



Western Michigan University School of Music Multimedia Arts Technology

Advising Document: Functional Relationship Between Req'd Courses

The MAT program is designed in order for students to develop competencies in five technological areas: audio engineering, live sound reinforcement, digital video, generating digital content for various audio production projects, and computer programming for artistic applications. After acquiring these competencies students focus on their own interest by taking additional technology courses and by completing a capstone project.

The curriculum guide does not show which courses fit in the five categories listed. This resource is designed to show the relationship between the required courses and to provide information about when to register for related courses. The suggested courses for those wanting to focus in a specific area, are listed in a separate document. Since the content of the courses is interrelated, some of the courses will appear in multiple competency areas. Also, since some of the classes rotate topics, some of the courses will be listed with example topics, but the actual topics available will vary.

Required Classes listed by Competency Area

Audio Engineering

This sequence of courses is designed to hone your skills in audio recording and producing music, in addition to developing the skills required to work with clients. It is recommended that you take all of the audio engineering courses sequentially, if possible. You will take MUS 1940 in your first or second semester; therefore, you should complete the sequence no later than the 5th semester.

MUS 1940 – Introduction to Audio Technology

This course introduces the student to the fundamentals of audio engineering and live sound. The course begins with the basics of how sound propagates and how we perceive it, and moves on to examine the devices that are used to capture (microphones), route (consoles), store (analog and digital recording), manipulate (EQ, compression, reverb, etc.) and listen back (speakers) to recordings.

MUS 2940 – Multi-track Recording

This course takes the student through the steps required to successfully complete a multi-track recording and mixing project. Students will learn the signal flow of the recording console and patchbay, how to set proper recording levels, the use of a 24-track recorder, and how to create headphone (cue) mixes.

MUS 3940 – Advanced Recording I

In 3940, students spend several weeks learning a professional digital audio workstation and associated hardware in depth. Students will learn mono/stereo microphone techniques, in addition to advanced application of compression, reverb, and delay.

MUS 4940 – Advanced Recording II

In 4940, students learn how to combine their technical knowledge with assessments of client's goals and budgets, session planning, set-ups, etc., in order to deliver professional quality recording services. Including synchronization of multiple audio recorders and appropriate preparation of mixes for mastering or replication. Close listening skills will also be developed through demonstrations of microphone and preamp selection.

Live Sound Reinforcement and Performance

This sequence of classes is designed for students to learn the fundamentals of setting up and managing audio equipment commonly operated in music performances. The lower level class should be taking your first Spring semester. The higher level class should be taken in your junior and/or senior year.

MUS 1940 – Introduction to Audio Technology (this class is both the Audio Engineering and Live-Sound Sequence)

This course introduces the student to the fundamentals of audio engineering and live sound. The course begins with the basics of how sound propagates and how we perceive it, and moves on to examine the devices that are used to capture (microphones), route (consoles), store (analog and digital recording), manipulate (EQ, compression, reverb, etc.) and listen back (speakers) to recordings.

MUS 5220 – KLOrk

MUS 5240 – Electronic Music Performance

Learn how to perform with electronics. This presently focuses on Ableton Live.

MUS 5965 – Sound Reinforcement Practicum

"SRP" provides students hands-on experience with audio system setup (e.g., microphones, speakers, mixers), control, and live sound reinforcement at School of Music and/or other events.

Multimedia/Digital Video

This sequence of courses focuses on learning the fundamentals of digital video and creating audio and video content. The introductory course should be taken in your first fall semester. The other courses should be taken when you are an upperclassmen.

Art 2290 – Digital Video Concepts

Students are introduced to technical aspects of digital video, including basic principles of digital images, storage formats, compositing, video compression, and media encoding. Student projects applying these principles will include exercises in image capturing, motion graphics, compositing, and video editing.

MUS 5645 – Audio for Video

Audio for Video focuses on generative and sound design projects for video and film, video games, other commercial projects, installation art, and sonic art. Aesthetic, conceptual, and technological topics in relation to creating such projects are discussed.

MUS 5655 – Special Topics in Multimedia Arts Technology

This is a variable topic course that all students take a minimum of two times. This topic periodically focuses on more advanced topics in Multimedia/Video.

Generating content for various audio production projects

This sequence of courses provides content focused on generating audio content for any type of project, such as sound design for video games or dance music. The first two classes should be taken in your first two years. Any special topic related to this type of content should be taken when you are an upperclassmen.

MUS 1590 – Fundamentals of Music or MUS 1600 Basic Music I

Select one of the following courses:

MUS 2620 - Concert Composition for Musicians Credits: 2 hours

MUS 2630 - Sound Art for Musicians Credits: 2 hours

MUS 2640 - Jazz Composition Credits: 2 hours

MUS 2240 – Electronic Music Techniques

Students engage in creative work in a digital audio workstation while learning necessary techniques to create music in various styles. Students complete projects incorporating digital audio sampling, editing, and arranging. Students also complete projects incorporating MIDI and software instruments.

MUS 3240 – Effects Processing and Synthesis

This course teaches students the concepts necessary to apply effects processing and synthesis in generative audio projects. Students will learn the parameters and typical applications for filters and equalization, dynamics processing, delay and delay-based effects, distortion, pitch shifting, granular processes, processes involving Fast Fourier Transforms, low frequency oscillators, additive synthesis, subtractive synthesis, wave-shaping, and modulation processes.

MUS 5655 – Special Topics in Multimedia Arts Technology: Media Scoring

This is a variable topic course that all students take a minimum of two times. This topic periodically focuses on more advanced topics related to generative projects, such as Media Scoring.

Computer Programming for artistic applications

There are many computer programming languages designed to facilitate the creation of multimedia content. Learning to program opens up a wide variety of career and creative possibilities, in

addition to helping students to internalize the fundamentals of effects processing, synthesis, and MIDI. The first course, MUS 2220, must be completed by the end of your fourth semester in the program. The other courses can be taken later in the program.

MUS 2220 – Computer Music Design

This course covers the fundamentals of computer music programming in the context of the laptop orchestra. The course emphasis is on the design of digital musical instruments for real-time performance. Topics include digital signal processing and audio synthesis, procedural and object-oriented programming, computer networking, and design of human-computer interfaces.

MUS 4240 – Audio Programming

In 4240, students learn the basics of programming algorithms to create musical outcomes in an object-oriented programming language. This course focuses on programming design to trigger pre-built synthesizers and samplers and provide an introduction to digital signals.