MTEC 378 Introduction to Mixing and Mastering

Instructor:

Andrew Garver
E-mail: garver@usc.edu Add "MTEC 378" to the Subject
Mailbox: TMC 118
Office: TMC 107 {or MUS 103}
Office Hours: Tuesday and Thursday by appointment

Prerequisite Classes: MTEC 446A Computer Assisted Recording and Editing Equipment (Must have to take class)

Stereo Headphones with ¼ inch jack (or ¼ inch adapter)

Mac compatible USB drive with at least 20GB of free space.

Textbooks (Optional):

Mixing Secrets for the Small Studio by Mike Senior
The Mixing Engineer's Handbook by Bobby Owsinski
Mixing Audio 2e 2nd Edition by Roey Izhaki
Mixing and Mastering in the Box: The Guide to Making Great Mixes and Final Masters on Your Computer by Steve Savage

Other resources: http://www.soundonsound.com/
https://blackboard.usc.edu (Lynda.com)
http://mixonline.com/
http://www.recordingmag.com/
Alan Parson's the *Art And Science of Sound Recording* DVDs

Course Description

With the guidance of an experienced audio engineer, students will learn the fundamental principles and techniques needed to fuse multiple audio elements into a clear comprehensive final product. By the end of this class, students should be able to deliver professional sounding stereo audio files, that can be used on TV, radio, film and the internet. The course will examine various creative and technical issues used in modern music production, including level control, frequency content, stereo imaging, and spatial depth. Lessons will include equalization and dynamic level adjustment of stereo content to make it competitive, balancing audio tracks, panning, dynamics (compressors, limiters, expanders, and gates), enhancers, delays and reverb.

Requirements, Exams and Grading Information

Student evaluation in this class will consist of a variety of work. In class and take home exercises stressing concepts will be assigned in class, and must be turned in one week later. Projects will consist of audio assignments and in class demonstrations of concepts discussed. Concise instructions for all exercises will be available at a later date.

Attendance is mandatory and will count towards your final grade, as part of class and lab participation. Because of the importance of hands-on experience with this subject, participation in all classes and labs is the only method of understanding the concepts of

this topic. Attendance will be taken at each class, and each absence will be noted. After two absences, your grade will be lowered one-half grade for each additional absence. There is no distinction in this class between "excused" and "unexcused" absences—all will be counted. In the event of a serious situation such as illness that causes you to miss more than three classes in a row, you should contact Professor Garver as soon as possible.

Throughout the semester, questions about your grades should be addressed immediately. Do not wait until the semester has ended to resolve a grading issue.

Statement on Academic Conduct and Support Systems

Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards*https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct/.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* http://equity.usc.edu/ or to the *Department of Public Safety* http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* http://www.usc.edu/student-affairs/cwm/ provides 24/7 confidential support, and the sexual assault resource center webpage sarc@usc.edu describes reporting options and other resources.

Support Systems

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* http://dornsife.usc.edu/ali, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.htmlprovides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information http://emergency.usc.edu/*will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

Blackboard:

Course materials, assignments, documentation and grades will be posted on Blackboard at **https://blackboard.usc.edu/**.

Communication:

Please make it a habit to use/check your USC E-mail account. Any E-mails sent to the class will only use your USC E-mail account.

Grading: Update with projects

1. Exercises	30%
2. Mastering Project	15%
3. Mixing Project	15%
4. Final Project	30%
5. Class participation	10%

GRADING SCALE	
100 - 94	A
93 – 90	A-
89 - 87	B+
86 - 83	B
82 - 80	B-
79 - 77	C+
76 - 73	C
72 - 70	C-
69 - 67	D+
66 - 64	D
63 - 60	D-
Below 60	F

Class Schedule:

Week 1 ***Elements of Sound and Audio Recording***
Levels, Frequencies, Phase

Week 2 ***Understanding the Sound: Monitoring***
The Room, The speakers, Headphones, Controls
Exercise – Reference Tracks

Week 3 **Aspects of a good mix**
Levels, Panning, Frequencies, Interest
Metering: Peak, RMS, Loudness
Exercise: Take Home Listening Examples

Week 4 ***Mastering – Basics***
Identifying Basic Problems, Signal flow, Gain staging
Inserts and plug-ins
Exercise: Picking the best source audio

Week 5 ***Limiting, Compression, Enhancing a stereo Mix***
Level Matching, Apparent Level, Stereo Compression, Distortion, Clipping, Saturation
Exercise: In class and Take Home: Level Matching Songs

Week 6 ***Equalizing Stereo Mix***
Filter types, EQ Types, Frequency Ranges and Affect
Exercises – 3 Song Mastering Project

Week 7 **Mastering Project**

Week 8 **Mastering Project Evaluations**

Week 9 ***Rough mix***
Finding the important tracks
Identifying problems: Levels, EQ, Phase
Organizing the mix
Track Layout and Naming
Color coding
Exercise – Basic Levels

Week 10 ***Controlling Level***
Automation
Compression
Limiting
Sub mixing
Exercise: Routing and Levels?

Week 11 **Panning and *Controlling Frequencies***
EQ
Filtering
Enhancement
Highs
Bass
Sub Bass
Psycho-acoustic Bass
Exercise: Panning and EQing the Mix
Reading: *4.2 Panning*
4.3 Processing: EQ

Week 12 ***Adding Space To The Mix***
Routing Time Effects
Delays: Timing, Feedback, Control
Reverb: Types, Timing, Control
Exercises: Using Delays and Reverb

Week 13 ***Making The Mix Interesting***
- *Final Automation*
- *Final Listen*
- *Fix or wreck*

Exercise: Automation

Week 14 ***Printing Mixes***
- ***Different versions***
  - ***Vocal up/down***
  - ***TV Track***
  - ***A cappella***
  - ***Instrumental***
  - ***Backing Up***

Exercise: Printing Different Versions

Week 15 ***Final Mix and Mastering Project***

Week 16 ***Final Mix and Mastering Evaluations***