

Tech 275 Digital Sound - Syllabus

Course Description

This course provides a foundation in the techniques of sound design, recording, production, and editing for digital audio media. Students will understand the physics of sound, audio and audio editing terminology. Students will create and record sound files, apply effects, and mix and produce a variety of multimedia audio elements using typical digital technology. Applicable uses include Web sites, games, multimedia products for promotion and learning, music and entertainment products, and virtual worlds.

The course will meet for four hours per week for lecture and guided interactive demonstrations. Appropriate systems are provided in the classroom. Students may be encouraged to work on many assignments as partners. Assignments will require access to computers with specific software installed and occasionally specific hardware installed. CEB labs will be available for homework assignments during the week, including weekends. See posted schedules for availability. Some assignments may require checking out EWU equipment on a day-to-day schedule from the instructor. Additionally, much or all of the software used in this course is available for download by the manufacturers as shareware, demoware or 30-day trial versions, allowing the student to complete many assignments at home.

Students are encouraged to acquire their own headphones. Please consult the instructor however, as poor headphones tend to produce poor mixes.

Assignments and Tests

Assignments will be given weekly. Tests will be given approximately every other week. Grading will be based 60% on assignments and production work and 40% on test scores. Grading will follow EWU standards, with 97% points = 4.0

Text

Hisken, Dan. *An Introduction to Music Technology*, 2010, Thomson Delmar Learning.

Turning in Assignments

Due to the large size of digital audio files, we will use FTP to turn in assignments. You are asked to create a directory using your last name as the directory name. We will share an FTP site at www.drbraukmann.com. The username is **stus1** and the password is **Combfilter1**. Your instructor will be happy to help you get started. As last resort burn a CD to give to your instructor. Most assignments must be submitted in MP3 format. Don't get behind!

Instructor

Dr. James Braukmann, jbraukmann@ewu.edu, CEB 335, 359-2437

Topical Outline

Unit 1 Sound waves, acoustic environments

- Physics of sound waves, waveforms, overtones and harmonics, pitch, loudness, rhythm, attack, decay, sustain, release, decibels, etc.
- Chamber characteristics, reflection, absorption, resonance, etc.
- Psychoacoustics
- Intro to Software (*Audacity*) Set up, typical editing operations and file formats and introduction to fundamental editing techniques
- Simple sound generation

Unit 2 Digital Audio Fundamentals

- Sampling, resolution, clipping, signal to noise ratio, multiple tracks, digital audio file types, compression schemes, optimization
- Digital Editing Fundamentals, Introduction to Sound Effects: Creating new sounds, fixing sounds, combining sounds, etc.
- Sound Design for film and video.

Unit 3 Recording and Reproduction Equipment

- Options for bringing sound into a computer, mixers, microphones, speakers, etc.
- Introduction to live recording and Foley

Unit 4 Multi-track Editing and Mastering

- File organization, mixing, dimensional editing, compression, etc.
- Intro to Production Editing Software (*Logic Express*)
- Set up, typical editing operations and file formats Multitrack editing and mastering, etc.

Unit 5 Sound Generation

- Software and hardware synthesizer operation, vocoders, modulated waveforms, Fourier transforms, etc.

Unit 6 Sound Designers Introduction to Music Theory

- Pitch, intervals, keys, scales, keyboard interface, beats and tempo, melody
- Musical and tabular notation as typical interfaces
- The emotional communication of pitch intervals, creating and resolving tension,
- Introduction to Loop Editors