

# MTEC 378 Introduction to Mixing and Mastering

## Course Syllabus Fall 2019

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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/>.

# MTEC 378 Introduction to Mixing and Mastering

## Course Syllabus Fall 2019

### 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      | 10% |
| 2. Exercises          | 45% |
| 3. Mastering Project  | 15% |
| 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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# MTEC 378 Introduction to Mixing and Mastering

## Course Syllabus Fall 2019

### 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 (8/29) 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

# MTEC 378 Introduction to Mixing and Mastering

## Course Syllabus Fall 2019

### **Week 2 (9/5) 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 (9/12) 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 (9/19) 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

# MTEC 378 Introduction to Mixing and Mastering Course Syllabus Fall 2019

## **Week 5 (9/26) 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 (10/03) 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 (10/10) 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 (10/14) Fall Recess - No class**

# MTEC 378 Introduction to Mixing and Mastering

## Course Syllabus Fall 2019

### **Week 9 (10/24) 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 10 (10/31) 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 11 (11/07) 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 12 (11/14) 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

# MTEC 378 Introduction to Mixing and Mastering

## Course Syllabus Fall 2019

### **Week 13 (11/21) Mastering - Basics II**

Equalizing Stereo Mixes

Tone Matching, Filter types, EQ Types, Frequency Ranges

Assignment 11: Final Project

### **Week 14 (11/28) Thanksgiving - No Class**

### **Week 15 (12/05) Work on Final Mix and Mastering Project**

### **Week 16 (12/09) 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](mailto: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/academicssupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicssupport/centerprograms/dsp/home_index.html) provides certification for students with disabilities and helps arrange the

## MTEC 378 Introduction to Mixing and Mastering Course Syllabus Fall 2019

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.