DESN 275 Digital Sound Unit 1

Assignments:

• Read ch 1&2 in Introduction to Music Tech. Be prepared to discuss reading questions.

• Learn how to use FTP (either COREFTP or Fetch) and upload a sound file successfully.

Audacity Assignments:

• First download a version of Audacity for your operating system, and a copy of LAME at http://audacity.sourceforge.net/download/
(LAME is software that rips filtes to make MP3s.)

• Using the Audacity User Guide and On-Line Manual, become familiar with the following processes: opening a wave or aiff file, importing an mp3 file, loading a second file into a second or third track, play stop or rewind a sound, selecting a portion of or the file with either the selection tool or the selection menu options for editing, trimming out a portion of a sound file, adding a fade in or fade out, changing the level of the sound up or down (amplify), making the volume rise or fall over sections of the sound, and exporting the sound as an MP3.

• Fix the supplied narration (Assignment Files > Narrations >narrationToFix-Decibel) by filling in any missing word ands shortening the overly long pause. Make certain the level is constant. Remove useless silence. Save it as MP3 with the following naming convention: yourNameWk1As1.mp3, and turn it in.

When you export an MP3 file from Audacity, get in the habit of entering your name and the date into the metadata dialog box with each MP3 file.

• Using only sound files from our class web site, create an interesting 10-second collage. Save it as MP3 with the following naming convention:
yourNameWk1As2.mp3
Our FTP site is ***www.drbraukmann.com***. The username is ***stus1*** and the password is ***overtone or Combfilter1***.

• Turn in the in-class lab activity.
"Watch it mates! The main mast is too heavily loaded. Another gust like the last one will snap it like a toothpick! It's time to furl the topsil or we'll shiver our timbers, certain."

Lecture study questions

Physically, what is meant by production, propagation, and perception?

What causes ***resonance***?

What do overtones look like on a waveform?

Why do we compare waveforms to sine waves? What is a periodic waveform? A complex periodic waveform?

Explain sound frequency using the term "cycles." What are Hertz (Hz)?

What is the relationship between wavelength and frequency?

What is the general range of human hearing (that is for those people who have not worked in construction, have not owned a big car stereo, and have not attended rock concerts or trap shoots without earplugs)?

In typical musical tones, what % of the total sound heard is represented by the fundamental tone? (50%)

What do dogs hear that you can't hear? *Frequencies above 20K Hz.*

What is the fundamental frequency range of a typical male voice (baritone)? *110-425 Hz* Of a typical female voice (contralto)? *200-700 Hz* Of a bass guitar or double bass? *40-200 Hz* Of a piano? *28-4100* Hz Of an alto saxophone? *125-900 Hz*

Why does it make sense to measure sound intensity in **decibels**, considering it is some logarithmic math thing that sounds kind of complicated?

How many dB do you think would represent the difference between a quiet media background sound and a very loud one?

If you want sound 1 to seem to be twice as far away from the listener as sound 2, how much quieter should sound 1 be in dB?

If you were preparing sound for a scene in a subway, would you mostly want to create the effect of reflection, scattering, or absorption?

Are ***loudness*** and ***amplitude / level*** the same thing? (Answer: *Loudness is perceived and depends on many factors such as frequency, whereas amplitude is simply the maximum sound pressure compared to neutral atmospheric pressure.)*

Why is perceived volume affected by frequency, pressure, harmonics, surface properties of the space, and duration?

Vocabulary from Class. Be able to explain each.

Interference of sound waves, Beats
In phase, out of phase
Reflection, Absorption, Diffraction, Resonance
Decibel
LAME
Amplify

What does clipping look like in a waveform?

Explain why sound sources that are either in-phase or out of phase change the amplitude of the sound.

What are the characteristics of a good mixing / listening room?

What is Brown noise?

Reading study questions Introduction to Music Tech

Chapter 1 What is Sound?

Explain sound in terms of compressions and rarefactions.

What does a resonator do to a sound?

What is pitch? How is it related to frequency?

What part of the ear helps us pinpoint the sound source? That is to say, how do we sense the direction the sound is coming from?

What frequencies of sound pass through the ear canal most easily?

You need your ears to be in great shape if you intend to edit sound. What do you lose if you expose your ears to damagingly loud sounds?

What is psychoacoustics?

Chapter 2 Sound Properties and the Waveform View

Define the following terms:

- Hertz
- Period
- Ultrasonic
- Loudness
- Amplitude (is it different from loudness?)
- Timbre
- Waveform
- Sine wave (be able to sketch one)
- Triangle wave (be able to sketch one)
- Sawtooth wave (be able to sketch one)
- Pulse wave (be able to sketch one)

What is noise in a general audio editing sense?

What is white noise? What is it based on?

What is pink noise? What is it based on?

Which sounds brighter: pink or white noise?

Which represents human hearing best: pink or white noise?

What is an amplitude envelope? (be able to sketch one)

What is meant by attack decay sustain release?

What do the horizontal and vertical axes on a waveform represent?