

ARTS 2020

COMPUTER MUSIC STUDIO

Course Syllabus – Spring Semester, 2009
iEAR Studios, Rensselaer Polytechnic Institute

INSTRUCTOR: Curtis Bahn Ph.D.

Office Location: West Hall 116

Office Hours: by email appt.

Phone: x4032

E-mail: crb@rpi.edu (best contact method)

TIME: 4:00 pm – 7:50 pm, Mondays

LOCATION: WH110

CLASS WEBSITE: http://www.arts.rpi.edu/crb/classes/computer_music

COURSE PREREQUISITES:

Arts 1010 (Media Studio: Audio/Video) or permission from instructor.

COURSE MATERIALS:

1. **READINGS:** All readings will be handed out in class, or available on class website.
2. **LISTENING:** There will be a considerable amount of listening required for this course, mostly in class. These materials will be provided or may be available via the web.
3. You will be **REQUIRED** to purchase CD-R discs to turn in your sound assignments. CD-R media can be purchased in the RPI Bookstore, or you may choose to get them elsewhere.

COURSE DESCRIPTION:

This course is an introduction to music and “sound-art” created through the use of computers and electronics. This is a studio course, and students will be expected to participate creatively in class by listening, taking an active role in discussions, and making your own work through significant, intelligent uses of technology. Although a component of this class includes learning how to use computers and other technological tools, this is not a “how-to-use technology” course. We will focus primarily on learning enough about technology to realize personal creative projects.

COURSE OBJECTIVES:

The objectives of this course are threefold:

1. To gain an understanding and appreciation of computer music through an awareness of the many disciplines underlying the field including: listening skills, musical theory, musical acoustics, psycho-acoustics, digital audio theory, and digital signal processing.
2. To acquire basic technical facility in the areas of audio recording, editing, sound-synthesis and post production.
3. To practice creativity and resourcefulness through your own sonic projects

EVALUATION:

Evaluation is based on the following: A written mid-term test on digital audio theory and concepts from class (10%); projects and compositions (70%); concert reviews (5%); class participation/attendance (15%). Since much of the class is focused on listening to and discussing work in class, attendance is mandatory. More than two unexcused absences will affect your grade, deducting 1/2 grade each additional 2 unexcused absences.

PROJECTS AND GRADING DISTRIBUTION:

EACH ASSIGNMENT MAY HAVE SEVERAL STAGES: DISCUSSION, PROPOSAL, FIELD RECORDING, SOUND AND SEQUENCE GENERATION, SKETCH, 1ST DRAFT, FINAL MASTER ETC. THESE ALL CONTRIBUTE TO THAT PROJECT'S GRADE. AN ASSIGNMENT IS NOT JUDGED SOLELY ON THE FINAL MASTER BUT ON THE PROCESS OF COMPOSITION THAT CONTRIBUTED TO IT.

1. Composition 1 – Music with Natural Sounds (15 pts): This project will involve field recording: You will be required to record an object or an environment of your choice, and use it as material for a sound piece of your own design.
2. Composition 2 – Music with Synthetic Sounds (15 pts): This project will involve the control of a virtual rack of audio gear using MIDI and grid-based editing through “Reason.”
3. Composition 3 – Real-time processing and interactive performance (15 pts.): interactive exercise with max/msp and “Live.”
4. Final Composition (25 pts): a creative work of your choice using any resources from the course. This may be an expansion of another short class assignment or a completely new work. This composition will be handed in on a final CD that you will create. (interactive or installation-based works may need to be documented in another fashion at the discretion of the instructor)
5. Quiz (15 pts): There will be an exam on technical topics discussed in class related to digital audio and acoustics.
6. Concert Reviews (5 pts): (see below)
7. Attendance/Participation (10 pts)
8. extra credit – Listening/Paper (10 pts): You will be asked to listen to a piece of music chosen with consultation of the instructor, and write a paper in response to it. You will present and discuss the work in class.

CONCERT REVIEWS:

You are required to attend at least three musical concerts or sound-based events during the semester. You may attend concerts from the “iEAR Presents” musical events, or “Impulse Response” events, or any other events you would like to attend on or off campus. They **MUST** be events in which live performed music or sound is the focus. A soundtrack to a film, for

example, does NOT count. You will then need to submit via email a 1-2 page review of each performance which addresses both technical and aesthetic issues. Reviews should include both a description of the program, instrumentation (when appropriate), and a reasoned critique of the sonic materials and the performance.

RESOURCES AVAILABLE:

Throughout this course, you will make use the resources in the Undergraduate Computer Music Studio (WH110). Students enrolled in the course will have access to the studio 24 hours a day, and should expect to spend several hours working in the studio each week. You will also have access to recording equipment in the equipment room, which you will be checking out from time to time in order to make field recordings.

When appropriate for an assignment, or to explore sound in general, we encourage the use of your own computer, electronic instruments, etc. Often times, smaller components of a large project can be done on your laptop or home studio facilities and then brought into the main studio to be mixed and written to CD.

EMAIL:

All students will be expected to use and monitor their RCS electronic mail accounts for correspondence concerning this course. Email provides an excellent forum for sharing technical information, as well as for posting changes in assignments, readings, listenings, etc.

STATEMENT REGARDING ACADEMIC INTEGRITY:

Collaboration between students in this course is strongly encouraged. Likewise, students are encouraged—indeed, to some extent *required*—to exchange ideas, opinions and information . You are also encouraged to help each other in the lab and with performance, production, and presentation of composition projects.

Plagiarism of any kind is in direct violation of University policy on Academic Dishonesty as defined in the *Rensselaer Handbook*, and penalties for plagiarism can be severe. In this class you will be expected to attribute due credit to the originator of any ideas, words, sounds, or music which you incorporate substantially into your own work. This applies particularly to citation of sources for sonic “samples” included in your compositions.

COURSE SCHEDULE:

The proposed course topics and schedule will be as follows (take note of project due dates!). Based on class progress and interests, this schedule is subject to change.

- 1/12 **Introductions...**
Introduction to critical listening, analysis, and discussion of music, musical form, Studio orientation. Equipment room orientation
READING: vocabulary for a x-cultural analysis
LAB: Field Recording, DAT and solid state recorders, Microphones.
- 1/19 **Labor Day - MLK day**
Make sure you have Lab and ER access – proceed with your sound recordings.
- 1/26 **Music with Natural Sounds continued**
DUE: Initial field recordings on DAT tape, hard drive or external memory card.
LAB: Digital Transfer and Editing, Composing with ProTools.
- 2/2 **Music with Natural Sounds continued.**
DUE: composition 1 mix sketch, present in class.
LAB: advanced ProTools and signal processing.
- 2/9 **COMPOSITION 1 DUE (Field Recording/Composition). PRESENT IN CLASS**
Introduction to MIDI, theory and concepts.
LAB: Reason, making a drum sequence
- 2/16 no class – tuesday is a monday schedule
- 2/17 **Music with Synthetic Sound**
More on MIDI, digital audio, musical acoustics and psycho-acoustics.
Historical trends, listening and discussion.
LAB: MIDI sequencing, recording and editing, etc.
DUE: RHYTHM SKETCH
- 2/23 **Music with Synthetic Sound continued..**
LAB: MIDI sequencing, recording and editing, making a drum beat etc.
DUE: MELODIC SKETCH
- 3/2 **COMPOSITION 2 DUE (Music With Synthetic Sound). PRESENT IN CLASS**
download Chuck, and MAX/MSP
LAB: CHUCK
- 3/9 **Real-time processing and interactive performance**
more on MAX/MSP and Chuck
DUE: Chuck study
LAB:MAX/MSP
- 3/16 **Real-time processing and interactive performance**
more on MAX/MSP and Chuck
DUE: MAX/MSP study
LAB:MAX/MSP
- 3/23 **Real-time processing and interactive performance**

more on MAX/MSP and Chuck
DUE: assignment sketch

3/30 **COMPOSITION 3 DUE, PRESENT IN CLASS**

4/6 Putting it all together – final project proposal discussions, more on form and composition, review for quiz.

4/13 **Quiz**

4/20 DUE: final sketches in class - more discussion of composition and individual help.

4/27 **Present Final Projects in Class: ALL FINAL PROJECTS AND ALL CLASSWORK
DUE IN CLASS.**