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Course Description

Non-Linear MIDI Sequencing is an in-depth course focusing on the principles and techniques of sequencing and performing musical compositions using a non-linear sequencer. Discussions will also include the study of subtractive and FM synthesis; computer-based drum, instrumental and vocal part creation and production; mixing and arranging repetitive musical structures; and applications to Live Performance.

Course Objectives

Students will learn to sequence/record, arrange and mix their musical compositions. As part of the process students will learn to compose effective drum grooves, bass lines, and keyboard parts, as well as, how to apply effects processing including EQ, compression, side-chain processing, reverb and delay effects. Students will also learn to effectively layer and orchestrate drum and instrumental sounds and build effective arrangements.

Requirements, Exams and Grading Information

Student assessment in MTEC 444 will consist of short exercises, quizzes and a final project. Unless otherwise noted, all exercises are due one week from the date assigned. All assignments are to be turned in to the class folder on the music technology lab server and must carefully follow file naming conventions, file management and format guidelines.

The final project will consist of a sequence of 15-20 musical parts, approximately 65 measures in length. Students can choose to sequence an original song or a preexisting composition subject to the instructor's approval. Further instructions will be available at a later date.

Grading Summary

1. Participation	10%
2. Exercises	35% total
3. Quizzes	10%
4. Final Exam	15%
5. Final Project	30%

Class Texts

Hanley, Joe. *Syntorial*. syntorial.com (Recommended)

Ben-Atar, Yeuda. *Ableton Live 9 for Live Performance*. Lynda.com (2013).

Schmunk, Rick. *Ableton Live 10 Essential Training*. Lynda.com (2018).

Schmunk, Rick. *Up and Running with Ableton Analog* (2016).

Schmunk, Rick. *Up and Running with Ableton Operator* (2016).

Schmunk, Rick. *Learning Serum* (2018).

Shepard, Brian. *Refining Sound*. Oxford Press (2013). (Recommended)

Snoman, Rick. *Dance Music Manual* (3rd Edition). Focal Press (2013). (Recommended)

Supplementary Materials

1. Headphones (Sony, MD 7506 required)
2. USB Memory Stick and/or other external storage device

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 444" in the subject header** of all emails that you send me*** 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 notes under Content.

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 8:30 a.m.-5:00 p.m. Monday through Friday. The phone number for DSP is 213/740-0776.

Schedule

Week 1 (8/27), Linear vs. Non-Linear Sequencing

Introduction to Ableton Live

Live's Session View

The browser

Info and Help View

Device and Clip View

Triggering clips and scenes

Reading: Lecture Notes

Lynda.com: *Week 1 Videos*

Exercise 1: Intro to Live (do not turn in to the server)

Week 2 (9/03), Arrangement View MIDI Recording and Editing

MIDI keyboard controller setup

Set track MIDI inputs and outputs

Audition sounds

Load software instruments

Impulse drum plug-in

Impulse multi-output setup

Set tempo and meter, metronome and count-in

Real time recording
Pencil tool note entry, create empty MIDI clips
MIDI Overdub Recording
Edit MIDI velocity, duration, quantization, delete notes
Edit clip length, loop clips
Copy/paste and clips
Create basic drum set patterns
Reading: Lecture Notes
Lynda.com: *Week 2 Videos*
Exercise 2: MIDI Recording and Editing

Week 3 (9/10), Introduction to Drum Set Production

Intro to Simpler (sample player)
Fine tuning 1-shot samples
Intro to drum racks
Nested racks, creating a multi-sample drum set preset
Choke groups, drum rack sends and other drum rack parameters
Kick and snare
Advanced Arrangement View recording
Pre and post roll recording
Punch Recording
Drum signal processing
Drum pattern programming and arranging
Introduction to groove quantization
Track Groups
Reading: Lecture Notes, *Refining Sound* ch. 2-3, *Dance Music Manual* ch. 15-16
Lynda.com: *Week 3 Videos*
Exercise 3: Creating Drum Parts Using Multi-Sample Drum Racks

Week 4 (9/17) Introduction to Subtractive Synthesis

Sound design basics
Intro to subtractive synthesis
Wave shapes and harmonic content
Oscillator tuning
Filters and timbre
ADSR envelopes and filter and amplitude modulation
LFO modulation and recurring change
Side chain processing
LFO Max for Live plug-in
Creating Bass parts
Bass lines: rhythmic patterns and relationship to the kick drum
Reading: Lecture Notes, *Refining Sound* ch. 4, 5 and 6; *Dance Music Manual* ch. 17-18
Lynda.com: *Week 4 Videos*
Exercise 4: Drum Racks and Subtractive Synthesis (Due Week 6)

Week 5 (9/24), Instrumental Production I

Pad and plucked keyboard parts
Instrument racks and layering keyboard parts
Arpeggiators, step sequencers and other MIDI plug-ins
Introduction to MIDI mapping
Continuous controllers
Create and edit graphic automation
Setup automation for 3rd party plug-ins
View and edit fades
Keyboard part signal processing
Panning keyboard and synth parts
Reading: Lecture Notes, *Refining Sound* chapters 8-9, *Dance Music Manual* chapter 21
Lynda.com: *Week 5 Videos*
Exercise 4: Part II

Week 6 (10/01), Intro to Serum and Wavetable Synthesis

Using 3rd party plug-ins
Wavetable synthesis
Unison
Filter drive and noise shaping
Advanced envelopes and LFOs
Intro to FM synthesis
Carrier oscillators
Modulator oscillators
Reading: Lecture Notes, *Dance Music Manual* chapter 9
Lynda.com: *Week 6 Videos*
Exercise 5: Original Sequence (Due Week 8)

Week 7 (10/08), Advanced Rack Features and Controller Mapping

Key and MIDI mapping
Key, velocity and chain zones
Rack macros
Record Real-time automation
Instant Mapping
Min/max controller settings
MIDI Control Change Messages (MIDI CCs)
Clip automation
Reading: Lecture Notes, *Dance Music Manual* 22 and 23
Lynda.com: *Week 7 Videos*

Week 8 (10/15), Working in Session View

Discuss non-linear sequencing
Play and stop Session view clips and scenes
Back to Arrangement view button
Remove clip stop button
Record and overdub MIDI in Session View

Enable/disable Session view looping
Edit clip length
Color code clips and tracks
MIDI map clip and scene and clip launch buttons
Move clips, scenes, song sections between Session and Arrangement Views
Reading: Lecture Notes
Lynda.com: *Week 8 Videos*
Exercise: Working in Session view

Week 9 (10/22), Recording and Warping Audio

Audio preferences
Audio I/O, setting levels
Headphone cues
Intro to recording audio
Intro to warping audio
Creative uses of audio warping
Editing and quantizing audio
Sample properties and parameters
Launch properties and parameters
Reading: Lecture Notes, *Dance Music Manual* 12-14
Lynda.com: *Week 9 Videos*
Final Project Discussion
Exercise: Audio Loop Sequence

Week 10 (10/29), Developing the Arrangement

Identify and create drops, risers and build transitions
FX transitions
Enhancing transitions with signal processing
Placing transitions
Developing the arrangement
Reading: *Dance Music Manual* chapter 19
Exercise: Sequence with Transitions

Week 11 (11/05), Vocal Arranging and Processing

Vocal editing and tuning
Vocal compression and de-essing
Vocal EQ
Vocal delay and reverb
Automation and delay techniques
Vocoder and other specialized vocal effects
Vocal tuning
Reading: *Dance Music Manual* chapter 8 and 14
Exercise: Vocal processing

Week 12 (11/12), Mixing in Live

Session organization
Track groups/submixes
Sends and returns

Color coding
Creating balance and depth
Creating clarity and interest
Delay best practices and techniques
Reverb best practices and techniques
Bit reduction, beat repeat, amp simulation and other unusual processing options
Reading: *Dance Music Manual* chapter 11 and 26-28
Exercise: Mixing

Week 13 (11/19), Guest Speaker – Live, Live
Launch parameters
Follow Actions
Controller setups
Designing performance integration

Week 14 (11/26), Final Project Work Session

Week 15 (12/03), Final Project Work Session

12/10: Final Project Due (end of day)

TBA - Final Exam

Important Note! CSS G-147 will be closed week 16. There will be no open lab time after that date. There will be no exceptions to this policy. Please plan accordingly.