Music M158A (sec 001)

Sound and Music Computing with CNMAT Technologies
Syllabus 2024 Spring

Zoom ID / Time

Zoom ID: **480 449 3178** <—— **SAVE IT!**
Tues / Thurs: 12:30 - 2:00 pm PST
We are a musical/learning **community. Cameras on!**

Synchrony (probably) required…discussed on individual basis.

Office Hours: announced on bcourses weekly, influenced by you.

Instructor Information

Jon Kulpa (just call me Jon, not “Professor Kulpa”, and “Lecturer Jon” has a bad ring to it)
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Course website and materials:

bcourses
Recorded Zoom classes posted in our bcourses Media Gallery, usually by that evening after class.

Course Description

Music 158A explores the intersection of music and computers through a combination of artistic, technological, and scientific methods. By acquiring basic to advanced programming skills, students will begin to develop their own workflow for creating personal works of art employing digital sound (and potentially other media), within a computational frame.

Goals:

Gain proficiency in Max/MSP programming environment. Learn basic concepts and techniques of computer-based music, composition, and/or performance. Included will be the exposure to the essentials of digital audio signal processing and synthesis, software tools created by the Center for New Music and Audio Technologies (CNMAT), including the use of Open Sound Control (OSC) and the language odot. You must code everything along the way to gain proficiency in building your own tools and making your own music. Passive comprehension isn’t enough. Learn to “speak” these computer languages for yourself to accomplish your own ideas.

Begin to gain an appreciation for and engage with the cyclical process of building and listening to the fruits of your labor (repeat this process until something wonderful **emerges**).

You 1) start with an intuition about what kind of sound you want to make. Then you 2) attempt to build the tool / code / engine that makes that happen (in computer music, we not only use tools, we can build them!). Then you 3) listen to what your engine does and form intuitions as a musician with a good set of ears. Does it match your initial intuition? Does it matter? Did you discover something that is **emerging**, but not yet

complete? Maybe it needs to be tweaked based on your musical intuitions. Based on these intuitions you 4) repeat the entire process: build more (tweak the code/engine), listen more, build more, listen more. Eventually something stunning can emerge from this cyclical process.

Curiosity, open-mindedness, and hard work:

I support any sounds in this course you decide to obsess with and work hard at. I like to teach because I learn from having to distill concepts to their essence and because I can learn from your ideas. My personal music-making doesn't tend towards beat-based sound, instead exploring particulate/textural music you might consider experimental or even "weird" at first. =-) This is just the music I love and am obsessed with! But, again, I am also very open to your goals, any sound you are interested in. That said, one goal in this course is to stretch your mind in new directions and introduce you to new ideas about music and sound. If you show a desire to grow and stretch your mind, that motivates me to do the same.

Assignments and Grading Policies

Overview:

Graded assignments have the following weight:

- 10% Zoom Attendance (rigorously observed on Zoom reports!)
  - Allowed one class absence without effect on this grade
  - Attending only 1 hr does not count for attendance (conflicts must be communicated ahead of time)
  - Mandatory attendance for first two weeks, or your enrollment spot may be given instead to someone on wait-list who is present and trying to make it into the course
- 10% Short Exercises (mostly *credit or not, probably 2 of these in beginning of course*)
- 50% Lab Assignments (*spread over 3 lab assignments*)
- 30% Final Project

Labs

- Labs are due at 11:59 pm on the due date posted on the class bCourses site.
- Lab assignments are very open-ended and driven by your own curiosity and goals. Each lab has a few specific requirements to meet, but those goals are situated within your own personal exploration.
- Submitting
  - Place all materials (patches, samples, dependencies) ***in a folder with your name on it; .2 pts deduction if this is not done***.
    (e.g. "jon_kulpa_lab2"…not just "lab2")
  - Zip and upload to bcourses
- Extensions:
  - Require approval! Actively communicate with me.
  - Late labs are to be emailed to me (do not submit on bcourses).
- Grading:
  - Musical, design, & topic requirements are indicated on each lab, and must be fulfilled, but otherwise, students are free to be as creative as they wish. Thus:
  - **Grading is a combination of: 1) fulfilling the posted requirements 2) *effort, creativity, and going beyond the minimum* 3) initialized, de-bugged, without large coding errors.**

    10 - 9.6 - greatly exceeds project requirements and is exceptionally creative, *and goes beyond any class-provided models (not copy/pasted)*
    9.5 - 9.0 - meets project requirements, is well-developed, *and goes reasonably beyond any class-provided models (not copy/pasted)*
    8.9 - 8.5 - meets the demands of the assignment and displays effort
    8.4 - 8.0 - falls short of the assignment requirements but displays a good effort
    7.9 - etc - displays a lack of effort and understanding of the materials involved
- Policy on Chat/generated code:
  - If you don't actively code everything yourself, *over the long-term* you will have a diminished ability and dexterity in realizing your own goals and engines. Please think long-term and growing a skillset in this class. Also, in being closely connected to the building process, through the push and pull of wrestling with code, it gives you new ideas and enables exciting

discoveries to emerge. This is not just waxing poetic. It's how it happens! Embrace this process! My official position on ChatGPT and similar technology is that if it generates your patches with no significant elements or touches added by yourself, points will be deducted and you will be given another chance to redo the work. However, if you believe Chat is a partner in coding, understanding, and your own learning, I am open to this, but you must treat it with the same requirements as a group project: first, openly state you used such a tool, and second, you must comment what you contributed, personally building yourself. I need to see a serious partnership in the same way I need to see serious emergence of ideas in building everything yourself. Also NOTE: Chat will not get all the lab requirements correct anyway. We use an in-house research language (e.g. odot) and Max CNMAT objects, which Chat will not be trained on. Also, our musical and sound design requirements are often highly tailored to this particular course and the history of CNMAT research. You will need to work with these particular concepts, which require your own learning and implementation.

Final grade distribution:

100 - 99%	A+
98 - 94	A
93 - 90	A-
89 - 87	B+
86 - 83	B
82 - 80	B-
79 - 77	C+
76 - 73	C
72 - 70	C-
etc	

P/NP - As with any UC Berkeley course, a passing grade is C- or better.

Course “Schedule"

…in quotes because ***much like computer music itself, this course is often developing with new discoveries along the way.***

Week	Date			Goings-On
1	January	Tu	16	Syllabus, Installation Intro to Max (control rate)
		Th	18	Intro to Max
2		Tu	23	Intro to Max Intro to MSP (audio rate)
		Th	25	Intro to MSP
3		Tu	30	Time…Basic Automation
	February	Th	1	Time…Basic Automation
4		Tu	6	Time…Basic Automation **Lab 1 assign - Automation**
		Th	8	Intro to odot & controllers
5		Tu	13	Timbre Additive Synthesis / poly~
		Th	15	Additive Synthesis / poly~
6		Tu	20	Additive Synthesis / poly~
		Th	22	Additive Synthesis / Subtractive Synth (filters) **Lab 2 assign - Additive, Subtractive, Delays, Modulation, make a “switch”**
7		Tu	27	Delays
		Th	29	Delays Subtractive Synthesis
8	March	Tu	5	Musical form, switches, presets
		Th	7	Musical form, switches, presets
9		Tu	12	Modulation Synthesis

		Th	14	Modulation Synthesis Wave-Shaping Synthesis
10		Tu	19	Into sample-accurate clocks Granular Synthesis
		Th	21	Granular Synthesis
11		Tu	26	~~~ Spring break ~~~
		Th	28	~~~ Spring break ~~~
12	April	Tu	2	Granular Synthesis Time…Sample-Accurate clocks **Lab 3 assign - make an abstraction, make a switch**
		Th	4	Time…Sample-Accurate clocks
13		Tu	9	Time…Sample-Accurate clocks
		Th	11	Propose Final Projects
14		Tu	16	Work on Final Projects **Final assign**
		Th	18	Work on Final Projects
15		Tu	23	Work on Final Projects
		Th	25	Work on Final Projects
16		Tu	30	RRR (extra help)
	May	Th	2	RRR (extra help)
17		TBA	TBA	**Final Pres - Zoom Concert (due at beginning of class)**

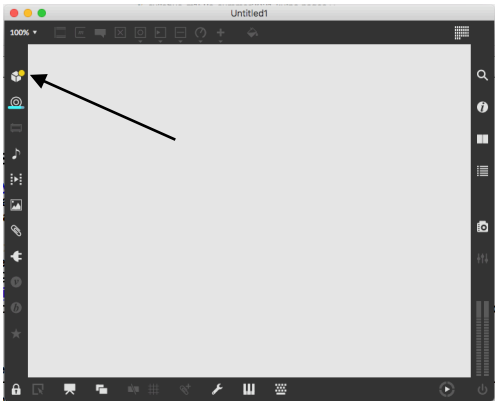
First Day: Installation Instructions

1) Go to https://cycling74.com/downloads
   - Create an account.
   - Download and install Max 8

2) Authorize Max:
   - There are 30 days free for first-time users.
   - Then $9.99 per month ($30 for semester).
   - https://cycling74.com/shop/max
   - Authorize by going to Max, then Help >> User Account and Licenses (then sign in and authorize).

3) Get the following Max Packages:
   - If on Mac M1 chip, download these from git:
     CNMAT-Externals
     odot

   - Otherwise, go to the Max Package Manager. In Max, type Cmd+N (Win: Ctrl+N) for a new patch; then click on this icon:
     Search for:
     CNMAT-Externals
     odot



   - All systems, get “ejies” via the Package Manager.

   - All systems, download the Packages here on bcourses:
     CNMAT-Depot and CNMAT-Pedagogy

   - Packages obtained through Max Package Manager, are ready to go. For the others you downloaded above, unzip and place the folders here on your computer:
     Documents >> Max 8 >> Packages

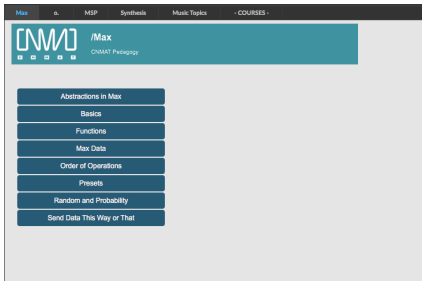
4) Move **o.gui.attach** out of its odot “dev” folder:
   - Navigate to /Documents/Max 8/Packages/odot/dev/externals
   - Move **o.gui.attach** to the regular externals: /Documents/Max 8/Packages/odot/externals

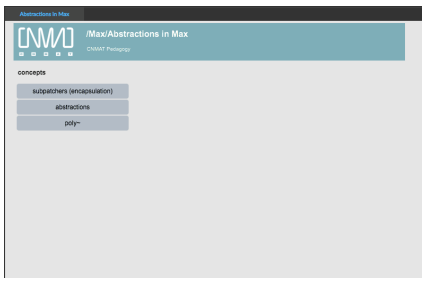
5) Create your own personal “max_enabled” folder
   - Create a new folder called “max_enabled” or anything you want. It can go anywhere you prefer, except avoid Documents >> Max 8 >> Packages.
   - Then, while in Max, go to:
     Options >> File Preferences
     Click the **+** in the lower left corner (a new file pathway gets added).
     Select “choose” on the new pathway.
     Point at the “max_enabled” folder, wherever you placed it.
   - Place the media folder from step (3) in there too.

6) Test our “textbook”:

   - *Quit and restart Max*.
   - All the materials of the course are accessed via one max patch:
   - While in Max, go to:
     Extras >> **CNMAT-Pedagogy_overview**

   - It should look like this. Try clicking on a blue colored button.
   - Make sure a blue button opens up another window like this.
   - Finally, click on a gray button and make sure it opens yet another window that looks like a little lesson.





Most Classes…

New materials may be added, so get the Latest **CNMAT-Pedagogy from bcourses.**
At the beginning of class, before starting Max:

Go to Documents>> Max 8 >> Packages and place CNMAT-Pedagogy.zip inside.
DELETE your old CNMAT-Pedagogy.zip folder.
Unzip the new CNMAT-Pedagogy.zip.

Thus, don't take notes directly on these "textbook" patches. Copy the contents of these patches to your own new patch and save the patch in your own /max_enabled/notes folder.

Other Policies

Academic Integrity

Copying all or part of another person's work, or using reference material not specifically allowed, are forms of cheating and will not be tolerated. Specifically: Any work submitted should be your own individual thoughts, and should not have been submitted for credit in another course unless you have prior written permission to re-use it in this course from this instructor. Do not collaborate or work with other students on assignments or projects unless you have been given permission or instruction to do so. If you are unclear about expectations, ask your instructor.

Accommodation

If you have been issued a letter of accommodation from the Disabled Students Program (DSP), please see me as soon as possible to work out the necessary arrangements. If you need an accommodation and have not yet seen a Disability Specialist at the DSP, please do so as soon as possible. If you would need any assistance in the event of an emergency evacuation of the building, the DSP recommends that you make a plan for this in advance. (Contact the DSP access specialist at 510-643-6456.)

Discussion

We welcome all pertinent discussion and are counting on your participation in the course. We ask that your rhetoric deals with statements and ideas rather than with speakers and persons. When working with your peers in class, let's emphasize constructive dialogue and avoid language that could be construed as a verbal attack.

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