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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, Assignments, 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 dropbox folder, accessed through BlackBoard, and must carefully follow file naming conventions, file management and format guidelines.

It's extremely important that you keep up with the weekly asynchronous video assignments before the next class session. If you haven't done so already, set up a free USC **LinkedIn Learning** account: <https://itservices.usc.edu/linkedin-learning/>

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.

Weekly 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.

Throughout the semester, questions about your grades should be addressed immediately. Do not wait until the semester has ended to resolve a grading issue.

Required Software:

Ableton Live 11 Suite

Ableton will offer complimentary full functioning free demos for the duration of the semester to students in classes where Live Suite is the primary DAW

Ableton Live Suite Edu purchase: \$449 (\$74.83 for 6-months)

Weblink: <https://www.ableton.com/en/shop/education/>

Required Hardware:

You must have reference headphones or monitors. The department STRONGLY recommends the [Sony MDR-7506](#) headphones or similar. They are the standard headphone for all MTEC and MUIN courses. If you plan to take any other courses in these areas, you will need reference headphones. Additionally, I recommend these options:

[Beyerdynamic DT 770 PRO 250 ohm Closed-back Studio Mixing Headphones](#)

[Focal Spirit Professional headphones](#)

Helpful Resource - [Sweetwater's Headphone Buying Guide](#)

Suggested Hardware:

MIDI keyboard, USB microphone or audio interface, mic cable and

Microphone. Refer to Thornton-Music Technology Purchase Options document on Blackboard for EDU discounts.

Grading Summary

1. Participation	25%
2. Exercises	30%
3. Quizzes	20%
4. Final Project	25%

Additional Class Resources

[Schmunk, Rick. *Ableton Live 10 Essential Training*. In Learning \(2018\).](#)

[Schmunk, Rick. *Up and Running with Ableton Analog* \(2016\). \(Recommended\)](#)

[Shepard, Brian. *Refining Sound*. Oxford Press \(2013\). \(Recommended\)](#)

[Snoman, Rick. *Dance Music Manual \(4th Edition\)*. Focal Press \(2019\). \(Recommended\)](#)

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 to organize all the emails that I receive and

respond more quickly. In addition, all course materials and class grades will be posted on BlackBoard (<http://blackboard.usc.edu>).

Schedule

Week 1 – Getting started: Ableton Live 11 Suite

Installing, running and configuring Live 11
Audio interface, sound cards, and audio drivers
MIDI controllers and peripherals
Setting preferences: Sample Rate, Bit Depth, Waveform, Audio File Formats
Buffer settings and latency
File management and Project assets
Activating plugins and plugin folders
Browser, Info and Help View
Organization, Navigation and Show/Hide options
Importing Audio Loops
Triggering clips and scenes: Session View
Key Map Mode
Saving Live Sets (Collect all and Save)
Reading: Lecture Notes
Week 1 Video Playlist

Week 2 – Workflow Overview: Session and Arrangement

Standard approach to making music in Live (Create, Record, Finalize)
Linear vs. Non-Linear Sequencing
Session vs Arrangement Views Basics
Clip Functionality (Session versus Arrangement)
Mixer sections, sub parameters and corresponding controls
Control Bar, Transport
Tempo, meter, metronome and count-in
Loading Live Devices
Recording from Session to Arrangement
Move clips, scenes, song sections between Session and Arrangement Views
Back to Arrangement button
Arrangement editing (Edit functions)
Exporting Audio
Week 2 Video Playlist
Quiz #1

Week 3 - MIDI Recording and Editing

Manual control setup (Track, Sync, Remote settings)
Setting MIDI: preferences, track inputs/outputs
Instantiating software instruments
Impulse Drum Instrument
Pencil tool note entry, create empty MIDI clips

Real time MIDI recording – Computer MIDI Keyboard
MIDI keyboard controller setup
Edit MIDI velocity, duration, quantization, delete notes
Edit clip length, loop clips
Copy/paste and clips
Create basic drum set patterns
Reading: Lecture Notes
Week 3 Video Playlist
Quiz #2

Week 4 – Intro to Drum Programming

Intro to Drum Racks
Intro to Simpler (sample player)
Programming: Kick and snare
Drum signal processing
Chain List/Mixer Fold button
Recording MIDI (Session View)
Session Record button
Drum pattern arranging
Introduction to groove quantization
Reading: Lecture Notes
Week 4 Video Playlist

Week 5 - Bass Programming: 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
Creating Bass parts
Bass lines: rhythmic patterns and relationship to the kick drum
Reading: Lecture Notes
Supplemental Reading: *Refining Sound* Ch. 4, 5 and 6
Week 5 Video Playlist
Quiz #3

Week 6 - Building Harmonies/Melodies with Instrument Racks

Racking Instruments and Devices
Layered signal processing
MIDI Map Mode vs instant Control Surface Mapping
Chain Select Zones
Assigning parameters to Rack Macros
Min/max controller settings
Arpeggiator, Chord, Pitch and other MIDI devices
Keyboard splits and velocity layered zones

Manage and save device presets
Device and Content Hot-Swap
Arrangement Automation
Reading: Lecture Notes
Week 6 Video Playlist
Exercise 5: Original Sequence (Due Week 8)

Week 7 – Manipulating Audio Clips

Clip View: Sample Box
Segment BPM
Warp Modes
Setting and Editing Warp Markers
Transposing Pitch
Corrective vs Creative Warping
Clip Envelopes for parameter manipulation
Automation vs Modulation
Linked and Unlinked Envelopes
Quantizing Audio
Groovy Groove Pool
Reading: Lecture Notes
Week 7 Video Playlist
Exercise 5: Original Sequence (Due Week 8)

Week 8 - In class student presentations and feedback (Exercise 5)

Week 9 - Recording Audio

Audio preferences – Sample Rate/Bit Depth
Buffer Size adjustments and latency
Reduce Latency when Monitoring option
Driver Error Compensation
Audio path signal flow and routing
Audio I/O, setting levels, headroom
Recording in Session View
Recording in Arrangement View
Punch In/Out
Resampling
Reading: Lecture Notes
Week 9 Video Playlist
Final Project Discussion

Week 10 - Developing the Arrangement

Recording Automation
Midi and Key Mapping
Identify and create drops, risers and build transitions
FX transitions

Enhancing transitions with signal processing
Placing transitions
Developing the arrangement
Week 10 Video Playlist
Quiz #4

Week 11 - Mixing in Live

Session organization
Naming and color coding
Track groups/Sub-mixes
Insert vs Auxiliary Effects
Sends and Returns
Creating balance and depth
Creating clarity and interest
Bit reduction, beat repeat, amp simulation and other unusual processing options
Week 11 Video Playlist

Week 12 - Guest Speaker – Live, Live

Launch parameters
Follow Actions
Controller setups
Designing performance integration

Final Project due date: TBA

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.

Synchronous session recording notice

As required by USC, the synchronous sessions for this course will be recorded and provided to all students asynchronously. This policy does not apply to individual lessons.

Sharing of course materials outside of the learning environment

USC has a policy that prohibits sharing of any synchronous and asynchronous course content outside of the learning environment. Please do not share or otherwise distribute class materials, music scores or recordings produced by me or any students in the conduct of this course without expressed permission.

SCampus Section 11.12(B)

Distribution or use of notes or recordings based on university classes or lectures without the express permission of the instructor for purposes other than individual or group study is a violation of the USC Student Conduct Code. This includes, but is not limited to, providing materials for distribution by services publishing class notes. This restriction on unauthorized use also applies to all information, which had been distributed to students or in any way had been displayed for use in relationship to the class, whether obtained in class, via email, on the Internet or via any other media. (See Section C.1 Class Notes Policy).

Zoom etiquette

I expect you to demonstrate your presence and participation in class by your being on camera in all Zoom sessions. If you will be unable to keep your camera on during the synchronous Zoom session, please contact me prior to the class session to discuss.

USC technology rental program

We realize that attending classes online and completing coursework remotely requires access to technology that not all students possess. If you need resources to successfully participate in your classes, such as a laptop or internet hotspot, you may be eligible for the university's equipment rental program or other assistance. To apply, please [submit an application](#) on the Student Basic Needs portal.

USC Technology Support Links

[Zoom information for students](#)

[Blackboard help for students](#)

[Software available to USC Campus](#)

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 Part B, Section 11, "Behavior Violating University Standards" policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems

Counseling and Mental Health - (213) 740-9355 – 24/7 on call

studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press "0" after hours – 24/7 on call

studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) - (213) 740-5086 | Title IX – (213) 821-8298

equity.usc.edu, titleix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298

usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office of Equity and Diversity |Title IX for appropriate investigation, supportive measures, and response.

The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.

