

DESN275 Final Quiz Notes Spring 2019

Physics of Sound

How does *perception* affect what we think we hear?
Frequency and compression seem like *loudness*.
Sounds can mask or hide each other.
Making something seem louder involves actually quite a bit of level increase. (hence dB)

What is *pitch*? What is *loudness*?

Are *loudness* and *amplitude / level* the same thing?

Loudness is perceived and depends on many factors such as frequency, whereas amplitude is simply the maximum sound pressure compared to neutral atmospheric pressure.

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

What is the timbre of a sound?

Quality given by the amount and type of overtones.

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

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? -6dB

Explain the parts of a sound envelope: *attack, decay, sustain, release*.

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

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

In-phase add and out-of-phase subtract

Recording

What are three significant differences between a *dynamic* microphone and a *condenser* microphone?

What is *phantom power*?

What do these microphone directionality terms mean?
Omnidirectional Cardioid Figure 8

What is a useful advantage of each?

What is the difference between *balanced* and *unbalanced* cables? *Balanced resists picking up noise, and can run 100's of feet.*

Which one has 3 connectors? *Balanced*

What is the definition of *frequency response* for microphones?

Editing

Why are zero-crossing points important when editing?

What is *normalizing*?

Giving a sound file the same average level as other typical files. Often 60% of max.

What is a *transient* in a wave form?

Mixing

What do "tall, deep, and wide" mean in a mix?

*Low to high frequencies are still present
Reverb places elements front to back
Stereo pan*

What are the primary goals of EQing?

Make element clearer, better defined

Make element sound bigger

Make elements work together - minimize masking

Make elements work together - each in own range

Eliminating a steady state noise

What general range of frequencies represent the...

Bottom - kick drum - 60-70Hz

Boom - warmth - bass - 125Hz-200Hz

Fullness - mud - 250Hz

Honk - body - boxy - 500Hz

Brightness - clarity - 2kHz

Sibilance - "shh" 4kHz, "esss" - 8kHz

Air - 10-16kHz

What is usually better with EQ, *cutting* or *boosting*, and why? *Cutting because less distortion introduced*

What are *inserts* in a DAW mixer?

Plug-ins, effects, sometimes sends and returns

What are *sends and returns*?

What is a *render*? What is a *bounce*?

How is *mastering* different from mixing?

Spatial Effects

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

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

More reverb moves it to the back of the sound stage.

What are buss effects?

Compression

What is *dynamic range*?

Be able to explain what a *compressor* does.

What is a *threshold*? What is the *ratio*?

Be able to explain what a *limiter* does.

Keeps sound levels from going over a threshold.

What are four good reasons to use compression?

- 1) taming peaks,
 - 2) keeping a track audible in a dense mix
 - 3) making a voice warm and even-sounding
 - 4) making a mix sound more energetic
 - 5) making a commercial harder to ignore
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Sound Design

What are the EQ characteristics of cinema "academy curve" soundtracks?

What is an example of an **environment sound**?

Nighttime, busy street, etc

An **action sound**?

Footfalls, doors. Things the character does

An **object sound**?

Cars, thunder, wind, equipment

How do we use adjectives in a sound map?

As design hints

"Lively, fun, subdued, raucous, etc"

What is **spotting**? What are **cues**?

What are examples of emotions that would make sense in a sound map?

Fear, love, surprise, loneliness, etc.

What are examples of physical or dramatic transitions?

Something is about to change - A realization? A "change of heart"? Someone's luck? Moving to a new physical location?

What basic guidelines are good for the beginning sound designer to use?

Plan first. Organize all your files. Then begin.

Never overpower the dialog/narration.

Add a little space before and after elements.

Allow environmental sounds to set the scene.

Remember fade in/out where appropriate.

Listen on more than one playback system.

Don't allow yourself to be silly.

Music

What is meter?

an identifier like 4/4 telling how many beats in a measure / the kind of note assigned to each beat (full, half, quarter, etc.)

In the 12-half-steps between octaves, how many half-steps are there in the following *intervals*, and what do they typically signify emotionally?

flatted second	1	big problem, Jaws
second?	2	<i>tension</i>
flatted or minor third?	3	<i>blue - sad</i>
third or major third?	4	<i>interesting</i>
fourth?	5	<i>richer</i>
fifth?	7	<i>consonant</i>
Octave?	12	<i>peaceful</i>

What would you do with a sound tool called **transpose**?

What are some of the *guidelines* to help us support visual media with musical notes?

Low Tones - heavier, more important

Rising Tones - about to happen

3/4 Time - graceful

Speeding up - rising anticipation

How does music **resolve**? In a media project, what is an example of when would you want it to resolve?

A common example refers to getting back to the first chord in a sequence. It sounds like the listener is taken "back home."

What does **quantize** mean?

Loop Questions

What is a **loop**? What is the difference between a loop and a short recorded musical passage?

What are the differences between a "software" instrument loop and "real" instrument loop? *Real is a recording*

Which one can you transpose the most? *Software*

Which one lets you change individual notes? *Software*

Digital Sound Files

What is the sample rate for film? *48k*

What is the difference between *Red Book* and *Yellow Book*? *Red=commercial CD, Yellow=computer-burned*

Describe the following sound file formats, as which are compressed? Smallest? Windows or Mac native? Compressed with no loss of data?

PCM, AIFF, WAV and AU

DDP

TTA and FLAC

MP3 and Ogg Vorbis

WMA and ACC

MIDI

What is MIDI designed to do?

What information is included in a typical MIDI music file?

What are MIDI channels? Why are they important?

What is involved with optimizing sound files for..

Recorded music for uploading or CD

The web

Video and film

Games

Studio One (be able to demonstrate)

How would you apply an "academy curve" to a mix?

How do you apply a "low-pass" or "high-pass" filter?

How do you make a reverb channel with a different amount of the effect for each instrument track?

How do you make a mix "tall, deep, and wide"?