

CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA

ACADEMIC SENATE

GENERAL EDUCATION COMMITTEE

REPORT TO

THE ACADEMIC SENATE

GE-015-156

MU4171 – Theory, History, and Design of Musical Instruments

General Education Committee

Date: 03/01/2017

Executive Committee
Received and Forwarded

Date: 03/29/2017

Academic Senate

Date: 04/05/2017
First Reading

BACKGROUND:

This is a new course in the Music Department for the semester calendar. This course was original submitted for GE Area B5, but was change to GE Area C4 during the review cycle.

RESOURCES CONSULTED:

Faculty
 Department Chairs
 Associate Deans
 Deans
 Office of Academic Programs

DISCUSSION:

The GE Committee reviewed the ECO for this course and found it to satisfy the GE SLO's and other requirements of GE Area C4.

RECOMMENDATION:

The GE Committee recommends approval of GE-015-156, MU4171 – Theory, History and Design of Musical Instruments for GE Area C4 (See attached ECO).

MU - 4171 - Theory, History, and Design of Musical Instruments

C. Course - New General Education* Updated

General Catalog Information

College/Department	Music	
Semester Subject Area	MU	Semester Catalog Number 4171
Quarter Subject Area		Quarter Catalog Number
Course Title Theory, History, and Design of Musical Instruments		
Units*	(3)	
C/S Classification *	C-04 (Lecture/Recitation)	

To view C/S Classification Long Description click: http://www.cpp.edu/~academic-programs/scheduling/Documents/Curriculum%20Guide/Appendix_C_CS_Classification.pdf

Component*	Lecture
Instruction Mode*	Face-to-Face Web-Assisted
Grading Basis*	Graded Only
Repeat Basis*	May be taken only once
If it may be taken multiple times, limit on number of enrollments	1
Cross Listed Course Subject Area and Catalog Nbr (if offered with another department)	
Dual Listed Course Subject Area and Catalog number (If offered as lower/upper division or ugrd/grad)	
Choose appropriate type (s) of course(s)*	<input type="checkbox"/> Major Course <input type="checkbox"/> Service Course <input checked="" type="checkbox"/> GE Course <input type="checkbox"/> None of the above
General Education Area / Subarea*	C4

To view the General Education SubArea definitions, click <http://www.cpp.edu/~academic-programs/scheduling/Documents/Ch.3-GeneralEducationProposals.pdf>.

I. Catalog Description

**Catalog
Description**

Theory, History, and Design of Musical Instruments (3)

A modern interpretation of organology, or the study and classification of musical instruments. Students will explore sound production by classifying and analyzing musical instruments. The class will also examine diverse concepts of musical instruments as tools or beings. All students will be required to design and build a prototype of a new instrument or adaptation of an already existing instrument. 3 lectures/discussion.

II. Required Coursework and Background**Prerequisite(s)**

Complete GE requirements for area A, and lower division Area C courses (C-1, C-2, C-3).

Corequisite(s)

**Pre or
Corequisite(s)**

Concurrent

III. Expected Outcomes

**List the
knowledge,
skills, or abilities
which students
should possess
upon completing
the course.***

Students will evaluate and analyze how sound is produced by musical instruments according to several classification systems, such as Hornbostel-Sachs.

Students will evaluate and analyze the measurement of sound in different tuning systems.

Students will articulate, compare and contrast various ways that humans ascribe meaning to musical instruments and practices by examining diverse examples of human society, life, and expression.

Students will design, build, compose for and perform on at least one instrument, with written rationale and discussion of their creative process.

**If this is a course
for the major,
describe how
these outcomes
relate to the
mission, goals
and objectives of
the major
program.**

Explain how the course meets the description of the GE SubArea (s). Please select appropriate outcomes according to the GE Area/SLO mapping.

This course is listed as a GE synthesis class because the student will draw from many disciplines, learning basic concepts and applying these to the research, design, construction, and performance of a musical instrument. Students will be required to integrate concepts from across disciplines (musicology, ethnomusicology, archaeology, anthropology, music performance, music education, music therapy, math, engineering, and business). An understanding of these concepts will be represented in creating a new instrument (research, design, build), composing for and performing on this instrument, and writing an essay that explains the research behind this instrument.

GE Program Learning outcomes applicable to this class and how the class activities relate to them is below.

I. Acquire foundational skills and capacities.

- a. Write effectively for various audiences.
- b. Speak effectively for various audiences.
- c. Find, evaluate, use, and share information effectively and ethically.
- d. Construct arguments based on sound evidence and reasoning to support an opinion or conclusion.

(Class discussions and short essay reflections on readings assigned, and the research involved in the instrument building project)

(Analyzing instrument models, designing and building one's own instrument. Building a monochord and an electronic theremin instrument with an Arduino kit.)

II. Develop an understanding of various branches of knowledge and their interrelationships.

- b. Analyze major literary, philosophical, historical or artistic works and explain their significance in society.

(Historically influential instrument classification systems and music treatises will be read, analyzed, and discussed.)

- c. Analyze the concepts, theories, and methods pertaining to cultural, economic, historical, political, or social institutions.

(Historical, political, and social institutions will be analyzed in the overview of the field of ethnomusicology and through readings and discussions about classification and tuning systems. Cultural, economic, and ecological principles and institutions will be analyzed by means of case studies and discussions about diverse roles musical instruments occupy in societies, as well as issues pertaining to sustainability, how instruments are built, and out of which materials.)

- d. Integrate concepts, theories, and examples from more than one field of study to identify problems, draw conclusions, and construct original ideas.

(Students will be required to integrate concepts from across disciplines (musicology, ethnomusicology, archaeology, anthropology, music performance, music education, music therapy, math, engineering, and business). These will inform students' final essays and production of an original musical instrument or adaptation of an existing instrument.)

III. Develop social and global knowledge.

a. Analyze the historical development of diverse cultures and the role they play in shaping core institutions and practices of individuals and societies.

(Through case study examination of specific cultural protocols surrounding instruments, and the significance of the musical practices within the cultures, students will discuss how those practices are reflections of other aspects within the culture)

b. Apply principles, methods, value systems, and ethics to social issues confronting local and global communities.

(Class activities and assignments covered during weeks 4-5 [material culture], week 8 [modifying instruments, especially for people with physical handicaps], week 9 [sustainability of materials used to construct instruments], and weeks 10-11 [storing and displaying instruments].)

course outcome> ----- GE Outcomes v	1	2	3	4
1a		X	x	x
1b		X	x	X
1c	x	x	x	
1d	x	x	x	x
2b	x		x	
2d				x
3a	x	x	x	

**General
Education
Outcomes***

Ia. Write effectively for various audiences

Ib. Speak effectively to various audiences.

IIf. Analyze major literary, philosophical, historical or artistic works and explain their significance in society.

IId. Integrate concepts, examples, and theories from more than one discipline to identify problems, construct original ideas, and draw conclusions.

Ic. Find, evaluate, use, and share information effectively and ethically.

Id. Construct arguments based on sound evidence and reasoning to support an opinion or conclusion.

IIIa. Analyze the historical development of diverse cultures and the role they play in shaping core institutions and practices of individuals and societies.

To view the mapping, click <https://www.cpp.edu/~academic-programs/Documents/GE%20SLO%20Mapping.pdf>

IV. Instructional Materials

Provide bibliography that includes texts that may be used as the primary source for instruction, and other appropriate reference materials to be used in instruction. The reference list should be current, arranged alphabetically by author and the materials should be listed in accepted bibliographic form.

Instructional Materials*

Adkins, Cecil. 1967. "The Technique of the Monochord." *Acta Musicologica* 39:34-43.

Armstrong, Donna. 2015. "Interview with Scott Hackleman, Sitar Repair Specialist." *UCLA Department of Ethnomusicology News*. <<<http://www.ethnomusic.ucla.edu/scott-hackleman-interview>>>

Barber, Sarah B., Gonzalo Sánchez, and Mireya Olvera. 2009. "Sounds of Death and Life in Mesoamerica: The Bone Flutes of Ancient Oaxaca." *Yearbook for Traditional Music* 41:94-110.

Both, Arnd Adje. 2009. "Music Archaeology: Some Methodological and Theoretical Considerations." *Yearbook for Traditional Music* 41:1-11.

Duffin, Ross W. 2007. *How Equal Temperament Ruined Harmony: and Why You Should Care*. New York: W. W. Norton & Company.

Ellis, Alexander John. 1875. "Illustrations of Just and Tempered Intonation." *Proceedings of the Musical Association* 1:159-165.

Hill, Jonathan D., and Jean-Pierre Chaumeil, eds. 2011. *Burst of Breath: Indigenous Ritual Wind Instruments in Lowland South America*. Lincoln: University of Nebraska Press.

Kartomi, Margaret J. 1990. *On Concepts and Classifications of Musical Instruments*. Chicago: The University of Chicago Press.

Ledang, Ola Kai. 1990. "Magic Means, and Meaning: An Insider's View of Bark Flutes in Norway." *Selected Reports in Ethnomusicology* 8:105-123.

Lehman, Bradley. 2005. "Bach's Extraordinary Temperament: Our Rosetta Stone: 1." *Early Music* 33(1):3-23.

Marcus, Scott. 1993. "The Interface Between Theory and Practice: Intonation in Arab Music." *Asian Music* 24(2):39-58.

McGarry, Robert J. 1984. "Equal Temperament, Overtones, and the Ear." *Music Educators Journal* 70(7):54-56.

Nettl, Bruno. 2010. "Arrows and Circles: Fifty Years of the ICTM and the Study of Traditional Music." In *Nettl's Elephant: On the History of Ethnomusicology*, 146-158. Champaign, IL: University of Illinois Press.

———. 2005 [1983]. *The Study of Ethnomusicology: Thirty-one Issues and Concepts*. Champaign, IL: University of Illinois Press.

Provine, Robert C. 2007. "Music, Measurements, Pitch Survivals, and Bell Shapes in Korea." *The World of Music* 49(3):13-30.

Scott, Heather K., ed. 2001. *Violin Owner's Manual: The Complete Guide*. San Anselmo, CA: String Letter Publishing.

Seeger, Anthony. 1996. "Ethnomusicologists, Archives, Professional Organizations, and the Shifting Ethics of Intellectual Property." *Yearbook for Traditional Music* 28:87-105.

Stanley, Burton. 1978. *Instrument Repair for the Music Teacher*. Van Nuys, CA: Alfred Music.

Stock, Jonathan P. J. 2007. "Alexander J. Ellis and His Place in the History of Ethnomusicology." *Ethnomusicology* 51(2):306-325.

Stöckli, Matthias, and Arnd Adje Both, eds. 2013. *Flower World: Music Archaeology of the Americas, volume 2*. Berlin: Ekho Verlag.

Titon, Jeff Todd. 2009a. "Economy, Ecology, and Music: An Introduction." *The World of Music* 51(1):5-15.

Titon, Jeff Todd. 2009b. "Music and Sustainability: An Ecological Viewpoint." *The World of Music* 51(1):119-137.

Faculty are encouraged to make all materials accessible. Indicate with an asterisk those items that have had accessibility (ATI/Section 508) reviewed. For more information, <http://www.cpp.edu/~accessibility>

V. Minimum Student Material

List any materials, supplies, equipment, etc., which students must provide, such as notebooks, computers, internet access, special clothing or uniforms, safety equipment, lockers, sports equipment, etc. Note that materials that require the assessment of a fee may not be included unless the fee has been approved according to University procedures.

Minimum Student Material*

Notebook, text, pencil, access to Internet and a computer, an Arduino kit to build a theremin (approximately \$35), tools to build an instrument of one's choosing.

VI. Minimum College Facilities

List the university facilities/equipment that will be required in order to offer this class, such as gymnastic equipment, special classroom, technological equipment, laboratories, etc.

Minimum College Facilities*

"Smart classroom" (capability of showing videos and films, sounds system for audio playback, Internet access)

VII. Course Outline

Describe specifically what will be included in the course content. This should not be a repetition of the course description but an expansion that provides information on specific material to be included in the class, e.g. lecture topics, skills to be taught, etc. This should not be a week-by-week guide unless all instructors are expected to follow that schedule.

Course Outline*

Week 1-2: Introduction & overview of organology, classification systems of musical instruments

Suggested readings or excerpts from: Kartomi, Nettl

Week 3: Tuning systems, measuring sound and instruments, build a monochord

Suggested readings or excerpts from: Adkins, Ellis, Lehman, Marcus, McGarry, Provine, Stock

Weeks 4-5: Material culture, instruments/artifacts, and their cultural meanings

Suggested readings or excerpts from: Hill/Chaumeil, Barber/Sánchez/Olvera, and Stöckli/Both.

example: protocols for handling and interacting with instruments and their cultural significance/origins.

Weeks 6-7: Designing instruments, lutherie/building instruments, commercial instruments

Suggested readings or excerpts from: Ledang

Week 8: Repairing and modifying instruments

Suggested readings or excerpts from: Armstrong

examples: making instruments accessible to those with orthopedic differences

Week 9: Materials and sustainability

examples: substituting materials due to sustainability or endangered resources issues, impact on trade, costs;

Suggested readings or excerpts from: Both Titon articles

Weeks 10-11: Archives and museums, storing and displaying instruments, assessing and appraising instruments; departmental service to help staff technician with instrument collections

Suggested readings or excerpts from: Seeger

Week 12: Amplifying and recording instruments

Weeks 13-14: Electronic instruments and sound applications (“apps”), Arduino theramin

Week 15: Composing music for new instruments, presentations of instrument projects and performances

VIII. Instructional Methods

Describe the type(s) of method(s) that are required or recommended for the instruction of this course (lectures, demonstrations, etc.). Include any method that is essential to the course, such as the use of particular tools or software.

Instructional Methods*

Classes will be taught via lecture, classroom discussion in large and/or small groups, and will include a variety of media formats. Discussions will center on assigned readings about special topics and issues for each week. Hands-on experiences with musical instruments will be used whenever possible.

IX. Evaluation of Outcomes**Describe the methods to be used to evaluate students' learning, i.e. written exams, term papers, projects, participation, quizzes, attendance, etc.***

Evaluation of students will be based on the following:

- Engaged participation in class discussions, drawing from reading materials and class lectures (this is measured with discussion rubrics and reporting-out summaries from small group discussions)

*Short essay responses to assigned readings

- A written midterm exam covering topics like classification systems in organology.

- A comprehensive final project and essay that will be approved by the instructor. The project will include researching, designing, and creating an instrument or an alteration of an instrument, and writing an essay about their creation or development. Essays will be submitted in stages (proposals, drafts) for feedback. For the project and essay, the student will synthesize and analyze ideas and issues discussed throughout the term, as well as demonstrate the student's comprehension of musical instruments through the creation and performance of a sound-producing device. Depending on the class-size, students may work in small groups or ensembles.

Describe the meaningful writing assignments to be included.*

- A comprehensive final project and essay that will be approved by the instructor. The project will include researching, designing, and creating an instrument or an alteration of an instrument, and writing an essay about

their creation or development. Essays will be submitted in stages (proposals, drafts) for feedback. For the project and essay, the student will synthesize and analyze ideas and issues discussed throughout the term, as well as demonstrate the student's comprehension of musical instruments through the creation and performance of a sound-producing device.

Discuss how these methods may be used to address the course and program outcomes, as appropriate. Include or attach a matrix to align the evaluation methods to the outcomes.*

Evaluation of students will be based on the following:

- Engaged participation in class discussions, drawing from reading materials and class lectures (this is measured with discussion rubrics and reporting-out summaries from small group discussions)
- *short essay responses to the readings assigned.
- A written midterm exam covering topics like classification systems in organology.
- A comprehensive final project and essay that will be approved by the instructor. The project will include researching, designing, and creating an instrument or an alteration of an instrument, and writing an essay about their creation or development. Essays will be submitted in stages (proposals, drafts) for feedback. For the project and essay, the student will synthesize and analyze ideas and issues discussed throughout the term, as well as demonstrate the student's comprehension of musical instruments through the creation and performance of a sound-producing device. Depending on the class-size, students may work in small groups or ensembles.

Outcome>	1	2	3	4	GE 1a	GE 1b	GE 1c	GE 1d	GE 2b	GE 2d	GE 3a
Product v											
Participation rubrics	X	X	X			X	X	X			X
Midterm exam	X	X	X		X				X		X
Final project essay				X	X		X	X		X	
Built instrument				X						X	
Music for instrument				X						X	
performance				X		X				X	
Short essays on reading	X	X	X		X		X	X	X		X

If this is a general education course, discuss how these methods may be used to address the associated GE Learning Outcomes listed below. Include or attach a matrix to align the evaluation methods to the outcomes.*

Evaluation of students will be based on the following:

- Engaged participation in class discussions, drawing from reading materials and class lectures (this is measured with discussion rubrics and reporting-out summaries from small group discussions)
- *short essay responses to the readings assigned.
- A written midterm exam covering topics like classification systems in organology.
- A comprehensive final project and essay that will be approved by the instructor. The project will include researching, designing, and creating an instrument or an alteration of an instrument, and writing an essay about their creation or development. Essays will be submitted in stages (proposals, drafts) for feedback. For the project and essay, the student will synthesize and analyze ideas and issues discussed throughout the term, as well as demonstrate the student's comprehension of musical instruments through the creation and performance of a sound-producing device. Depending on the class-size, students may work in small groups or ensembles.

The relationship of these methods/products to the expected GE outcomes is included in the matrix below.

In addition to the information contained in the matrix, students will be asked to submit pre- and post-class answers to the following question:

“Based on what you know now, in your opinion, what are we able to understand about human culture and our world from musical instruments?”

Outcome>	1	2	3	4	GE 1a	GE 1b	GE 1c	GE 1d	GE 2b	GE 2d	GE 3a
Product v											
Participation rubrics	X	X	X			X	X	X			X
Midterm exam	X	X	X		X				X		X
Final project essay				X	X		X	X		X	
Built instrument				X						X	
Music for instrument				X						X	
performance						X				X	
	X	X	X		X		X	X	X		X

Short essays on reading																			
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X. This OPTIONAL Section is for describing Course/Department/College specific requirements.

**Department/
College Required
ECO Information
(Optional)**