

# Music Technology (MUT)

---

## **MUT 303 Introduction to Audio Technology I** (3 credit hours)

This course will review acoustic fundamentals and introduce the basic principles of analog audio technology, including, but not limited to, audio recording and processing equipment (microphones, mixing consoles, audio effects) and models for sound synthesis (additive, subtractive, physical modeling, etc.). Students will gain critical knowledge and hands-on experience with the fundamentals of analog audio technology including practical familiarity with concepts such as signals and systems, electro-acoustics, sound effects, synthesis and music protocols.

Prerequisite: MA 241

*Typically offered in Fall only*

## **MUT 304 Introduction to Audio Technology II** (3 credit hours)

This course helps students gain a critical understanding of, and hands-on experience with the fundamentals of digital audio technology including practical familiarity with concepts such as sampling, quantization, digital effects, music information retrieval and audio coding.

Prerequisite: MUT 303 or Instructor Permission

*Typically offered in Spring only*

## **MUT 315 Music Acoustics & Psychoacoustics** (3 credit hours)

Introduction to the theoretical principles of acoustics and psychoacoustics. This course addresses the physical aspects of acoustics and sound propagation, physiological and psychological acoustics, and the acoustics of rooms as they apply to the music technologist. Assignments and projects provide hands-on experience with acoustic phenomena, auditory processing, and experimental design.

*Typically offered in Spring only*

## **MUT 403 Music Recording & Mixing** (3 credit hours)

An introduction to the concepts and techniques of professional audio production, including sound reinforcement, sound recording, and sound design through work with analog and digital hardware and software.

Prerequisite: MUT 304 or Instructor Permission

*Typically offered in Fall only*

## **MUT 431 Music Technology I** (3 credit hours)

Introduction to the software-based analysis of digital music signals. This course covers the basic approaches for musical content analysis and teaches students to approach this class of problems and think algorithmically. Topics include pitch tracking, beat tracking, audio feature extraction, and genre classification. The classes focus is on the audio signal processing aspects of Music Information Retrieval (MIR).

Prerequisite: MUT 304 or Instructor Permission

*Typically offered in Fall only*

## **MUT 432 Music Technology II** (3 credit hours)

This course will review fundamental elements of digital audio signal processing, such as sinusoids, spectra, digital filters, and Fourier analysis and their application to the fundamental music analysis problems of modeling and synthesis. It will discuss audio effects and techniques such as, but not limited to, sinusoidal modeling, phase vocoder, reverb, chorus / flanger, pitch-shifting, and time compression.

Prerequisite: MUT 431 or Instructor Permission

*Typically offered in Spring only*

## **MUT 461 Music Technology Senior Project I** (3 credit hours)

The first of a two capstone sequence meant to demonstrate knowledge and skills attained by planning, designing, and completing a product design project. This course introduces product development processes and teaches students to complete a project plan, an initial design concept, and an initial system design prototype to enable them to complete their project in MUT 462. Students are instructed in product development life cycle, design processes, organization roles in a product development company, market research, system engineering, project planning, project management, and team building through lectures and in-class workshops.

Prerequisite: MUT 432 or Instructor Permission

*Typically offered in Fall only*

## **MUT 462 Music Technology Senior Project II** (3 credit hours)

The second of a two-semester capstone meant to demonstrate knowledge and skills attained during a student's academic career by planning, designing, and completing a music technology product design project. Students will continue the Industry product development process for their project that began in MUT 461. In this course, students will work on project management, project technical execution and developing/testing prototypes including Critical Design Review (CDR), Alpha demo, & Beta demo.

Prerequisite: MUT 461

*Typically offered in Spring only*