

Northern Wyoming Community College District — Sheridan College

MUSC 2410 Techniques for Live Sound (2 credits)

Fall 2017 • W • 4:00-5:50 PM

Whitney 139 • Music Department • Fine Arts Division

Course webpage available at proferickson.com

Instructor and Contact Information

Dr. Christian Erickson

Office: Whitney 140-J

Office hours: Office hours: MTWThF 10:00 AM (additional hours by appointment)

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Course Description

This course serves as an introduction to the theory, methods, and equipment used in live sound reinforcement, mixing, and recording. Topics include sound theory and acoustics, cables, mixers, amplifiers, signal processors, microphones, and loudspeakers. Common mixing and recording practices are explored. Qualifications and duties of a professional sound operator are also examined.

Prerequisites/Co-requisites

None

Purpose

MUSC 2410 Techniques for Live Sound is a required course for students pursuing the Associates of Fine Arts Degree or Certificate of Completion in Music Technology, or it may be applied as a general elective.

Course Format

Lecture

Grading

Letter

Texts/Materials

- Menasché, Emile. *Your Sound Onstage* (1st edition). White Plains, New York: In Tune Partners, 2011. ISBN-13: 978-1-61774-231-6
- White, Paul. *Basic Live Sound* (1st edition). London: Sanctuary Publishing LTD, 2003. ISBN-13: 978-1-86074-271-2
- White, Paul. *Basic Mixing Techniques* (1st edition). London: Sanctuary Publishing LTD, 2000. ISBN-13: 978-1-86074-283-5

- Over-the-ear headphones with a 3.5 mm mini-stereo plug and 1/4" adapter (no earbuds, please!)
- Pens, pencils, erasers, notebook, etc.
- Computer/internet access and a Google account
- USB flash drive (4GB or larger)

Additional Optional Resources

There are several excellent books available to you that will serve as good reference sources. It sound reinforcement is not an exact science, and you'll find different approaches and explanations in each one. Should you start setting up and/or running sound on a regular and professional basis, I recommend that you populate your bookshelf with some or all of them.

Beginner books (succinct and to the point, with good illustrations):

- *Audio Made Easy* by Ira White
- *Live Sound Basics* by Tony Marvuglio

Technical "Bibles" of the trade (probably more info than you will need, but you never know!):

- *Live Sound Reinforcement* by Scott Hunter Stark
- *The Ultimate Live Sound Operator's Handbook* by Bill Gibson
- *Yamaha Sound Reinforcement Handbook* by Gary Davis and Ralph Jones

Minimum Student Outcomes

Upon completion of MUSC 2410 Techniques for Live Sound, the student will:

- explain the principles of acoustics and sound theory.
- execute or diagram the set-up of a complete sound system.
- apply techniques of miking and sound mixing, including the use of equalization and effects, in both live and studio scenarios.
- describe the qualifications and duties of a professional sound operator.

Approximate Final Grade Evaluation

- 30% — Homework Assignments
- 30% — Exams
- 15% — Quick Quizzes
- 15% — System Design Projects
- 10% — Fieldwork Project

Descriptions of Graded Course Components

Homework Assignments: [Weekly, each assignment worth around 2% of your final grade] This component involves listening to and analyzing assigned recordings, preparing calculations and spreadsheets, and answering critical thinking questions. Toward the end of the semester, assignments that focus on specific mixing techniques will be implemented. Depending on the make up of the class and access to performing groups and venues, some assignments may involve actual sound reinforcement and/or recording activities outside of the classroom.

Unit Exams: [Two total, together 30% of your final grade] Two exams will be administered; one focusing on sound theory, equipment, and microphone techniques at midterm, and one at the end of the semester focusing on mixing techniques. Exams may cover any material from the text, handouts, class activities, videos, assignments, and lectures. Please make immediate note of exam days on our attached course schedule and resolve any conflicts you may have ASAP.

Quick Quizzes: [10 total, each worth 1.5% of your final grade] Short timed quizzes based on the prior meeting's reading assignment will be periodically administered during the first five minutes of class meetings (except for exam days). These quizzes cannot be made up. Therefore, please be consistently punctual for our meetings. The quizzes may be discussed afterward at the instructor's discretion. Some material from these quizzes will reappear on unit exams, so retain them so that they can be used as a study aid.

System Design Projects: [Worth 10% of your final grade] Students will research and price two hypothetical sound reinforcement systems: a highly-portable entry-level system, and a mid-range system that could be used to reinforce a typical popular music ensemble. The end result of each exercise will be a spreadsheet listing components and tabulating overall price, and a stage plot demonstrating how each system is to be set up in a live situation. This project will allow students to explore options for creating a system that matches his or her budget and creative needs and will serve as a reference beyond this course.

Fieldwork Project: [Worth 10% of your final grade] Students will participate in a TBD fieldwork activity. This may as simple as an observational visit to a local venue to interact with a working sound crew, or it could be an actual sound reinforcement assignment of a school event. Students must attend and participate in this project in order to receive credit for it. You'll be notified as soon as it can be arranged. In the meantime, I'm open to any suggestions from students regarding the nature of this component of the course.

Attendance & Participation: While not regularly factored into your grade (see the exception for the Fieldwork Project above), attendance and participation are vital to learning. Students are expected to attend class regularly, arrive on time, and stay for the entire session. You are responsible for learning all material covered in class whether you are present or not. If you do miss a meeting or a portion of one, please ask a classmate if you may review his or her notes.

Course Website

Our class companion website for this course is available at proferickson.com. Here you'll find printable documents (such as the syllabus and other handouts), links to useful sites, and audio files. As the class site contains copyrighted material, the audio files are posted in a password-protected directory. You can access them using the login information at the top of the first page of this syllabus.

Late and Incomplete Assignments

Students are expected to complete all assignments by prescribed due dates. The "due date" is the beginning of the meeting following an assignment unless otherwise noted on the course calendar. Assignments submitted after the due date will be assessed a flat 25% penalty. I will accept late work up until the final day of class, so do not simply "blow off" an assignment because the due date has passed and the work is subject to a late penalty. Remember, partial credit is always better than no credit at all.

Absences and Make-up Policy

In cases of school-sponsored activities or illness resulting in an absence by the student, it is the student's responsibility to notify the instructor in advance of the missed class. Absences with advance notice are considered "excused." Students are responsible for all reading, listening and other homework assigned during the absence. Absences without prior notification to the instructor ("unexcused") will automatically result in forfeiture of any possible points associated with the missed class. Quick Quizzes are exempt from this policy as they must be completed in class and cannot be made up or taken in advance.

Course Withdrawal/Petition for Incomplete Grade

On occasion, unforeseen circumstances may interfere with a student's ability to complete a course or to accomplish a satisfactory level of personal academic achievement. If you find yourself in this situation, I encourage you to visit with me to evaluate your options. Rarely is a grade unsalvageable if a student is willing to take the steps necessary to rectify it. If, however, a student is ever unable to fully devote his or her energies to the coursework, withdrawal may be the best option. Consult the college's academic calendar for the withdrawal deadline. Paperwork for withdrawals can be obtained from the Office of Records and Admissions.

A temporary grade of "I" or "incomplete" is available to students who cannot finish the course due to an emergency situation that arises late in the semester. The administration of an incomplete is at the instructor's discretion. Although I can be flexible depending on the circumstances of the student, my general policy is that the student should have at least 75% of the course completed and have a current grade of C or better at the time of the request for the incomplete grade. The incomplete portion of the course must be completed by the end of the semester following the request (summer sessions excluded) or the "I" will revert to an "F."

Northern Wyoming Community College District Policies

Academic Honesty Statement: Students are expected to maintain the highest standards of academic honesty and integrity. Academic honesty means performing all academic work without lying, cheating, deceit, plagiarism, misrepresentation, or unfairly gaining advantage over any other student. Violations of academic honesty are in violation of District standards for student conduct and shall result in disciplinary action.

Institutional Attendance Policy: Regular attendance is expected of all students attending NWCCD so they may fully benefit from the educational experience. Students receiving financial aid must regularly attend class and actively participate in their coursework in order to earn their aid. Students failing to do so may be held liable for returning financial aid funds. Visit the Office of Financial Aid Services for more information.

Disability Statement: Students with disabilities who believe they may need accommodations in this class must contact the disabilities services coordinator on their campus as soon as possible to request such accommodations.

A complete list of official college policies can be found on the NWCCD website by pointing your browser to this shortcut: mcaf.ee/7018c

Course Calendar

Subject to revision. All graded assignments are due at beginning of the next class meeting unless otherwise noted. Quick Quizzes are over the previous day's assigned reading. Text key: *YSO* = Menasché: *Your Sound Onstage*; *BLS* = White: *Basic Live Sound*; *BMT* = White: *Basic Mixing Techniques*

Meeting 1, August 30

- **Topics:** Intro to Sound Reinforcement & Signal Flow; Musicality
 - **Reading:** *YSO*-Chapter 1 (pp. 1-6 up to "Cables and Connectivity"); *BLS*-Chapter 1 (pp. 12-14 up to "PA Loudspeakers"); *BMT*-Chapter 1 (pp. 23-27 "Arranging" up to "More on Arranging")
 - **Viewing:** *The Mixer, Part 1*
 - **Homework:** Critical Listening Activity—Form & Timbre Analysis
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Meeting 2, September 6

- **Topics: Quick Quiz 1 (over previous lecture and reading assignments);** Acoustics & Sound Theory
 - **Reading:** Media College *Intro to Audio* Website (link at proferickson.com); *YSO*-Chapter 13
 - **Viewing:** *The Mixer, Part 2*
 - **Homework:** Calculating Axial Standing Waves
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Meeting 3, September 13

- **Topics: Quick Quiz 2;** Interconnectivity Basics & the FOH Mixer
 - **Reading:** *YSO*-Chapter 1 (pp. 6-9) and Chapter 2; *BLS*-Chapter 3 (pp. 68-72); *BMT*-Appendix: Common Cable Connections
 - **Viewing:** *Microphones*
 - **Homework:** Critical Listening Activity—Studio Version vs. Live Version
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Meeting 4, September 20

- **Topics: Quick Quiz 3;** Cable Building Workshop/Roundtable Discussion of Studio vs. Live Assignment
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Meeting 5, September 27

- **Topics:** Microphone Principles and Design; Wireless Systems
 - **Reading:** *YSO*-Chapters 4 & 6; *BLS*-Chapters 2 & 8 (pp. 166-171 "Cables and Connections" up to "Unbalanced Audio Systems")
 - **Viewing:** *EQ & Effects, Part 1*
 - **Homework:** Critical Listening Activity—Assessing Microphone Recordings
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Meeting 6, October 4

- **Topics: Quick Quiz 4;** Intro to Signal Processing; The Racks
 - **Reading:** *YSO*-Chapters 5 & 7; *BLS*-Chapter 3 (pp. 73-79) & Chapter 4; *BMT*-Chapter 2
 - **Viewing:** *EQ & Effects, Part 2*
 - **Homework Assignment:** Critical Listening Activity—EQ, Compression, and Delay Effects
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Meeting 7, October 11

- **Topics: Quick Quiz 5;** Loudspeakers, Amplifiers, Monitors, and System Processors; System Design
 - **Reading:** *YSO*-Chapters 3 & 8; *BLS*-Chapters 1 (pp. 14-49), 6, & 8 (pp. 156-161 up to “Gain Structure”)
 - **Viewing:** *Loudspeakers*
 - **Homework Assignment:** Entry-Level System Design Spreadsheet and Acoustic Duo Stage Plot (due at beginning of Meeting 9)
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Meeting 8, October 18

- **Topics: Midterm Exam;** Lab Time for Outstanding Assignments
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Meeting 9, October 25

- **Topics: Quick Quiz 6;** Miking & Mixing Techniques: The Drum Kit
 - **Reading:** *YSO*-Chapter 10 (pp. 178-186 up to “Prerecorded Tracks”); *BLS*-Chapter 5 (pp. 107-110); *BMT*-Chapters 1 (pp. 15-19 up to “Guitars”) & 4 (pp. 79-84 up to “Gates and Mutes”)
 - **Viewing:** *Amplifiers*
 - **Homework Assignment:** Mixing Drums
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Meeting 10, November 1

- **Topics: Quick Quiz 7;** Miking & Mixing Techniques: Guitars
 - **Reading:** *YSO*-Chapter 10 (pp. 155-157 up to “Vocals” and pp. 164-171 up to “Acoustic Bass”); *BLS*-Chapter 5 (pp. 102-106); *BMT*-Chapters 1 (pp. 19-23 up to “Arranging”) & 4 (pp. 84-89)
 - **Viewing:** *Setting Up the Gear and Soundcheck*
 - **Homework Assignment:** Mixing Guitars
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Meeting 11, November 8

- **Topics: Quick Quiz 8;** Miking & Mixing Techniques: Vocals; Intro to the Peavey PV10
 - **Reading:** *YSO*-Chapter 10 (pp. 157-163 up to “Electric Guitar” and p. 185); *BLS*-Chapter 5 (pp. 101-102 up to “Electric Guitars”); *BMT*-Chapters 1 (pp. 11-14) & 4 (pp. 90-
 - **Viewing:** *Monitoring*
 - **Homework Assignment:** Mixing Vocals
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Meeting 12, November 15

- **Topics: Quick Quiz 9;** Miking & Mixing Techniques: Keyboards; WCA Concert Hall Tour
 - **Reading:** *YSO*-Chapters 10 (pp. 175-177 up to “Drums and Percussion”) and Chapter 11; *BLS*-Chapter 8 (pp. 161-166 up to “Cables and Connections”); *BMT*-Chapters 1 (pp. 27-29) & 4 (pp. 90-98 up to “Mastering”)
 - **Viewing:** *Live Applications*
 - **Homework Assignment:** Mixing Keyboards; Mid-Level System Design Spreadsheet and Small Band Stage Plot
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November 22

- **Holiday Break** — No Class Meeting
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Meeting 13, November 29

- **Topics: Quick Quiz 10;** Setup & Soundcheck; Sound Reinforcement Lab
 - **Reading:** Review *YSO*-Chapters 9, 12 & 14; *BLS*-Chapter 7 (optional, but highly recommended)
 - **Viewing:** *Good Working Practices and Troubleshooting, Parts 1 & 2*
 - **Homework Assignment:** Critical Listening: Mix Analysis; Mixing Raw Tracks (due by beginning of Meeting 15)
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Meeting 14, December 6

- **WCA Fieldwork Project or Field Trip (subject to change of date)**
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Meeting 15, December 13

- **Topics:** Mix Presentations; Processing/Mixing Review and Summary
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FINAL EXAM (Mixing Exam) — WEDNESDAY, DECEMBER 20, 4:00 PM - 6:00 PM
