Audio Engineering II – Audio 255
Winter 2015

Instructor: Steve Gamberoni
Office Hours: Mon, Wed, 11:30-1:30; Th 12:30 - 1:30 p.m., and by appt.
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Objective: At the completion of this course students will be able to implement more advanced audio engineering techniques and studio procedures used on professional recordings. Topics will include: studio set-up, documentation, stereo microphone techniques, analog/digital signal flow, level calibration, advanced signal processing and professional mixing techniques. Instruction will consist of lectures, in-class recording demonstrations and hands-on studio projects using both analog and digital equipment.

Prerequisite: Must have successfully completed Audio 155, 156, and 209.

Schedule: Classes will be held in the studio (bldg 15/ room 22) Tuesday and Thursday from 11:30 a.m. until 12:20 p.m. This class also has one lab per week. Students will be assigned one of two lab times as follows: group A labs are Tuesdays 2:00 p.m. – 6:00 p.m. and group B labs are held on Wednesdays from 2:00 p.m. – 6:00 p.m.

Grading: Written/ Practical Midterm **25%**, Written/ Practical Final **30%,** Quizzes **15%**, Projects: #1 @ **10%**, #2 @ **15%,** Homework **5%.**

Attendance Policy: As with any class, showing up prepared and on time is crucial to success. Hence, attendance will be taken at each class/ lab. **Anyone with 2 unexcused absences from either lab or class will have their grade lowered one letter; more than 4 unexcused absences will result in failure.** (Please see attendance policy below). **Note: No make-ups for unexcused absences!**

Textbooks/Required Materials: Text: *Mixing Engineers Handbook 3rd edition* by Bobby Owsinski, *Modern Recording Techniques 8th edition* by Huber and Runstein, and handouts provided by instructor, 5 CD-R's to burn mixes to and a notebook (to take notes – of course).

The instructor reserves the right to change this syllabus due to extenuating circumstances or by mutual agreement between the instructor and the students

Schedule

Class	Subjects Covered	Objectives
Week 1	Introduction and Review	Introduction of instructor. Discuss guidelines and expectations for the term. Discuss the syllabus and class schedule. Review control room signal flow and setup.
Week 1 Lab	Review of console signal flow	Demonstrate signal routing with patch bay. Utilize analog outboard gear with a DAW set up.
Week 2	Session Documentation	Describe how to document tracking and mix sessions. Describe the logistics involved in setting up a large recording session.
Week 2 Lab	Documentation	Document a recording/ mix session.
Week 3	Stereo Mic Techniques	Review different mic types/ DI's and features. Explain comb filtering and how to discern when signals are out of phase. Explain and discuss stereo microphone placement techniques.
Week 3 Lab	Stereo Mic Techniques – simple acoustic session	Set up and record acoustic instruments using stereo mic techniques.
Week 4	Binaural Recording and Localization	Discuss application of coincident and near coincident stereo mic techniques and describe basic psychoacoustic principles of localization.
Week 4 Lab	Stereo Mic Techniques – simple acoustic session II	Finish recording acoustic instruments and begin editing/ mixing.
Week 5	Signal Processing I EQ & Dynamics: types, function, applications	Review different types of EQ's, compressors, limiters, & their functions. Apply creative techniques while recording or mixing using side chain and key inputs. Listen to and discern different EQ and dynamics processors on various instruments/ program materials.
Week 5 Lab	**Practical Midterm Review**	Practice setting up stereo mic techniques, patching in gear and applying signal-processing techniques.
Week 6	Signal Processing II Time based, pitch shifters, re-amping	Review different types of time based processors and functions. Assess creative applications of such. Discuss the re-amping technique, and how to set up the studio as an echo chamber. Discuss analog tape slap. Listen to examples of tape delay.
Week 6 Lab	**Take practical midterm**	

Class	Subjects Covered	Objectives
Week 7	Set up for large tracking session.	Discussion of advanced drum micing and guitar micing techniques and how to correct phase issues.
Week 7 Lab	Large Tracking Session	Apply advanced micing techniques while recording an electric band
Week 8	Set up for Overdub Session	Evaluate mic selection, mic placement techniques and signal processing used for recording vocals. Discuss/apply various record modes and punch in techniques. Discuss workflow and how to efficiently overdub parts.
Week 8 Lab	Overdub Session	Overdub vocals and instrumental parts.
Week 9	Mixing Part I	Identify 6 elements of a great mix. Listen to and evaluate professional mixes based on these 6 elements. Utilize mixing as a song-arranging tool. Critical listening; identifying and correcting phase issues during the mix.
Week 9 Lab	Mixing Lab I	Set up to begin mixing student projects. Apply re-amping technique on Bass/ Guitar DI tracks.
Week 10	Mixing Part II	Discuss proper gain staging while mixing on consoles or "in the box". Discuss formats used, and stem mixing. Explain reference levels and how to calibrate two track recorders. Discuss how to optimize monitoring set up.
Week 10 Lab	Mixing Lab II	Students continue mixing and apply signal-processing techniques learned thus far. Students will calibrate two track recorders, then document and print final mixes.
Week 11	Review/ Practical Exam	Cumulative review.
Week 11 Lab	Review/ Practical Exam	Finish mixing/Cumulative review.
Week 12	Final Exam	Take Exam

Project 1: Students will record and document a simple acoustic session with 2-3 instruments (i.e. vocal and acoustic guitar, a simple percussion ensemble, etc.) during 1 lab session.
Students will then mix and edit the tracks individually in the MIDI lab. Every student will then turn in a finished audio CD and their recording documentation.

Project 2: Students will record and document an electric band with 4 - 6 instruments (i.e. drums, bass, guitar and vocals, etc.). Students will then mix the project as a group. Each mix will be documented. Then each lab group will turn in a finished audio CD, as well as their recording and mix documentation.

Plagiarism and Cheating Policies

Cheating: Any dishonesty or deception fulfilling an academic requirement such as:

1. Use and/or possession of unauthorized material; or technology during an examination.
2. Obtaining assistance with or answers to examination questions from another person with or without that person's knowledge.
3. Furnishing assistance with or answers to examination questions for another person.
4. Possessing, using, distributing, or selling unauthorized copies of examinations or computer programs.

Plagiarism:

1. Submitting another's published or unpublished work, in whole or in part or through paraphrase as one's own without fully and properly crediting the author through footnotes, citations or bibliographical reference.
2. Submitting as one's own original work, material obtained from an individual, agency or website without reference to the original document as the source of the material.
3. Submitting as one's own original work, material that has been produced through unacknowledged collaboration with others without the written release from the collaborators.

Consequences:

1. First offenders will receive a failing grade on the affected test, or assignment. Documentation regarding this offense will be placed in the student's file.
2. Second offenses may result in the student being dismissed from the course.
3. Subsequent offenses may result in the student being suspended or dismissed from the school.

Attendance Policy

*An excused absence is defined as those that are pre-approved by the instructor, that is when the instructor is informed of the absence prior to the class, or in cases such as a family emergency, serious illness documented by a doctor, or other similar reason. Absences not meeting these criteria are considered unexcused.

*If you wish to have your absence excused, please present supporting documentation and/or a brief statement addressed to the instructor. Once the instructor has made a determination you will be given a response.

*If a student has an unexcused absence on the day of a test or when an assignment or project is due, the student will receive a 0 grade for that particular assessment.

*If a student shows up five minutes or more after the class starts, the student will be considered late; after 20 minutes - absent. Showing up late two times will count as one unexcused absence.