

Instructor: Dale Brown

Office: Mass Comm 157 (Audio Maintenance)

Office hours: W, R 9:00-10:00, other times when available – best to always call first!

Phone: (615) 898-2087

e-mail: djbrown@mtsu.edu

GENERAL INFORMATION

Course Overview:

4200 is a core RIM course designed to introduce students to the theory and application of digital audio technology in the context of sound recording and reproduction. The course will combine required reading, technical lectures, demonstrations and lab exercises to explore topics including numeric systems, computer and processing architecture, analog-to-digital conversion, professional digital audio interfaces and formats, digital audio workstations and basic audio processing and editing techniques. (See summary of major concepts and specific “learning objectives” below.)

Prerequisites:

Recording Industry majors must have received admission to candidacy and RIM 1230 or MUTH 1110. All others require permission from the department.

Textbooks and Supplies:

- Rumsey, Francis. *Desktop Audio Technology*. Focal Press, 2004.
- Menasche, Emile. *The Desktop Studio*. Hal Leonard, 2002.
- My class website: www.mtsu.edu/~djbrown/4200.html
- 10-20 blank CD-Rs (not CD-RW)
- Several jewel cases – these can be recycled; count on more than one being used at a time

Attendance and Behavior:

RIM 4200-002 meets on M-W from 4:10-5:35 in AMG 120.

Consistent attendance and preparation is expected and required. A maximum of three absences (for any reason) will be accepted without penalty. However, any student absent more than three times will be considered to receive a course grade of **F** for the semester.

The policies provided in the MTSU Student Rights and Responsibilities Handbook shall govern all matters of academic responsibility, civil behavior and disciplinary sanctions.

Students with Disabilities:

If you have a disability that may require assistance or accommodation, or you have questions related to any accommodations for testing, note takers, readers, etc, please speak with the instructor before the class's second meeting. Students must be registered with the Office of Disabled Students Services (898-2783) to receive special services.

Tennessee Education Lottery Scholarship Eligibility:

To retain Tennessee Education Lottery Scholarship eligibility, you must earn a cumulative TELS GPA of 2.75 after 24 attempted hours and a cumulative TELS GPA of 3.0 thereafter. A grade of C, D, F, or I in this class may negatively impact TELS eligibility. Dropping a class after 14 days may also impact eligibility. If you withdraw from this class and it results in an enrollment status of less than full time, you may lose eligibility for your lottery scholarship. For additional lottery scholarship rules please refer to your Lottery Statement of Understanding form, review lottery scholarship requirements on the web at <http://scholarships.web@mtsu.edu/telscontelibibility.htm>, or contact the MTSU financial aid office at 898-2830.

ASSIGNMENTS AND ASSESMENTS

Lab Assignments (8 @ 40 pts each)	320 pts	40%
Lab Final Project	80 pts	
Homework, Quizzes, etc.	100 pts	10%
Tests (3 @ 100 pts)	300 pts	30%
Final Exam	200 pts	20%
TOTAL	1000 pts	100%

Note: Point totals may differ slightly from stated quantities.

Grading Scale:

- A 90 to 100%
- B 80 to 89%
- C 70 to 79%
- D 60 to 69%
- F 0 to 59%

Note: The College of Mass Communication does not award plus/minus grades.

ASSIGNMENT DETAILS

Tests:

Three tests covering reading assignments and lecture material will be given during the semester. Makeup tests will not be given. If any test is missed, the grade of the final exam will be assigned to that exam grade. **IF YOU ARE PRESENT ON THE DAY OF THE TEST, YOU ARE REQUIRED TO TAKE THE TEST.**

Labs:

Labs will be collected at the **BEGINNING OF CLASS** on the assigned date. **LABS TURNED IN AFTER THE BEGINNING OF CLASS ON THE DAY THEY ARE DUE WILL BE PENALIZED 10% FOR EACH CLASS DAY THEY ARE LATE!** Labs will not be accepted after the subsequent lab's due date, and that lab will receive a grade of **ZERO**.

The Digital Audio Lab (AMG 120) will be open according to the schedule posted at the lab. Students are responsible for booking their personal lab times using the BOOK KING reservation program.

Labs can be performed on computers other than those in the Lab; however, it is the student's responsibility to ensure that the assignment executes correctly **ON THE LAB EQUIPMENT** for proper evaluation.

Other grades:

Homework will pertain to assigned reading. This homework will be graded for accuracy. Homework will **NOT** be accepted late.

Pop-quizzes are possible **at any time** over assigned reading. Any missed pop-quizzes will **NOT** be given again.

Final Exam:

The final exam must be taken to pass the course. The final exam will be given **ONLY** at the scheduled time for your section of the course.

This syllabus is subject to change without notice.

SUMMARY OF TOPICS AND CONCEPTS

Numbers and binary representations

- Decimal, binary and hexadecimal systems
- Fixed point and floating point representation
- Other binary coding schemes

Digital Audio Workstations

- DAW processes and applications
- DAW architecture: tracks v. channels v. files
- Native v. DSP (chip/card)-based applications
- Audio drivers: ASIO, Core Audio, WDM
- Peripherals: audio interfaces, MIDI, machine control
- Hardware and software latency and buffers
- Plug-in formats

Computers, general-purpose storage and peripherals

- Hardware - CPU, memory, I/O, peripherals
- Software - OS, applications, drivers
- HDDs, optical and tape-based storage media
- Storage filing systems (FAT, HFS+, NTFS, CDs, DVDs)
- Peripheral interfaces (IDE, SATA, SCSI, SAS, USB, IEEE 1394)

Audio Communication

- Computer file formats: forks, headers, chunks, bit-orientation
- Audio file formats: SD-II, WAV, BWF, MP3
- File and EDL interchange
- Digital audio interfaces and protocols (AES/EBU, S/PDIF, TDIF, Lightpipe, MADI, etc.)
- Networks

Digital Audio Technology

- Sampling: Nyquist theorem, aliasing
- Quantization: wordlength, dither
- Oversampling and noiseshaping
- PCM v. DSD
- Psychoacoustic data reduction; lossy and lossless compression
- DSP: gain changing and mixing; FIR and IIR filters; convolution
- Stereo and multichannel audio delivery formats

LEARNING OUTCOMES

- By successfully completing the sequence of lab exercises, students should be able to configure and perform basic editing operations in a professional-level digital audio workstation.
- Students should demonstrate their ability to relate lab-based skills, digital audio principles and software and hardware parameters to the larger body of knowledge known as “state of the art” in the audio industry through acceptable performance on theory-based tests and assignments.
- Students should prepare themselves for more advanced courses and practical work in the MTSU studios by demonstrating Pro Tools competency and basic digital audio literacy.