

# MTEC 53A: AUDIO PLUG-INS & SIGNAL PROCESSING

## Foothill College Course Outline of Record

| Heading                            | Value   |
|------------------------------------|---|
| <b>Effective Term:</b>             | Summer 2021   |
| <b>Units:</b>                      | 4   |
| <b>Hours:</b>                      | 3 lecture, 3 laboratory per week (72 total per quarter) |
| <b>Advisory:</b>                   | Not open to students with credit in MUS 81D.            |
| <b>Degree &amp; Credit Status:</b> | Degree-Applicable Credit Course                         |
| <b>Foothill GE:</b>                | Non-GE  |
| <b>Transferable:</b>               | CSU   |
| <b>Grade Type:</b>                 | Letter Grade (Request for Pass/No Pass)                 |
| <b>Repeatability:</b>              | Not Repeatable  |

## Description

Creative applications of software plugins and outboard hardware used in contemporary music production and sound design. Signal processing, equalization, compression, Beat Detective, distortion, reverb, delay, pitch correction, modulation, advanced plugin automation techniques. Compare plugins and processors from different companies, including Sonnox, McDSP, Massey, Avid, Antares and Waves. Practice with a wide range of material and genres, including rock, pop, hip-hop, jazz, acoustic, orchestral, electronic and spoken word. Apply techniques to any digital audio workstation, including Pro Tools, Logic, Ableton Live and Studio One, and traditional analog mixing consoles.

## Course Objectives

The student will be able to:

- Apply plugins directly to a track in a multitrack recording.
- Apply plugins to multiple tracks via buses and aux tracks in a multitrack recording.
- Explain equalization and compression techniques as standardized in the modern recording industry.
- Create a master track and apply various styles of mastering compression to the final mix.
- Pitch correct a vocal and instrumental track with Antares Auto-Tune with no audible artifacts.

## Course Content

- Applying plugins to a Pro Tools session.
  - Use and application of all Avid distributed plugins.
  - Use and application of all McDSP distributed plugins.
  - Antares Auto-Tune.
- Creative application of AAX plugins.
  - Applying pitch correction via Auto-Tune applied to vocals and solo instrumental tracks.
  - Design and application of groove quantization using Beat Detective to alter rhythmic characteristics of both MIDI, virtual instrument, and audio tracks.
  - Design and application of proper equalization and compression techniques.

- Design and application of plugin automation.

## Lab Content

Lab content includes topics such as:

- Microphone modeling with DSP (digital signal processing)
- Gain settings
- Monitor system setup
- Amplification calculations based on system requirements
- Other items may include subjects such as number of plugins per insert track, bus assignments for efficient recording operation, and mastering compression settings

## Special Facilities and/or Equipment

A. When taught on campus:

- Classroom with 31 Avid Pro Tools systems and appropriate versions of Pro Tools.
- 31 Apple iMacs.
- Projection system for video and multimedia content.
- Waves Level I software bundle.

B. When taught via Foothill Global Access:

- On-going access to computer with email software and capabilities.
- Email address.
- JavaScript enabled internet browsing software.

## Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Written examinations on plugin parameters and application

Preparation and presentation of a recording edited and altered via the use of both real time and Audio Suite plugins

Lab assignments targeting specific plugin techniques

In-person demonstration of plugin applications

## Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lecture presentations that demonstrate modern signal processing techniques

Classroom discussions that address the history and evolution of analog and digital signal processing as applied to music production and sound design for film and television

Group presentations followed by in-class discussion and evaluation

## Representative Text(s) and Other Materials

Izhaki, Roey. [Mixing Audio: Concepts, Practices, and Tools, 3rd ed.](#) 2017.

## Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- Written critiques and analyses of audio production projects, including albums, soundtracks, television, video games and internet multimedia.
- Written summaries documenting technical and artistic elements for corresponding submitted assignments and audio projects.

C. Written proposals, session logs, learning outcomes and reflections supporting submitted musical works and final master recordings.

## **Discipline(s)**

Commercial Music