just typical cars and street sounds. We hear a character's footfalls (for about 10-12 seconds). After about 12 seconds, a door (#1) opens.
2. Footfalls are heard as our walker steps inside a large quiet reflective space, like a small gym. The door closes behind with gentle echos of the door closing. Long reverb time here.
3. Footsteps are heard as our character walks slowly through the large room (about 50' square) with hard surfaces such as concrete or hardwood (about 12 seconds total walking time). After about 5 seconds, two voices are heard, one near the walker (about 10 ft away), and the other twice as far away. The walker walks on past them. The effects on their voices make then seem like they are indeed in the room.
4. Then a door (#2) is opened into a wood-paneled and carpeted hallway. Very quiet, muted and indistinct music is heard coming from behind a closed door at the other end of the hallway. Footfalls are heard as the walker moves down the hallway. There will be some little sound delays, some short, some longer, and a touch of reverb. The music will gradually become louder as the walker approaches another door.
5. A latch is turned and the door (#3) is opened allowing the music to be heard more clearly as the walker enters the room. Also we hear the sounds of many people partying. This chamber has mixed hard/soft surfaces (typical acoustic tile ceiling, hard dance floor, etc.) surfaces. People's bodies soak up reverberation sound. So it has a *little* reverb, and a little quick early delay (almost so little you don't notice it.) The people's

voices further away have less low and high frequencies than the people close to walker. The walker moves through the club for about 10-12 seconds.
6. Another latch is turned and a door (#4) opens out into the street. The sound of music and the party folks is diminished as the door (#4) closes behind the walker. The muted sounds of the music then die away completely as the footsteps of the walker proceed down the street. (About 8 seconds)
7. The same ambience is heard as in the opening of the scene. The street ambience continues for about 5 seconds until it fades.

Tips for Assignment 1:
• Avoid footfall files that have a "built-in" room sound. Avoid footfalls that are unrealistically loud.

• Reverb needs time to die away. You may have to insert ("Generate" in Audacity) some silence right after the foot falls, before you apply the reverb, in order for the reverb not to be cut off too soon. An easy way might be to lay out all the footfalls in one track, and then Track > Mix and Render that track, before applying reverb.

• Estimate for a large room about 50ft. by 50ft. Use reverb, delay, possibly EQ.

• As doors close, the acoustics change. The door slam is heard in the new space. So recalculate or make your best guess for 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 short 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.

Assignment 2: You are given two Robert Goulet songs that your grandparents like. They sound very different in frequency balance. Use EQ to make them sound as much the same as possible. Especially try to make Robert's voice sound the similar in both. Yes, it can't be perfect because the voice is mixed in with the instruments. But sound jobs are seldom ideal. Change both songs. Make

the first sound like the second, and then make the second sound like the original first. Turn in one mp3 track that has about 10 seconds of each song in this order: song 1 original, song 1 changed, song 2 original, song 2 changed.

Study Questions Ch 2 EQ Points of Interest
What is actually happening when a sound is equalized?

When you boost or cut an EQ band, the frequency that is boosted or cut is called the peak frequency. What are the frequencies on either side of the peak frequency called?

If you are increasing the Q of an equalizer band, what are you actually affecting?

What exactly does a low-cut filter do?

What exactly does a high-cut filter do?

How can you best use an EQ to create a clear, more-defined mix? A: *Use subtractive EQ on what you don't need to hear, rather than boosting everything you do want to stand out.*

Which frequencies generally affect the following qualities?   Airy – breathy – Chimey - 10K Hz
        Bigger – fatter – 100 Hz
        Bite – 1000-3K Hz
        Boxy – hollow – 300-700 Hz
        Fat guitar sound – 20-250 Hz
        In your face – 1000 Hz
        Muddy – Boomy 100-300 Hz
        Muffled – too much 100-250 Hz
        Nasally – too much 500-3K Hz
        Sibilance – 4K-10K Hz
        Thin – too much above 4K Hz
        Tinny – too much 2K-7K Hz
        Warm – abundant 100 – 400 Hz

Questions on Spatial Effects
Describe *delay*, *echo*, & *reverb* (aka *reverberation*).

What do these settings do to the sound?
        Delay   Reverb Time
        Bandwidth   Hall – Room – Plate

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

What physical characteristics of a room affect reverb time?

Why might you want to EQ the *reverb*?

Does reverb change the original sound? Explain

Questions *on Psychoacoustics and dB*3
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?

Study Questions from Audacity Guide – Reverb
What is an "early reflection"?
A: *The first sound added in a reverb. It represents the sound that bounces off the closest wall and gets back to the listener first.*

How should Reverb Time be set for a small room?
        Short – less than 1 second.

Which size rooms need a bigger pre-delay, large or small? A: *Large because the reverb doesn't start until the first delay or echo makes it back to our ears.*

What does a *dampen* parameter do?
A: *Reduces the high frequencies in the reverb.*

What do Wet and Dry refer to?
        A: *Wet = reverb, Dry = original sound*

When using reverb in Audacity, why does the author advise putting a 100% wet reverb on it's own track? How do you do that?
        A: *On it's own track, the level can always be readjusted. First duplicate the track you want to add reverb to. Then add the reverb to the duplicated track at 100% wet.*