## Course Outline

### College of San Mateo

**Course Outline**

- **New Course**
- **Update/No change**
- **Course Revision (Minor)**
- **Course Revision (Major)**

**Date:** 1/26/12

<table>
<thead>
<tr>
<th>Department:</th>
<th>MUS</th>
<th>Number:</th>
<th>292</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Title:</strong></td>
<td>Sound Creation: Sampling and Synthesis</td>
<td><strong>Units:</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Semester Hours</strong></td>
<td>Lecture: 32</td>
<td>Lab: 48</td>
<td><strong>Homework:</strong> 64</td>
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<tr>
<td><strong>Length of Course</strong></td>
<td>Semester-long</td>
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<tr>
<td></td>
<td>□ Short course (Number of weeks ___)</td>
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<tr>
<td></td>
<td>□ Open entry/Open exit</td>
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**Faculty Load Credit** (To be completed by Division Office; show calculations.):

32/16 = 2 flcs lect; 48/16*.7 = 2.1 flcs lab

1. **Prerequisite** (Attach Enrollment Limitation Validation Form.)
   - none

2. **Corequisite** (Attach Enrollment Limitation Validation Form.)
   - none

3. **Recommended Preparation** (Attach Enrollment Validation Form.)
   - MUS 290: Electronic Music I

4. **Catalog Description** (Include prerequisites/corequisites/recommended preparation. For format, please see model course outline.)

   **MUS. 292 SOUND CREATION: SAMPLING and SYNTHESIS** (3) *(Pass/No Pass or letter grade option)*

   Minimum of 32 lecture and 48 lab hours per term. Recommended preparation: MUS 290 or equivalent. Create original sounds for composition, live performance, and sound effects. Fully utilize the technical and artistic potential of synthesizers and samplers. Study the nature of musical instruments and environmental sounds. From an historical as well as a technical perspective, analyze synthesized and sampled sounds found in experimental and popular music. Specific synthesis techniques covered include: analog modular synthesis, FM synthesis, additive synthesis, granular synthesis and physical modeling. (May be taken three times for a maximum of 9 units.) (AA, CSU)

5. **Class Schedule Description** (Include prerequisites/corequisites/recommended preparation. For format, please see model course outline.)

   **MUS. 292 SOUND CREATION: SAMPLING and SYNTHESIS**

   Recommended preparation: MUS 290 or equivalent. Create original sounds for composition, live performance, and sound effects. Fully utilize the technical and artistic potential of synthesizers and samplers. Study the nature of musical instruments and environmental sounds. From an historical as well as a technical perspective, analyze synthesized and sampled sounds found in experimental and popular music. Specific synthesis techniques covered include: analog modular synthesis, FM synthesis,
additive synthesis, granular synthesis and physical modeling. (May be taken three times for a maximum of 9 units.) (Pass/No Pass or letter grade option) (AA, CSU)

6. **Student Learning Outcomes** (Identify 1-6 expected learner outcomes using active verbs.)

   Upon successful completion of the course, the student will be able to:

   1. Describe the theory behind various synthesis and sampling techniques
   2. Create original sounds using analog and digital synthesis
   3. Create original sounds by recording, editing and processing audio samples
   4. Integrate original sounds into original music composition

7. **Course Objectives** (Identify specific teaching objectives detailing course content and activities. *For some courses, the course objectives will be the same as the student learning outcomes. In this case, “Same as Student Learning Outcomes” is appropriate here.*)

   Same as Student Learning Outcomes

8. **Course Content** (Brief but complete topical outline of the course that includes major subject areas [1-2 pages]. Should reflect all course objectives listed above. In addition, a sample course syllabus with timeline may be attached.)

   **Topical Outline**

   **The Physics of Sound**
   - How do human beings distinguish between sounds
   - Understanding timbre and the overtone series in musical instruments
   - The nature of sounds in our environment

   **Analog Synthesis**
   - History of analog synthesis
   - Survey of analog synthesis techniques
   - Create analog sounds using the classic ARP 2600 synthesizer
   - Use software synthesizer emulators to create classic sounds

   **Digital Synthesis**
   - The history of digital synthesis
   - A comparison of analog and digital timbre
   - A survey of digital synthesis techniques including: FM, Wavetable, Fourier,
   - Granular Synthesis and Physical Modeling

   **Sampling**
   - Creating samples from live and pre-recorded materials
   - Looping, truncating, reversing and cross-fading samples
   - Using samples to create drumbeats and rhythm tracks
   - Using samples to create special effects and simulate acoustic instruments

   **Audio Signal Processing**
   - Manipulating sound via reverb, chorusing, delay, feedback etc.
   - Learn to create your own effects and settings

   **Controlling Timbre in Real Time Performance**
   - Mapping MIDI real time controllers
9. **Representative Instructional Methods** (Describe instructor-initiated teaching strategies that will assist students in meeting course objectives. Describe out-of-class assignments, required reading and writing assignments, and methods for teaching critical thinking skills. If hours by arrangement are required, please indicate the additional instructional activity which will be provided during these hours, where the activity will take place, and how the activity will be supervised.)

1. Lectures
Lectures incorporate presentations, discussions and analysis of contemporary and historical sound creation practices and technologies.

2. Labs
Labs provide demonstrations and hands-on instruction in pertinent sound design techniques including: analog synthesis, FM synthesis, granular synthesis, physical modeling and sampling.

3. Listening Activities
Musical examples of numerous electronic music genres and eras are presented and analyzed in the classroom and the lab.

4. Creative Projects
Midterm and Final Projects give students the opportunity to combine theory, technology, and musical creativity into cohesive works. Works are critiqued by instructor and students.

10. **Representative Methods of Evaluation** (Describe measurement of student progress toward course objectives. Courses with required writing component and/or problem-solving emphasis must reflect critical thinking component. If skills class, then applied skills.)

Students are evaluated on the basis of:
Written quizzes, lab assignments, oral presentation, creative projects and concert performance.

11. **Representative Text Materials** (With few exceptions, texts need to be current. Include publication dates.)


Prepared by: ________________________________
(Signature)

Email address: bobrowski@smccd.edu

Submission Date: ________________________________