**Proposed Course Syllabus Music 158A**

**Sound and Music Computing with CNMAT Technologies**

**Course Description**

Music 158A explores the intersection of music and computers using a combination of scientific, technological, and artistic methodologies. Musical concerns within a computational frame are addressed through the acquisition of basic programming skills for the creation and control of digital sound. Students will learn core concepts and techniques of computer-based music composition using the Cycling74/MaxMSP programming environment in combination with associated software tools and programming approaches created by the Center for New Music and Audio Technologies. Included will be exposure to the essentials of digital audio signal processing, musical acoustics and psychoacoustics, sound analysis and synthesis. The course is hands-on and taught from the computer lab.

**Weekly Homework Assignments.** Students are required to complete weekly software programming assignments that focus on musical outcomes. For that purpose, the MaxMSP program is provided to students on a walk-in basis in the Wheeler Hall Computer facility. Please see *Attendance* and *Late Work* for more information. Assignments are due on a timely basis and no late assignments are accepted.

**Final Project Presentations**

Music 158A students do not take a standardized final exam. In lieu of a standardized final exam, students create a final project using skills and techniques presented in class. The final project can range from a new digital musical composition to the creation and performance with a newly designed software-based musical instrument. Included in the final project is the requirement to present to the instructor and to the class a short (6 minutes) demonstration and/or performance at the Center for New Music and Audio Technologies (www.cnmat.berkeley.edu). The date of the final project demonstration and the due date for the final project will be the official university final exam slot given to the course. This scheduled due date and presentation cannot be rescheduled.

**Office Hours:** Instructor is available for weekly office hours

**Music 158A Materials**

Music 158A will use the Cycling74/Max/MSP programming environment extensively in the course. The software is provided in the Wheeler Hall Computer Facility free of charge. Other tangible interfaces and devices for music instrument design and control will be made available to students by the Center for New Music and Audio Technologies throughout the semester. None of the materials in the Wheeler Hall Computer Facility are available for home use, but students are free to purchase their own software licenses or with instructor approval, use personal hardware for the purpose of their final project. Although not required, a12-month student authorization for under $100 is available at [http://cycling74.com/products/max/individual-academic/ (Links to an external site.)](http://cycling74.com/products/max/individual-academic/" \t "_blank).

Music 158A will make extensive use of The Center for New Music and Audio Technologies Max/MSP libraries for computer programming, synthesis, and training. These materials are provided free of charge and can be downloaded to personal computers for use both during and after the course.

**Required:** USB flash drive with at least 200MB of free space.

**Recommended:** Your own set of headphones.

**Schedule**

This Weekly schedule is subject to change; please watch BCourses for important announcements.

| **Week** |  |  | **Topic** |
| --- | --- | --- | --- |
|  |  |  |  |
| 1 | W |  | Introduction, course overview, Hello Max |
|  | F |  | NO HOMEWORK |
|  |  |  |  |
| 2 | M |  | Introduction to Dataflow in Max and CNMAT “o” tools |
|  | W |  | Introduction to Dataflow in Max and CNMAT “o” tools |
|  | F |  | Homework Assignment 1 due for submission to B-Courses site by 5 p.m. |
|  |  |  |  |
| 3 | M |  | Digital Audio Primer and CNMAT MMJ Depot (+ Quiz 1) |
|  | W |  | Digital Audio Primer and CNMAT MMJ Depot |
|  | F |  | Homework Assignment 2 due for submission to B-Courses site by 5 p.m. |
|  |  |  |  |
| 4 | M |  | **CNMAT odot** and control structures (+ Quiz 2) |
|  | W |  | **CNMAT odot** and control structures |
|  | F |  | Homework Assignment 3 due for submission to B-Courses site by 5 p.m. |
|  |  |  |  |
| 5 | M |  | Interacting with Hardware and CNMAT I/O (+ Quiz 3) |
|  | W |  | Interacting with Hardware and CNMAT I/O |
|  | F |  | Homework Assignment 4 due for submission to B-Courses site by 5 p.m. |
|  |  |  |  |
| 6 | M |  | Elements of Audio Synthesis and the CNMAT Spectral Objects (+ Quiz 4) |
|  | W |  | Elements of Audio Synthesis and the CNMAT Spectral Objects |
|  | F |  | Homework Assignment 5 due for submission to B-Courses site by 5 p.m. |
|  |  |  |  |
| 7 | M |  | Composing Digital Instruments with Musical Outcomes (+ Quiz 5) |
|  | W |  | Composing Digital Instruments with Musical Outcomes |
|  | F |  | Homework Assignment 6 due for submission to B-Courses site by 5 p.m. |
|  |  |  |  |
| 8 | M |  | **Midterm Project Space** |
|  | W |  | **Midterm Project Space** |
|  | F |  | (Midterm Project due for submission to B-Courses site by 5 p.m.) |
|  |  |  |  |
| 9 | M |  | Timing & Scheduling with CNMAT odot |
|  | W |  | Timing & Scheduling with CNMAT odot |
|  | F |  | Homework Assignment 7 due for submission to B-Courses site by 5 p.m. |
|  |  |  |  |
| 10 | M |  | Composing with Statistical Models I |
|  | W |  | Composing with Statistical Models I |
|  | F |  | Homework Assignment 8 due for submission to B-Courses site by 5 p.m. |
|  |  |  |  |
| 11 | M |  | Composing with Statistical Models II |
|  | W |  | Composing with Statistical Models II |
|  | F |  | Homework Assignment 9 due for submission to B-Courses site by 5 p.m. |
|  |  |  |  |
| 12 | M |  | CNMAT Spectral Synthesis Tutorials |
|  | W |  | CNMAT Spectral Synthesis Tutorials |
|  | F |  | (Final Project Proposals Due) |
|  |  |  |  |
| 13 | M |  | Final Projects Work Session |
|  | W |  | Final Projects Work Session |
|  | F |  | (Final Project check-in) |
|  |  |  |  |
| 14 | M |  | Final Projects Work Session |
|  | W |  | Final Projects Work Session |
|  | F |  | (Final Projects check-in) |
|  |  |  |  |
| Exam | Date |  | **FINAL PROJECTS DUE with SHORT PRESENTATIONS AT CNMAT** |

**We will announce our availability for the reading week as time draws nearer.**

**Music 158A Policies**

**Grading**

Graded assignments have the following weight:

| **Graded Work** | **%-Value** |
| --- | --- |
| *Final Project and Presentation* | 30% |
| *Midterm Project* | 15% |
| *Lab Assignments* | 35% |
| *Quizzes* | 20% |

The grade distribution is:

| ***Percent*** | ***Grade*** |
| --- | --- |
| 100% -- 90% | A |
| 89% -- 89% | B |
| 79% -- 70% | C |
| 69% -- 60% | D |
| 59% -- 0% | F |

Plusses are awarded for the top three percent and minuses are reserved for the bottom three percent of each grade distribution above. Opportunities for extra-credit will be announced during class hours.

**Important Dates - Fall 2015**

* Deadline to drop without a fee: **September 4th**
* Deadline to add without a fee: **September 11th**
* Deadline to add without Dean's approval: **September 25th**
* Deadline to drop without notation on transcript: **September 25th**
* Deadline to change grading option: **October 30th** (Dean's exception required after this date)
* **November 20th** (Friday) is scheduled for individual meetings for everyone to discuss their final projects - we will start scheduling these as early as possible. Please notify us of any conflicts on that day.

**Attendance**

* We require attendance during Monday / Wednesday lecture hours.
* We require each homework assignment to be completed by the end of each week (that is, **Friday, 5 pm** and not a minute later) - you are free to work using your own computers, but we are unable to provide support for installation of Max and externals due to high enrollment numbers.
* Students are only allowed to attend the section of the course for which they are officially enrolled.

**Late Work**

If you will be missing class due to any university approved excused absence (religious accommodation, family emergency etc.), please inform your instructor as soon as possible.

Our policy expects regular attendance:

* All quizzes are to be completed in-class and turned in via bCourses, we will not provide opportunities for make-up work.
* Homework assignments will be announced each Monday - your work must be submitted via bCourses by the end of week Friday, by **5 pm**. No late homework will be accepted.
* Final projects with short presentations replace the final exam and therefore may not be late (failure to deliver the work by the scheduled final exam date will result in a zero grade for the final, which will most certainly result in a poor final grade for the course).

**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. Inappropriate or disrespectful comments towards peers and their work will not be tolerated.