MUS_TECH 338 Computer Programming

Syllabus

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About This Class. This is a class is a workshop in music programming. The goal of the class is for each student to be able to program a music application with audio and with a graphic user interface (GUI) by the end of the quarter. The programming application we will be using is SuperCollider, a programming environment that evolved from SmallTalk and is specially designed for realtime music applications. It provides many special adaptations for music that make it 'relatively' easy to create a music application. Most of the principles of programming learned with SuperCollider are applicable to other modern object-oriented programming environments.

Software. SuperCollider is a *free* downloadable program. The primary version that we will be using is available for the Mac OS X. There is also version for Windows that lacks the support of GUI programming (among other things). There is even a Linux version that doesn't have very good reviews. I strongly recommend using the Mac version.

To download SuperCollider for Mac OS or Windows:

1. Go to http://www.audiosynth.com/
2. Click on "Download SuperCollider Server for MacOS X from here" (Windows people do this even though it doesn't make sense.)
3. Following the instructions and download where you want it.
4. Has to be decompressed before being installed where you put your applications.

Text. There is no text. SuperCollider comes with a huge amount of built in documentation. It is your best source of helpful information. You will also be receiving copies of the lectures as SuperCollider documents that you can read. There is a supplemental text by David Cottle that you might want to have a copy of. It is available at:

http://home.comcast.net/~dmcottle/rb2/

Labs.

• **Kresge 1-360 (Animate Arts room).** Our classroom space is also a lab space. It is available for use whenever classes are not in session. Individual access to the room is available with a specially coded key. The requires a $50 deposit.

• **Music Library.** SuperCollider is also installed on the Macs in the Listening Center/Computer Lab of the Deering Hall Music Library. The hours of the Music Library Lab are Monday - Thursday: 10:00 a.m. - 10:00 p.m., Friday: 10:00 a.m. - 5:00 p.m., Saturday: 1:00 p.m. - 5:00 p.m. and Sunday: 1:00 p.m. - 10:00 p.m. In order to start SuperCollider in the Music Library Lab:

1. Double-click on the Macintosh HD icon.
2. Double-click on the Home icon.
3. Double-click on the Applications folder.
4. Double-click on the SuperCollider_f folder.
5. Double-click on the SuperCollider application icon.

Assignment: "Programming Handbook"

Acquiring skill at programming requires considerable time and effort. This is largely because programming has so many individual skill components that one has to master. Programming also involves learning the many idioms and standard procedures used in a programming language. Your "Programming Handbook" will be a reference resource for these idioms and standard procedures. The Handbook will also include the programming projects that you complete during the course and capture the evolution of your experience in the class learning to program.

Each person comes to this class with a unique background. One function of the Handbook is to be a vehicle for you to construct a representation of what you have gathered from this course in a way that is relevant to you. This assignment also puts the course's emphasis on your process of integrating information from lectures, readings, and programming examples. The Handbook assignment also asks that you take time to reflect on the nature of your learning experience in the class and seek to relate the class to the rest of your life.

Work on the Handbook should be accumulative. This assignment preferences consistent day-by-day, week-by-week work. Don't even think about putting it off. Get started today.

Format. The Handbook text must be created with SuperCollider. This has the advantage that any and all examples can be executed immediately within the document.

Organization. Your Handbook must contain the following sections:

- **I. Elements of the SuperCollider Language.** Information you find useful on how to construct statements, both explanations and examples of code. This section should be made up of many entries on the individual components of the language.
- **II. SuperCollider Classes.** Information on standardized classes bundled in SuperCollider. A template for these entries will be discussed in class.
- **III. Diary.** Personal reflections (at least one for every week) that capture the evolution of your reactions to and ideas about the class and programming. This is also the place to provide feedback (positive and negative) to the instructor on how well the course is serving you. Organize the Diary by the date of the entry

Review by Instructor. The Handbook will be turned in for review and comments by the instructor in the 3rd to 4th weeks and the 6th to 7th weeks.

Turning In Your Handbook. Turn in your Handbook by email.

Programming Assignments in SuperCollider

Programming assignments will be given in class. These assignments will increase in complexity over time. The final project will involve programming a music application complete with audio and a user interface. These programs should be turned in to the instructor by email.

Final Deadline. The Final Version for both the notebook and the programming assignments are due: **Monday, December 5, by 9 am.** Don't be late and don't ask for an extension. Turn them in.

Final Grade. The course grade will be based 50% on the notebook and 50% on programming assignments.

Getting Started Today:

1. Install SuperCollider on your own computer.
2. Within the SuperCollider folder is a folder called "Help." Read the document entitled "How-to-Use-the-Interpreter.rtf."