Beats, Physics, and the Mind

1. What is the theme you propose for your group of courses? In what ways do you think this theme speaks to issues important to our freshman population?

The theme of the cluster is music. Our intent is to use the students' interest in music to motivate a detailed and thoughtful study of music. By taking advantage of the multidisciplinary approach of cluster courses we can offer a more detailed study of music based on both its physical/sonic properties and its social/conceptual properties.

2. List the three courses (prefix, number, title, units)

PHYS 1200 Behind the Music (4)
MUS 1085 Introduction to Audio Production (4)
PHIL 1303 Introduction to the Philosophy of Art (4)

3. Explain how the theme will be used to integrate course content in each course. (Describe the contribution of each discipline’s perspective on the theme that will help create a coherent learning experience for the students.)

The overall theme in BPM: Beats, Physics, and the Mind will be used to provide a framework for the understanding and execution of sound and technology as contemporary creative force commonly called "music". An understanding of the basic principles of the physics of sound (acoustics) is essential for further work in audio production. PHYS 1200 will educate the student on the science of how sound works. Additionally, this course will begin to hint at how a firm understanding of this knowledge can lead to creative ventures by engaging the student in a project which will have them craft a custom musical instrument. This creation is formed by the student's knowledge not only about the properties of sound but moreover how they wish to exploit, bring out, subdue, or in general, affect those properties to create something unique.

In MUS 1085, the student learns about how to practically apply acoustical principals to audio production. More specifically, they will be engaged in projects which involve their custom musical instruments from PHYS 1200 and will learn the techniques of microphone placement and sound design editing/mastering in order to craft an artistic work in the form of a recording. Larger issues of style and aesthetic will be brought forward as a way to stimulate discussion regarding the nature of sound and the possibility of inherent associations. For instance, what does it mean to have the sound of machinery represented clearly in a work vs. the sound of machinery heavily processed and manipulated with sound design so as to be represented in a transformed way? These
kinds of broader philosophical questions are teased towards the end of MUS 1085 and are picked up in PHIL 1303.

From what began as an abstract study of the science of sound that then was led into the crafting of sound with technology to produce music, is then taken by PHIL 1303 and what makes "music" and what it is for something to be "musical." Here, students engage in arguments about what they consider to be music or musical and they will also be engaged in thinking about how the techniques of audio production coupled with purposeful manipulations of recognizable sounds do or don't matter in the final musical experience.

4. Explain how each course in the proposed learning community will support student learning of each of the lower division general education area learning outcomes and General Education requirements (passed by Academic Senate February 17, 2004). Please use the GE course application forms to address this question. (If the course has already been approved for GE credit, and the current application form was used, please attach a copy. If the course has not yet been approved for GE credit, the use of the application form will permit review for GE credit, even if the cluster application is not selected. (http://www.csuhayward.edu/ge/subcommittee/ge/learningoutcomes.htm). Please note: for mixed area learning communities, courses must meet learning outcomes in each area covered by the learning community. For example, a learning community with a course in humanities, one in social science, and one in science must demonstrate that the learning outcomes in humanities, social science, and science are met by the relevant courses.

Applications for general education credit are attached. PHYS 1200 will satisfy the GE requirements for area B1. MUS 1085 and PHIL 1303 will satisfy areas C1 and C3.

5. Attach course outlines for the three courses. Each course outline should indicate how the theme would be used in the course and any student activities that cross all three courses. (For example, will there be common reading(s) in the three courses? Will there be common assignments, or assignments on which students work the entire year? Will students keep a cluster portfolio? Etc.)

In addition to a tight thematic integration, the three courses will be integrated through a year long project to produce and analyze an original piece of music. In PHYS 1200 students learn about the fundamentals of sound and build their own musical instrument. In MUS 1085 students will learn how to record and mix a musical composition with their instrument. Finally, in PHIL 1303 students will discuss and interpret what makes these compositions "music".

Course syllabi and College approval forms are attached.
Approved by Department Chairs:

Signature

Physics Date

Signature

Department Date

Signature

Date

Approved by College Dean/Associate Dean from each participating college

Signature Date

Signature

Date

Signature

Date

Signatures of three faculty members: Ideally, the person who will teach the courses will participate in the cluster planning. However, recognizing the staffing difficulties departments face, the faculty member who plans the cluster must agree to provide a thorough orientation to the expectations and methods developed for the learning community to the actual instructor. We each agree, if selected, to meet on for six hours during the following three days for an end-of-Spring workshop on interdisciplinary curriculum, pedagogy and course integration.

Signature Date

Signature Date

Signature

Date

1 While Colleges do not approve courses for GE, College approval assures support for departmental participation.
Application for General Education Credit
for Lower Division Physical Science (Area B1)

Course title: Behind the Music
Course number: PHYS 1200

1. Students will demonstrate broad science content knowledge in the physical sciences such as the nature and structure of matter, Earth’s place in the Universe, or the conservation of energy and matter.

The specific goal of PHYS 1200 is to develop a scientific framework from which students can understand how a variety of instruments make music. In the process of building this scientific foundation many general concepts in physical science will be explored. Students will learn Newton’s Laws and how particular types of forces can produce oscillatory motion. The general properties of waves will be explored in detail, including understanding the difference between transverse and longitudinal waves, defining a wave’s period, frequency, and amplitude, and looking at more advanced wave properties such as diffraction, interference, the Doppler Effect, and resonance. In class demonstrations will be used ubiquitously to give students first hand exposure to these different concepts. Assigned reading from the textbook and weekly homework assignments will reinforce the ideas introduced in lecture.

2. Students will demonstrate the application of quantitative skills (such as statistics, mathematics and the interpretation of numerical graphical data) to physical science problems.

A key goal of this course will be to both develop students’ qualitative understanding of how physical systems work and their quantitative skills that allow them to predict the behavior of these systems. This will be accomplished by a lecture style that introduces students to physical phenomena with demonstrations, qualitatively describes the system, and then works through calculations of the detailed properties of the system. Mathematical problem solving will be a regular part of students’ homework. Most problems will involve some combination of numerical calculations, interpreting graphs, and solving algebraic equations. Additionally students will get exposure to more advanced mathematical topics such as Fourier analysis of complex waveforms. Students will be expected to interpret the frequency spectrum of a variety of instruments.

3. Students will demonstrate a general understanding of the nature of science, the methods applied in scientific investigations, and the value of those methods in developing a rigorous understanding of the physical world. Students should be able to identify the difference between science and other fields of knowledge. Students should be able to distinguish science from pseudoscience.

We will use the scientific method to explore how different musical instruments work. The class will follow an inquiry based model of learning. New ideas will primarily be introduced first with demonstrations. Students will be encouraged to discuss what they see and form a hypothesis. As a class we will come up with ways to test these ideas and uncover the physical principles underlying the demonstrations. Additionally, students’ special projects will give them independent and personal scientific experience. Student will be encouraged to design, build and test their own musical instruments.
Application for General Education Credit  
for Lower Division Fine Arts Course (Area C1 or C3)  

Course title: Introduction to Audio Production  
Course number: MUS 1085  

1. Students will demonstrate through oral and written work how foundational works in the humanities illuminate enduring human concerns and the intellectual and cultural traditions within which these concerns arise, including both classical and contemporary artists and/or theorists.  

For this class, the foundational works and corresponding cultural traditions are all much newer within the broader context of the history of western civilization. Students will study the role recording technology has played from being a means to document and capture and its difference uses as the source for inspiration for new works which would otherwise not have been possible. This will include the drawing of parallels between older practices, such as with Béla Bartók and Zoltan Kodaly’s use of the phonograph to record Hungarian folksongs in the early 20th century, with newer practices such as the use of hand-held digital recorders as ‘sampling’ devices which are used by DJs in order to create ‘fresh mixes’ that reflect upon contemporary issues and concerns in the setting of a dance ritual. Within this study, students will grasp the different functions of music and how, historically, composers and songwriters have used certain musical techniques and devices to express themselves with much greater effect.  

2. Students will demonstrate understanding of the interaction among historical and cultural contexts, individual works, and the development of humanities over time.  

Students will study the evolution of accessibility to the means to record sound and recording techniques and mechanisms of media distribution within the context of ‘closed’ and ‘open’ distribution systems. In the case of ‘closed’ distribution systems, students will study the struggle of the artist to be accepted by a conventional publisher of media and what artistic trade-offs may come with that struggle as related a ‘profits vs. ideas’ debate. In the case of ‘open’ distribution systems, students will study the struggle of the artist to be accepted by subverting conventional publishing mechanisms and if there are trade-offs that are similar to ‘closed’ system. For example, for the contemporary artist who wished to be signed by a record label (closed distribution system) what matters of the label’s style or genre association can affect the artist’s aesthetic choices? How does this compare to the approach of releasing music straight to a community portal website?  

3. Through oral and written work, students will demonstrate their ability to critically employ concepts, theories, and methods of analysis used in the humanities to interpret and evaluate enduring human concerns.  

To underscore the importance of technology as a means of expression in this class and the world at large today, students will use collaborative ‘Wikis’ within Blackboard in combination with sharing their of creative projects in sound via file upload to the wiki in order to critically employ concepts and execute the methods for crafting sound into personal expression. Additionally, Wikis will be used to post research on mavericks in recording and producing (Motown records, The London Symphony Orchestra, and DJ Spooky, just to name a few) and share that research with their colleagues in class and with the university at large (the Wiki will be open for public perusal). Larger sound projects in teams will involve collaborative music making with found
objects and reports on how such objects affected the aesthetic quality of the recording and, more importantly, how the objects directly relate to the overall message being expressed. For example, a song literally using sticks and stones in combination with the taunting interval of a minor 3rd in parody could be directly related to artist’s efforts to express resilience in a time of great adversity.

4. Students will critically reflect on the formation of human goals and values, and will articulate an understanding of the creativity reflected in works of the humanities that influenced the formation of those values.

Through discussions on the influence of technology on new forms of musical expression and the increased accessibility of music through technological developments in audio production and distribution, students will be required to express their critical thoughts through reflective writings on historical figures and/or precedents and analysis of their own create works produced for class.
Application for General Education Credit
for Lower Division Fine Arts Course (Area C1 or C3)

Course title  Introduction to the Philosophy of Art

Course number PHIL 1303

1. Students will demonstrate through oral and written work how foundational works in the humanities illuminate enduring human concerns and the intellectual and cultural traditions within which these concerns arise, including both classical and contemporary artists and/or theorists.

The foundational works and the corresponding cultural traditions are two-fold for this class. The students will be required familiarize themselves with works and traditions in music (following their historical development) as a way to understand the second order works and traditions that relate to art (specifically those that attempt to classify, understand, and analyze them).

2. Students will demonstrate a developing understanding of the interaction among historical and cultural contexts, individual works, and the development of humanities over time.

Student will study theories of art-making, artist, expression, and representation (to name a few) and the impact that certain ideas and works have had on these theories. For example, students will familiarize themselves with John Cage’s 4’33’’ and then go on to learn about its root in and influences on theories of the ontology of music.

3. Through oral and written work, students will demonstrate their ability to critically employ concepts, theories, and methods of analysis used in the humanities to interpret and evaluate enduring human concerns.

The assignments for the class will require the students to show a broad understanding of the material (through the take home exams) and a specific understanding of the details of arguments and the ability to create arguments (through the papers).

4. Students will critically reflect on the formation of human goals and values, and will articulate an understanding of the creativity reflected in works of the humanities that influenced the formation of those values.

This course will not only address the influence of the philosophy of music on human goals and values there will be a detailed discussion of aesthetic goals and the impact of the various aesthetic goals on aesthetic theories.
Physics 1200
Behind the Music

Jason Singley
North Science 231
885-3482
jason.singley@csueastbay.edu

Office hours: M, W, F: 11:00 – 12:00, and by appointment

Text: The Physics of Sound, Berg and Stork, 3rd edition

Class Overview

This course offers an introduction to the physical principles of sound production. We will examine the properties of simple and complex sound waves, and analyze how different musical instruments are able to produce a variety of sounds. No scientific or mathematical background is assumed. You will be expected to develop your critical thinking skills in order to understand and apply the scientific method. In terms of mathematics, only arithmetic and simple algebra will be used.

Course Requirements

- **Homework:** Homework is due at the beginning of class. Please do not email homework except for exceptional circumstances. Work turned in one class period late will receive a 25% deduction, and nothing will be accepted later. Homework question should be answered in complete sentences. If mathematical calculations are required be sure to show all of your steps clearly. Half of your homework grade will be based on attempting the problem, the other half on correctness.

- **Special Projects:** Option 1 – Build your own working musical instrument. This is an opportunity to apply the physical principles you will learn in class to create a functioning musical instrument. During the last week of class you will give a short “recital” and explain to the class how your instrument works. You must also turn in a short two page paper describing the design, theory, and frequency range of your instrument. Option 2 – Write a ten page paper describing one particular musical instrument. This paper should include a brief summary of the history of the instrument, but should be focused on describing the physical principles that govern the acoustic response of the instrument. During the last week of class you will be asked to explain a few interesting features of your instrument to the class. Option 3 – Design your own project. If you have an idea for alternative project that involves music or acoustics, come see me. All projects must include at least a short written and oral component.

- **Exams:** We will have two in class, closed book, closed notes exams. The midterm will cover material from the first half of the course, and the final will cover the
remaining material. The format of these exams will be a mixture of qualitative short answer questions and quantitative calculations. Make-up exams will only be offered in extenuating circumstances, when arrangements are made before the exam. You may be asked to provide documentation for your absence.

Grading

Your final grade will be weighted as follows:

- Homework 25%
- Midterm 25%
- Special Project 25%
- Final 25%

Letter grades will be assigned based on a “curve”. You can guarantee your grade using the following scale: 90-100 is an A, 80-89 is a B, 70-79 is a C, and 60-69 is a D.

How do I get the grade I want? I would enjoy nothing more than giving everyone A’s in the class. However to earn a top grade you must demonstrate that you have a good understanding of the physical principals of sound. While working towards the grade you want, consider the following:

- **Read:** We have an excellent textbook. Buy the book, and then get your moneys worth by reading it. You should read through a chapter before we cover it in class.
- **Attendance:** The topics we cover will be brand new to almost all of you. It is likely you will not get everything just by reading the book. Lecture is a chance for you to hear the material explained, ask questions, and discuss the topics with your peers.
- **Don’t procrastinate:** Homework assignments will be challenging and should take several hours. Don’t wait until the night before to start.
- **Ask questions:** I am happy to take questions about homework, the material in the book, or any recent topical news stories in lecture. I also have three hours of office hours a week. If you can not make the scheduled times, set up an appointment with me.
- **Study:** The number one reason that students don’t get the grade they want in this class is because they do not spend enough time outside of class studying. You should be spending 2-3 hours studying outside of class for every lecture period.

Class Etiquette

- Show up for class on time.
- Turn off your cell phone before class starts.
- Do not text message during class!
- Try to stay awake, pay attention, and participate in class.
- Be respectful of your fellow students.
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is Music? What is Science?</td>
</tr>
<tr>
<td>2</td>
<td>Simple harmonic motion</td>
</tr>
<tr>
<td>3</td>
<td>Wave properties</td>
</tr>
<tr>
<td>4</td>
<td>Resonance and the overtone series</td>
</tr>
<tr>
<td>5</td>
<td>Complex wave forms and Fourier analysis</td>
</tr>
<tr>
<td>6</td>
<td>The human ear and voice</td>
</tr>
<tr>
<td>7</td>
<td>Electronic music production</td>
</tr>
<tr>
<td>8</td>
<td>Temperament and pitch</td>
</tr>
<tr>
<td>9</td>
<td>Overview of various instruments</td>
</tr>
<tr>
<td>10</td>
<td>Review and special project presentations</td>
</tr>
</tbody>
</table>
MUS 1085 – Introduction to Audio Production
Dr. Rafael Hernandez
SYLLABUS

GOALS
The goals of this quarter's Introduction to Audio Production
- Make you more aware of sound and sound in time as a creative force with cultural impact.
- Cover the use of technology in music as a means not only to create and edit music, but to distribute and fundamentally alter conventional perceptions of musical experiences.
- Develop a foundation for the use of the digital audio workstation software Pro Tools LE 7, and music production software Reason 3 as related to the broader definition of audio production as an art which involves the sculpting and crafting of sound in time influenced by the natural principles of sound (acoustics) put through the filter of human experience (precedent and influence).

For ages, music has served as an expressive medium through which enduring human concerns have passed. As a unifying force, music has expressed common goals and values of different cultures, and subcultures in the form of stylistic genres. As a dividing force, music has expressed the need for moral and political change in society. With the advent of recording technology in the 20th century and the proliferation of portable, easy-to-use hardware and software which allows for the recording, editing, and wholesale manipulation of sound, and the accessibility of distribution through contemporary community web portals such as YouTube.com and MySpace.com, the boundaries of music as expression are being pushed with each new “bedroom” DJ and technological advance.

In this day and age we can make music not only with our voices and instruments but with circuits and transistors via music technology. Put in a simple manner, contemporary music making, at some point, involves “gear” and producing audio with that gear. This brings up the question of what it is to be a “producer” of music. Throughout the quarter, notions of what it is to “produce” music will be discussed within the context of the history of audio production and technological advances. You'll share with your colleagues your thoughts on this through the use of Wikis on Blackboard and through your own, self-produced music. Since gear is necessary for this, you will be provided with a practical framework in which to familiarize yourself with how this gear can be used in order to produce music. We'll use the industry standard software for recording and editing, Pro Tools LE 7 as our palette for capturing sound. We'll also use little amounts of Reason 3, a virtual studio program, to augment our music making. Finally, the most critical component in any studio is the person at the desk, so to speak. Here, we can speak of the producers and engineers whose experience and understanding of music, art, and technology come together to form to take something we often take for granted and sculpt it into a thrilling experience: sound in time.
REQUIREMENTS

Texts

Book 1: The Ambient Century: From Mahler to Moby--The Evolution of Sound in the Electronic Age
Author: Mark Prendergast
Publisher: Bloomsbury USA; Reprint edition (September 3, 2003)
ISBN-10: 1582343233


Storage media: Since this course will deal with uncompressed audio and multiple multi-track projects, It is quite wise and prudent to invest in a portable Firewire or USB2 hard drive with at least 5 gigs of storage space. Flash drives, thumb drives, and memory sticks are good for backup but are not fast enough to run projects off of. While there is scratch disk space on the computers in the MCMT for you to use, we will often to remote recording using a laptop or the computers in the recording booth. As such, it is to your advantage to bring a firewire drive for recording so that you can set up your project, record on one computer, and easily move it to another if necessary. The computers in the MCMT and Recording Booth are wiped clean quite often as the heavy use of these machines by multiple users creates an unstable working environment (thus necessitating the reformatting of the drives in order to keep the programs running smoothly). Uncompressed digital audio is quite large (roughly 10MB = 1 min). Additionally, you may want to store any video tutorials I make during class for more convenient viewing later. Options for storage backup include smaller flash drives and memory sticks and CD-Rs. Please see the "golden rule" below for further comments on storage media and data storage in general. Suitable hard drives for use in this course include:

- Iomega USB 2.0/Firewire 40GB external drive
- SmartDisk 40GB External Hard Drive

Internet access: with the latest version of the Macromedia Flash player, the latest version of Adobe Acrobat Reader, and the latest version of the Quicktime and Flash plugins. I often make video tutorials on topics that are particularly difficult to take notes on. You are always responsible for any supplemental materials offered in class via the Course Materials folder, hard copy handout, or other format. Should an assignment require a hard copy printout, it is your responsibility to find the means on campus to print the assignment out. All computers in the MCMT are equipped with the ability to print to PDF and these PDFs can be printed using any printer on campus.

Software: In exploring audio production, we will be using Pro Tools LE 7 and Reason 3. Both programs are available for use in the MCMT. You are not required to purchase this hardware and software but if you prefer working at home you will need to.

General familiarity with OS navigation: It is assumed that you have a basic knowledge of OS navigation concepts such as 'double-clicking', menu navigation, data saving and
retrieval, and Internet browsing. *Should you be completely new to computers, please see me immediately as this course does not start from the absolute beginning with computers.*

**MEDIA CENTER FOR MUSIC TECHNOLOGY (MB 1577)**

The Media Center for Music Technology (MCMT) in MB 1577 houses computers, software, and hardware for use in this course. It is expected that you will utilize the equipment in the MCMT in order to complete required assignments and projects. *Registration for this course does not entitle you to after-hours access to the MCMT. In order to gain access to the MCMT after-hours, you must volunteer to be a lab monitor for at least one hour a week and you must be willing to sign a "letter of understanding" about your responsibilities as a lab monitor. Please see me for more information.*

**THE GOLDEN RULE**

Failure to complete an assignment or project due to a catastrophic loss of data is not an acceptable excuse for failure. The "golden rule" for data is:

Your data does not exist unless it exists in two different places. Backup your data in two or more places on at least two different types of media!

**ASSIGNMENTS, PROJECTS, AND EXAMS**

This course will consist of assignments due during or before class, projects, and examinations. Here is how it will work:

- **Exams:** Two times during the quarter, examinations which will test you on your mastery of knowledge learned up to that point. These exams will be comprised of a mix of directed critical discussion via essay, historical facts, and ties between technological advances/phenomenon with the artistic aspects of audio production. Further information on and the schedule of each exam will be discussed in class or posted on the schedule. Missed exams must be made up within two class-days and are subject to a 15% deduction off the final grade for the exam.

- **Assignments:** You will be given assignments in the form of Wiki postings regarding production notes, reports on historical figures, and critical listening throughout the quarter. Please note: Late assignments will only be accepted up to two class-days after their due date and will receive a 15% deduction off the final grade for the assignment.

- **Projects:** You will be assigned at least two projects to complete this quarter that will test your ability to synthesize (no pun intended) the concepts surrounding audio production (historical precedents, mavericks and pioneers in sound, styles and supposed inherency of technique) and form your own creative work individually and in production teams. A production log will be kept which documents creative and technical items. Specific information on each project will be given well in advance. Please note: Late projects will only be accepted up to two class-days after their due date and will receive a 15% deduction off the final grade for the project.

**LAB WORK**

The lab portion of this course is not an optional component to the course: full participation is required. *This is where we learn to use the tools to be creative!*
Practical experience with music technology is vital to gaining a full appreciation of what can be done with it.

<table>
<thead>
<tr>
<th>ATTENDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>You are allowed up to three unexcused absences for the quarter. Each absence after this limit will count as a 1/3 letter grade deduction from your final course grade average. Excuses for absences are considered on a case-by-case basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GRADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your grades will be available for review on Blackboard throughout the quarter. Grades are weighted like so:</td>
</tr>
<tr>
<td>- Assignments: 30%</td>
</tr>
<tr>
<td>o Graded using the scale below. No late projects are accepted.</td>
</tr>
<tr>
<td>- 5 - Exemplary work; stands as a model for others to follow.</td>
</tr>
<tr>
<td>- 4 - Above average work; high in quality with little (but some) room for improvement.</td>
</tr>
<tr>
<td>- 3 - Average work; mistakes are more apparent (and are more often careless).</td>
</tr>
<tr>
<td>- 2 - Below average work; the need for improvement is imminent.</td>
</tr>
<tr>
<td>- Poor; reserved projects of abysmal quality. Also reserved for incomplete assignments (regardless of quality).</td>
</tr>
<tr>
<td>- Fail; reserved for projects not turned in.</td>
</tr>
<tr>
<td>- Projects: 40%</td>
</tr>
<tr>
<td>o Graded using the same scale as assignments</td>
</tr>
<tr>
<td>- Exams: 30%</td>
</tr>
<tr>
<td>o Graded on a 100 point scale.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BLACKBOARD AND EMAIL ACCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I will use Blackboard extensively for this course. It is your responsibility to check it regularly for announcements, assignments, and other things which I direct your attention to. Additionally, all emails for this course are sent through Blackboard to whatever email address you have listed with Blackboard. It is your responsibility to ensure that an accurate email is on file with Blackboard. See me for information on how to check your listed email address within Blackboard.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STUDENTS WITH DISABILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you have a documented disability and wish to discuss academic accommodations, or if you would need assistance in the event of an emergency, please contact me.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>We will, as best as possible, adhere to the following schedule during the quarter. I reserve the right to modify the schedule, if needed, in order to accommodate for the needs of the class.</td>
</tr>
</tbody>
</table>
Week 1: The king of all instruments is a vintage analog synth

**Topic:** During this class we will talk about historical precedents for music technology. Consider the above statement about the “king of all instruments?” This statement refers to a pipe organ. How is it that a pipe organ can be considered an analog synth when analog synths, as we know them, are 20th century inventions?

**Lab:**
- Tuning our ears to listen to sound for it’s sake.
- Aligning concepts of acoustics from PHYS 1200 Behind the Music
- Introduction to Pro Tools 7.

Week 2: So it flows, so it goes – Capturing what we hear

**Topic:** For centuries music was played live and different acoustical spaced influenced our perception and reception of sound. Now, we’ve the ability to capture sound with microphones and simulate acoustical spaces with software. Do we “mic” to faithfully record sound as we hear it or do we purposefully subvert convention in order to produce a similar but fundamentally different version?

**Lab:**
- Balanced vs. unbalanced audio.
- Diagramming audio and data flow.
- Mixer basics.
- Basic microphone types.
- Take the Pepsi challenge: which mic sounds better: the $2500 one or the $250 one and why?

Week 3: So, I can buy an entire starter audio production setup or a Neumann U87 with a Grace designs preamp. Hmm... – Cost as a factor in audio production, Part I

**Topic:** In audio production, cost has been one of the biggest factors in determining the quality of the product and its means of distribution. Historically, an artist needed a LOT of money to record and release a record. Now, it is within their grasp. What are the factors involved in choosing quality over convenience?

**Lab:**
- Inverse-square Law and microphone placement.
- What you hear isn’t what you get: your ears and your head vs. microphones.
- Timbre and color through creative miking.

Week 4: I’m broke, but at least it sounds good. – Cost as a factor in audio production, Part II.

**Topic:** Continuing along the lines of our discussion from last week, we’ll take a closer look at the ‘closed’ and ‘open’ distribution models for artists and how cost is a factor. Looking at the history of recorded sound, is cost directly related to class in audio production? What do we make of Motown records and its artists? What of the London Symphony Orchestra and eastern European orchestras in film and commercial scoring?
Lab:

- How does it get in there? ADC and DAC
- What’s this about hearing in two channels? Stereo recording
- The Goldilocks dilemma: how to balance extremes in production

Week 5: Put up or shut up – Midterm; Project 1 performances; Psychoacoustics in Audio Production

Topic: It’s all about the producing this week. Hunker down, listen to your influences, and start get to sculpting sound. Keep careful notes on what you are conceptually trying to do and how you are technically trying to create your music.

Lab:

- What have you been up to? – Your projects in their glory.
- Beware: Fletcher-Munson curve ahead!
- 0dB sounds great: understanding level adjustment

Week 6: “You see...the sound here represents humanity!!” – Producing a conceptual work

Topic: The second half of the quarter delves into deeper connections between sound and how to craft sound in order to produce a multi-faceted work. We’ll look at sampling and the historical precedents for sampling found in the 18th – 20th centuries. How is sampling possible in the 18th century when analog tape hasn’t been invented? What determines your use of sampled material?

Lab:

- Methods of music notation
- Storyboarding your work
- Conveying your idea to others in an efficient manner
- Managing click tracks and auxes

Week 7: There is no ‘I’ in team – Working in production teams

Topic: Contemporary audio production is such that artists typically work with producers in a rarefied environment so as to create a sound recording. The egos of the artists and producer often clash and a common goal isn’t always articulated clearly. Influences are brought up (“we want the Metallica Black album sound without selling out!”) and it is up to the producer to carefully execute the artists intentions while injecting his or her own knowledge about audio production. What is the role of the producer in a recording session? What affect does a “band” like Nine Inch Nails have on the producer/artist dynamic?

Lab:

- Time is money: managing a recording session
- Laying a foundation for beats
- Setting your ego aside for the common good (ha!!)
Week 8: Putting the “special” in FX – Real-time and destructive effects as creative forces

**Topic:** Sound can be manipulated in ways unimaginable with hardware and software. Throughout recording history, new production techniques have created aural stamps which have forever been likened with a certain style or aesthetic. What do we make of the use of distortion in Japanese noise pop vs. Jimi Hendrix? Brian Eno and ambient music uses lots of reverb. Is there something in reverb that connects it ambient music in general?

**Lab:**
- Different types of effects
- I’m drowning in all this wet sound!!: The Goldilocks dilemma revisited
- To pre or not to pre: Recording with FX vs. recording dry.

Week 9: What’s yours is mine and what’s mine I’ll sue if you dare – Sampling revisited

**Topic:** Copyright is the 800lb. Gorilla sitting on the producer today. Considering all that we have discussed about sampling and its precedents in history, what amount of sound destruction via contextual manipulation or effects processing is needed in order to a sound to transcend its origins? We won’t get into the legal issues as much here but certainly we’ll try to tackle our own notions about reference in sound.

**Lab:**
- What is electronic music?
- See spot play 1, IV, V: The common vocabulary of western music.
- Coffee talk: Sampling is to music as quotation is to rhetoric

Week 10: Pre-final exam; Project 2

**Topic:** Working in production teams, you’ll be coming up with an EP on a particular topic: war, peace, labor, human rights, love, hate – big issues! Your production team will be keeping a journal of creative and technical aspects of the EP as well as justifications for use of sound materials.

**Lab:**
- Work on projects!
- Take home exam.

**Final Exam Time: BYOD – Bring your own discs**
- Production team EP performances and party
California State University, East Bay  
Department of Philosophy  

**Introduction to the Philosophy of Art**  
Introduction to the Philosophy of Music

**Contact Info**  
Dr. Craig Derksen  
Office: MI 4002  
Email: craig.derksen@csueastbay.edu  
Office Phone: (510) 885-3578

**Description**  
This course will deal with issues in the philosophy of music. These issues include metaphysical issues about the identities of artworks, their boundaries, and how descriptors like ‘expressive’ or ‘representation’ apply to these works. Other issues are psychological and concern why we enjoy works that provoke traditionally negative emotions. We will also discuss value issues, specifically what makes someone the artist or author of a work, what powers come with being the artist, and what sort of values should influence how music is performed/recorded/listened to.

This is a class about arguments not opinions. Understanding of how arguments work is essential to your success in this class.

**Text**  
*Introduction to a Philosophy of Music* by Peter Kivy. There will be other readings on reserve.

**Requirements/ Evaluation**  
2 Take Home Exams (25% each) These exams (one mid-term and one final) will test your broad knowledge of the material.  
2 Papers (25% each) These papers will test your ability to discuss one topic in depth. They can be a discussion of one of the issues we cover or a discussion of a particular work and how the work and its treatment relates to an issue.

**Policies**  
Blackboard  
Course Materials, Assignments, and Announcements will be posted on Blackboard. It is your responsibility to check for updates regularly.  

Attendance  
There is no portion of the grade allocated to attendance (attendance and participation can aid you if you are a borderline case). The lecture is the main source of information. I will do my best to make it worth your while to attend class. I will not tolerate disruptive attendance.  

Academic Dishonesty
Familiarize yourself with the University’s policies on academic dishonesty. No, really do it. Ignorance is not a viable excuse and mistakes like that travel with you forever.

Disabilities
Students with disabilities should make arrangements with University’s Disability Support Service and discuss arrangements with me well before testing times.

Schedule
TBA
NEW COURSE REQUEST

1. **DEPARTMENT** Physics

2. **ALPHABETICAL PREFIX** (all capitals): PHYS    **COURSE NUMBER**: 1200

   **FULL TITLE** in Catalog: Behind the Music

   **ABBREVIATED TITLE** in Course Inventory (maximum 17 spaces, all capitals): BEHIND THE MUSIC

   **UNIT VALUE** of course: 4

3. **CATALOG DESCRIPTION** (40 words maximum):

   a) **Course Content**: This course offers a basic introduction to the physical properties of sound waves. The focus will be on developing a scientific framework in which to understand how different musical instruments produce a variety of sounds. Not for physics major credit.

   b) **Grading Pattern** (if not A-F): N/A

   c) **Credit Restrictions**: Not for physics major credit.

   d) **Repeatability**: N/A

   e) **Cross-listing/Primary Department**:  
      Secondary Department: N/A

   f) **Prerequisites**: N/A

   g) **Co-requisites**: N/A

   h) **Miscellaneous Course Fee**: N/A

   i) **Hours/Week of Lecture**: 4

   j) **Hours/Week of Activity or Lab**: N/A

4. **COURSE INVENTORY DATA**

   (First Segment)                      (Second Segment)

   a) **Instructional Format**: Lec

   b) **Class Hours/Week**: 4

   c) **Student Credit Units**: 4

   d) **Course Classification Number**: C-1

   e) **Workload K-factor**: 1
f) Weighted Teaching Units:  4

g) Normal Limit/Capacity:  50

5.  First quarter and year of offering: Fall 2007

6.  **GENERAL EDUCATION-BREADTH REQUIREMENT(s) OR U.S. HISTORY-INSTITUTIONS REQUIREMENT(s) to be satisfied, with justification:**

    Natural Sciences and Mathematics – B1 Physical Science

    The specific goal of PHYS 1200 is to develop a scientific framework from which students can understand how a variety of instruments make music. In the process of building this scientific foundation many general concepts in physical science will be explored. Students will learn Newton’s Laws and how particular types of forces can produce oscillatory motion. The general properties of waves will be explored in detail, including understanding the difference between transverse and longitudinal waves, defining a wave’s period, frequency, and amplitude, and looking at more advanced wave properties such as diffraction, interference, the Doppler Effect, and resonance. In class demonstrations will be used ubiquitously to give students first hand exposure to these different concepts. Assigned reading from the textbook and weekly homework assignments will reinforce the ideas introduced in lecture.

    A key goal of this course will be to both develop students’ qualitative understanding of how physical systems work and their quantitative skills that allow them to predict the behavior of these systems. This will be accomplished by a lecture style that introduces students to physical phenomena with demonstrations, qualitatively describes the system, and then works through calculations of the detailed properties of the system. Mathematical problem solving will be a regular part of students’ homework. Most problems will involve some combination of numerical calculations, interpreting graphs, and solving algebraic equations. Additionally students will get exposure to more advanced mathematical topics such as Fourier analysis of complex waveforms. Students will be expected to interpret the frequency spectrum of a variety of instruments.

    We will use the scientific method to explore how different musical instruments work. The class will follow an inquiry based model of learning. New ideas will primarily be introduced first with demonstrations. Students will be encouraged to discuss what they see and form a hypothesis. As a class we will come up with ways to test these ideas and uncover the physical principles underlying the demonstrations. Additionally, students’ special projects will give them independent and personal scientific experience. Students will be encouraged to design, build and test their own musical instruments.

7.  **JUSTIFICATION FOR/PURPOSE OF THE NEW COURSE (including use of course in department programs, if any):**

    This course will serve as a general education course in the physical sciences. It is also part of a proposal for a new multidisciplinary freshman cluster focused on music. This cluster will involve classes from the departments of music and philosophy, as well as the department of physics.

8.  **RESOURCE IMPLICATIONS of the new course:**

    We initially plan on teaching one section of this course a year. We expect to enroll about 50 students. The course will be funded through the FTES it generates.

9.  **CONSULTATION with other affected departments and program committee:**
a) The following department(s) has (have) been consulted and raise no objections:

All departments within the College of Science were consulted.
   The department of music and the department of philosophy have both been consulted and support the creation of this course.

b) The following department(s) has (have) been consulted and raise concerns:

10. Certification of Department Approval by the chair and faculty.

Chair: Original signed by Jason Singley Date: 3/20/07

11. Certification of College Approval by the dean and faculty review body, and of review by the Associate Vice Presidents, Academic Programs/Graduate Studies and Academic Resources/Administration

Dean/Associate Dean: Original signed by Alan Monat Date: 3/20/07

Chair, COS Curricular Committee: Original signed by Joy Andrews Date: 3/20/07
NEW COURSE REQUEST

1. DEPARTMENT Music

2. ALPHABETICAL PREFIX (all capitals): MUS  COURSE NUMBER: 1085

   FULL TITLE in Catalog: Introduction to Audio Production

   ABBREVIATED TITLE in Course Inventory (maximum 30 spaces, all capitals):
   INTRO AUDIO PRODUCTION

   UNIT VALUE of course: 4

3. CATALOG DESCRIPTION (40 words maximum):
   a) Course Content: Application to music composition and recording of fundamental
      acoustics and psychoacoustics, MIDI, and digital audio workstation (DAW) software.
   b) Grading Pattern (if not A-F)
   c) Credit Restrictions:
   d) Repeatability: no
   e) Cross-listing/Primary Department:
   Secondary Department:

   f) Prerequisites: none
   g) Co-requisites: none
   h) Miscellaneous Course Fee
   i) Hours/Week of Lecture: 3
   j) Hours/Week of Activity or Lab: 2

4. COURSE INVENTORY DATA

   a) Instructional Format: Discussion  (First Segment)
      lab  (Second Segment)
   b) Class Hours/Week: 3
   c) Student Credit Units: 3
   d) Course Classification Number: C4
   e) C13
e) Workload K-factor: 1.0 1.3
f) Weighted Teaching Units: 3 1.3
g) Normal Limit/Capacity: 30 30

5. **FIRST QUARTER AND YEAR OF OFFERING:** Winter 2008
   Course is only to be offered once: N/A

6. **GENERAL EDUCATION-BREADTH REQUIREMENT(S) OR U.S. HISTORY-INSTITUTIONS REQUIREMENT(S) to be satisfied, with justification:**
   Area C

7. **JUSTIFICATION FOR/PURPOSE OF THE NEW COURSE (including use of course in department programs, if any):**
   This course is being proposed for a new freshman cluster and will provide some of the fundamental skills necessary for a computer-literate musician in the 21st century. It will also serve as a foundation for the continuing sequence of MUS 2086 and MUS 2087.

8. **RESOURCE IMPLICATIONS of the new course:**
   Will be taught out of existing allocation.

9. **CONSULTATION with other affected departments and program committee:**
   a) The following department(s) has (have) been consulted and raise no objections:
      All CLASS departments and programs have been consulted and raise no objections.
   b) The following department(s) has (have) been consulted and raise concerns:

10. **CERTIFICATION OF DEPARTMENT APPROVAL by the chair and faculty.**
    Chair: Original signed by Frank La Rocca Date: April 9, 2007

11. **CERTIFICATION OF COLLEGE APPROVAL by the dean and faculty review body, and of REVIEW BY THE ASSOCIATE VICE PRESIDENTS, Academic Programs/Graduate Studies and Academic Resources/Administration**
    Dean/Associate Dean: Marilyn N. Silva Date: April 12, 2007
NEW COURSE REQUEST

1. DEPARTMENT: Philosophy

2. ALPHABETICAL PREFIX (all capitals): PHIL  COURSE NUMBER: 1303
   
   FULL TITLE in Catalog: Introduction to the Philosophy of Art
   
   ABBREVIATED TITLE in Course Inventory (maximum 30 spaces, all capitals): INTRO TO PHILOSOPHY OF ART
   
   UNIT VALUE of course: 4

3. CATALOG DESCRIPTION (40 words maximum):
   
   a) Course Content: Introduction to aesthetics through artistic forms such as music, visual art, and literature. Topics may include expression, representation, and creativity as well as questions such as what constitutes a work of art and what the role of the artist is.
   
   b) Grading Pattern (if not A-F)
   
   c) Credit Restrictions:
   
   d) Repeatability: no
   
   e) Cross-listing/Primary Department: Secondary Department:
   
   f) Prerequisites: none
   
   g) Co-requisites: none
   
   h) Miscellaneous Course Fee: none
   
   i) Hours/Week of Lecture: 4
   
   j) Hours/Week of Activity or Lab: none

4. COURSE INVENTORY DATA

   a) Instructional Format: Discussion
   
   b) Class Hours/Week: 4
   
   c) Student Credit Units: 4
d) **Course Classification Number:** C4

e) **Workload K-factor:** 1.0

f) **Weighted Teaching Units:** 4

g) **Normal Limit/Capacity:** 30

5. **FIRST QUARTER AND YEAR OF OFFERING:** Fall 2007

   Course is only to be offered once: N/A

6. **GENERAL EDUCATION-BREADTH REQUIREMENT(S) OR U.S. HISTORY-INSTITUTIONS REQUIREMENT(S) to be satisfied, with justification:**

   Area C, lower division letters/humanities — justification for GE subcommittee is attached.

7. **JUSTIFICATION FOR/PURPOSE OF THE NEW COURSE (including use of course in department programs, if any):**

   This course is being proposed for a new freshman cluster and will provide a basic introduction to the philosophy of art (aesthetics) linked to a freshman cluster on the theme of sound.

8. **RESOURCE IMPLICATIONS of the new course:**

   Will be taught out of existing allocation.

9. **CONSULTATION with other affected departments and program committee:**

   a) The following **department(s) has (have) been consulted and raise no objections:**

   All CLASS departments and programs have been consulted and raise no objections.

   b) The following **department(s) has (have) been consulted and raise concerns:**

   Department:
   Concern:

10. **CERTIFICATION OF DEPARTMENT APPROVAL** by the chair and faculty.

   Chair: Original signed by Jennifer L. Eagan  Date: April 3, 2007

11. **CERTIFICATION OF COLLEGE APPROVAL** by the dean and faculty review body, and of REVIEW BY THE ASSOCIATE VICE PRESIDENTS, Academic Programs/Graduate Studies and Academic Resources/Administration

   Dean/Associate Dean: Marilyn N. Silva  Date: April 11, 2007