

**Syllabus for**  
**MUSC 2427 Audio Engineering II**

**McLennan Community College**  
**Waco, TX**

Revised 07-08

# MUSC 2427 Audio Engineering II

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## WHAT IS THIS COURSE?

MUSC 2427 Audio Engineering II is the second semester of audio studies offered by the MCC Commercial Music Department. Having already covered the fundamentals of sound, acoustics, and recording equipment in the prerequisite course during semester I, this course will be an in-depth study of the operating procedures of modern audio recording. The class consists of lecture and lab sessions in which small groups of students participate in demonstrations and recording sessions.

The textbook is **PRACTICAL RECORDING TECHNIQUES**, Third edition, by Bruce and Jenny Bartlett

Periodical reading and reports will be from *Mix magazine*, *EQ magazine*, *Recording magazine*, *Electronic Musician Magazine*.

## ATTENDANCE POLICY:

Because of the technical nature of this course, tardiness or missed classes will seriously jeopardize your chances of success. If you experience a true emergency and must miss a class, contact the fine arts office. Your attendance will affect your grade as follows:

3 tardy = 1 absence

Accumulated absences will result in a proportional lowering of the student's grade.

25% absence will result in the student being dropped and/or failed, see the MCC official Attendance Policy statement at end of this syllabus.

## GRADING POLICY:

A student's grade will be the cumulative total of the following criteria:

70% Performance on the objectives.

30% Attendance, professional attitude and conduct, evaluated by instructor's observation.

The grading scale used in this class is:

A=90-100%

B=80-89%

C=70-79%

D=60-69%

F=BELOW 60%

## OFFICE HOURS:

I will be glad to help you outside of class time. I have regular office hours posted outside of my office. Many times I am meeting with someone else in the studio or elsewhere during these hours, so be sure to make an appointment with me or leave a message for me with the secretary in the PAC office.

## Disabilities/ADA

In accordance with the requirements of the Americans with Disabilities Act (ADA) and the regulations published by the United States Department of Justice 28 C.F.R. 35.107(a), MCC's designated ADA co-coordinators, Dr. Johnette McKown, Executive Vice President and Dr. Lynn Abernathy, Vice President, Student Services shall be responsible for coordinating the College's efforts to comply with and carry out its responsibilities under ADA. Students with disabilities requiring physical, classroom, or testing accommodations should contact Marc Sweatt, Disability Specialist, at 299-8122 or [msweatt@mclennan.edu](mailto:msweatt@mclennan.edu).

## COMPETENCY and OBJECTIVES

The following **competencies** outline the purposes of this course. The **objectives** are the specific activities that we will carry out.

### Competency 1: Identify equipment needed in a recording studio; Develop a rational and strategy for equipping a recording studio.

1. **Objective:** List the basic equipment needs for making a demo CD.
2. **Objective:** List the recording system needed for recording classical music.
3. **Objective:** Summarize the components needed to interconnect the recording equipment.

*Source:* Class lecture \ lab, and Text chapter 2

*Evaluation:* Participation, Quiz; 80% mastery required

### Competency 2: Demonstrate a working knowledge of sound, signals, and studio acoustics.

1. **Objective:** Explain: sound wave creation, the characteristics of sound waves, and signal characteristics of audio devices.
2. **Objective:** Summarize the behavior of sound in rooms.
3. **Objective:** Identify methods of controlling echoes, reverb, and sound leakage.

*Source:* Class lecture \ lab, and Text chapter 3

*Evaluation:* Class discussion; 80% mastery required

### Competency 3: Identify the principles of control room monitoring.

1. **Objective:** Contrast the differences between nearfield and farfield monitoring.
2. **Objective:** Summarize "control room acoustics".
3. **Objective:** Identify correct speaker placement.
4. **Objective:** Explain the cue system.

*Source:* Class lecture \ lab, and Text chapter 4

*Evaluation:* Quiz; 80% mastery required

### Competency 4: Develop a working knowledge of hum prevention techniques.

1. **Objective:** Define "grounding".
2. **Objective:** Identify methods to prevent hum pickup in audio cables.
3. **Objective:** Explain how to prevent ground loops.

4. **Objective:** Analyze the reduction of hum with mics and electric guitars.
5. **Objective:** List the steps taken to isolate and stop a hum problem.

*Source:* Class lecture \ lab, and Text chapter 5

*Evaluation:* Quiz; 80% mastery required

### **Competency 5: Demonstrate a working knowledge of midi recording equipment and procedures.**

1. **Objective:** Identify the equipment typically used in midi recording.
2. **Objective:** Describe the midi recording procedure.
3. **Objective:** Demonstrate ability to record and edit midi sequences as a group.

*Source:* Class lecture \ lab, and Text chapter 16, class project

*Evaluation:* Project, 100% mastery required

### **Competency 6: Develop necessary knowledge to analyze and judge sound quality**

1. **Objective:** Contrast the criteria used to evaluate classical recording quality and pop-music recording quality.
2. **Objective:** List 14 attributes of good sound in a pop-music recording.
3. **Objective:** Summarize how to identify and isolate bad sounds in the recording process.

*Source:* Class lecture \ lab, and Text chapter 19

*Evaluation:* Quiz; 80% mastery required

### **Competency 7: Demonstrate understanding of microphones, mike selection, and mic accessories.**

1. **Objective:** Summarize the general traits of each transducer type.
2. **Objective:** Summarize the traits of different polar patterns.
3. **Objective:** Explain some criteria for microphone selection.
4. **Objective:** Describe four main microphone accessories.

*Source:* Class lecture \ lab, and Text chapter 6

*Evaluation:* Quiz; 80% mastery required

### **Competency 8: Demonstrate mastery of basic microphone use skills.**

1. **Objective:** Explain the criteria for choosing to use one or multiple mics.
2. **Objective:** Compare and Contrast the choice for close of far mic'ing.
3. **Objective:** Analyze the different techniques for mic placement.
4. **Objective:** Compare four stereo mic placement techniques.

*Source:* Class lecture \ lab, and Text chapter 7

*Evaluation:* Quiz; 80% mastery required

### **Competency 9: Demonstrate an understanding of microphone and recording techniques for**

**electric guitar, electric bass, and line level instruments.**

1. **Objective:** Summarize recording techniques for the electric guitar.
2. **Objective:** Summarize recording techniques for the electric bass.
3. **Objective:** Summarize recording techniques for the synth, drum machines, electric piano.

*Source:* Class lecture \ lab, and Text chapter 8

*Evaluation:* Quiz; 80% mastery required

**Competency 10: Demonstrate an understanding of microphone and recording techniques for drum kits and percussion instruments.**

1. **Objective:** Summarize recording techniques for the drum sets.
2. **Objective:** Summarize recording techniques for the drum sets.

*Source:* Class lecture \ lab, and Text chapter 8

*Evaluation:* Quiz; 80% mastery required

**Competency 11: Demonstrate an understanding of microphone and recording techniques for acoustic guitar, grand piano, woodwinds, and vocals.**

1. **Objective:** Summarize recording techniques for the acoustic guitar.
2. **Objective:** Summarize recording techniques for the grand piano.
3. **Objective:** Summarize recording techniques for the saxophone and woodwinds.
4. **Objective:** Summarize recording techniques for vocals.

*Source:* Class lecture \ lab, and Text chapter 8

*Evaluation:* Quiz; 80% mastery required

**Competency 12: Demonstrate an understanding of popular digital recording formats and editing information.**

1. **Objective:** Identify the current digital audio signal formats.
2. **Objective:** Explain a DAW.
3. **Objective:** Define different types of waveform editing.
4. **Objective:** Summarize CD-R recording of audio source material.
5. **Objective:** Demonstrate editing of audio source material.

*Source:* Class lecture \ lab, and Text chapter 10; class project

*Evaluation:* Class project, 100% mastery required

**Competency 13: Evaluate the mixing consoles components and modes of use.**

1. **Objective:** Explain the signal path of the input module.
2. **Objective:** Explain the signal path of the output section.
3. **Objective:** Explain the signal path of the monitor section.

*Source: Class lecture \ lab, and Text chapter 12*  
*Evaluation: Quiz; 80% mastery required*

**Competency 14: Demonstrate understanding of multitrack and console operation.**

1. **Objective:** List the six stages in making a multitrack recording.
2. **Objective:** Explain how to prepare the machines for recording.
3. **Objective:** Analyze the procedure for making composite tracks.
4. **Objective:** Contrast the difference between recording basic tracks and overdubs.
5. **Objective:** Explain mixdown procedures.

*Source: Class lecture \ lab, and Text chapter 13*  
*Evaluation: Quiz; 80% mastery required*

**Competency 15: Evaluate session procedures, assembly and mastering.**

1. **Objective:** Summarize the preproduction procedures and activities.
2. **Objective:** Explain procedures for setting up the studio and control room.
3. **Objective:** Summarize the procedure of digital mastering and transferring the final product to CD-R.

*Source: Class lecture \ lab, and Text chapter 14*  
*Evaluation: Quiz; 80% mastery required*

**Competency 16: Demonstrate the necessary skills to complete a recording session.**

1. **Objective:** Working with a team of students, carry out a studio-recording project requiring the application of knowledge and skills learned from this course.
2. **Objective:** Identify client needs, allocate resources, complete necessary paperwork, successfully complete three separate recording sessions involving tracking overdubbing, and mixing.
3. **Objective:** Perform as part of a team sharing the responsibility of the various jobs of studio personnel in actual recording sessions.

*Source: Cumulative Class lectures \ labs, and Textbook.*  
*Evaluation: 100% mastery required; Participation in all three team-recording sessions, carrying out assigned tasks applying the knowledge and skills learned from this course.*

**Competency 17: Identify basic operations and applications for effects and signal processors.**

1. **Objective:** Summarize EQ, its types and applications.
2. **Objective:** Explain the compressor and its use.
3. **Objective:** Analyze the use of reverberation and artificial ambience.

*Source: Class lecture \ lab, and Text chapter 11*  
*Evaluation: Quiz; 80% mastery required*

**Competency 18: Demonstrate the necessary skills to complete a remix session.**

1. **Objective:** Complete a remix of previously recorded material.
2. **Objective:** Integrate the use of recorder, mixer, and effects processors.

*Source:* Cumulative Class lectures \ labs, and Textbook.

*Evaluation:* 100% mastery required; Participation in remixes session.

### **Competency 19: Demonstrate an understanding of the processes and difficulties of location recordings.**

1. **Objective:** Identify the several ways to record live events.
2. **Objective:** Identify the equipment needed for two-track live event recording.
3. **Objective:** Summarize the procedure for making a two track live event recording.
4. **Objective:** Demonstrate ability to record live in a class project.

*Source:* Class lecture \ lab, and Text chapter 17, 18; live recording project

*Evaluation:* Quiz; 80% mastery required

### **Competency 20: Review information from audio trade periodicals.**

1. **Objective:** Summarize procedures, trends, or technical information presented articles from trade publications.

*Source:* Audio trade periodicals Mix magazine, EQ magazine, Recording magazine, Electronic Musician Magazine.

*Evaluation:* Written report; 80% mastery required, must be typed and grammatically correct.

### **Competency 21: Demonstrate professional conduct.**

1. **Objective:** Demonstrate regular attendance, promptness, adequate preparation, willingness to volunteer, the ability to deal with difficulties, work with groups, and deal with adversity.

*Source:* Skills demonstration.

*Evaluation:* Classroom observation by instructor; 80% mastery required

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## Class Attendance Policy

Regular and punctual attendance is expected of all students, and a complete record of attendance will be kept by each instructor for the entire length of each course. Students will be counted absent from class meetings missed, beginning with the first official day of classes. Students, whether present or absent, are responsible for all material presented or assigned for a course, and will be held accountable for such materials in the determination of the course grades.

Absence from 20 percent or three consecutive weeks (whichever occurs first) of scheduled lecture and/or laboratory meetings will be taken as evidence that a student does not intend to complete the course; the student will be dropped by the instructor. The instructor may reinstate the student if satisfied that the student will resume regular attendance and will complete the course.

If the student's 20 percent absences are accumulated *before* the official drop date, the instructor will assign a grade of W. The instructor may reinstate the student if satisfied that the student will resume regular attendance and will complete the course. If the student's 20 percent absences are reached *after* the official drop date, the instructor will either assign a W, if the student is passing, or an F if the student is not passing. In extenuating circumstances, the instructor may assign a W to a student who is not passing.

Regardless of the reason for a particular absence, each absence will count toward the attendance requirements in each course. Students will be permitted to make up class work and assignments missed due to absences caused by (1) authorized participation in official College functions, (2) personal illness, or (3) an illness or a death in the immediate family. Also, the instructor has the prerogative of determining whether a student may make up work missed due to absences for other reasons. It is the student's responsibility to inform the instructor of the reason for an absence and to do so in a timely fashion.

Students enrolled in TASP mandated developmental classes must adhere to attendance guidelines as established by the developmental education department. Students who are required by TASP to take a developmental course or courses and who drop such courses to the extent that they are no longer enrolled in any developmental courses will be administratively withdrawn from all classes at the College.

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**SCANS COMPETENCIES:** All Students must master the following competencies:  
Mastery will be demonstrated by in class recording sessions, presentations and reports;  
performances, and/or written assignments and exams.

#### **RESOURCES**

- R1: Allocates Time – demonstrated by preparation. Scheduling recording sessions and using the time properly to prepare assigned tasks to required standards.
- R2: Allocates Money – students will learn how to develop budgets for recording projects
- R3: Allocates resources and Facility Resources – students will learn how to plan Recording sessions using appropriate equipment and media.
- R4: allocates Human Resources – students will learn how to run recording sessions and how to interact with individual performing artists and of performing ensembles.

#### **INFORMATION**

- IF1: Acquires & Evaluates Information- student will gather and evaluate information according to instructions using textbooks and library resources
- IF2: Organizes & Maintains Information- student will organize and maintain information according to instructions given by the instructor
- IF3: Interprets & Communicates Information – student will interpret information and communicate according to instructions
- IF4: Uses Computers to process information: use computers in the recording studio to record performances

#### **INTERPERSONAL**

- IP1: Participates as a member of a team – students will learn how to function as a member of recording studio team.
- IP2: Teaching Others – students will be responsible for presenting in-class demonstrations.
- IP3: Serves Clients/Customer – Students will learn how to meet the needs of; and how to evaluate the expectations of industry clients and customers
- IP4: Exercises Leadership – students will learn how to be team leaders in in-class simulations and team activities
- IP5: Negotiates to arrive at a decision – students will learn how to negotiate contracts and interpersonal situations.

#### **SYSTEMS**

- S1: Understands systems – students will demonstrate the systematic inter-relationships of the equipment in the recording studio.
- S2: Monitors & Corrects Systems – students will learn how to monitor the equipment used during a recording session and how to correct problems
- S3: Improves & Designs Systems - Students will demonstrate mastery by producing recordings that will reflect understanding of operating system of the recording studio. Students are also expected to monitors the process and improve the process at every opportunity.

#### **TECHNOLOGY**

- T1: Selects Technology –students will learn to select correct technology for sessions
- T2: Applies Technology – Students will learn to select and apply the appropriate technology to performance requirements both when planning performances and during performances
- T3: Maintain & Troubleshoot Technology – students will learn to set-up complete staging of performance ensemble and how to troubleshoot related problems.