HUMA 2107 Introduction to Electronic Music Composition
Course Syllabus
HKUST Fall 2024

Instructor:	Dr. Timothy PAGE
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Office hours:	By appointment, Tue/Thu 11:00-12:00
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Lectures: SHAW 105	L1 Tue 09:00 – 10:50; L2 Thu 09:00-10:50
Tutorials: SHAW 105	T1A Tue 12-13, T1B Tue 13-14, T1C Tue 14-15
	T2A Thu 12-13, T2B Thu 13-14, T2C Thu 14-15

Course description

This hands-on, practical course will develop students' knowledge and appreciation of various types of electronic music via an open, creative environment for its composition. We will explore sound and approaches to its organization, listening deeply not only to specific musical repertoire, but other sounds that we encounter as beings in the world. In the process we will cover practice and theory in digital audio signal processing. Since we will be working with primarily with "concrete sound," students need not have prior experience in music notation or composition to participate in the course. We will cover some topics from music theory to aid in our creativity and understanding.

The primary software platform we will be using is digital audio workstation software known as REAPER. 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. In lieu of a final, students will present their final projects to the class in a concert-like setting, and there will be a quiz at the end of the term covering theoretical and historical topics. 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 electronic music from a list of selected repertoire.

Intended learning outcomes

On 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 audio
- 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 course 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. Also, you must have a reliable USB flash drive, because you may be transferring big files when you come to tutorials to share your work.

Course requirements

1. Weekly technical and creative assignments, which will be presented and evaluated in tutorial.

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. This course moves quickly, and you cannot afford to fall behind. 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: composition of a work of *musique concrète*, with a duration of 2-3 minutes, which demonstrates your command of the mixing techniques that we have studied.

4. Final project: A fixed media work, in any style, of 3-4 minutes. We will explore the assignment in detail as the course progresses. **Attendance at the final concert in SHAW 103 on Wednesday, Dec. 4, 18:00-20:00 (L1) or 20:00-22:00 (L2) is mandatory**. **Do not take the course if you can't attend this concert.**

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

6. An end-of-semester quiz, which will cover technical, theoretical, and historical material and repertoire presented in class.

7. Attendance of **Cosmopolis Festival** events: **You are required to attend two events** from the Cosmopolis Festival, which is featuring off-season performances this fall: **1) Pianist Olli Mustonen in Recital (October 7, 7:30PM Shaw Auditorium Main Hall) and 2): *JunkVR! – Music-Making in Virtual Reality* (October 25, 7:30PM, Shaw Auditorium Main Hall)**

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?
- 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 Prof. Page, project development

Session 13: *Presentation of final projects*

- **Final concert on Wednesday, Dec 4, 18:00-20:00 (L1) or 20:00-22:00 (L2).** Attendance is mandatory.

Cosmopolis Festival Summary:

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