

# Pro Tools for the Music Educator

## Course Outline 2018

by Michael Fein

### Pre-assignment:

1. Read *Microphone Techniques for Recording* produced by the Shure microphone company. Create a content organizer highlighting the key ideas presented (I suggest an outline format). Since this publication is incredibly detailed, feel free to reference page numbers for the various microphone placement diagrams and focus your content organizer on the longer text sections.
  - a. Web link:  
[http://cdn.shure.com/publication/upload/837/microphone\\_techniques\\_for\\_recording\\_english.pdf](http://cdn.shure.com/publication/upload/837/microphone_techniques_for_recording_english.pdf)
2. Stereo recording is very important to capture the sound single instruments and large ensembles. Read/view the following resources about stereo recording techniques and develop a content organizer to highlight the key ideas presented in the each (I suggest an outline format). Feel free to include your personal thoughts/preferences of the various recordings.
  - a. *6 Stereo Miking Techniques You Can Use Today* by Mark Garrison  
<http://music.tutsplus.com/tutorials/6-stereo-miking-techniques-you-can-use-today--audio-204>
  - b. *Episode 5 – Stereo Microphone Techniques* by Nuno Gama  
<https://www.youtube.com/watch?v=GU0pBuOrWs>
  - c. *Stereo Micing Techniques* by eSessions Studios  
<https://www.youtube.com/watch?v=YZdnqxdOqUM>

### Day 1 - Basic Editing

1. Course Syllabus, Outline, Ice Breaker
2. Intro to Google Drive / Classroom
3. Intro to Pro Tools
  - a. History of Computer Audio
    - i. Audio history of game music  
<https://www.youtube.com/watch?v=a324ykKV-7Y> ,  
<http://viewpure.com/a324ykKV-7Y?start=0&end=0>
    - ii. History of Computer Audio -  
<http://www.musicradar.com/us/news/tech/a-brief-history-of-computer-music-177299>
      1. Ferranti Mark 1 (1951) - Computer music  
<https://www.youtube.com/watch?v=2i2ylXomcSo>
      2. Max Mathews - (1957) Bell Labs music -  
<https://www.youtube.com/watch?v=PM64-lqYyZ8>

3. Commodore 64 in action!  
<https://www.youtube.com/watch?v=hI8-oBgJFEY>
  4. Commodore 64 game music  
<https://www.youtube.com/watch?v=CT2GEVqsomQ>
  5. Atari ST Music -  
<https://www.youtube.com/watch?v=iLvEOYAiaIw>
  6. Steinberg Cubase (1989) -  
<https://www.youtube.com/watch?v=OlspnqVcJho>
- b. History of Pro Tools and Digital Audio PPT - <https://goo.gl/N6Bv81>
  - c. Pro Tools Demo Session (Fein Jazz Mix) - File structure and Setup
    - i. Setup > Playback Engine (set in/out device and buffer)
    - ii. Setup > I/O (reset the I/O routing)
    - iii. Transport Window
    - iv. Memory Locations
    - v. Mix vs. Edit
    - vi. Mix Window - solo/mute, gain, pan, insert effects, sends
    - vii. Tracks - Audio, Instrument, AUX, Master
    - viii. Score View
4. Basic Audio Editing
    - a. Yoda Death Scene
      - i. Example video - <https://vimeo.com/39507943>
      - ii. Correct Yoda's grammar in Pro Tools ("When 900 years old...")
    - b. PTiME Module 1 - Speech Mashup
      - i. Edit multiple speeches for 1 min file
        1. Add portions of music (Beethoven, Saint-Saens, Fein) to fill 0:00-1:00.
        2. Add portions of various speeches.
        3. As you work, consider completing the following steps:
          - a. Separate regions from each speech (Command + E)
          - b. Move the regions in SLIP mode
          - c. Overlap audio on new tracks (Track > New, stereo audio)
          - d. Fade/cross-fade regions (select audio, Command + F)
          - e. Adjust volumes and panning (Mix window)
          - f. Audio Suite plug-ins (Reverse, pitch shift, etc. → click Render to apply the effect)
        4. Bounce completed file
    - c. PTiME Module 1 - Extend a multi-track song with edits
      1. Listen and solo each track
      2. Rough Mix - volume/panning of each track
      3. Create a click track and find correct tempo (102 bpm, actually 102.05 bpm works best)

4. Separate regions in GRID mode to extend the file length (use the ALL group) - 8 bar phrases
5. Remove 1 bar drum beat.
6. Select all and drag over to bar 9.
7. Create an intro

## Day 2 - Essential Effects and Stereo Audio

1. PTiME Module 1 - Extend a multi-track song with edits
  - i. Create a coda
  - ii. Using Shuffle mode, copy a section and turn it into a breakdown (drum hits, sparse accompaniment)
  - iii. Add volume automation (such as a fade in/out)
  - iv. Bounce and share in Google Classroom
2. Mixing in Pro Tools Skill Pack - EQ (p.1-22)
  - a. High-pass and Low-Pass Filters: Remove snare and remove kick from existing audio clips.
  - b. Shelving filters: Reduce bass from a loop and add sizzle to strings
  - c. Peak filters: Remove hum, EQ a drum kit (kick, snare, hi-hat)
  - d. Instant Stereo: EQ right and left opposite each other
  - e. EQ to add clarity to bass and kick by carving out opposing frequencies
3. Mixing in Pro Tools Skill Pack - Dynamics (p.23-44)
  - a. **Threshold:** Even out bass attacks
  - b. Knee: Reshape crescendo of machine gun snare
  - c. **Pumping:** Adjust attack to create a “crescendo” feel
  - d. Bus Comp: Compress a mix using BF-76 to add more punch
  - e. **Maximizing Volume:** Use the compressor as a limiter to increase volume.
  - f. Expansion: Reduce the volume of softer sounds using an expander
  - g. **Reducing Noise:** Use an expander to reduce flute noise (key clicks and breath)
  - h. **Snare Bleed:** Use gate on snare track to eliminate hi-hat/tom bleed.
  - i. Big 80's Snare: Use gate on snare and bus to gated reverb to control the length of the reverb
4. Mixing in Pro Tools Skill Pack - Time-based Effects – Delay and Reverb (p.45-66)
  - a. **Simple Delay:** Route a track using a bus to an AUX with delay.
  - b. Artificial Gymnasium: Use delay to create the sound of a gymnasium space.
  - c. Mono-to-Stereo Delay: Use stereo delay to create the sound of a gymnasium space.
  - d. Hitting the Wall: Add space without echo to a synth sound.
  - e. Stereo Delay: Use “Follow Main Pan” to have the send pan match the track pan.
  - f. **Rhythmic Delay 1:** Add a rhythmic stereo delay to a synth for a cool musical effect.

- g. Rhythmic Delay 2: Add a rhythmic stereo delay (different times for L and R) to a synth for a lush delayed/spatial sound.
  - h. **Natural Reverb:** Add reverb to a dry saxophone recording. Save the plug-in setting.
  - i. Mono Reverb 1: Add reverb to a flute track only.
  - j. Mono Reverb 2: Set reverb aux pan opposite track pan (Clav L with Clav reverb R, EPiano R with EPiano reverb L)
  - k. Dual Mono Reverb: Add stereo reverb to a saxophone track. Unlink the stereo reverb settings and change the pre-delay and decay times. Also add EQ to the reverb and unlink with equal-but-opposite settings.
5. PTiME Module 2 – Stereo Audio
- a. Stereo Recording techniques discussion (XY, ORTF)
  - b. Edit a Stereo Recording of a Live Performance
    - i. Suggested procedures:
      1. Stereo track: Trim start/end, 7-band EQ
      2. AUX: Reverb, 1-band EQ
      3. Master: Compression
      4. Bounce to disk
6. Enrichment: Binaural Recording: JP Beatie is a master sound engineer and instructor at UArts. He recently gave a lecture on binaural recording. Essentially, this technique uses two microphones placed in a “dummy” head to capture incredibly spatially realistic stereo recordings that work when listening with headphones.
- a. Video of JP Beatie’s lecture:  
<http://livestream.com/uarts/aplan/events/3844899/videos/86565113>
  - b. JP Beatie’s SoundCloud site with individual selections from “Augustine’s Pear” (binaural recordings): <https://soundcloud.com/johnpaul-13>
  - c. David Byrne TED Talk about the influence of architecture on music (referenced in JP Beatie’s lecture):  
[http://www.ted.com/talks/david\\_byrne\\_how\\_architecture\\_helped\\_music\\_evolve?language=en](http://www.ted.com/talks/david_byrne_how_architecture_helped_music_evolve?language=en)

### Day 3

1. Final Project overview
2. Stereo Audio review
  - a. Edit recording of Haverford High Orchestra (ORTF setup) - same procedures as above OR...
  - b. Edit recording of Haverford Jazz Ensemble (XY with a board feed) - same procedures as above
3. Recording Audio - Eleanor Rigby Saxophone Quintet
  - a. Template provided with Alto 2 and Tenor parts included
  - b. FEIN records saxophone with microphone (Alto 1, Alto solo, and Bari)
  - c. Student pitch shift Bari down an octave.

- d. Optional: Students record keyboard for Soprano part
- 4. MIDI in Pro Tools
  - a. Import an existing MIDI file and select instruments (“Let It Be”)
    - i. New Instrument Tracks. Add XPand2 to each track. Use preset area to select a Drum Kit.
    - ii. Name tracks, mix (adjust volume/pan).
    - iii. Add Master Fader
    - iv. Bus tracks to an AUX with Reverb
- 5. All the Things You Are - Record an original MIDI file with 4 tracks
  - a. Record melody (quantize)
  - b. Drum beat with BOOM (2 patterns)
  - c. Record bass and chords
  - d. Optional: Pad background
  - e. Bus to Reverb or Delay AUX
  - f. Master Fader - add Compression
  - g. Export
  - h. SHARE completed projects
- 6. Working with Loops
  - a. Internet search for loops and using included loop content
    - i. <https://www.freesound.org>
    - ii. Google search - [http://www.google.com/?gws\\_rd=ssl#q=free+loops&surl=1&safe=active](http://www.google.com/?gws_rd=ssl#q=free+loops&surl=1&safe=active)
  - b. Create a 32 bar song using loops that you found (or loops provided by FEIN)
    - i. \*\*Pro Tools > Preferences > Processing --> Check box for "Automatically Copy Files on Import"
    - ii. Use the Workspace to preview loops at the session tempo and import them into your session.
    - iii. Try using Elastic Audio to modify the rhythm of a loop.
    - iv. Use the Trim Loop tool to loop material or use Edit > Repeat.
    - v. Use Audio Suite > Pitch Shift to transpose loops.

#### Day 4

- 1. Finish All the Things project:
  - a. Melody, Boom (drums), Bass, Chords
  - b. Optional: Pad background
  - c. Bus to Reverb or Delay AUX
  - d. Master Fader - add Compression
  - e. Export
  - f. SHARE completed projects via Google Classroom
- 2. Recording Gear and Budget - (...and BIG picture overview)
  - a. Keynote Presentation

- b. Time to work on Recording Gear and Budget - see Final/Post Assignment below - make use of the template provided through Google Drive
  - c. Sweetwater Rep - Greg Savino ([greg\\_savino@sweetwater.com](mailto:greg_savino@sweetwater.com))
  - d. SoundTree Rep - Chris Norris ([cnorris@soundtree.com](mailto:cnorris@soundtree.com))
- 2. PTfM Drum Samples (see Google Doc - PTfM Ch. 3 Steps)
  - a. Create a beat using single drum sounds - ABA form
    - i. A should use hi-hat and basic kick/snare pattern
    - ii. B should use ride and contrasting kick/snare pattern
  - b. Ticks vs. Samples in PT
  - c. (Playlists)
  - d. Optional: Record in a MIDI bass and chord vamp for each section. Try doing a punch-in (MIDI merge off in Transport window).
- 3. Guest Speaker: Erik Johnson - Drum Kit Miking and Mixing
  - a. Hands-on mic setup
  - b. Pro Tools session recording
  - c. Drum Mixing (recall Skill Pack concepts)
- 4. Mixing in Pro Tools Skill Pack - Special Effects (p.71-82)
  - a. Chorus 1: Add a delay with chorus settings to a sax track to enliven the sound.
  - b. Chorus 2: Add a delay with chorus settings to a synth track for a interesting, powerful sound.
  - c. Flanging: Use a delay to create the sound of a flanger. Then use an actual flanger effect.
  - d. Under the Hood: Apply a de-esser to test tones and pink noise to understand how this plug-in works.
  - e. Vocal De-Essing: Reduce sibilants on a vocal track with de-esser.
  - f. Extra Special FX: Add Eleven Free (amp modeler) and Talkbox effects to drastically change a drum loop into a robot beatboxing.

## Day 5

- 1. Publishing to SoundCloud
- 2. Time to work on Final/Post Assignment (see below - Recording Project) - Develop a large multi-track recording project from scratch. Use microphones to record raw audio. Include MIDI instrument tracks and audio tracks. Mix the file using of AUX tracks, a master fader, insert effects, audio suite effects (optional), and automation. Feel free to have guest artists sing/play on your recording. Export the completed file and post to SoundCloud or YouTube. Here's a few ideas for materials to record:
  - a. Record a "cover" version of a pop song.
  - b. Record an original song.
  - c. Record a song that your school ensemble will be performing next year.
  - d. Mix an existing large scale Pro Tools project (see Susquehanna by Robin Hodson or Mike Senior Mixing Files)

- i. Mike Senior Mixing files - <http://www.cambridge-mt.com/ms-mtk.htm>
- ii. Susquehanna by Robin Hodson from PTfME
  - 1. Try out the various techniques you learned in the Mixing in Pro Tools exercises. Here's some suggestions
    - a. Rough mix (panning/volume)
    - b. EQ most tracks. Think about carving out a sonic space for each track. For example, consider cutting out the bass frequencies of the keyboard track.
    - c. Bus tracks to AUX inputs for reverb/delay effects.
    - d. Add automation for volume adjustments or bypassing an effect.
    - e. Track doubling with an AUX input and delay.
    - f. Equal-and-opposite EQ on the 4 drum tracks to isolate the kick from the snare/hi-hat
    - g. Side-chain processing to add a sub-tone to the kick.
  - 2. *Be imaginative! Be creative! Be daring!*
- 3. If you finish your final project early, consider exploring *Mixing in Pro Tools* advanced chapters more.
  - a. Rough Mix (p.83-108)
    - i. Working with Memory Locations
    - ii. Reordering and coloring tracks
    - iii. Creating track sets
    - iv. Grouping tracks
    - v. Creating/naming busses
    - vi. Rough panning
    - vii. Balancing levels
  - b. Advanced Dynamics (p.199-210)
    - i. Use side-chain processing for ducking music under a voiceover.
    - ii. Use side-chain processing to add rhythm to a synth pad.
    - iii. Use side-chain processing to add tones/noise to kick/snare tracks.
  - c. Stereo Enhancement (p.211-224)
    - i. Mid-Side Processing
- 4. 1:00 - Present Final Projects**
- 5. Fein's Course Evaluation (Google Forms)

**Final/Post Assignment:**

- 1. Create a budget for recording gear for your school situation. Include items such as microphones, cables, stands, audio interface, mobile recording device, software, etc. This budget doesn't necessarily need to be *realistic* in terms of cost but it should meet your recording needs. For example, a band teacher may want to include gear to capture top-notch stereo recordings of his/her ensemble

while a music production/tech teacher may focus more on multi-track recording gear.