



Department of Computer Science  
Faculty of Mathematics and Science

## COSC 4P98 Topics in Computer Media and Digital Audio

Fall 2022

**Instructor:** *Brian Ross*  
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**Lectures:** Wednesday, Friday 9:30-11:00am, GLA 164

### Description:

The course explores topics in computer media, with a focus on computer audio and music. Topics may include:

- Fundamentals of audio:
  - basics, sampling, signal processing
- Sound analysis:
  - Fourier series, FFT
- Audio synthesis:
  - waveform generation, granular synthesis
- Computer music and MIDI
- Music and audio programming languages:
  - CSound, Processing, Supercollider
- Computer composition
- Noise and Fractals
- AI and Music
- Visualization
- Arduino, Raspberry pi, and interactive installations
- ???

I will present many of these topics. A portion of the course will be seminar-oriented, in which the class will present their own selected topics, some possibly from the above list.

This course will rely on individual research into topics of interest. You will need to make use of research resources to find information about topics for your assignments, seminar and project. This will include the Internet and Brock's library (books, journals, conference proceedings, ...). You may even consider using Brock's Maker Space and its audio/music resources for some assignments.

### Recommended Text:

- No text, but recommended reading will be mentioned in class and listed on the web site.

### Course News:

- <http://www.cosc.brocku.ca/Offerings/4P98/>
- Email will be sent to the course mailing list. Be sure to regularly check your Brock email for course news.

**Evaluation:**

- Assignments (3): 35%
- Project: 25%
- Term test: 20%
- Seminar: 15%
- Seminar participation: 5%

**Late Submission Policy:** No lates are accepted. Late penalty is 100%.

**Assignments:** Assignments are done individually. Be aware of Brock's academic integrity policy.

**Term Test:** A term test will be held in class near the end of the course, and before seminars begin. It will cover the lecture material.

**Seminars:** The seminars are intended to give you experience in independent research, as well as presenting technical material to the class. Seminars details (time, schedule) will be forthcoming. Your seminar can be in any suitable topic in computer audio and media. A topic might be a research paper you discovered from a journal or conference proceedings, content from a book, a demonstration of a system, etc.. Please run your topic idea by me beforehand to make sure it is appropriate. A schedule of seminar topics will be maintained online. I encourage you to send me topic ideas that others might like to consider!

Your seminar presentation (PDF, Powerpoint, ...) should be made available to the class. Seminars will be given during the final weeks of the term.

**Project:**

- See the project description hand-out for details
- The project is in a topic in digital audio and computer media. Please have your project idea approved by me beforehand.
- The project requires an implementation and written report.
- You can work in groups of up to two on projects.
- The projects will be due at the end of the term in December.

**Relationship between attendance and grades:**

As expected, attendance in class correlates with a good grade in the course. If you must miss a lecture, please get notes from another student (not the professor!).

The participation grade is given for attending all the seminars in the final weeks of the course. The 5% is allocated over the dates (not including your own seminar day). Attendance will be taken during seminars.

**Important dates:** (check the online University calendar for makeup days due to holidays)

Date you will be notified of 15% of your course grade:	November 1, 2022
Last date to withdraw without academic penalty:	November 8, 2022

### Academic Integrity:

Academic misconduct is a serious offence. The principle of academic integrity, particularly of doing one's own work, documenting properly (including use of quotation marks, appropriate paraphrasing and referencing/citation), collaborating appropriately, and avoiding misrepresentation, is a core principle in university study. Students should consult Section VII, "Academic Misconduct", in the "Academic Regulations and University Polices" entry in the Undergraduate Calendar, available at <http://brocku.ca/webcal> to view a fuller description of prohibited actions, and the procedures and penalties.

Turnitin.com may be used on final project submissions. If you object to uploading your work to Turnitin.com for any reason, please notify me within the first 2 weeks of the term to discuss alternative submissions.

Moss (programming code plagiarism checker) may be used on assignments and projects.

Assignments are to be done individually. You are not permitted to collaborate or share code or algorithms; use and/or modify code created by others; use programs submitted for credit in other courses; or copy and/or modify code found online, even if it is advertised as open source code. Note that citing source code means it may not be plagiarized; however, you may not receive marks for the assignment or project, since it is not your own work.

Projects may be done in groups of up to two people. Group members are expected to contribute equally to course projects. Grades will be assigned accordingly. Academic misconduct charges on group projects will be applied to both group members. *Be aware of the origin of all the work submitted!*

If you find libraries that help with your assignment or project, please ask me before using them. Some libraries may not be permitted, especially if they perform the majority of the content of an assignment or project. You must cite the sources of all libraries and ideas used in your work.

### Academic Accommodation Statement:

As part of Brock University's commitment to a respectful work and learning environment, the University will make every reasonable effort to accommodate all members of the university community with disabilities. If you require academic accommodations related to a documented disability to participate in this course, you are encouraged to contact Student Accessibility Services (4th floor Schmon Tower, ex. 3240). You must discuss any accommodations with the instructor well in advance of due dates and scheduled assessments.

### Academic Accommodation due to Religious Obligations:

Brock University acknowledges the pluralistic nature of the undergraduate and graduate communities such that accommodations will be made for students who, by reason of religious obligation, must miss an examination, test, assignment deadline, laboratory or other compulsory academic event. Students requesting academic accommodation on the basis of religious obligation should make a formal, written request to their instructor(s) for alternative dates and/or means of satisfying requirements.

### Medical Exemption Policy:

<https://brocku.ca/health-wellness-accessibility/student-health-services/>