

Max Cycling 74 Workshop

POST-364-401

Fall 2021

Monday 3:10pm-4:40pm (CDM 00526 Loop Campus)

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Office Hours: Wednesdays 3:00pm-3:45pm (zoom)

Drop dates: <https://academics.depaul.edu/calendar/Pages/default.aspx>

This course is a workshop style introduction to the object-oriented programming language Max, that is used by musicians, designers, filmmakers, and visual artists to create works of Interactive Media. The course will introduce the basics of programming in the Max environment and cover sound synthesis, sample playback, music instrument design, and audio-reactive animation.

While we will not cover every aspect of this platform and programming language, this course aims to provide students with a strong grasp of the fundamental principles and concepts needed to execute their ideas effectively.

Learning outcomes:

- Students will gain a working fundamental knowledge of the Max programming environment
- Students will create various Max patches demonstrating the concepts covered each week
- Students will learn necessary techniques and tools for creating their own custom software in the Max environment
- Students will propose a concept, then execute their idea in Max to produce a functional software tool

Weekly Overview

Week 1

- Use cases
- What makes max different
- Software tour
- Patch chord types
- General UI philosophy
- Week 1 patch (bang Hello)

Week 2

- Message types (bang numbers lists)
- Basic UI objects (sliders, Key, number box, split, ezdac)
- “signal flow”
- Drag n drop samples (playlist object) - ezdac - mstr audio on setting
- Gain tilde (slider)
- Basic keyboard shortcuts (cmdE/cmdClick lock, n new object, option click multiple highlight, etc)
- Week 2 patch - Keyboard MPC

Week 3

- More Fundamentals
- UI Objects contd.
- Intro to Jitter Events
- Data Types/Objects

Week 4

- Intro to Arithmetic in Max
- Random numbers use cases
- MIDI in the Max Environment
- Sequencing and Looping
- Generate melodies
- Basic Synth device patch

Week 5

- Encapsulation (use cases and examples)
- Subpatchers
- Bpatchers
- Snapshots
- Presets / Custom library development

- Buffer~ (realtime audio recording/playback)
 - Send/Receive
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Week 6

- Synthesis
 - Creating a “Basic Shapes” synth patch
 - Customize and tailor the synth GUI
 - Generative Animation
 - Audio to Video
 - Mapping Synth Parameters to Video generator
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Week 7

- Max Conversion Tools
 - Video to Audio
 - Analyze Video to generate MIDI notes
 - Analyze Audio to effect Video
 - Propose Final Project Idea
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Week 8

- Synthesis revisited
 - Multiplier device
 - Control Signals vs Audio Signals
 - Amplitude Envelopes
 - Menus
 - Modulation (amplitude and frequency)
 - Noise oscillators
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Week 9

- Capturing audio output
- Filtering

- Creating video assets/clips
 - Exporting results
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Week 10

- Final Project discussion and demos

Grading:

Your grade will be based on both the completion of weekly assignments (40%) and your final project (60%)

Due Dates:

All weekly assignments may be turned in any time before the start of the following class. Assignments turned in late will be docked one full letter grade. If you know you won't be able to turn something in on time, let me know beforehand if possible and we can find a solution.

Course Materials:

I recommend everyone have a reliable backup drive to combat any unforeseen data misfortune.

Communication:

Please feel free to email me. I will be checking messages in the evenings and will attempt to respond in a timely manner.

All undergraduate students

Students in all undergraduate classes, with the exception of those in CEO cohort programs, may opt to change the grading basis for any or all of their courses to Pass/D/Fail. A grade of Pass (P) will indicate that the student's work met expectations for a grade of at least C-. Work that would merit a grade of D+ or D in the traditional grading basis would still earn a D+ or D. Work that does not merit a passing grade will earn a Fail (F). The Pass/D/Fail grading option may apply to any graduation requirement, including courses in the major, minor, Liberal Studies Program or open electives.

<https://resources.depaul.edu/coronavirus/faqs/Pages/classes-academics-students.aspx>

Graduate students

School of Cinematic Arts & School of Design

Students in graduate classes in these two schools may opt to change the grading basis for any or all of their courses to Pass/D/Fail. A grade of Pass (P) will indicate that the student's work met expectations for a grade of at least C-. Work that would merit a grade of D+ or D in the traditional grading basis would still earn a D+ or D. Work that does not merit a passing grade will earn a Fail (F). The Pass/D/Fail grading option may apply to any graduation requirement.

School of Computing

Students in graduate classes in the school will use the A/B/C/D/F grading basis.

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Please see <https://resources.depaul.edu/teaching-commons/teaching/Pages/online-teaching-evaluations.aspx> for additional information.

Academic Integrity and Plagiarism

This course will be subject to the university's academic integrity policy. More information can be

found at <https://resources.depaul.edu/teaching-commons/teaching/academic-integrity/Pages/default.aspx>.

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the [University Academic Calendar](#). Information on enrollment, withdrawal, grading and incompletes can be found at: <http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>

Incomplete Grades

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval. Information about the Incomplete Grades policy can be found at <http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx>

Students with Disabilities

Students seeking disability-related accommodations are required to register with DePaul's Center for Students with Disabilities (CSD) enabling them to access accommodations and support services to assist with their success. There are two office locations:

- Loop Campus (312) 362-8002
- Lincoln Park Campus (773) 325-1677
- Email: csd@depaul.edu

Students who register with the Center for Students with Disabilities are also invited to contact Dr. Gregory Moorhead, Director of the Center, privately to discuss how he may assist in facilitating the accommodations to be used in a course. This is best done early in the term. The conversation will remain confidential to the extent possible.

Please see <https://offices.depaul.edu/student-affairs/about/departments/Pages/csd.aspx> for Services and Contact Information.