HUMA 2107 Introduction to Electronic Music Composition

Course Syllabus
HKUST Fall 2025
Instructor: Dr. Steven SNOWDEN
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Lectures: SHAW 105 L1 Th 10:00 – 11:50
Tutorials: SHAW 105 T1 Th 13:00 - 13:50, T2 Th 14:00 - 14:50, T3 Th 15:00 - 15:50

Course description
This hands-on course is designed to provide students with a functional understanding of digital audio systems, recording techniques, and synthesis. This knowledge can be applied to many fields of study including audio production, film scoring, game music, and sound design. We will begin with the basics of acoustics and explore ways in which technology can allow us to sculpt sound for a variety of artistic purposes. Students do not need any prior musical training, but will need to maintain an open mind for a wide variety of musical genres and sound art. The primary software platform we will be using is the REAPER digital audio workstation. We will also have the chance to learn studio techniques in our new Electronic Music Studio, including recording and modular analog synthesis.

There is no final examination for this course. Rather, there will be a quiz at the end of the semester covering theoretical and historical concepts as well as the presentation of final projects in a concert setting. A preliminary composition exercise is due in lieu of a midterm examination, and will be presented in class halfway through the term. Students will also submit a written analysis of a piece of electronic music from a list of selected repertoire.

Intended learning outcomes
Upon successful completion of the course, you will have learned to
◦ Creatively organize sound into coherent works of music as a means of self-expression
◦ Apply various technologies for digitally processing and synthesizing sound
◦ Demonstrate appreciation of and describe the features of various types of electronic music
◦ Demonstrate a broad understanding of electronic music's historical development
◦ Demonstrate an understanding of key issues in music aesthetics

Prerequisites
There are no prerequisites for this class or requirements to have had previous formal training in music. While those with ample musical background may find certain topics more familiar, they will be all the more encouraged to think in new ways about approaches to organization of sound. In this respect, we aim to create a level playing field for students of all backgrounds.

Course Materials:
You will need to obtain your own copy of Reaper, a powerful but low-cost digital audio workstation software. You will receive instructions on how to do this in lecture. You will need your own laptop, which you will occasionally be asked to bring for lecture and tutorials. You must also have a reliable portable SSD or USB flash drive for sharing large files in tutorial sessions.

Course requirements
1. Weekly technical and creative assignments: These will be presented and evaluated in tutorial sessions.

2. Attendance and participation: Much of what you learn will be assimilated via discussion and feedback on your work in lecture and tutorial. Therefore, attendance and participation are absolutely crucial in both lecture and tutorial. You must participate in discussions, as well as the presentation of your exercises and projects. Since you will be presenting your work in tutorials for evaluation and discussion, your attendance in tutorials is all the more essential. Failure to attend tutorials will lead to you not receiving credit for your homework. Do not take this course if you cannot commit to attending all the tutorials. Absences will only be excused if you provide medical documentation. No cell phones are allowed in class. If you have your cell phone out during lecture or tutorial you will receive a zero for participation that day, as if you were absent.

3. Midterm project: compose a 2-3 minute work of *musique concrète* that demonstrates your command of the mixing techniques that we have studied.

4. Final project: A 3-4 minute work of music or sound art in any style. We will explore the assignment in detail as the course progresses. All final projects will be presented in a concert format at the end of the semester.

5. Written assignment: A 3-page written review and analysis of a piece of electronic music chosen from an assigned playlist.

6. Final quiz: A quiz at the end of the semester that will cover technical, theoretical, and historical material presented in class.

7. Attendance of **Cosmopolis Festival** events: **You are required to attend two concerts and two educational events. (Concerts and events will be announced August 24)**

For more information and registration, visit: https://cosmopolisfestival.hkust.edu.hk/upcoming_event

Grading
Attendance and participation 15%
Portfolio of exercises/homework 15%
Recording report 10%
End-of-semester quiz 10%
Midterm project 20%
Final project 30%

TENTATIVE LECTURE TOPICS:

Session 1: Sound Around Us and its Organization.
◦ What is electronic music? What is music? What is sound?
◦ Musical parameters
◦ Soundscape, deep listening
◦ Musique concrete, sound objects, field recording; Zoom H4n recorders.
Repertoire: W.A. Mozart, *Symphony No. 40 in G minor*, mvt. 1 (1788); John Cage, *4'33"* (1952); Pierre Schaffer, *Cinq études de bruits* (1948)

Session 2: Timbre, Orchestration, Counterpoint, Reaper DAW
◦ Timbre: sound as a composite of frequencies.
◦ Orchestration; organization of timbres

◦ Counterpoint; layers in music
◦ Introduction to REAPER, editing basics
Repertoire: Wendy Carlos, *Switched-On Bach* (1968); J.S. Bach, *Invention no.1 in C-Major* BWV 772; Bernard Parmegiani, *Points contre champs* (1978)
Reading: Reading: Pierre Schaeffer, "In Search of the Sound Object"

Session 3: Digital Audio Signals; Musical Form; Sound in Space I
◦ Bit depth, sample rate, lossy vs lossless audio file formats
◦ Musical form
◦ Reverbs, panning.
◦ An aside: "art music" vs "folk music" vs "popular music"
Repertoire: Helena Gough, *Spores* (2013); Michel Chion, "Sanctus" from *Requiem* (1973)

Session 4: Sound in Space II, Delays; Jamaican Dub
◦ Mono and stereo, stereo miking, Ambisonics
◦ Submixes
◦ Jamaican dub music◦ Delays, delay throws, reverb throws
Repertoire: Lee Scratch Perry, *Perry in Dub* (1972) (1965); David Bowie, *Let's Dance* (1983); Natasha Barrett: *Dusk's Gate* (2018)

Session 5: Metering; EQ Filters, Sound and politics;
◦ Decibels, gain staging and clipping
◦ EQ Filtering
◦ Sound and political intent
Repertoire: Pauline Oliveros, *Bye-Bye Butterfly* (1965), Hildegard Westerkamp *Kits Beach Sound Walk* (1989)
Reading: Budden, Julian (1992); *"*Madama Butterfly" (plot synopsis) in *New Grove Dictionary of Opera.*

Session 6: Filters, cont; Compression
◦ Dynamic Range Compression
◦ Limiting
◦ Side-chaining
Repertoire: Chance the Rapper, *No Problem* (2016), My Bloody Valentine, *Only Shallow* (1992)

Session 7: *Presentation of Midterm Compositions*

Session 8: Hip Hop, MIDI, VSTis
◦ Some hip hop history: turntables; drum-machines; samplers
◦ MIDI
◦ Using MIDI in REAPER, virtual instruments, creating a drum machine,
◦ Rhythmic loops, tempo-matching
Repertoire: James Brown, *Funky Drummer* (1970); Sugar Hill Gang, *Rapper's Delight* (1979); Grandmaster Flash, "break-mix demo" (1983); Run DMC "Peter Piper" (1986) Public Enemy "Bring the Noise" (1987)
Reading: Katz, Mark (2012) *Groove Music* (excerpts)

Session 9: Studio Techniques I
◦ Microphone types, cable types,
◦ Signal level types
◦ Modular synthesis I: oscillators, control voltages, modulation, VCV RACK
◦ FM synthesis
◦ Introduction to Electronic Music Studio equipment**Session 10: Rhythmic Organization of Sound**

◦ Rhythmic hierarchies: beat, pulse, meter, time signature;
◦ Identification of meter
◦ Syncopation
◦ Polyrhythm
Repertoire: Steve Reich, *Music for 18 Musicians* (1976); *Honshirabe* (trad.); The Orb, U.F.Orb (1992); Acronym, "The Hunt" (2016) Tipper, *Algae Bloom in 7* (2017); Vladislav Delay, *Huone* (2020)

Session 11: FFT; Granulation, Studio Techniques II
◦ FM synthesis cont.
◦ Granulation
◦ Fourier decomposition; frequency domain vs time domain; Fast Fourier Transform
◦ Modular Synthesis II: Triggers, envelopes, sequencers on VCV Rack and Eurorack Synthesizer.
Repertoire: Paul Lansky, Notjustmoreidlechatter (1988); Kaitlin Aurelia Smith – *Improvisation with MakeNoise Tempi and 4ms Spectral Multiband Resonator* (2016)

Session 12: End of Semester Quiz, individual lessons with Dr. Snowden, project development

Session 13: *Presentation of final projects*
◦ **Final concert date and time TBA.** Attendance is mandatory.