

**Western University  
Don Wright Faculty of Music**

**MU9533y/9633y Electroacoustic Composition and Performance, 2024-25  
Dr. Paul Frehner**

**Course Description**

A graduate level course in electroacoustic musical composition and performance. Students will compose music employing techniques of synthesis (such as analogue, modular, simulated modular, granular...), sampling and data manipulation. Live performance/improvisation and real-time digital sound processing (DSP) will be integral elements in their compositional work.

**Lecture Hours:** Wednesday 1:30 pm – 3:00 pm

**Tutorials:** Daniel Gardner, the CEARP GSA, will be giving weekly tutorials,  
Time TBA

**Class meetings:** CEARP Studios, TC344C and possibly TC344B

**Private Lessons** – In March, as students are working on their final projects, some class time may be replaced by private or semi-private lessons. Details, TBA.

**Prerequisites**

This course is restricted to graduate students in Composition. However, other graduate students may take the course with permission of the instructor and with permission of their department.

*“Please note that prerequisites are no longer automatically checked prior to course registration. It is the responsibility of each student to ensure that he or she has the specified prerequisites. Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.”*

**Instructor Information**

Instructor:

Dr. Paul Frehner  
Rm. TC 339  
Phone: 661-2111 ext. 85335  
Email: [pfrehner@uwo.ca](mailto:pfrehner@uwo.ca)  
Office hours: by appointment

Studio GSA:

Daniel Gardner, [dgardne6@uwo.ca](mailto:dgardne6@uwo.ca)

## **Learning Outcomes**

Upon completion of the course students can expect to have:

- Broadened their knowledge of various types of synthesis such as subtractive, additive, modular, FM, granular
- Developed a basic level of competency in using the studio's Eurorack synth for composing generative or improvisational works
- Further their knowledge and skills patching in Max/MSP
- Gained a broader knowledge of current composers and trends in various electroacoustic genres
- Achieved a level of technical fluency in utilizing the audio hardware available in CEARP Studio C
- Gained hands-on experience in staging a concert of electroacoustic music.

## **Course Activities and Timetable of Assigned Work**

This primary focus of this course will be directed toward the creation and performance of electroacoustic/electronic musical works based on principles and techniques learned in class.

### Synthesis Journal

In the Fall semester students will explore the studio's hardware and principal DAW, Pro Tools. Focus will be placed on working creatively with the studio's Moog and Eurorack synthesizers. Students will create a Synthesis Journal, documenting their sonic explorations on the studio's synthesizers. VCV Rack, a virtual Eurorack synthesizer program, will be used as an instructional aid.

Synthesis Journal - Five recordings exploring synthesis with accompanying documentation: Due dates: Oct 2, Oct 23, Nov 6, Nov 20, Dec 4  
Details TBA

### Electroacoustic Radio Show Assignment – Due January 15, 2024

As part of repertoire study students will create an episode of their own Radio Show.  
Details - TBA

### Max/MSP

In the beginning of the Winter semester work will shift to Max/MSP, where the focus will be on working with live electronics and possibly live video. There will be patching assignments in Max/MSP. It is assumed that students already have some basic knowledge patching in this application. However, if students have no prior experience in using Max/MSP they will need to do begin with more basic patching assignments.

Max/MSP Assignments - 3 Live electronics patching assignments:  
Due dates: Jan. 29, Feb. 5, Feb. 12

### Final Composition Project – due March 19

In the latter half of the Winter semester students will begin working on their final composition. The final project will be a composition scored for 1+ performer(s) and electronics with duration of between 6-10 minutes. Exact details regarding this project will be established through in-class discussion. This composition will be performed in the year-end concert on April 1, 2025. An in-class run-through will take place in class on either March 26 or 28.

### Other

There will be assigned listening and readings. There may be some quizzes.

Course activities may consist of any of the following:

- Lectures and demonstrations on using the audio gear in CEARP Studio C or B
- Lectures and demonstrations on patching and programming in Max/MSP
- Lectures and demonstrations on patching on Florian, the studios Eurorack Modular Synthesizer, or in VCV Rack
- Lectures on topics, terminology and concepts related to electronic music
- Tutorials with the GSA on any of the above topics
- Presentations and discussions of student creative work in a group composition lesson setting.
- Live performance and improvisation of electroacoustic sketches and compositions
- Discussion of any assigned readings or listening
- listening to, analyzing and discussing recent electro-acoustic compositions by established composers as well as other types of audio artwork such as installations, sonic sculptures, etc...
- demonstrations by both the instructor and students on the use of various audio hardware devices and software applications
- Occasional private composition lessons. These would replace regular class time.

It is understood that students are expected to engage in technical research for their creative work. The possibilities for this research are wide ranging and the exact nature of the research will be narrowed down through discussion during class time. Students are expected to be self-directed and exploratory in their technical research with the goal that they will have stretched their limits through this technical and creative process.

### Studio Time

Each student will be able to reserve up to 5 hours of studio time per week through the online CEARP calendar. Students may have extra studio time on a first-come, first-serve basis, provided that the studio was previously unreserved. Studio time may be reserved no more than 1 week ahead of time.

### Year-End Concert – Tuesday April 1, 6:00 pm, PDT

The final concert is scheduled to take place on Tuesday, April 1, at 6:00 pm in PDT. Students will perform/present their compositions during this concert. Students will be responsible for promoting this event. In addition, each student is expected to assist in the

setup, sound check, dress rehearsal and striking of the stage after the concert. These activities will take up the entire day from 8:30 am until approximately 10 pm.

## **Evaluation**

|   |     |
|---|-----|
| <u>Final Composition Project: *</u> , **              | 30% |
| <u>Listening/Radio Show Assignment:</u>               | 20% |
| <u>Synthesis Journal</u>                              | 20% |
| <u>Other Assignments, Quizzes (if any)</u>            | 15% |
| <u>Concert Set Up and Take Down</u>                   | 10% |
| <u>Attendance, Participation:</u> in-class discussion | 5%  |

\*N.B. Students will prepare their Final Composition Project for a premiere performance that will take place in the year-end concert. This performance/presentation will comprise part of the grade for the Final Composition Project. Students are responsible for securing performers for their composition.

\*\*Note that along with both composition/creative projects students will also submit a bound performance or listening score that contains technical details regarding the signal processing and data manipulation employed.

The following elements will be considered when grading the assignments, collaborative improvisation and the final composition project.

Effective technical use of the audio gear/audio software employed

Demonstrated understanding and implementation of techniques related to synthesis, DSP, various approaches to synthesis, patching in Max/MSP, MIDI, mixing, sequencing, sampling etc...

The overall success of the completed works with regard to compositional considerations such as creativity and originality, form, dynamic shape, sonority etc...

## **Required Course Materials**

### Hardware

Personal computer  
Headphones

### Software

Max/MSP – a personal license of the software. A student or monthly license can be purchased from Cycling74's online shop.

<https://cycling74.com/shop>

VCV Rack 2 – you are required to open a personal account for this open-source virtual modular synthesizer and then download the app.

There is no fee for downloading the free version of this application onto your computer. Once an account is set up you can then proceed to download modules from the VCV Rack Library. Most modules are free, however, there are some commercial modules that must be paid for. For this course you will not be required to purchase any commercial modules.

<https://vcvrack.com/Rack>

N.B. There is a premium version of Rack 2 which has a cost of \$149 USD. For our purposes the free version is suitable enough.

## **Suggested (but not required) Course Materials**

### Hardware

An audio interface

Microphone

MIDI keyboard

MIDI controllers

### Software

A digital audio workstation (DAW) such as Pro Tools, Logic, Cubase etc...

A variety of VST plugins could be useful

## **Reference Material**

User manuals for the Moog synthesizer and for the various modules found on Florian, the CEARP Studio's Eurorack modular synthesizer

Max/MSP/Jitter Tutorials, Help files and Reference: integrated into the application

VCV Rack user manual – online

Other manuals for 3<sup>rd</sup> party VCV modules

Specific texts or articles as assigned

Samuel Pellman, *An introduction to the Creation of Electroacoustic Music*, Wadsworth Publishing Company ISBN 0-534-21450-9.

Scott Wilson, David Cottle, Nick Collins, *The SuperCollider book*, Cambridge Mass.: MIT Press, c2011.

David Miles Huber, Miles E. Runstein, *Modern Recording Techniques*, 4<sup>th</sup> ed., Boston, Focal Press, c1997.

Other hardware and software user manuals are available on the Mac Pro in the CEARP studio. They are mostly all available for download from their respective manufacturer's website. Hardcopies of some of these manuals are kept in the studio.

### **Storage**

Students are expected to make frequent backup copies of any work stored on the studio computer or on their personal computer. The University and the instructor will not be responsible for loss of data and student work.

### **Logbook**

The studio has a logbook. Students are expected to sign the logbook whenever using the studio. If there is a software or hardware malfunction they should describe the issue in general terms in the logbook and then notify the studio's Graduate Assistant.

### **Electronic Devices**

The use of mobile phones or other electronic communications device in class is prohibited. Please turn off your communications devices before entering the classroom.

### **University Policies for Graduate Courses**

**Enrollment Restrictions:** *Enrollment in this course is restricted to students in the first year of the Master of Music Composition program.*

**Grading scale:** A= 80-100%, B= 70-79%, C= 60-69%, F= 0-59%

### **Statement on Academic Offences**

*Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic offence, as found at [https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_grad.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf)*

### **Statement on Gender-Based and Sexual Violence**

*Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence, either recently or in the*

*past, you will find information about support services for survivors, including emergency contacts at [https://www.uwo.ca/health/student\\_support/survivor\\_support/get-help.html](https://www.uwo.ca/health/student_support/survivor_support/get-help.html). To connect with a case manager or set up an appointment, please contact [support@uwo.ca](mailto:support@uwo.ca).*

### **Statement on Health and Wellness**

*Students who are in emotional/mental distress should refer to Mental Health Support at <https://www.uwo.ca/health/psych/index.html> for a complete list of options about how to obtain help.*

### **Accessible Education Western**

*Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program. Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are strongly encouraged to register with Accessible Education Western (AEW), a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both AEW and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction.*

### **Use of Generative Artificial Intelligence (AI)**

*Use of AI in the compositional process could possibly be permitted. The nature of its use would have to be determined in consultation with the instructor. Permission would be granted on a case-by-case basis.*

### **Other Important Dates, 2024-25**

#### **First term**

|               |   |
|---------------|---|
| September 3   | Graduate Orientation Day (reception @ 3:00 in Grad Club)              |
| September 5   | Fall term classes begin   |
| September 30  | Observation of National Day for Truth and Reconciliation (no classes) |
| October 12–20 | Fall Reading Week (no classes except for opera rehearsals)            |
| October 14    | Thanksgiving (official holiday)                                       |
| December 6    | Fall term classes end   |
| December 7–8  | Study Days  |

## **Second term**

|                |                                  |
|----------------|----------------------------------|
| January 6      | Winter term classes begin        |
| February 15–23 | Spring Reading Week (no classes) |
| February 17    | Family Day (official holiday)    |
| April 4        | Winter term classes end          |
| April 5–6      | Study Days                       |
| April 18       | Good Friday (official holiday)   |