



MUSC 4440

Division: Fine Arts

Department: Music

Course: MUSC 4440

Title: Audio Recording Theory

Catalog Description:

This course is designed to teach students the basics of audio recording theory. Students will learn about the historical background and scientific properties important to audio recording. Students will begin to learn to listen for and recognize how sounds are achieved, starting with historical settings and moving toward more modern examples. This course is required of all students in the B. Music degree program - Music Production track.

General Education Requirements: N/A

Semesters Offered: TBA

Credit/Time Requirement: Credit: 3; Lecture: 2; Lab: 2

Clock/Hour Requirements: 0

Offered for Non-Credit: No

Prerequisites: Completion of MUSC 2130/2140 with a grade of "C" or better. Admittance into B. MUS program or permission of instructor

Justification:

In order to be prepared for the workplace, students graduating with a bachelor's degree with an emphasis in music production need as firm an understanding as possible of the scientific and mathematical properties of sound as well as the historical context of audio recording. This course provides that experience in a lecture/lab format held in a studio setting.

Student Learning Outcomes:

Upon completion of this course, students will be able to:

- demonstrate a knowledge of the historical context of audio recording, including magnetic tape and other pre-digital storage media;
- demonstrate a knowledge and understanding of the scientific and mathematical properties of sound;
- demonstrate a knowledge and understanding of the scientific and mathematical properties of electricity;
- demonstrate a knowledge of studio construction techniques.
- begin to demonstrate a knowledge of how and why recordings sound the way they sound

Content:

Content may include:

- A history of audio recording
- Magnetic tape ? uses, handling and storage

- Aliasing and head alignment
- Acoustics - fundamentals and overtones
- Sound waves - terminology and analysis
- Direction perception - binaural and beating effects
- Doppler effect
- Sampling and the Nyquist Theorem
- Decibels - Sound thresholds and metering systems
- Fletcher Munson curves/Eyring equations
- Current/AC v. DC
- Ohm's Law
- Amplification - Vacuum tubes to transistors
- Hard Drives
- Speakers and monitors
- Signal Path
- Signal Processing - Old and New Methods
- Studio construction techniques
- Music production principals and styles
- Microphones ? history and development
- Microphone types and techniques
- Audio Formats Mono, Stereo and Surround

General Education Outcomes:

Applied Education Outcomes:

1) Students will acquire entry-level skills specific to and appropriate for employment in their chosen field of study.

The skills learned in this course will prepare students to understand and operate studio equipment and to effectively participate in the design and building of a recording studio. Students work will be assessed throughout the semester by the instructor who will provide both verbal and written feedback.

Key Performance Indicators:

Students in this course will be assessed using the following measures:

- Participation: Attendance at class sessions;
- Exam: Written and hands-on midterm;
- Exam: Written and hands-on final;
- Presentation: Research topic oral presentation;
- Writing: Final written research project.

Representative Text and/or Supplies:

Huber, David Miles. Modern Recording Techniques. Current edition.

Optimum Class Size: 12
Maximum Class Size: 14

Signatures:

I hereby submit this course syllabus:

Steve Meredith, DMA, Associate Professor

I hereby find this course consistent with the goals and resources of the Music Department:

Steve Meredith, DMA, Associate Professor, Chair

I hereby find this course consistent with the goals and resources of the Fine Arts Division:

Vance Larsen, MM, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)