# MTEC 378  Introduction to Mixing and Mastering
Course Syllabus Spring 2020

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## Course Prerequisites

MTEC 446A Computer Assisted Recording and Editing

## Course Goals

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 will be assigned in class and must be turned in one week later, unless indicated otherwise. Projects will consist of audio assignments and in class demonstrations of concepts discussed. Concise instructions for all assignments and exercises will be available via BlackBoard.

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 your instructor 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.

## Blackboard:

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

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## Communication

Please make it a daily habit to use/check your USC E-mail account. Any E-mails I send to the class will use that account. ***Please add **"MTEC 378"** in the subject header of all emails*** This will help me to organize all the emails that I receive and respond to you more quickly. In addition, all course materials and class grades will be posted on BlackBoard (http://blackboard.usc.edu). For example, the course syllabus can be found under Syllabus and class assignments under Assignments.

## Grading Summary

1. Participation          15%
2. Exercises             45%
3. Mastering Project     10%
4. Final Exam Project    30%

## Textbooks (optional)

Senior, Mike. Mixing Secrets for the Small Studio

Owsinski, Bobby. The Mixing Engineer's Handbook (4th edition)

Izhaki, Roey. Mixing Audio Concepts, Practices, and Tools (3rd Edition)

Savage, Steve. Mixing and Mastering in the Box: The Guide to Making Great Mixes and Final Masters on Your Computer

## Other Resources

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

## Additional Materials

1. Headphones (Sony, MD 7506 or the equivalent **REQUIRED** for every class meeting)
2. USB Memory Stick and/or other external storage device

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## Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open Monday through Friday, 8:30 a.m. - 5:00 p.m. The phone number for DSP is (213) 740-0776.

## Grading Scale:

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

**Assignments** are due by the beginning of the class period as indicated on Blackboard. Assignments turned in after the deadline will be marked late and penalized 10% for that day as well as 10% for each additional day or portion of a day that they are late. Allow for slow Internet connections and server upload time so that your files are completely uploaded before the deadline. The Final Project may not be submitted late. Final projects not turned in by the deadline will receive a grade of zero.

## Notes

*Each class will contain both theoretical and practical experiences. In general, I will present the day's subject material during the first part of the class then work on it for the remainder. Should the needs of the class so dictate, I reserve the right to change the course outline. You will be notified of any substantive schedule changes.

## Schedule

**Week 1**    **Introduction**

Course outline, expectations, policy and procedures

Mixing as an art - Objective/subjective

Characteristics of a Great Mix

Genera specific mixing

Techniques over Tools

Practice makes perfect

Importance of Reference tracks

Assignment: Exercise 1_Selecting Reference Tracks

**Week 2**      **Understanding Sound: Monitoring**

The Room, the speakers, headphones, controls

Setting up the mix space - Cross referencing

Loudness affects perception

Bass Management

Spectrum Analyser - Voxengo SPAN Plus

Critical listening and ear training

iZotope Pro Audio Essentials

Assignment: Exercise 2_Critical listening EQ


**Week 3**      **Signal Flow and Routing**

Inputs, Outputs and Busses

Inserts (Pre-fader) - Serial Processing

Sends and Auxiliary Effects

Subgrouping and Sub-mixing

Pre/Post fader metering

Master Fader (Postfader Inserts)

Templates and consistency

Aux Channel master processing

Assignment: Exercise 3_ Fix the Mix


**Week 4**      **Preparing the Mix Session and Optimization**

Optimization practices

H/W Buffer and DAE Playback

Preferences, settings and standards

System Usage window

Track layout, naming and navigating (CNTRL + Shift)

Color coding

I/O Labeling

BNCE Bus Demo

Unused tracks - Hide and make inactive

Memory Locations (Markers and General Properties)

Assignment: Exercise 4_Building a Mix Session Template

**Week 5**     **Getting Started - Building a Rough Mix**

Game plan - Genera, strategy, artistic direction

Visualize the Mix (Audience Perspective)

Panning - Mono versus stereo instruments

Frequencies and spacial relationships

Amplitude (levels) and Dynamic Range

Foreground and Background elements

Identifying problems: Levels, EQ, Phase

Import reference material

Metering: Peak, RMS, Loudness

Assignment: Exercise 5_Mix 1


**Week 6**     **Equalization and Controlling Frequencies**

EQ (Frequency Specific Level Control)

EQ Perspective and Spectral Mixing

Cutting over Boosting (Sound quality and headroom)

Key of song and fundamental frequencies (Bass)

Filtering (Highpass/Lowpass)

Tempo and EQ relationships

Assignment: Exercise 6_Critical Listening EQ


**Week 7**     **Dynamic Processing**

Compressors/Limiters (Level dependent volume control)

Gates and Expanders (Reduce underlying noise)

DeEssers  (frequency dependent) Range = Amount of Attenuation

Transient Shapers - Reshaping an instrument's envelope

Compressing a vocal (limit dynamic range)

Compressing drums (added punch using attack and release)

Buss Compression and Limiting

Parallel, New York and upward compression

Assignment: Exercise 7_Mix 2

**Week 8**      **Adding Space To The Mix**

Routing Time Based Effects

Delays: Timing, Feedback, Control

Reverb: Types, Timing, Control

Modulation: Types and application

Copy presets Audio Suite

Assignment: Exercises 8_Mix 3


**Week 9**      **Automation Strategies**

Static versus Dynamic mixes

Making dynamic adjustments over time

Automation, modulation and transparency

Real-time recording automation versus graphic editing

Defining focal points throughout the track

Automating Mutes and EQ to create space

Automating plugin parameters


**Week 10**      **Printing Mixes**

Different versions

> Vocal up/down
>
> A cappella
>
> Instrumental
>
> More about Backing Up

Printing Internally

Bouncing Stems

Assignment: Exercise 9_Printing Mix Versions


**Week 11**      **Mastering - Basics I**

Identifying Basic Problems, Signal flow, Gain staging

Inserts and plug-ins

Limiting, Compression, Enhancing a stereo Mix

Level Matching, Apparent Level, Stereo Compression, Distortion, Clipping, Saturation

Assignment 10: Mastering Project

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**Week 12**   **Mastering - Basics II**
Equalizing Stereo Mixes
Tone Matching, Filter types, EQ Types, Frequency Ranges
Assignment 11: Final Project

**Week 13**   Work on Mastering Project

**Week 14**   **Guest Speaker TBA**

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

**Week 16**   Final Mix and Mastering Project due

## 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.