

Syllabus for
MMC 128—Principles of Audio Production
3 Credit Hours
Spring 2005

I. COURSE DESCRIPTION

A comprehensive introduction to the diverse field of audio production for MMI majors. Covers the fundamentals of audio, both analog and digital; the processing of and equipment used in audio; the responsibilities of the communicator through the medium of audio; and the diversity of audio as used in radio, television, and recording studios. Students are encouraged to consider the responsibilities that the Christian communicator has in the modern media milieu.

Prerequisites: None.

Course fee: \$40

II. COURSE GOALS

The purpose of this course is to enable the student to do the following:

- A. Gain a working knowledge of the following studio equipment: console, recorders, cassette decks, special effects unit, amplifier, equalizers, microphone, and computerized digital work station. (GC 1 and SC 1)
- B. Complete the following projects by the end of the semester; 30-second prerecorded music bed, 60-second prerecorded commercial, miscellaneous board and announcing exercises. (SC 11)
- C. Develop an adequate working knowledge of sound, sound manipulation, and recording both, analog and digital. (GC 1 and SC 1)
- D. Gain an understanding of the Christian's role in the secular media of today. (SC 1)
- E. Develop an appreciation of the capture and manipulation of sound for use in television, film production, and the recording studio. (SC 1)

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

A. Terminal Objectives

At the successful completion of this course, the student will be able to do the following:

- 1. Describe the nature of sound.
- 2. Describe the principles of acoustics and how they relate to audio recording.
- 3. Plot music and speech in the audible sound spectrum.
- 4. Identify and describe the five types of microphones and their operational characteristics.

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- 5. Identify and describe four microphone patterns and their application in sound recording.

6. Identify and describe various types of sound equipment and their use: speakers, connectors, cables, tape, audio boards, tape recorders, patch panels, microphone mountings, and accessories.
7. Describe the principles of audio mixing, processing, and editing.
8. Describe the proper selection and placement for various sound recording situations including small group, large group, dramatic, interview, and panel discussion.
9. Describe the physical plant, equipment, acoustics, operation, and terminology of the recording studio.
10. Demonstrate audio skills in the role of audio engineer for a semester project.

B. Weekly Objectives

As a result of successfully completing the weekly objectives, the student will be able to do the following:

1. Week One
 - a. Define sound scientifically.
 - b. Define the following terms:
 - (1) hertz
 - (2) frequency
 - (3) amplitude
 - (4) Fletcher-Munson Curve
 - (5) db
 - c. Define "dynamic range."
 - d. Plot the frequency response for the human ear from birth to adulthood.
 - e. Plot the relative frequencies of various sound sources within the audible sound spectrum.
2. Week Two
 - a. Describe direct sound and the various standing waves.
 - b. Describe the sound reflective and absorption qualities of various materials.
 - c. Describe how the layout of a stage or room affects sound quality.
 - d. Describe the physical layout and the acoustics of the recording studio.
3. Week Three
 - a. Identify and describe five microphone constructions and describe how a microphone turns sound waves into electrical impulses.
 - b. Identify four microphone patterns and plot a polar diagram for each type.
 - c. Describe "frequency response" as a characteristic of microphones.
 - d. Identify and describe the use of the following microphone accessories: boom, stands, gooseneck, adapters, and other related equipment.
 - e. Describe the microphone placement for vocal/voice and various instruments.
 - f. Describe placement of mike lines and trouble shooting.
 - g. Describe impedance level matching and the standard wiring for microphone cables.
4. Week Four
 - a. Describe the construction and function of audio boards and mixers for the following: TV/Radio, PA, Multitrack.
 - b. Describe the function of a pad and notching levels.
 - c. Describe recording studio equipment and how to select it.
 - d. Describe the difference in terminology between TV and Film and the sound recording studio.
5. Week Five
 - a. Describe the term "impedance matching."
 - b. List the appropriate input and output impedances for microphones, T.T., line levels,

- c. and speakers.
 - c. Describe devices used for matching impedance levels.
- 6. Week Six—Demonstrate mastery of objectives listed for weeks 1-5 on Exam I.
- 7. Week Seven
 - a. Describe the general principles of magnetic recording.
 - b. Describe the operation of professional recording machines.
 - c. Describe and list how to set up a machine for recording.
 - d. Describe how audio is recorded on videotape.
 - e. Define "signal to noise" ratio.
 - f. Define "dynamic range."
 - g. Define "headroom."
 - h. Describe the DBX and Dolby noise reduction systems.
- 8. Week Eight
 - a. Describe the Foley stage and what it is used for.
 - b. Describe how analog audio is converted to digital.
 - c. Describe how interleaving and interpolation are used for error correction.
 - d. Describe the pro's and con's of analog vs. digital.
- 9. Week Nine
 - a. Lab time on consoles
 - b. Lab time on DAW's
- 10. Week Ten
 - a. Describe how sound effects and music were used in the movie "Twister".
 - b. Describe the use for "sync" in audio.
 - c. Describe MIDI and its use in audio production.
- 11. Week Eleven
 - a. Lab-record sound effects for digital editing
 - b. Describe the equipment used to modify time, amplitude, spectrum, and noise in audio.
 - c. Describe where in the audio chain this equipment is used.
- 12. Week Twelve
 - a. Lab-Processing Gear
 - b. Define the construction techniques used in speaker construction.
 - c. Describe crossover networks
 - d. Describe the proper placement of speakers and use of an RTA.
- 13. Week Thirteen—Demonstrate mastery of objectives listed for weeks 7-12 on Exam II.
- 14. Week Fourteen
 - a. Lab-ProTools
 - b. Lab-DAW
- 15. Week Fifteen
 - a. Lab-micing session
 - b. Final Project critique and review.

III. TEXTBOOK

Required Textbook

Alten, S. (2001). Audio in media. Belmont: International Thompson Publishers. 6th ed.

IV. POLICIES AND PROCEDURES

- A. University Policies and Procedures
1. Attendance at each class or laboratory is mandatory at Oral Roberts University.
 2. Double cuts will be assessed for absences immediately preceding or following holidays.
 3. Excessive absences can reduce a student's grade or deny credit for the course.
 4. Students taking a late exam because of an unauthorized absence will be charged a late exam fee.
 5. Students and faculty at Oral Roberts University adhere to all laws addressing the ethical use of others' materials, whether it is in the form of print, video, multimedia, or computer software.
 6. Final exams cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.
- B. Department Policies and Procedures
1. **Attendance**—At Oral Roberts University, students are expected to attend all classes. Understanding that there are sometimes unavoidable circumstances that prevent perfect attendance, each student is allowed to miss class the number of times per week a class meets. This allowance is for illness, personal business, and personal emergency. Students may consider this personal days or sick leave. If a student has absences in excess of this number, the earned grade for the course will be reduced one letter grade for each hour's absence above those allowed. A student missing class due to illness must take an unexcused absence. Extended illnesses are handled on an individual basis and require a doctor's excuse.
 2. **Administratively Excused Absences**—Students who must miss class for University sponsored activities must follow these procedures:
 - a. inform the professor before the event.
 - b. arrange to complete missed work within one week.
 - c. not commit to class performances (oral reports, speeches, television tapings, group presentations, etc.) on a date the student will be gone. Makeup work is not permitted if the student voluntarily commits to a performance on the date of an administratively excused absence.
 - d. present an excuse, signed by the Dean of Arts and Sciences, the day the student returns.
 3. **Tardies**—Tardies are an inconvenience to the other class members and the professor, and they prevent the late student from obtaining maximum value from the class. Therefore, tardies are calculated in the attendance provision for this course. Three tardies equal one absence and are included in the absences when determining the course grade. It is to the student's advantage to make sure that the professor is informed immediately following the close of the class that the student was tardy and not absent. It is not the professor's responsibility to stop the class to mark the student late; the student is the one responsible to convey that information following that class. Students should not expect to be credible the following class session concerning a late arrival on a previous day.
 4. **Late Work**—The student is responsible for obtaining class assignments and material covered during an absence. All work must be completed as scheduled. An absence is not an excuse for turning in late work or for being unprepared with assignments for the class following the absence. If late work is accepted, a substantial penalty will be assessed.
 5. **Literacy**—The Communication Arts Department does not accept for credit any written assignment that contains more than an average of three grammatical and/or typographical errors per page.

C. Course Policies and Procedures

1. Evaluation Procedures

a. Exams

Three exams are given—two unit exams and a final. Exams comprise 75% of the final grade for the course.

b. Projects

A semester project is required of each student. Most projects are practical in nature and are directly involved with application of class material. The project comprises 25 percent of the course grade.

c. Papers

Three papers are required—one due at the time of each exam. Length and subject material will be discussed in class.

2. Other Policies and/or Procedures

Any examination not taken at the scheduled time due to an excused absence must be made up at a time arranged with or by the instructor. Generally, tests missed for an unexcused absence cannot be made up. The University's \$10.00 late-test fee must be paid in advance.

VI. CLASS CALENDAR

READ

Session 1—Intro-Syllabi	No reading
Session 2—The Nature of Sound	Chapter 1
Session 3—Physics & Psychophysics	Chapter 2
Session 4—Acoustics, Studio design	Chapter 3
Session 5—Acoustics continued	No reading
Session 6—Microphones	Chapter 4
Session 7—Cables and connectors	No reading
Session 8—Mixers and consoles	Chapter 5
Session 9—Impedance matching	No reading
Session 10—Console practice, review	No reading

Session 11—EXAM I	
Session 12—Lab-consoles and DAW	No reading
Session 13—Lab-consoles and DAW	No reading
Session 14—Analog	Chapter 6
Session 15—Foley	No reading
Session 16—Digital	Chapter 7
Session 17—Lab-consoles and DAW	No reading
Session 18—Lab-consoles and DAW	No reading
Session 19—Movie-Twister	No reading
Session 20—Sync and MIDI	Chapter 8
Session 21—Record sound effects	No reading
Session 22—Processing	Chapter 9
Session 23—Lab-processing gear	No reading
Session 24—Speakers, review	Chapter 10
Session 25—EXAM II	
Session 26—Lab-ProTools	No reading
Session 27—Lab-DAW	No reading
Session 28—Lab-Micing session	No reading
Session 29—Final review	

Course Inventory for ORU's Student Learning Outcomes

MMC 128—Principles of Audio Production Spring 2005

This course contributes to the ORU student learning outcomes as indicated below:

Significant Contribution – Addresses the outcome directly and includes targeted assessment.

Moderate Contribution – Addresses the outcome directly or indirectly and includes some assessment.

Minimal Contribution – Addresses the outcome indirectly and includes little or no assessment.

No Contribution – Does not address the outcome.

The Student Learning Glossary at <http://ir.oru.edu/doc/glossary.pdf> defines each outcome and each of the proficiencies/capacities.

OUTCOMES & Proficiencies/Capacities		Significant Contribution	Moderate Contribution	Minimal Contribution	No Contribution
1	Outcome #1 – Spiritually Alive Proficiencies/Capacities				
1A	Biblical knowledge			X	
1B	Sensitivity to the Holy Spirit			X	
1C	Evangelistic capability		X		
1D	Ethical behavior		X		
2	Outcome #2 – Intellectually Alert Proficiencies/Capacities				
2A	Critical thinking		X		
2B	Information literacy		X		
2C	Global & historical perspectives			X	
2D	Aesthetic appreciation		X		
2E	Intellectual creativity		X		
3	Outcome #3 – Physically Disciplined Proficiencies/Capacities				
3A	Healthy lifestyle			X	
3B	Physically disciplined lifestyle			X	
4	Outcome #4 – Socially Adept Proficiencies/Capacities				
4A	Communication skills	X			
4B	Interpersonal skills	X			
4C	Appreciation of cultural & linguistic differences		X		
4D	Responsible citizenship			X	
4E	Leadership capacity	X			