MUS 80: Sound Recording and Production

Instructor: William Brent; w@williambrent.com
MWF: 2:00 - 3:50 pm
CPMC 265

Course Description:

      This introductory course gives students exposure to audio editing, standard recording techniques, and the associated software and hardware tools. Students will engage with the details of microphone placement and orientation, hearing the results of different techniques in the process. Through classroom example, hands-on experience, and a visit to a professional recording studio, they will learn how to set up a recording session and perform basic editing in the ProTools environment.

      Independent and collaborative working strategies will be used to cover these fundamental skills. A final group project will draw on experience gained during the course, giving students the opportunity to produce a polished recording from start to finish.

Course Objectives:

      Give students an understanding of all elements that require consideration in recording; provide a general understanding of musical instrument acoustics as it relates to the capture of sound; provide an overview of digital signal processing (DSP) basics; expose students to both standard professional recording/editing software and the open source alternatives; provide the opportunity to work directly with musicians in a recording environment; visit a state of the art professional recording studio.

Expectations:

      Because this course will cover a lot of material in a hands-on format, students are expected to attend all classes and arrive on time. The ability to work well in a collaborative environment is crucial, as much of the work requires a group effort. Basic computer skills will be helpful, but are not required.

Textbook (optional):

Alten, Stanley R. 2008. *Audio In Media*, Eighth Edition. Belmont, CA: Thomson Wadsworth.

Short Course Outline:

I: Introduction to the basics of musical acoustics: what are the characteristics of musical sound and how well can we capture them? Introduction to modern recording technology, including software (ProTools, Audacity, Ardour), links in the hardware chain (dynamic and condenser microphones, preamplifiers, analog-digital converters), and digital signal processing (DSP) fundamentals.

II: Microphone techniques. Students will research the effects of miking techniques as well as spatial location, and create a plan for capturing a specific effect. Working in an instructor-guided session, students will have the opportunity to carry out their plan by recording a live musician. A survey and analysis of the results will follow.

III: Editing techniques. Students will be introduced to the basics of mixing and editing in the ProTools environment. Based on previous research and experience, they will form groups to create a specific recording plan, run a recording session, edit the results, and produce a polished final recording.

• Introduction: what do you want out of this course?
• Historical introduction to recording technology: from analog to digital.
• Acoustics basics (Alten: Chapters 1 & 2).
• Objective vs. subjective aspects of sound.
• Sound, timbre, and spectrum.
• Trial by fire. Visit Warren music studios to observe a large session tracking 12 percussionists. We will be able to see both the preparation phase as well as initial recording.

Week 2
• DSP basics: How is audio captured digitally, and how much do you need to know in practice?
• Software: ProTools, Audacity, & Ardour.
• Microphones (Alten: Chapter 4). Dynamic/condenser, pickup patterns, frequency response, etc.
• Miking techniques (Alten: Chapter 15).
• Instrument specific techniques.
• Stereo Techniques.
• Miking the voice (Alten: Chapter 9; 170-176)

Week 3
• Control surfaces (Alten: Chapter 5).
• Digital recording (Alten: Chapter 6; 119-124).
• Instructor-guided recording session putting these techniques into practice. The recordings produced during this session will be analyzed in the following class.

Week 4
• I am out of town for a conference this week. Daniel Shapira (a recording engineer from the music department) will take over to cover mixing and editing techniques in ProTools.
• Signal processors, plugins (Alten: Chapter 8).
• Mixing and Editing (Alten: Chapter 18 & 19).
• Plug-ins, utilities, and effects: EQs, Compressors, Reverb, etc.
• Take-home quiz: You will be given a recording consisting of several incomplete takes of a piece. Construct a final edit of the piece, and describe the miking techniques that were most likely used.

Week 5
• Individual/group projects will take priority.
• Students will present detailed plans for their projects to the class at the beginning of the week. Because of time constraints, it will be important to choose the scope of your projects carefully. Those who have a specific project in mind from the start of the course should see me to discuss options for realizing it within our time frame.
• Working sessions will be scheduled so that the class will be able to observe each group's plan in action during class time.

Final Exam
09/05/09: The class will meet to present completed projects to the class.

Grading Scheme
50% participation.
20% take-home quiz.
30% final project.