

# Music

Courses offered by the Department of Music are listed under the subject code MUSIC on the Stanford Bulletin's ExploreCourses (<http://explorecourses.stanford.edu/CourseSearch/search?view=catalog&catalog=&page=0&q=MUSIC&filter-catalognumber-MUSIC=on>) web site.

## Mission of the Department of Music

The Department of Music promotes the practice, understanding and enjoyment of music in the University, offering a broad array of educational opportunities with specialization in composition, performance, musicology, ethnomusicology, and music technology.

## Learning Outcomes (Undergraduate)

Music majors work toward a foundation in theory, history, and intensive written analysis in order to acquire the skills needed for a comprehensive understanding of tonal music. The following learning outcomes are used in evaluating students and the department's undergraduate program. Students are expected to:

1. select and outline a topic in tonal music analysis; choose methodologies for the explication of the topic.
2. demonstrate understanding of the underlying principles of tonal music analysis through the use of scholarly references and analytical tools and methodologies.
3. utilize primary source materials in written and oral presentations.
4. utilize secondary source materials in written and oral presentations.
5. demonstrate proficiency in academic writing on the subject of tonal music.
6. develop the skills to present a musical analysis to an audience.

## Learning Outcomes (Graduate)

The purpose of the master's program is to further develop knowledge and skills in Music, including concentration in the fields of Composition, Music History, Computer-Based Music Theory and Acoustics, or Music, Science, and Technology, and to prepare students for a professional career or doctoral studies. This is achieved through completion of courses, in the primary field as well as related areas, and experience with independent work and specialization.

Through completion of advanced course work and rigorous skills training, the doctoral program prepares students to make original contributions to the knowledge and practice of Music and to interpret and present the results of such work in appropriate venues and publications.

The Doctor of Philosophy (Ph.D.) is conferred upon candidates who have demonstrated substantial scholarship and the ability to conduct independent research and analysis in either Musicology or Computer-Based Music Theory and Acoustics, based at the Center for Computer Research in Music and Acoustics (CCRMA).

The Doctor of Musical Arts (D.M.A.) in Composition is conferred upon candidates who have demonstrated substantial abilities in creating new musical works as demonstrated by their completed works under the supervision of composition faculty.

## Bachelor of Arts in Music

The undergraduate major in Music is built around a series of foundational courses in theory, musicianship, and music history, in addition to performance and the proficiency requirements outlined below. Majors must complete a minimum of 62 units within the department to earn a Bachelor of Arts degree. All required courses for the B.A. in any concentration must be taken for a letter grade. Electives may be taken credit/no credit, but any courses taken toward concentration requirements must carry a letter grade.

## Suggested Preparation for the Major

Students should allow more than two years for completion of the major, in part because of sequence courses with prerequisite requirements. Early planning is especially important for students wishing to double-major, for those contemplating overseas study, and for those wishing to pursue a concentration within the Music major. Music majors should attempt to complete MUSIC 21 Elements of Music I, MUSIC 22 Elements of Music II, and MUSIC 23 Elements of Music III in the freshman year; the series should be completed no later than Autumn Quarter of the junior year. It is recommended that majors complete MUSIC 40 Music History to 1600, MUSIC 41 Music History 1600-1830, MUSIC 42 Music History Since 1830 in the sophomore year; the series should be completed by the end of the junior year.

Suggested Preparatory Course:		Units
MUSIC 19A	Introduction to Music Theory	3
MUSIC 19B	Intermediate Music Theory	3

## Fields of Study or Degree Options Concentrations

Areas of concentration (subplans) are offered in five areas: Performance, Conducting, Composition, History and Theory, and Music, Science, and Technology. Subplans are declared in Axess, and appear on the student's transcript and diploma. Guidelines and further information are available from the Department of Music office. In order to complete requirements in a timely manner, students are urged to select this option no later than the end of the junior year for single-area concentrators and the middle of the sophomore year for multiple-area concentrators. Students pursuing multiple concentrations must fulfill all the requirements of each.

## Departmental Honors

Honors in Music are awarded by the faculty to majors who have produced an independent project of exceptional quality through the Concentration program. Students who wish to pursue Honors must declare their Concentration(s) by May 31 of the Junior year (see the undergraduate student services officer for concentration-specific requirements). To receive Honors students must also have earned an overall GPA of 3.60 or higher and a GPA of 3.70 or higher in courses required for the Music major. Honors are conferred solely through faculty adjudication. For students concentrating in multiple areas, a single jury will be convened.

## Degree Requirements

Prospective majors are required to choose a faculty adviser and submit a course plan. (Course plans and adviser agreement forms are available from the undergraduate student services officer.) It is recommended that students schedule a consultation meeting with the undergraduate student services officer as early as possible to plan a program of study.

## Required Courses

The following courses are required of all majors.

### 1. Theory

		Units
MUSIC 21	Elements of Music I	3
MUSIC 22	Elements of Music II	3
MUSIC 23	Elements of Music III	3
MUSIC 24A	Ear Training I	1
MUSIC 24B	Ear Training II	1
MUSIC 24C	Ear Training III	1

### Additional Music Theory Requirements

- *Piano Proficiency:* Majors are required to pass a Piano Proficiency examination as part of the music theory core (MUSIC 21 Elements of Music I, MUSIC 22 Elements of Music II, MUSIC 23 Elements of Music III). The examination is given in the first two weeks of MUSIC 21. Students who do not pass the Piano Proficiency examination are required to enroll in either MUSIC 12A Introductory Piano Class, MUSIC 12B Introductory Piano Class, or MUSIC 12C Introductory Piano Class concurrently with the music theory core until they are able to pass the examination. The examination consists of scales and arpeggios, performance of a simple tune to be set by the examiner, sight-reading, and the performance of prepared pieces. Download additional information regarding the proficiency examination (<https://music.stanford.edu/sites/default/files/pianoprofexaminfo.pdf>).
- *Elective:* In addition to the Theory requirements listed above, majors must successfully complete one unit of an ear training elective course from the list below:

		Units
MUSIC 65A	Voice Class I	1
MUSIC 126	Introduction to Thoroughbass	1-3
MUSIC 127	Instrumentation and Orchestration	3
Or any course, upon approval from Ear Training Advisor		

- *Exit Exam:* in conjunction with the Music Theory series, majors are required to pass an aural skills proficiency examination administered at the end of the junior year. This examination tests the ability to transcribe, represent, and reproduce music vocally and at the keyboard, and must be passed before June of the senior year.

### 2. History

		Units
MUSIC 40	Music History to 1600	4
MUSIC 41	Music History 1600-1830	4
MUSIC 42	Music History Since 1830	4

### 3. Analysis

		Units
MUSIC 122A	Counterpoint	4
MUSIC 122B	Analysis of Tonal Music	4
MUSIC 122C	Introduction to 20th-Century Composition	4

### 4. Writing in the Major (WIM)

Select three courses, including at least two at the 4-unit level, as follows:

**One course numbered 140, 141, or 142**

MUSIC 140: Studies in Music of the Middle Ages

Pre- or corequisites for WIM credit: MUSIC 21, MUSIC 40\*

MUSIC 141: Studies in Music of the Renaissance

Pre- or corequisites for WIM credit: MUSIC 21, MUSIC 40\*

MUSIC 142: Studies in Music of the Baroque

Pre- or corequisites for WIM credit: MUSIC 22, MUSIC 41\*

**One course numbered 143, 144, or 145**

MUSIC 143: Studies in Music of the Classical Period

Pre- or corequisites for WIM credit: MUSIC 22, MUSIC 41\*

MUSIC 144: Studies in Music of the Romantic Period

Pre- or corequisites for WIM credit: MUSIC 23, MUSIC 42\*

MUSIC 145: Studies in Western Art Music Since 1900

Pre- or corequisites for WIM credit: MUSIC 23, MUSIC 42\*

**One course, numbered 146, 147, 148, or 251**

MUSIC 146: Studies in Ethnomusicology

Pre- or corequisites for WIM credit: MUSIC 22\*

MUSIC 147: Studies in Music, Media, and Popular Culture

Pre- or corequisites for WIM credit: MUSIC 22\*

MUSIC 148: Studies in Performance Practice

Pre- or corequisites for WIM credit: MUSIC 22\*

MUSIC 251: Psychophysics and Music Cognition

\*Any additional pre- and co-requisites will be indicated in the annual course bulletin.

\*For complete enrollment requirements, consult the course description in the "ExploreCourse (<http://explorecourses.stanford.edu>)" section of this bulletin.

### 5. Applied

- A minimum of five quarters totaling 15 units of private instruction in instrumental and/or vocal performance (MUSIC 172/272-177/277). Students who do not qualify for private instruction at the intermediate or advanced level, but who wish to pursue the major may take introductory voice (MUSIC 65A Voice Class I and MUSIC 73 Intermediate Voice Class), piano (MUSIC 12A Introductory Piano Class and MUSIC 72A Intermediate Piano Class), or guitar (MUSIC 74C Classical Guitar Class) to reach the minimum proficiency levels required to be accepted into a private studio and then complete their five quarters. Requirements for the minimum levels of proficiency in each instrument for private instruction are posted at: <http://music.stanford.edu/Academics/Auditions.html>.
- A minimum of five quarters totaling at least 5 units of work in one or more of the department's performance organizations or chamber groups. To fulfill the ensemble requirement, Music majors need at least three quarters of participation in the department's traditional large ensembles (MUSIC 159-167), with the exception of students whose primary instrument is harp, keyboard, or guitar, who need to participate at least one quarter in the ensembles above, but who may fulfill the rest of the requirement with chamber music (MUSIC 171 Chamber Music). MUSIC 156 "sic": Improvisation Collective may count for up to two of the ensemble-unit requirements for the Music major.

*Note*—The following courses do not satisfy this requirement:

		Units
MUSIC 128	Stanford Laptop Orchestra: Composition, Coding, and Performance	1-5
MUSIC 160B	Stanford New Ensemble	1
MUSIC 161C	Red Vest Band	1
MUSIC 161D	Stanford Brass Ensemble	1

## Concentration Requirements

### A. Concentration in Performance

In addition to degree requirements required of majors listed above, students in the Performance concentration must:

- Complete at least 6 additional, graded course units in one area of performance. Acceptable courses are described under “Applied” in the section describing private instruction and ensemble course work above. Additional courses might include, but are not limited to:

		<b>Units</b>
MUSIC 126	Introduction to Thoroughbass	1-3
MUSIC 154	History of Electronic Music	1-5
MUSIC 182	Diction for Singers	1
MUSIC 269	Research in Performance Practices	1-5
MUSIC 183A	German Art Song Interpretation	1
MUSIC 183B	French Art Song Interpretation	1
MUSIC 184A	Editing and Performing Early Music	1-3
MUSIC 184B	Topics in Opera Stagecraft	1-3

- Register for an independent project (MUSIC 198 Concentrations Project, 4 units) in the senior year under faculty supervision, leading to a faculty adjudicated senior recital with a writing component.

In preparation for the senior recital, students should reference the Recitals-at-a-Glance planning document (<https://sites.stanford.edu/music-dept/venues-spaces/reserve/recitals>), provided by the Department for all dates and appropriate deadlines.

## B. Concentration in Conducting

In addition to degree requirements required of majors listed above, students in the Conducting concentration must:

- Complete at least 6 additional, graded elective course units in conducting. Additional courses might include, but are not limited to:

		<b>Units</b>
MUSIC 127	Instrumentation and Orchestration	3
MUSIC 130A	Introduction to Conducting	3
MUSIC 130B	Elementary Orchestral Conducting	3
MUSIC 130C	Elementary Choral Conducting	3
MUSIC 230	Advanced Orchestral Conducting	2-4
MUSIC 231	Advanced Choral Conducting	2-4

- Register for an independent project (MUSIC 198 Concentrations Project, 4 units) in the senior year under faculty supervision, leading to a senior conducting project.

In preparation for the senior recital, students should refer to the Recitals-at-a-Glance planning document (<https://sites.stanford.edu/music-dept/venues-spaces/reserve/recitals>), provided by the Department for all dates and appropriate deadlines.

## C. Concentration in Composition

In addition to degree requirements required of majors listed above, students in the Composition concentration must:

- Complete MUSIC 127 Instrumentation and Orchestration
- Composition concentrators must take at least 2 quarters of individual study in composition MUSIC 125 Individual Undergraduate Projects in Composition, and at least one quarter of MUSIC 123 Undergraduate Seminar in Composition. These may count as 3 of the 5 quarters of required applied music classes for the major (the remaining two quarters of applied music must be taken in an instrumental or vocal area, as defined in the requirements for the music major).
- Complete at least 3 additional, graded elective course units in composition. Additional courses might include, but are not limited to:

		<b>Units</b>
MUSIC 123	Undergraduate Seminar in Composition	3
MUSIC 125	Individual Undergraduate Projects in Composition	1-3
MUSIC 127	Instrumentation and Orchestration	3

MUSIC 150	Musical Acoustics	3
MUSIC 154	History of Electronic Music	1-5

Select one of the following Series:

### Series A

MUSIC 220A	Fundamentals of Computer-Generated Sound	2-4
MUSIC 220B	Compositional Algorithms, Psychoacoustics, and Computational Music	2-4
MUSIC 220C	Research Seminar in Computer-Generated Music	2-4

### Series B

Any of the series in computer-generated sound, music, and composition

- Register for an independent project (MUSIC 198 Concentrations Project, 4 units) in the senior year under faculty supervision, leading to a faculty-adjudicated composition project. In preparation for the senior recital, students should refer to the Recitals-at-a-Glance planning document (<https://sites.stanford.edu/music-dept/venues-spaces/reserve/recitals>), provided by the Department for all dates and appropriate deadlines.

## D. Concentration in History and Theory

In addition to degree requirements required of majors listed above, students in the History and Theory concentration must:

- Complete at least 6 additional, graded course units in history and theory. Additional courses might include, but are not limited to:

**Units**

Select any course not taken in fulfillment of the major requirement:

MUSIC 221	Topics in the History of Theory	3-5
MUSIC 140:	Studies in Music of the Middle Ages	
MUSIC 141:	Studies in Music of the Renaissance	
MUSIC 142:	Studies in Music of the Baroque	
MUSIC 143:	Studies in Music of the Classical Period	
MUSIC 144:	Studies in Music of the Romantic Period	
MUSIC 145:	Studies in Western Art Music Since 1900	
MUSIC 146:	Studies in Ethnomusicology	
MUSIC 147:	Studies in Music, Media, and Popular Culture	
MUSIC 148:	Studies in Performance Practice	

- Register for an independent project (MUSIC 198 Concentrations Project 4 units) in the senior year under faculty supervision, leading to a senior research paper.

## E. Concentration in Music, Science, and Technology

Requires completion of 62 units of course work that differs from that of the major and is delineated below. This field of study is designed for those students interested in the musical ramifications of rapidly evolving computer technology and digital audio, and in the acoustic and psychoacoustic foundations of music. This program can serve as a complementary major to students in the sciences and engineering. Students in the program are required to include the following courses in their studies:

- Theory and Analysis

**Units**

MUSIC 21	Elements of Music I	3
MUSIC 24A	Ear Training I	1
MUSIC 22	Elements of Music II	3
MUSIC 24B	Ear Training II	1
MUSIC 23	Elements of Music III (includes passing the piano and ear-training proficiency examinations, as described for the major)	3
MUSIC 24C	Ear Training III	1

MUSIC 150	Musical Acoustics	3
MUSIC 122B	Analysis of Tonal Music	4
MUSIC 251	Psychophysics and Music Cognition	4
MUSIC 220A	Fundamentals of Computer-Generated Sound	4
MUSIC 220B	Compositional Algorithms, Psychoacoustics, and Computational Music	4
MUSIC 220C	Research Seminar in Computer-Generated Music	4
MUSIC 220D	Research in Computer-Generated Music	4
MUSIC 250A	Physical Interaction Design for Music	4

- Majors are required to pass a Piano Proficiency examination as part of the music theory core as described above in the "Degree Requirements" section, item 6. Additional Requirements. Download additional information regarding the proficiency examination (<http://music.stanford.edu/private/downloads/PIANO%20PROFICIENCY%20EXAM.doc>).
- In addition to the three ear training courses above, MST students are also required to take an elective course in ear training, and pass an aural skills proficiency examination at the end of the junior year. This examination tests the ability to accurately transcribe, represent, and reproduce music vocally and at the keyboard.
- Applied
  - Individual studies in performance, MUSIC 172/272-177/277 (6 units) or MUSIC 192A Foundations of Sound-Recording Technology and MUSIC 192B Advanced Sound Recording Technology (6 units)
  - A minimum of five quarters totaling at least 5 units of work in one or more of the department's performance organizations or chamber groups, or 5 units of MUSIC 192C Session Recording. To fulfill the ensemble requirement, Music majors need at least three quarters of participation in the department's traditional large ensembles (MUSIC 159-167), with the exception of students whose primary instrument is harp, keyboard, or guitar, who need to participate at least one quarter in the ensembles above, but who may fulfill the rest of the requirement with chamber music (MUSIC 192C Session Recording). MUSIC 156 "sic": Improvisation Collective may count for up to two of the ensemble-unit requirements for the Music major.

#### 5. History

Select two of the following:

MUSIC 40	Music History to 1600	4
MUSIC 41	Music History 1600-1830	4
MUSIC 42	Music History Since 1830	4

#### 6. Research Project

The program requires a senior research project (4 units) completed under faculty guidance. May be completed in conjunction with enrollment in any of the following:

MUSIC 220D	Research in Computer-Generated Music	4
MUSIC 199	Independent Study	4
MUSIC 198	Concentrations Project	4

## Overseas Study or Study Abroad

Courses in Music are often available at Stanford overseas programs, especially in Berlin, Paris, Florence, and Oxford. See the "Overseas Studies Program" section of this bulletin for this year's listings. Music majors and minors should talk to the Department of Music undergraduate administrator prior to going overseas.

## Joint Major Program in Music and Computer Science

The joint major program (JMP), authorized by the Academic Senate for a pilot period of six years beginning in 2014-15, permits students to major in both Computer Science and one of ten Humanities majors. See the "Joint Major Program (<http://exploreddegrees.stanford.edu/undergraduatedegreesandprograms/#jointmajortext>)" section of this bulletin for a description of University requirements for the JMP. See also the Undergraduate Advising and Research JMP web site and its associated FAQs.

Students completing the JMP receive a B.A.S. (Bachelor of Arts and Science).

Because the JMP is new and experimental, changes to procedures may occur; students are advised to check the relevant section of the bulletin periodically.

## Music Major Requirements in the Joint Major Program

Because the Joint Major Program is new and experimental, some changes to the following may occur. Questions concerning a concentration project in addition to the basic requirements for a Joint Major in Music and Computer Science should be directed to the Department of Music student services office in Braun Music Center, Room 101.

See the "Computer Science Joint Major Program (<http://exploreddegrees.stanford.edu/schoolofengineering/computerscience/#jointmajorprogramtext>)" section of this bulletin for details on Computer Science requirements.

Students majoring in the joint major program in Computer Science and Music must complete the following:

### 1. Music Theory

		Units
MUSIC 21	Elements of Music I	3
MUSIC 22	Elements of Music II	3
MUSIC 23	Elements of Music III	3
MUSIC 24A	Ear Training I	1
MUSIC 24B	Ear Training II	1
MUSIC 24C	Ear Training III	1
<b>Total Units</b>		<b>12</b>

### Additional Music Theory Requirements

- Piano Proficiency:** Majors are required to pass a Piano Proficiency examination as part of the music theory core (MUSIC 21 Elements of Music I, MUSIC 22 Elements of Music II, MUSIC 23 Elements of Music III). The examination is given in the first two weeks of MUSIC 21. Students who do not pass the Piano Proficiency examination are required to enroll in either MUSIC 12A Introductory Piano Class, MUSIC 12B Introductory Piano Class, or MUSIC 12C Introductory Piano Class concurrently with the music theory core until they are able to pass the examination. The examination consists of scales and arpeggios, performance of a simple tune to be set by the examiner, sight-reading, and the performance of prepared pieces. For additional information about this requirement, see Piano Proficiency Examination (<https://music.stanford.edu/sites/default/files/pianoprofexaminfo.pdf>).
- Elective:** In addition to the Theory requirements listed above, majors must successfully complete one unit of an ear training elective course from the list below:



MUSIC 65A	Voice Class I	Units	1
MUSIC 126	Introduction to Thoroughbass		1
MUSIC 127	Instrumentation and Orchestration		3
Or any course upon approval of the Ear Training adviser			

- *Exit Exam:* in conjunction with the Music Theory series, majors are required to pass an aural skills proficiency examination administered at the end of the junior year. This examination tests the ability to accurately transcribe, represent, and reproduce music vocally and at the keyboard, and must be passed before June of the senior year.

## 2. Music History

Select 2 of 3 from the list below

MUSIC 40	Music History to 1600	Units	4
MUSIC 41	Music History 1600-1830		4
MUSIC 42	Music History Since 1830		4

## 3. Analysis

MUSIC 122B	Analysis of Tonal Music	Units	4
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## 4. Computing and Music

MUSIC 220A	Fundamentals of Computer-Generated Sound	Units	4
MUSIC 256A	Music, Computing, Design I: Art of Design for Computer Music		4

**Total Units** 8

## 5. WIM

WIM at 4 units must be taken. Course below is recommended, but can be replaced with any Music WIM course depending on student's area of interest.

MUSIC 251	Psychophysics and Music Cognition	Units	4
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**Total Units** 4

## 6. Electives

Students must submit 12 unit elective course plan to the JMP faculty adviser for approval no later than the beginning of the junior year. MUSIC 220B and MUSIC 250A are recommended, but elective course plan can consist of any courses from list below, or other Music department course(s) with permission of adviser.

MUSIC 122A	Counterpoint	Units	4
MUSIC 122C	Introduction to 20th-Century Composition		4
MUSIC 128	Stanford Laptop Orchestra: Composition, Coding, and Performance		4
MUSIC 150	Musical Acoustics		3
MUSIC 220B	Compositional Algorithms, Psychoacoustics, and Computational Music		4
MUSIC 220C	Research Seminar in Computer-Generated Music		4
MUSIC 250A	Physical Interaction Design for Music		4
MUSIC 256B	Music, Computing, Design II: Virtual and Augmented Reality for Music		4

## 7. Applied Music

Students may elect to take either of the following to fulfill the applied music requirement:

### 7.1 Lesson and Ensemble Study

- 6 units of individual studies in performance, MUSIC 172/272-177/277 and
- 5 quarters totaling 5 units of work in one or more of the department's ensembles or chamber music groups. To fulfill the ensemble requirement, Music majors need at least three quarters of participation in the department's traditional large ensembles (MUSIC 159-167) with the exception of students whose primary instrument is harp, keyboard, or guitar, who need to participate at least one quarter in the ensembles above, but who may fulfill the rest of the requirement with chamber music.

### 7.2 Sound Recording

- 1 quarter (3 units) of MUSIC 192A Foundations of Sound-Recording Technology
- 1 quarter (3 units) of MUSIC 192B Advanced Sound Recording Technology
- 5 units of MUSIC 192C Session Recording

## 8. Capstone Project

MUSIC 220D	Research in Computer-Generated Music (3 units taken in conjunction with CS Capstone)	Units	3
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## 9. Optional Concentrations

Students who would also like to complete an additional capstone project in Performance, Conducting, Composition, Music History and Theory, or Music, Science, and Technology must consult the Department of Music student services office in Braun Music Center, Room 101 to submit a proposal for an optional concentration.

## Declaring a Joint Major Program

To declare the joint major, students must first declare each major through Axxess, and then submit the Declaration or Change of Undergraduate Major, Minor, Honors, or Degree Program. ([http://studentaffairs.stanford.edu/sites/default/files/registrar/files/change\\_UG\\_program.pdf](http://studentaffairs.stanford.edu/sites/default/files/registrar/files/change_UG_program.pdf)) The Major-Minor and Multiple Major Course Approval Form ([http://studentaffairs.stanford.edu/sites/default/files/registrar/files/MajMin\\_MultMaj.pdf](http://studentaffairs.stanford.edu/sites/default/files/registrar/files/MajMin_MultMaj.pdf)) is required for graduation for students with a joint major.

## Dropping a Joint Major Program

To drop the joint major, students must submit the Declaration or Change of Undergraduate Major, Minor, Honors, or Degree Program. ([http://studentaffairs.stanford.edu/sites/default/files/registrar/files/change\\_UG\\_program.pdf](http://studentaffairs.stanford.edu/sites/default/files/registrar/files/change_UG_program.pdf)) . Students may also consult the Student Services Center (<http://studentaffairs.stanford.edu/studentervicescenter>) with questions concerning dropping the joint major.

## Transcript and Diploma

Students completing a joint major graduate with a B.A.S. degree. The two majors are identified on one diploma separated by a hyphen. There will be a notation indicating that the student has completed a "Joint Major". The two majors are identified on the transcript with a notation indicating that the student has completed a "Joint Major".

## Minor in Music

The Music minor provides students with a core of essential Music courses in the disciplines that establish both a foundation for informed appreciation of music and a basis for more advanced study, should the student wish to pursue it.

## Degree Requirements

Total of 36 units required course work as delineated below, and passage of the piano proficiency examination.

### Required Courses: General Music

#### 1. Theory

		Units
MUSIC 21	Elements of Music I	3
MUSIC 22	Elements of Music II	3
MUSIC 23	Elements of Music III	3
MUSIC 24A	Ear Training I	1
MUSIC 24B	Ear Training II	1
MUSIC 24C	Ear Training III	1

#### Additional Music Theory Requirements

- **Piano Proficiency:** Minors are required to pass a Piano Proficiency examination as part of the music theory core (MUSIC 21 Elements of Music I, MUSIC 22 Elements of Music II, MUSIC 23 Elements of Music III). The examination is given in the first two weeks of MUSIC 21. Students who do not pass the Piano Proficiency examination are required to enroll in either MUSIC 12A Introductory Piano Class, MUSIC 12B Introductory Piano Class, or MUSIC 12C Introductory Piano Class concurrently with the music theory core until they are able to pass the examination. The examination consists of scales and arpeggios, performance of a simple tune to be set by the examiner, sight-reading, and the performance of prepared pieces. Download additional information regarding the proficiency examination (<http://exploreddegrees.stanford.edu/schoolofhumanitiesandsciences/music/pianoprofexaminfo.pdf>).
- **Exit Exam:** in conjunction with the Music Theory series, minors are required to pass an aural skills proficiency examination administered at the end of the junior year. This examination tests the ability to accurately transcribe, represent, and reproduce music vocally and at the keyboard, and must be passed before June of the senior year.

#### 2. History

		Units
MUSIC 40	Music History to 1600	4
MUSIC 41	Music History 1600-1830	4
MUSIC 42	Music History Since 1830	4

#### 3. Applied: Ensemble

Two quarters, 2 units total.

		Units
MUSIC 159	Early Music Singers	1
MUSIC 160	Stanford Symphony Orchestra	1
MUSIC 160C	Stanford Baroque Soloists	1
MUSIC 160S	Summer Orchestra	1
MUSIC 161A	Stanford Wind Ensemble	1
MUSIC 161B	Jazz Orchestra	1
MUSIC 162	Symphonic Chorus	1
MUSIC 163	Memorial Church Choir	1
MUSIC 165	Chamber Chorale	1

MUSIC 167	University Singers	1
MUSIC 167S	Summer Chorus	1

#### 4. Applied: Individual

Two quarters at 3 units per quarter, 6 units total.

		Units
MUSIC 159	Early Music Singers	1
MUSIC 160	Stanford Symphony Orchestra	1
MUSIC 160C	Stanford Baroque Soloists	1
MUSIC 160S	Summer Orchestra	1
MUSIC 161A	Stanford Wind Ensemble	1
MUSIC 161B	Jazz Orchestra	1
MUSIC 162	Symphonic Chorus	1
MUSIC 163	Memorial Church Choir	1
MUSIC 165	Chamber Chorale	1
MUSIC 167	University Singers	1
MUSIC 167S	Summer Chorus	1

#### 4. WIM, 4 units

4 units in any course numbered Music 140-149, except MUSIC 140G, or MUSIC 251. Offerings in 2014-2015 include:

MUSIC 140J	Studies in Music of the Middle Ages: Music and Memory	4
MUSIC 141J	Studies in Music of the Renaissance	2-4
MUSIC 143J	Studies in Music of the Classical Period: Franz Joseph Haydn	4
MUSIC 144J	Studies in Music of the Romantic Period: Faust in 19th-century Music	4
MUSIC 145J	Studies in Western Art Music Since 1900: The Music & Ideas of Charles Ives	4
MUSIC 146J	Studies in Ethnomusicology: Listening to the Local: Music Ethnography of the Bay Area	4
MUSIC 147J	Studies in Music, Media, and Popular Culture: The Soul Tradition in African American Music	4
MUSIC 147K	Studies in Music, Media, and Popular Culture: Music and Urban Film	4
MUSIC 147L	Studies in Music, Media, and Popular Culture: Latin American Music and Globalization	4
MUSIC 148J	Studies in Perf Practice: Reactions to the Record: Early Recordings, Lost Styles, and Music's Future	4
MUSIC 251	Psychophysics and Music Cognition	4

### Required Courses: Music, Science and Technology

#### 1. Theory

		Units
MUSIC 21	Elements of Music I	3
MUSIC 22	Elements of Music II	3
MUSIC 23	Elements of Music III	3
MUSIC 24A	Ear Training I	1
MUSIC 24B	Ear Training II	1
MUSIC 24C	Ear Training III	1
MUSIC 150	Musical Acoustics	3
MUSIC 220A	Fundamentals of Computer-Generated Sound	2-4
MUSIC 220B	Compositional Algorithms, Psychoacoustics, and Computational Music	2-4

## 2. Applied

		Units
MUSIC 192A	Foundations of Sound-Recording Technology	3
MUSIC 192B	Advanced Sound Recording Technology	3
MUSIC 192C	Session Recording (two quarters, 3 units total)	1-2

Alternatively, students pursuing the MST minor may elect to fulfill the applied music requirement with ensemble units and individual lessons as described in the Applied requirements for the General Music minor above.

## 3. WIM, 4 units

		Units
MUSIC 251	Psychophysics and Music Cognition	4

# Performance Certificate Program for Non Music Majors

As a locus of great academic and artistic depth and diversity, the Department of Music's performance programs have long engaged students who, even though they are not music majors, are serious and dedicated to furthering their skills in music performance. The Certificate in Music Performance program provides a select cohort of these students the opportunity for further recognition of their artistic achievement.

This program is open by audition to undergraduate students who already demonstrate a high degree of accomplishment in their area of music performance, study privately with one of the Department of Music's faculty, and who wish to bolster their performance studies with coursework that may be drawn from the Department of Music's other areas of academic focus: history, theory, computer music, and composition. The Certificate in Music Performance is issued by the Department of Music and will not appear on any University record, including the student's transcript.

## Admission

Students are admitted to the Certificate in Music Performance program based on an audition adjudicated by Department of Music faculty at the beginning of Spring Quarter. To request an audition, the student should speak with the private lesson instructor and the Department of Music's undergraduate student services officer. Email [ugmusicinquiries@lists.stanford.edu](mailto:ugmusicinquiries@lists.stanford.edu) ([ugmusicinquiries@stanford.edu](mailto:ugmusicinquiries@stanford.edu)) for additional information. At the time of the audition, students must have already declared a major outside of music.

## Requirements

Once admitted into the program, students must complete a course plan to be approved by department faculty based on the requirements below

### 1. Performance

- A minimum of six quarters of individual lessons of private instruction and/or vocal performance (MUSIC 172/272-177/277). Any quarters of instruction taken prior to admission into the program may also count towards these requirements. Requirements for the minimum levels of proficiency in each instrument for private instruction are posted on the Music Department's (<http://exploreddegrees.stanford.edu/schoolofhumanitiesandsciences/music/%20http://music.stanford.edu/Academics/Auditions.html.html>) web site (<https://sites.stanford.edu/music-dept/academics/undergraduates>). All six quarters of lesson study must be in the same instrument area.
- A minimum of six quarters of ensemble experience in the Department of Music's ensembles and chamber groups. For students whose primary instrument area is guitar, keyboard or harp, at least one quarter of

ensemble experience must be in one of the department's traditional large ensembles (MUSIC 159-167, MUSIC 184). The remaining ensemble requirements may be filled with chamber music (MUSIC 171). Keyboard students may also take MUSIC 171 Chamber Music, MUSIC 171 Chamber Music, and MUSIC 171 Chamber Music to fulfill this requirement. All non-keyboard, guitar or harp students must successfully complete three quarters in the department's traditional large ensembles (MUSIC 159-167, MUSIC 184), and three quarters in conductor-less, small ensembles such as chamber music or jazz combos MUSIC 171 Chamber Music. MUSIC 156 "sic": Improvisation Collective may count for up to two of the ensemble unit requirements. Any quarters of ensemble taken prior to admission into the program may also count towards these requirements.

## 2. Music Theory

Students are required to complete one course in Music Theory (MUSIC 21 Elements of Music I, MUSIC 22 Elements of Music II, or MUSIC 23 Elements of Music III). For the purposes of the Performance Certificate, the student may elect to take these courses on a Credit/No Credit grading basis. However, students must also pass the associated Piano Proficiency Exam and take one course in Ear Training.

## 3. Elective Courses

6 or more total course units in Music, dependent upon course plan document submitted following acceptance into the program.

## 4. Final Project

To complete the Performance Certificate, students must enroll in a 4-unit MUSIC 199 Independent Study or 4-unit MUSIC 198 Concentrations Project and complete a final, performance-based capstone project. Students must pass faculty adjudication, and, in addition, complete a writing project (essay or program notes) pre-approved by the lesson instructor. Students should refer to the Department of Music website's Recitals-at-a-Glance (<https://sites.stanford.edu/music-dept/venues-spaces/reserve/recitals>) page for appropriate recital planning dates and deadlines.

## Master of Arts in Music

University requirements for the M.A. are described in the "Graduate Degrees (<http://exploreddegrees.stanford.edu/graduatedegrees>)" section of this bulletin.

None of Stanford's required undergraduate courses may be credited toward an advanced degree unless specifically required for both degrees. Only work that receives a grade of 'A,' 'B,' or 'Satisfactory' (a passing grade in an instructor-mandated credit/no credit course) in Music courses numbered 100 or higher taken as a graduate student is recognized as fulfilling the advanced-degree requirements. Students may need to devote more than the minimum time in residence if preparation for graduate study is inadequate.

## Admission

Applicants are required to submit evidence of accomplishment (scores, recordings, and/or research papers) when they complete the application form. Applicants should arrange to take the Graduate Record Examination (GRE) well in advance of the second Tuesday in December application deadline. All components of the application are due by the second Tuesday in December. International students whose first language is not English are also required to take the TOEFL exam (with certain exceptions: see the Office of Graduate Admissions (<http://studentaffairs.stanford.edu/gradadmissions>) web site).

## Degree Options

All of the following fields of study are declarable as subplans in Axess via the "Declaration or Change to a Field of Student" form; they appear on the transcript and the diploma:

- Master of Arts degree (M.A.) in Music—Composition subplan.
- Master of Arts degree (M.A.) in Music—Music History subplan.
- Master of Arts degree (M.A.) in Music—Computer-Based Music Theory and Acoustics subplan.
- Master of Arts degree (M.A.) in Music—Music, Science, and Technology subplan
  - Note: The M.A./M.S.T. program is the only terminal master's degree; it is two years in duration. It is available to current Stanford undergraduates as a coterminal MA, current Stanford graduates, and external applicants.

## Degree Requirements

A minimum of 45 academic units is required for the master's degree in Music. The Department of Music does not accept students for study only towards the M.A. degree except in the Music, Science, and Technology program, described below.

### 1. Composition

Students are not admitted into the M.A. as a terminal degree for composition: rather, students in the D.M.A. program in composition who enter directly from the bachelor's level may, upon completing 45 graduate-level units and advancing to candidacy by passing the qualifying examination, be recommended for the M.A. degree in composition.

### 2. Music History

Students are not admitted into the M.A. as a terminal degree for music history: rather, students in the Ph.D. program in musicology who enter directly from the bachelor's level may, upon completing 45 graduate-level units and advancing to candidacy by passing the qualifying examination, be recommended for the M.A. degree in music history.

### 3. Computer-Based Music Theory and Acoustics

Students are not admitted into the M.A. as a terminal degree for computer-based music theory and acoustics: rather, students in the Ph.D. program in computer-based music theory and acoustics who enter directly from the bachelor's level may, upon completing 45 graduate-level units and advancing to candidacy by passing the qualifying examination, be recommended for the M.A. degree in computer-based music theory and acoustics.

### 4. Music, Science, and Technology (M.S.T.)

The M.A. in Music, Science, and Technology is the department's only terminal master's degree. This is a two-year program of 45 graduate-level units focusing on the integration of music perception, music-related signal processing and controllers, synthesis, performance, and composition. The program is designed for students who have an undergraduate music, engineering, or science degree.

## University Coterminal Requirements

Coterminal master's degree candidates are expected to complete all master's degree requirements as described in this bulletin. University requirements for the coterminal master's degree are described in the "Coterminal Master's Program (<http://exploreddegrees.stanford.edu/cotermdegrees>)" section. University requirements for the master's degree

are described in the "Graduate Degrees (<http://exploreddegrees.stanford.edu/graduatedegrees/#masterstext>)" section of this bulletin.

After accepting admission to this coterminal master's degree program, students may request transfer of courses from the undergraduate to the graduate career to satisfy requirements for the master's degree. Transfer of courses to the graduate career requires review and approval of both the undergraduate and graduate programs on a case by case basis.

In this master's program, courses taken during or after the first quarter of the sophomore year are eligible for consideration for transfer to the graduate career; the timing of the first graduate quarter is not a factor. No courses taken prior to the first quarter of the sophomore year may be used to meet master's degree requirements.

Course transfers are not possible after the bachelor's degree has been conferred.

The University requires that the graduate adviser be assigned in the student's first graduate quarter even though the undergraduate career may still be open. The University also requires that the Master's Degree Program Proposal be completed by the student and approved by the department by the end of the student's first graduate quarter.

Required course work is listed below. A complete program with an individually-tailored list of electives will be formed in consultation with the student's adviser.

Required Courses		Units
MUSIC 201	CCRMA Colloquium	
MUSIC 220A	Fundamentals of Computer-Generated Sound	
MUSIC 251	Psychophysics and Music Cognition	
MUSIC 255	Intermedia Workshop	
MUSIC 256A	Music, Computing, Design I: Art of Design for Computer Music	
MUSIC 320A	Introduction to Audio Signal Processing Part I: Spectrum Analysis	
MUSIC 320B	Introduction to Audio Signal Processing Part II: Digital Filters	
Electives		
The remaining units of graduate level work are determined in consultation with the student's adviser and include CCRMA electives, and may include courses taken outside the department.		

## Doctor of Musical Arts (D.M.A.) and Doctor of Philosophy (Ph.D.) in Music

University requirements for the D.M.A. and Ph.D. are described in the "Graduate Degrees" section of this bulletin. The following statements apply to all the graduate degrees described below, unless otherwise indicated.

### Admission

Applicants are required to submit evidence of accomplishment (scores, recordings, and/or research papers, according to the proposed field of concentration) when they complete the application form. Applicants should arrange to take the Graduate Record Examination (GRE) well in advance of the application deadline of the second Tuesday in December. All components of the application are due by the second Tuesday in December. International students whose first language is not English are also required to take the TOEFL exam (with certain exceptions: see the Office of Graduate Admissions (<http://studentaffairs.stanford.edu/gradadmissions>) web site.



## Department Examinations

All entering doctoral graduate students are required to take:

1. a diagnostic examination testing the student in theory (counterpoint, harmony, and analysis), a proficiency examination in sight-singing; and,
2. for musicologists and composers only, a proficiency examination in piano sight-reading; and
3. for musicologists only, the history of Western art music.

These exams are given the week before classes begin in September each year. Teaching Assistant assignments and the funding associated with this portion of a graduate student's financial aid package are determined based upon successful completion of these exams.

## Graduate Credit

None of Stanford's required undergraduate courses may be credited toward an advanced degree unless specifically required for both degrees. Only work that receives a grade of 'A,' 'B,' or 'S' (a passing grade in an instructor-mandated credit/no credit course) in music courses numbered 100 or higher taken as a graduate student is recognized as fulfilling the advanced-degree requirements. Students may need to devote more than the minimum time in residence if preparation for graduate study is inadequate.

The following may be taken as electives for graduate credit:

1. any course in another department numbered 100 or over (with adviser's consent)
2. any course in the Music department numbered 100 or over except those required for the B.A. degree. A letter grade of 'A,' 'B,' or 'S' (a passing grade in an instructor-mandated credit/no credit course) is required.
3. Music department group instruction (enroll in MUSIC 199 Independent Study after speaking with instructor):

		Units
MUSIC 72A	Intermediate Piano Class	1
MUSIC 72C	Harpichord Class	1
MUSIC 72D	Jazz Piano Class	1
MUSIC 73	Intermediate Voice Class	1
MUSIC 74C	Classical Guitar Class	1
MUSIC 74D	Harp Class	1
MUSIC 75B	Renaissance Wind Instruments Class	1
MUSIC 76	Brass Instruments Class	1
MUSIC 77	Percussion Class	1

## Degree Options

All of the following fields of study are declarable as subplans in Axess via the "Declaration or Change to a Field of Study for Graduate Students" form; they appear on the transcript and the diploma:

### • Doctor of Musical Arts degree (D.M.A.) in Composition

The D.M.A. is offered to a limited number of students who demonstrate substantial training in the field and high promise of attainment as composers. Students may work in acoustic and/or electronic forms. Breadth is given through studies in other branches of music and in relevant fields outside music, as desirable. The final project for this degree is a large-scale composition.

### • Doctor of Philosophy degree (Ph.D.) in Musicology

### • Doctor of Philosophy degree (Ph.D.) in Computer-Based Music Theory and Acoustics

The Ph.D. is offered in areas of the research of Stanford's graduate faculty: Musicology, and Computer-Based Music Theory and Acoustics (CBMTA) at the Center for Computer Research in Music and Acoustics (CCRMA). The department seeks students who demonstrate substantial scholarship, high promise of attainment, and the ability to do independent investigation and present the results of such research in a dissertation.

## Degree Requirements

### Residence

The candidate must complete a minimum of 135 academic units (see Residency under the Graduate Degrees (<http://exploreddegrees.stanford.edu/graduatedegrees>) section of this bulletin). Doctoral candidates working on Ph.D. dissertations or Doctor of Musical Arts (D.M.A.) final projects that require consultation with faculty members continue enrollment in the University under Terminal Graduate Registration (TGR), after they have reached the required 135 academic units and have completed their Special Area Examinations.

### Qualifying Examination

A written and oral examination given just prior to the fourth quarter of residence for D.M.A. students and Ph.D. students in the Computer-Based Music Theory and Acoustics programs; for Ph.D. students in Musicology, the exams are given just prior to the eighth quarter of residence. This exam tests knowledge of history, theory, repertory, and analysis. For D.M.A. students a *Special Area Examination* topic proposal is due at the time of the *Qualifying Examination*.

### Admission to Candidacy

Upon successful completion of the Qualifying Examination and 45 units of graduate level work, faculty consider the student's overall progress and academic achievement and determines if the student has the potential to successfully complete the requirements of the degree program. If a student's progress and potential are deemed sufficient to continue in the degree program, the student is directed to complete the Application for Candidacy for Doctoral Degree (<http://studentaffairs.stanford.edu/sites/default/files/registrar/files/appcanddoct.pdf>). Failure to advance to candidacy will result in the dismissal of the student from the program.

### Teaching

All students in the Ph.D. or D.M.A. degree programs, regardless of sources of financial support, are required to complete six quarters of supervised teaching (Teaching Assistantship) at half time. MUSIC 280 TA Training Course (offered in Spring Quarter and taken at the end of the first year) is a required course for Teaching Assistants. Additional quarters of teaching may be offered by the department.

### I. Composition

The Doctor of Musical Arts (D.M.A.) degree in Composition is given breadth through collateral studies in other branches of music and in relevant studies outside music as seems desirable. In addition to degree requirements required of all doctoral graduate students and listed above, students must complete the following required courses:

Units

Required Courses

MUSIC 280	TA Training Course	1
MUSIC 305C	Analysis and Repertoire: Late-Romantic to Contemporary	4
MUSIC 323	Doctoral Seminar in Composition (4 quarters within the first two years of study)	3-4
MUSIC 324	Graduate Composition Forum *	1
MUSIC 325	Individual Graduate Projects in Composition †	1-5

One elective course from the Ph.D. CBMTA curricula chosen from the following:

MUSIC 220A	Fundamentals of Computer-Generated Sound	
MUSIC 251	Psychophysics and Music Cognition	
MUSIC 255	Intermedia Workshop	
MUSIC 256A	Music, Computing, Design I: Art of Design for Computer Music	
MUSIC 320A	Introduction to Audio Signal Processing Part I: Spectrum Analysis	3-4
MUSIC 320B	Introduction to Audio Signal Processing Part II: Digital Filters	3-4

\* The requirement is for all six quarters during years 1 & 2, and a minimum of three quarters during years 3 & 4.

† Two or more quarters per year are required until advancement to candidacy; by the end of the second year the student shall have enrolled with a minimum of two different faculty members; but the end of the third year the student shall have enrolled with a minimum of three different faculty.

- Besides those requirements listed above, candidates are expected to produce a number of works demonstrating their ability to compose in a variety of forms and for the common media: vocal, instrumental, and electronic music. If possible, the works submitted are presented in public performance prepared by the composer. Annual progress is reviewed by the composition faculty with a major portfolio review conducted during the Fall Quarter of the third year.
- Foreign Language Requirement*—At the time of advancement to candidacy, all D.M.A. students are required to have demonstrated a reading knowledge of one language other than English and the ability to translate it into idiomatic English.
- Special-Area Examination*—A written examination in the candidate's field of concentration, one-hour presentation followed by questions in MUSIC 324 Graduate Composition Forum, sample course syllabus, and final project proposal are required to be completed during the Winter Quarter of the fourth year of study, no later than the ninth week of classes.
- Final Project Presentation*—Required during the last quarter of residence, no later than the ninth week of classes, the purpose of the presentation is to demonstrate the ability of the candidate to organize and present the topic of the final project for public review. It should be one hour in length, followed by questions, treating aspects of the final project. Details regarding the D.M.A. final project presentation may be found in the Department of Music Graduate Handbook.
- Final Project*—Candidate's work culminates in a required Final Project. The final project in composition must be a substantial composition, the scope of which shall be agreed upon by the members of the committee. Typically, work on the final project encompasses several quarters. Usually, smaller works, for specific performances, are composed at the same time.
- Reading Committee*—The membership of the reading committee is the principal final project adviser and a minimum of two additional members. The notice of appointment of a D.M.A. Final Project Reading Committee should be submitted to the department at the same time as the approved final project proposal and the completion of the Special Area Exam. It is the responsibility of the student, with the advice of his or her adviser, to approach appropriate faculty members and obtain

their consent to serve on the reading committee. Obtain the D.M.A. reading committee form from the department office; fill it out; obtain committee members' signatures; return to the department office.

## II. Musicology

In addition to degree requirements required of all doctoral graduate students and listed above, students must complete the following required courses:

### Units

#### Required Courses

MUSIC 200A	Proseminar in Musicology and Music Bibliography (required of all entering students)	3-4
MUSIC 200B	Proseminar in Ethnomusicology	3-5
MUSIC 280	TA Training Course	1
MUSIC 300A	Medieval Notation	3-4
MUSIC 300B	Renaissance Notation	4
MUSIC 305A	Analysis and Repertoire: Medieval and Renaissance	4
MUSIC 305B	Analysis and Repertoire: Baroque to Early Romantic	4
MUSIC 305C	Analysis and Repertoire: Late-Romantic to Contemporary	4
MUSIC 310	Research Seminar in Musicology *	3-5
MUSIC 312A	Aesthetics and Criticism of Music, Ancients and Moderns: Plato to Nietzsche	4
MUSIC 312B	Aesthetics and Criticism of Music, Contemporaries: Heidegger to Today	4
MUSIC 330	Musicology Dissertation Colloquium †	1

One elective course from the D.M.A. Composition of Ph.D. CBMTA curricula chosen from the following (or other, by instructor and advisor consent):

MUSIC 220A	Fundamentals of Computer-Generated Sound
MUSIC 251	Psychophysics and Music Cognition
MUSIC 253	Symbolic Musical Information
MUSIC 254	Music Query, Analysis, and Style Simulation
MUSIC 323	Doctoral Seminar in Composition
MUSIC 324	Graduate Composition Forum

\* The requirement is for eight seminars of 3-5 units each. Up to two graduate seminars in other departments may be counted toward this requirement, pending adviser's approval.

† The requirement is for enrollment each Spring Quarter beginning in year four and continuing to graduation.

- Foreign Language Requirement*—At the time of advancement to candidacy, all Ph.D. students in Musicology must have passed a Ph.D. Language examination in German and in a second language, chosen from French, Italian, or Latin (or, on a case-by-case basis, another language, if it has significant bearing on the candidate's field of study). If one of these languages is the student's native language, the student may be exempted from an examination.
- Special-Area Examination*—A written and oral examination testing the student's knowledge of music and research in the student's field of concentration is completed during the fourth year of study, no later than the last day of classes in Autumn Quarter of that year. This includes an oral defense of the dissertation proposal. The examining committee comprises prospective readers of the dissertation.
- University Oral Examination*—Taken once the dissertation is substantially under way; an oral presentation is a defense of dissertation research methods and results.
- Dissertation*—After the first two years of graduate study, the student concentrates on research and writing of the dissertation. The dissertation demonstrates the student's ability to work systematically and independently to produce an essay of competent scholarship.

5. **Reading Committee**—The minimum membership of the reading committee is 1) the principal dissertation adviser, 2) a second member from the department, and 3) a third member from the major department or another department. If a third member is from another institution, a fourth member must be appointed from the department. The principal dissertation adviser and all other members of the committee must belong to the Academic Council. The notice of appointment of a Reading Committee should be submitted to the department at the same time as the approved dissertation proposal and the completion of the Special-Area Exam. It is the responsibility of the student, with the advice of his or her adviser, to approach appropriate faculty members and obtain their consent to serve on the reading committee.

### III. Computer-Based Music Theory and Acoustics

In addition to degree requirements required of all doctoral graduate students and listed above, students must complete the following required courses:

#### Required Courses

MUSIC 220A	Fundamentals of Computer-Generated Sound	4
MUSIC 220B	Compositional Algorithms, Psychoacoustics, and Computational Music	4
MUSIC 220C	Research Seminar in Computer-Generated Music	2-4
MUSIC 220D	Research in Computer-Generated Music *	1-10
MUSIC 251	Psychophysics and Music Cognition	1-5
MUSIC 280	TA Training Course	1
MUSIC 305C	Analysis and Repertoire: Late-Romantic to Contemporary	4
MUSIC 320A	Introduction to Audio Signal Processing Part I: Spectrum Analysis	3-4
MUSIC 320B	Introduction to Audio Signal Processing Part II: Digital Filters	3-4

\* The requirement is for 12 units.

- Foreign Language Requirement**—At the time of advancement to candidacy, all Ph.D. students in computer-based music theory and acoustics are required to have demonstrated a reading knowledge of one language other than English and the ability to translate it into idiomatic English.
- Special-Area Examination**—A written and oral examination testing the student's knowledge of music and research in the student's field of concentration is completed during the fourth year of study, no later than the last day of classes in Autumn Quarter of that year. This includes an oral defense of the dissertation proposal. The examining committee comprises prospective readers of the dissertation.
- University Oral Examination**—Taken once the dissertation is substantially under way; an oral presentation is a defense of dissertation research methods and results.
- Dissertation**—After the first two years of graduate study, the student concentrates on research and writing of the dissertation. The dissertation demonstrates the student's ability to work systematically and independently to produce an essay of competent scholarship.
- Reading Committee**—The minimum membership of the reading committee is 1) the principal dissertation adviser, 2) a second member from the department, and 3) a third member from the major department or another department. If a third member is from another institution, a fourth member must be appointed from the department. The principal dissertation adviser and all other members of the committee must belong to the Academic Council. The notice of appointment of a Reading Committee should be submitted to the department at the same time as the approved dissertation proposal and the completion of the Special-Area Exam. It is the responsibility of the student, with the advice of his or her adviser, to approach appropriate faculty members and obtain their consent to serve on the reading committee.

*Emeriti: (Professors)* John M. Chowning, Albert Cohen, George Houle, William H. Ramsey; *(Professors, Performance)* Arthur P. Barnes, Marie Gibson

*Chair:* Stephen M. Sano

*Professors:* Jonathan Berger (on leave Winter & Spring), Karol Berger (on leave), Chris Chafe, Brian Ferneyhough, Thomas Grey (on leave Autumn), Stephen Hinton, Julius O. Smith

*Associate Professors:* Mark Applebaum, Heather Hadlock, Jaroslaw Kapuscinski, William P. Mahrt, Jesse Rodin

*Assistant Professors:* Takako Fujioka, Charles Kronengold, Anna Schultz, Ge Wang

*Professors (Teaching):* George Barth (Piano), Stephen M. Sano (Director of Choral Studies)

*Courtesy Professor:* Paul DeMarinis

*Senior Lecturers:* Giancarlo Aquilanti (Director of Theory; Wind Ensemble), Talya Berger (Theory; on leave Autumn), Stephen Harrison (Cello), Thomas Schultz (Piano), Gregory A. Wait (Voice; Director of Vocal Studies), Frederick R. Weldy (Piano)

*Lecturers:* Kumaran Arul (Piano), Erika Arulanantham (Theory), Fredrick Berry (Jazz Ensemble), Mark Brandenburg (Clarinet), Marie-Louise Catsalis (Voice), Marjorie Chauvel (Harp), Tony Clements (Tuba), Laura Dahl (Resident Collaborative Pianist), Anthony Doheny (Violin), John Dornenburg (Viola da Gamba), Greer Ellison (Flute, Baroque Flute), Charles A. Ferguson (Guitar), Debra Fong (Violin), Claire Giovannetti (Voice), Dawn Harms (Violin, Viola), Alexandra Hawley (Flute), David Henderson (Classical Saxophone), Wendy Hillhouse (Voice), Melody Holmes-Vedder (Flute), Nova Jiménez (Voice), McDowell Kenley (Trombone), Joo-Mee Lee (Violin), Mary Linduska (Voice, Summer), Murray Low (Jazz Piano), Adam Luftman (Trumpet), Anthony Martin (Baroque Violin), Robin May (Oboe), Seward McCain (Jazz Bass), Charles McCarthy (Jazz Saxophone), Robert Huw Morgan (University Organist, Organ), Bruce Moyer (Contrabass), Herbert Myers (Early Winds), James Nadel (Jazz), Rufus Olivier (Bassoon), Lawrence Ragent (French Horn), David Rokeach (Drum Set), Kelly Savage (Theory), Robin Sharp (Violin), Livia Sohn (Violin), Elaine Thornburgh (Harpsichord), Erik Ulman (Composition, Theory), Linda Uyechi (Taiko), Rick Vandivier (Jazz Guitar), Mark Veregge (Percussion), John Worley (Jazz Trumpet), Hui (Daisy) You (Gu-Zheng), Timothy Zerlang (University Carillonneur, Piano)

*Consulting Professors:* Jonathan Abel (CCRMA), David Berners (CCRMA), Marina Bosi (CCRMA), Poppy Crum (CCRMA), Pierre Divenyi (CCRMA), Walter Hewlett (Computer-Assisted Research in the Humanities), Thomas Rossing (CCRMA), Eleanor Selfridge-Field (Computer-Assisted Research in the Humanities), Malcolm Slaney (CCRMA)

*Assistant Consulting Professors:* Gautham Mysore (CCRMA), Craig Sapp (Computer-Assisted Research in the Humanities), Jeffrey C. Smith (CCRMA)

*Artists-in-Residence (St. Lawrence String Quartet):* Geoff Nuttall (Violin), Owen Dalby (Violin), Lesley Robertson (Viola), Christopher Costanza (Cello)

## Courses

### MUSIC 1A. Music, Mind, and Human Behavior. 3 Units.

An introductory exploration of the question of why music is a pervasive and fundamental aspect of human existence. The class will introduce aspects of music perception and cognition as well as anthropological and cultural considerations.

**MUSIC 1SI. Introduction to Indian Classical Music. 1 Unit.**

This is an introductory course in the classical music of India, with emphasis on learning to listen to and appreciate Indian classical music concerts. It will cover a broad overview of the two main genres of Indian classical music - Carnatic and Hindustani. We will have several in-class demonstrations of instruments unique to the Indian classical music tradition. Class meetings will include discussions of landmark performances and artists as well as fundamentals of this music style, such as Raaga (melody), Taala (rhythm), song structure, and improvisation.

**MUSIC 2C. An Introduction to Opera. 3 Units.**

The lasting appeal of opera as a lavishly hybrid genre from the 1600s to the present. How and why does opera set its stories to music? What is operatic singing? Who is the audience? How do words, music, voices, movement, and staging collaborate in different operatic eras and cultures? Principal works by Monteverdi, Handel, Mozart, Verdi, Wagner, Strauss, Britten, and Adams. Class studies and attends two works performed by the San Francisco Opera.

**MUSIC 4SI. Interactive Introduction to North American Taiko. 1 Unit.**

Taught by Stanford Taiko members. Techniques and history. No experience necessary. May be repeated for credit. This course was initiated by Mitchell Fukumoto and Stanford Taiko.

**MUSIC 6F. Art is My Occupation: Professional Development in Music. 1-2 Unit.**

Open to majors and non-majors. This course is designed to empower music students to explore their personal and artistic identity. One-unit option (recommended for freshmen and sophomore) is for students who wish to explore various music related occupations through research, discussion and interview with invited speakers. Two-unit option (recommended for junior and seniors) has an additional part that students prepare resumes and biography or cover letter, and create other materials that will assist in the process of job or graduate school applications through on-line resources.

**MUSIC 7B. Musical Cultures of the World. 3 Units.**

An overview of selected musical cultures from Africa, Asia, Europe, and the Americas. Course objectives: cultivate an appreciation for the diversity of human musical expression; discover how music is used to shape social interactions and systems of meaning; develop active listening skills that can be used when encountering any music; gain a preliminary understanding of ethnomusicological concepts and vocabulary. No musical experience is necessary. Class format: Lecture, discussion, listening, guest performances, musical participation, and a concert analysis.

**MUSIC 8A. Rock, Sex, and Rebellion. 3 Units.**

Development of critical listening skills and musical parameters through genres in the history of rock music. Focus is on competing aesthetic tendencies and subcultural forces that shaped the music. Rock's significance in American culture, and the minority communities that have enriched rock's legacy as an expressively diverse form. Lectures, readings, listening, and video screenings. Attendance at all lectures is required.

**MUSIC 10AX. Science of Sound. 2 Units.**

Science of Sound will explore sound and sound-related technology from the perspectives of mathematics, physics, and acoustics. Scientists and engineers will have a chance to apply their technical knowledge to the field of music while musicians will learn how sound behaves physically and how it can be recorded, processed, and reproduced. Using the newly opened Bing Concert Hall as a focal point, we will study the science of sound recording, room acoustics, and multi-channel mixing and playback. Students will use what they learn to create short multi-channel compositions using special techniques to place sounds spatially. These pieces will be performed during the annual outdoor Summer CCRMA Transitions concert and again during the Fall 2014 CCRMA concert at Bing Concert Hall. We will use the textbook by Jay Kadis entitled Science of Sound Recording as our primary text and incorporate plenty of hands-on experience with sound equipment and electronics.

**MUSIC 11A. Orchestral Repertoire and Technique for Violin. 1 Unit.**

Open to major and non-majors who would like to learn orchestral pieces and performance technique, including the works from the Stanford Symphony Orchestra's concert program. Priority is given to students who sign up for SSO and SPO. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 11AZ. Orchestral Repertoire and Technique for Violin. 0 Units.**

Open to major and non-majors who would like to learn orchestral pieces and performance technique, including the works from the Stanford Symphony Orchestra's concert program. Priority is given to students who sign up for SSO and SPO. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 11N. A View from the Podium: The Art of Conducting. 3 Units.**

How a conductor interprets music, realizes a personal vision through the rehearsal process, and communicates with orchestra and audience. Conducting as based on human communication skills. How to apply these lessons to other fields of endeavor.

**MUSIC 12A. Introductory Piano Class. 1 Unit.**

"(A=level 1; B=level 2; C=level 3)There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fee and signup information. Class is closed by design. Please register on the waitlist and show up on the first day of class to receive a permission number for enrollment. Preference to department majors. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 12AZ. Introductory Piano Class. 0 Units.**

"(A=level 1; B=level 2; C=level 3)There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fee and signup information. Class is closed by design. Please register on the waitlist and show up on the first day of class to receive a permission number for enrollment. Preference to department majors. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. May be repeat for credit for 0 unit and total completion allowed 99.

**MUSIC 12B. Introductory Piano Class. 1 Unit.**

This class is closed by design. To enroll, please sign up on the Axxess waitlist and show up on the first day to receive a permission number for re-enrollment. Your place on the waitlist will be considered a reservation. If the waitlist is closed, there are no more spaces in the class. (A=level 1; B=level 2; C=level 3) Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fee and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 12BZ. Introductory Piano Class. 0 Units.**

This class is closed by design. To enroll, please sign up on the Axxess waitlist and show up on the first day to receive a permission number for re-enrollment. Your place on the waitlist will be considered a reservation. If the waitlist is closed, there are no more spaces in the class. (A=level 1; B=level 2; C=level 3) Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fee and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.



**MUSIC 12C. Introductory Piano Class. 1 Unit.**

This class is closed by design. To enroll, please sign up on the Axes waitlist and show up on the first day to receive a permission number for re-enrollment. Your place on the waitlist will be considered a reservation. If the waitlist is closed, there are no more spaces in the class. (A=level 1; B=level 2; C=level 3.) May be repeated for credit a total of 14 times. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fee and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 12CZ. Introductory Piano Class. 0 Units.**

This class is closed by design. To enroll, please sign up on the Axes waitlist and show up on the first day to receive a permission number for re-enrollment. Your place on the waitlist will be considered a reservation. If the waitlist is closed, there are no more spaces in the class. (A=level 1; B=level 2; C=level 3.) There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fee and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 12SC. Musical Collisions and Radical Creativity. 2 Units.**

The margins of musical culture; nonconformist, maverick, and eccentric creative impulses that expand the definition of art. Laboratory atmosphere and daily rehearsals in which students create collaborative works with a final public concert involving collaborations with local musicians and presentations of student-composed works created during the course.

**MUSIC 13N. Bollywood and Beyond: South Asian Popular and Folk Music. 3 Units.**

Introduction to regional and popular musical styles of India and Pakistan, including Marathi kirtan, Punjabi bhangra, Manganiyar music of Rajasthan, Bhojpuri wedding songs, Tamil drum ensembles, Baul music of Bengal, Sufi qawwali, and Hindi film music, and explores how these musics are woven into the fabric of social life in South Asia and its diaspora. How people perform music to: articulate relationship to the divine; make social commentary; effect political change; bring families together; celebrate rites of passage; and, cope with rapid socio-economic changes.

**MUSIC 13Q. Classical Music and Politics: Western Music in Modern China. 3 Units.**

Preference to sophomores. Social history, cultural studies, China studies, international relations, and music. From the Italian Jesuit, Matteo Ricci who presented a clavichord to the Chinese emperor to the emergence of a modern generation of Chinese musicians.

**MUSIC 13SC. Performing America: The Broadway Musical. 2 Units.**

This seminar explores how the themes, characters, stories, and, above all, the songs of the Broadway musical have played a key role in forming ideas of American identity from the early 20th century to the present. Musical theater is a perennial site for negotiating social themes of race, class, gender roles, and sexual identity. The American musical has been in constant dialogue with vernacular song and dance idioms, from ragtime and early jazz to rock, pop, disco, hip-hop, and electronic dance music. Jazz musicians have regularly looked to musical theater for their iquest;standards,iquest; as have talent shows from the vaudeville era to American Idol. Disney musicals, the television series Glee and Smash, and the High School Musical franchise all illustrate how iquest;musicals,iquest; serve as a medium for negotiating personal identity from childhood through early adulthood, staging the conflicts and attachments that define our everyday lives while connecting these with the culture we live in through the collective medium of song. nWe will look at a variety of influential historical musicals (Oklahoma, Guys and Dolls, Gypsy, The Music Man, West Side Story) and a few recent shows such as Wicked, Hairspray, Bloody Bloody Andrew Jackson, American Idiot, and The Book of Mormon, asking what the relation is between individual numbers and the overall themes and structures of the shows. How do lyrics and music combine in a successful song, and how does a song contribute to shape of the show? How do the dynamics of live theater relate to the presentation of musicals in the mediums of film and television? In addition to working on selected songs and scenes with the help of Stanford voice and drama faculty, students will attend, discuss, and review Bay area productions (San Jose, San Francisco), including the Broadway by the Bay (Redwood City) production of Cabaret opening on September 13, 2013. Grading will be based on class discussion, production analysis and reviews, and a choice between a final creative project and a short research paper.

**MUSIC 14N. Women Making Music. 3 Units.**

Preference to freshmen. Women's musical activities across times and cultures; how ideas about gender influence the creation, performance, and perception of music.

**MUSIC 15N. The Aesthetics of Data. 3 Units.**

Focus on visual and auditory display of data, specifically, the importance of aesthetic principles in effective data display, and the creative potential of scientific, biological, environmental and other data as inspiration for artistic expression.

**MUSIC 17N. The Operas of Mozart. 3 Units.**

Preference to freshmen. Four of Mozart's mature operas, the earliest works in the operatic repertoire never to go out of fashion. What accounts for this extraordinary staying power? Focus on the history of their composition, performance, and reception, and their changing significance from Mozart's time to the present.

**MUSIC 17Q. Perspectives in North American Taiko. 4 Units.**

Preference to sophomores. Taiko, or Japanese drum, is a newcomer to the American music scene. Emergence of the first N. American taiko groups coincided with increased Japanese American activism, and to some it is symbolic of Japanese American identity. N. American taiko is associated with Japanese American Buddhism. Musical, cultural, historical, and political perspectives of taiko. Hands-on drumming. Japanese music and Japanese American history, and relations among performance, cultural expression, community, and identity.

**MUSIC 18A. Jazz History: Ragtime to Bebop, 1900-1940. 3 Units.**

From the beginning of jazz to the war years.  
Same as: AFRICAAM 18A

**MUSIC 18B. Jazz History: Bebop to Present, 1940-Present. 3 Units.**

Modern jazz styles from Bebop to the current scene. Emphasis is on the significant artists of each style.  
Same as: AFRICAAM 18B

**MUSIC 19A. Introduction to Music Theory. 3 Units.**

For non-music majors and Music majors or minors unable to pass the proficiency test for entry to MUSIC 21. The fundamentals of music theory and notation, basic sight reading, sight singing, ear training, keyboard harmony; melodic, rhythmic, and harmonic dictation. Skill oriented, using piano and voice as basic tools to develop listening and reading skills.

**MUSIC 19B. Intermediate Music Theory. 3 Units.**

This course is an introduction to music theory geared toward students who have basic literacy skills (i.e. fundamental notation, identifying major and minor scales, keys, etc). Using musical materials from repertoire selected from campus and area concerts, and incorporating the opportunity to attend these concerts, the course will introduce elements of harmony, melody, form, orchestration and arrangement. The course is an appropriate successor to Music 19A. Students who successfully complete Music 19B can go on directly to Music 21.

**MUSIC 20A. Jazz Theory. 3 Units.**

Introduces the language and sounds of jazz through listening, analysis, and compositional exercises. Students apply the fundamentals of music theory to the study of jazz. Prerequisite: 19 or consent of instructor. Same as: AFRICAAM 20A

**MUSIC 20B. Advanced Jazz Theory. 3 Units.**

Approaches to improvisation through listening and transcribing, and developing familiarity with important contributors to this music. Topics: scale theory, altered dominants, and substitute harmony. Prerequisite: 20A or consent of instructor.

**MUSIC 20C. Jazz Arranging and Composition. 3 Units.**

Jazz arranging and composition for small ensembles. Foundation for writing for big band. Prerequisite: 20A or consent of instructor.

**MUSIC 21. Elements of Music I. 3 Units.**

Preference to majors. Introduction to tonal theory. Practice and analysis. Diatonic harmony focusing on melodic and harmonic organization, functional relationships, voice-leading, and tonal structures. Students must concurrently enroll in an Ear-training and musicianship lab (MUSIC 24a, 24b, or 24c as appropriate). Music majors must take 4 courses in ear training, and pass an ear training exit exam in their Junior year. Enrollment limited to 40. Prerequisites: (1) Piano Proficiency Exam (must be passed within the first two weeks of the term) or MUSIC 12A (may be taken concurrently); (2) Passing grade on a basic musical skills proficiency examination on the first day of class or MUSIC 19.

**MUSIC 22. Elements of Music II. 3 Units.**

Preference to majors. Introduction to chromatic harmony focusing on secondary functions, modulations, harmonic sequences, mode mixture, and the Neapolitan, and augmented sixth chords. Analysis of musical forms and harmonizations complemented by harmonic and melodic dictation, sight singing, and other practical skills. Students must concurrently enroll in an Ear-training and musicianship lab (MUSIC 24a, 24b, or 24c as appropriate). Music majors must take 4 courses in ear training, and pass an ear training exit exam in their Junior year. Prerequisites: (1) MUSIC 21; (2) Piano Proficiency Exam or MUSIC 12B (may be taken concurrently).

**MUSIC 23. Elements of Music III. 3 Units.**

Preference to majors. Continuation of chromatic harmony and complex forms of late Romantic period. Students must concurrently enroll in an Ear-training and musicianship lab (MUSIC 24a, 24b, or 24c as appropriate). Music majors must take 4 courses in ear training, and pass an ear training exit exam in their Junior year. Prerequisites: (1) MUSIC 22; (2) Piano Proficiency Exam or MUSIC 12C (may be taken concurrently).

**MUSIC 24A. Ear Training I. 1-2 Unit.**

Class is closed by design. Please contact instructor Erika Arul (mailto:earul@stanford.edu) for permission to enroll.

**MUSIC 24B. Ear Training II. 1-2 Unit.**

Class is closed by design. Please contact instructor Erika Arul (mailto:earul@stanford.edu) for permission to enroll.

**MUSIC 24C. Ear Training III. 1-2 Unit.**

Class is closed by design. Please contact instructor Erika Arul (mailto:earul@stanford.edu) for permission to enroll.

**MUSIC 24K. Keyboard Harmony. 1 Unit.**

In this practical introduction to keyboard harmony, students learn to play, analyze and improvise chord progressions at the keyboard. The course covers reading figured bass, playing chord progressions in all major and minor keys, and score reading. Students also analyze and perform solo repertoire that progresses through the semester from simple pieces to the level of a Bach invention and chorale. Preference given to majors. Keyboard harmony supports material learned in MUSIC 24B and 24C and counts as an ear training course. Prerequisites: (1) Piano Proficiency Exam, (2) MUSIC 24A.

**MUSIC 27N. The British Invasion. 3 Units.**

Examination of three generations of British popular music in the '60s and '70s: the Beatles (and the Rolling Stones, the Kinks, the Who); progressive rock (art rock) as embodied in Pink Floyd, Yes, King Crimson, Genesis, and Emerson, Lake, and Palmer; the emergence of punk in its revolutionary (the Clash) and nihilistic (the Sex Pistols) forms. Among other issues, the manner in which marginal American culture (particularly African-American blues) is neglected by Americans and venerated by foreigners and the subsequent mainstream consumption of a transformed and repackaged American minority culture is discussed.

**MUSIC 28N. Queer Lives in Music. 3 Units.**

Queer Lives in Music examines music by queer musicians in genres including punk, opera, rock, symphony, musical theater, folk, and jazz. We will study lesbian, gay, bisexual, transgender, and queer composers, performers, and listeners, to learn how queer people have expressed individual identity and built communities through music. We will learn how sexual stigma, taboo, oppression, and resistance have impacted musical creativity and music history. Class is designed for students interested in music, social history, cultural studies, and gender/sexuality studies. Same as: FEMGEN 28N

**MUSIC 30N. A Stranger in a Strange Land: Jewish Musics in Translation. 3 Units.**

What does it mean to be a stranger in a strange land? For centuries Jewish people have struggled to shape their identities in unfamiliar surroundings, using music to remember the past and generate new, hybrid identities. In this class we adopt the metaphor of translation to think about how minority Jewish communities bridge distinct languages, musical idioms, and cultural practices. Our theme will take us on a journey across time and space; from Italy to India, New York, Syria, Russia, and Israel. We consider the case of Salamone Rossi, a 17th-century Italian Jewish composer who moved uneasily between dual careers in the synagogue and a secular/Christian court. We also explore a group of Indian Jews (Bene Israel) who combine idioms learned from Jewish and Christian missionaries with local Hindu musical traditions. In all our examples musicians translate languages, musical styles, and cultures to unite memories of a Jewish past with the realities of minority status in the present. The class format includes listening, discussion, some singing, student presentations, and guest lectures.

**MUSIC 32N. Sculpting with Sounds, Images, and Words. 3 Units.**

Throughout history and from East to West, cultures abound in multimedia forms. Whether in Coldplay's Music Video or Fantasia, Pepsi TV ads or Wagner's opera, Miyazaki anime or traditional Noh Theater of Japan, the three modes of expression—sounds, images, and words—are interwoven in distinctive ways. What are their individual and combined powers? How can one harness them in an online context? Can Web be a stage for multimedia theater? What is unique about the poetry of intermodal metaphor? The course will be an opportunity to face these questions in creative web-based projects as well as through in-class viewing of multimedia works, analysis and debates, readings, and student presentations. The seminar will be taught at the Center for Computer Research in Music and Acoustics where students will have access to new media technologies. Prior experience in music, literature, art practice or computer programming is welcome but not required.

**MUSIC 33N. Beethoven. 3 Units.**

This seminar is designed as an in-depth introduction to the music of Ludwig van Beethoven. In addition to exploring the composer's principal works in a variety of genres (symphonies, piano sonatas, string quartets, opera, etc.), we will consider broader questions of biography and reception history. How have images of the composer and the fortunes of his music changed over time? How did his compositions come to define the paradigm of Western classical music? What impact has he had on popular culture? The class is open to all levels of musical expertise; the ability to read music is not a requirement. Come prepared to discover -- or rediscover -- some great music!

**MUSIC 34N. Performing America: The Broadway Musical. 3 Units.**

Musical theater as a site for the construction of American identity in the twentieth century to the present. Issues of class, race, gender, and sexuality; intersections with jazz, rock, and pop; roles of lyricist, composer, director, choreographer, producer, performers. Individual shows (Showboat, Oklahoma, South Pacific, Guys and Dolls, West Side Story, Wicked, Bloody Bloody Andrew Jackson, Book of Mormon), show tunes in jazz performance, film musicals, and television. Opportunities for performance and attendance at local productions.

**MUSIC 36N. Humor in Music. 3 Units.**

Through theoretical readings the course will touch on psychological and neurological bases of humor, explore contingent, tactical, modal, and ontological difficulties in the apprehension of humor, and address ethical issues surrounding humor in music. In addition to in-class listening and screening sessions, analytic discussions will be led by students who will find and present examples of humor in music. Students will also be invited to compose original humorous song lyrics and to create collaborative works of musical humor.

**MUSIC 38N. Singing Early Music. 3 Units.**

Preference to freshmen. 15th- and 16th-century musical repertoires and their contexts; performance practice.

**MUSIC 39A. Music, Health, and Medicine. 3 Units.**

Explore how music relates to health and medicine surveying recent medical literature. Review different techniques in music therapy, music-related health problems, and issues related to educational and medical applications. Course materials are chosen to clearly identify music as a component of health related activity or occupation, to describe responses to music in our mind and body, and to think about the roles of music in our health. The seminars also discuss related basics in psychology and neurology. Students learn how to do literature search and write essays about relevant topics.

**MUSIC 39N. The Classical String Quartet: Haydn, Mozart, Beethoven & Schubert. 3 Units.**

This seminar, an in-depth historical survey of canonic works from the string quartet repertory, is intended for performers and non-performers alike. Topics to be explored include the origins of the genre in the pre-classical period; the establishment of enduring conventions in the early quartets of Haydn; aesthetic criteria that distinguish the approaches of Haydn and Mozart; the epoch-defining shifts in musical composition that are reflected in Beethoven's works for the medium; the tension between classicism and romanticism in the chamber music of Schubert; and issues of historical performance practice. Field trips will include a visit to the Beethoven Center in San Jose and attending chamber music concerts on campus. The St. Lawrence String Quartet (Stanford's ensemble-in-residence) will be joining the seminar on a regular basis to provide live demonstrations and coaching. Students who are string players are strongly encouraged to bring their instruments to class. Class activities will cover history, criticism, analysis, and performance (usually in combination). Informed listening is a primary goal of the seminar. Assignments will be tailored to student interests and abilities.

**MUSIC 40. Music History to 1600. 4 Units.**

Pre- or corequisite: 21.

**MUSIC 41. Music History 1600-1830. 4 Units.**

Pre- or corequisite: 22.

**MUSIC 42. Music History Since 1830. 4 Units.**

Pre- or corequisite: 23.

**MUSIC 60. Singing: How it's done, how to learn to do it, and how to work with people who do it. 1 Unit.**

A weekly lecture course for singers, pianists, directors, conductors, and anyone who is interested in the art and craft of the voice. Students will learn about the vocal instrument, how to use it efficiently and keep it healthy, how to lead and participate in vocal productions and ensembles of all periods and styles. Ability to sing and/or read music is not required; this is not a voice class. Required readings. Taught by Music Department Faculty; coordinated by Wendy Hillhouse.

**MUSIC 65A. Voice Class I. 1 Unit.**

Group (7 students to a section) beginning voice (A = level 1; B = level 2). May be repeated for credit. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. This class is closed by design. Please register on the waitlist and show up on the first day of class to receive a permission number for enrollment. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 65AZ. Voice Class I. 0 Units.**

Group (7 students to a section) beginning voice (A = level 1; B = level 2). There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. This class is closed by design. Please register on the waitlist and show up on the first day of class to receive a permission number for enrollment. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. May be repeated for credit for 0 unit and total completion allowed 99.

**MUSIC 65B. Voice Class II. 1 Unit.**

Group (7 students to a section) beginning voice for the non-major (A = level 1; B = level 2). May be repeated for credit. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. This class is closed by design. Please register on the waitlist and show up on the first day of class to receive a permission number for enrollment. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 65BZ. Voice Class II. 0 Units.**

Group (7 students to a section) beginning voice for the non-major (A = level 1; B = level 2). There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. This class is closed by design. Please register on the waitlist and show up on the first day of class to receive a permission number for enrollment. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. May be repeat for credit for 0 units and total completion of 99.

**MUSIC 72A. Intermediate Piano Class. 1 Unit.**

For intermediate students. May be repeated for credit a total of 14 times. Prerequisites: 12C or equivalent, audition. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fee and signup information. This class is closed by design. Please register on the waitlist and show up on the first day of class to receive a permission number for enrollment. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 72AZ. Intermediate Piano Class. 0 Units.**

For intermediate students. Prerequisites: 12C or equivalent, audition. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fee and signup information. This class is closed by design. Please register on the waitlist and show up on the first day of class to receive a permission number for enrollment. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 72C. Harpsichord Class. 1 Unit.**

For beginning harpsichord students who have keyboard skills. May be repeated for credit a total of 14 times. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. Admission based on instructor consent. Contact instructor prior to enrolling to discuss availability. Class meets in Braun 201. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 72CZ. Harpsichord Class. 0 Units.**

For beginning harpsichord students who have keyboard skills. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. Admission based on instructor consent. Contact instructor prior to enrolling to discuss availability. Class meets in Braun 201. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 72D. Jazz Piano Class. 1 Unit.**

By invitation only; priority to majors and jazz-ensemble participants. May be repeated for credit a total of 14 times. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 72DZ. Jazz Piano Class. 0 Units.**

By invitation only; priority to majors and jazz-ensemble participants. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 72G. Gu-Zheng Class. 1 Unit.**

Introduction to Chinese music through learning how to play Gu-Zheng, a 21-stringed traditional Chinese instrument. The cultural, social, and historical significance of Gu-Zheng. 15 Gu-Zheng techniques, how to read Chinese music and Gu-Zheng notation, and two simple classic Gu-Zheng pieces. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fee information. All participants must enroll. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 72GZ. Introduction to Gu-Zheng. 0 Units.**

Introduction to Chinese music through learning how to play Gu-Zheng, a 21-stringed traditional Chinese instrument. The cultural, social, and historical significance of Gu-Zheng. 15 Gu-Zheng techniques, how to read Chinese music and Gu-Zheng notation, and two simple classic Gu-Zheng pieces. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fee information. All participants must enroll. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 73. Intermediate Voice Class. 1 Unit.**

For intermediate students. Admission by audition. May be repeated for credit a total of 14 times. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. This class is closed by design. Please register on the Axxess waitlist and show up on the first day of class to receive a permission number for enrollment. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 73Z. Intermediate Voice Class. 0 Units.**

For intermediate students. Admission by audition. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. This class is closed by design. Please register on the Axxess waitlist and show up on the first day of class to receive a permission number for enrollment.

**MUSIC 74A. Introductory Violin Class. 1 Unit.**

(74A.1=Level 1 beginners; 74A.2=Level 2 continuing) Open to majors and non-majors. Focus is on beginning violin skills. Topics include brief history and physics of the instrument, and survey of repertoire. There is a fee for this class. Please visit <http://music.stanford.edu> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 74AZ. Introductory Violin Class. 0 Units.**

(74A.1=Level 1 beginners; 74A.2=Level 2 continuing) Open to majors and non-majors. Focus is on beginning violin skills. Topics include brief history and physics of the instrument, and survey of repertoire. There is a fee for this class. Please visit <http://music.stanford.edu> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 74C. Classical Guitar Class. 1 Unit.**

May be repeated for credit a total of 14 times. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.



**MUSIC 74CZ. Classical Guitar Class. 0 Units.**

There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 74D. Harp Class. 1 Unit.**

May be repeated for credit a total of 14 times. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 74DZ. Harp Class. 0 Units.**

There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 75B. Renaissance Wind Instruments Class. 1 Unit.**

May be repeated for credit. There is a fee for this class. Please visit <http://music.stanford.edu> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 75BZ. Renaissance Wind Instruments Class. 0 Units.**

May be repeated for credit. There is a fee for this class. Please visit <http://music.stanford.edu> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 76. Brass Instruments Class. 1 Unit.**

May be repeated for credit a total of 14 times. There is a fee for this class. Please visit <http://music.stanford.edu> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 76A. Tuba Class. 1 Unit.**

Basic brass techniques as they apply to the tuba including warmups, breathing, and developing a daily routine. For beginning through intermediate players. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. May be repeated for credit.

**MUSIC 76AZ. Tuba Class. 0 Units.**

Basic brass techniques as they apply to the tuba including warmups, breathing, and developing a daily routine. For beginning through intermediate players. This course includes a fee of \$175 for Music majors and minors, and \$200 for non Music majors. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. May be repeated for credit for 0 unit.

**MUSIC 76Z. Brass Instruments Class. 0 Units.**

May be repeated for credit a total of 14 times. There is a fee for this class. Please visit <http://music.stanford.edu> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 77. Percussion Class. 1 Unit.**

May be repeated for credit a total of 14 times. There is a fee for this class. Please visit <http://music.stanford.edu> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 77Z. Percussion Class. 0 Units.**

There is a fee for this class. Please visit <http://music.stanford.edu> for class fees and signup information. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 80T. Jewish Music in the Lands of Islam. 4 Units.**

An Interdisciplinary study of Music, Society, and Culture in communities of the Jewish Diaspora in Islamic countries. The course examines the diverse and rich musical traditions of the Jews in North Africa and the Middle East. Based on the "Maqamat" system, the Arabic musical modes, Jewish music flourished under Islamic rule, encompassing the fields of sacred music, popular songs, and art music. Using musicological, historical, and anthropological tools, the course compares and contrasts these traditions from their original roots through their adaptation, appropriation, and re-synthesis in contemporary art music and popular songs.

Same as: JEWISHST 80T

**MUSIC 112. Creative Expression: Musical Theater. 4 Units.**

Students begin to create pieces that are fresh and innovative forms of musical theater that do not necessarily appeal to specifically popular audiences but perhaps to audiences more associated with high art, opera, or even contemporary independent music. Musical theater is an untapped resource of potential artistic innovation and has unfortunately become stuck in an ideal of universal accessibility. In present popular culture and the culture of contemporary art forms, musical theater almost exclusively refers to popular productions such as Phantom of the Opera, Rent, Wicked, Jesus Christ Superstar. Although excellent pieces of art in their own way, both dramaturgically and in their ability to evoke emotion through catchy melodies, for the most part each of them have their basis in popular and traditional musical idioms and theatrical forms, seldom exploring more advanced or avant-garde and experimental compositional and theatrical techniques.

Same as: TAPS 112

**MUSIC 122A. Counterpoint. 4 Units.**

Analysis and composition of contrapuntal styles from the Renaissance and Baroque periods. Use of keyboard, ear training, and sight singing underlies all written work. Prerequisites: MUSIC 23 and MUSIC 24C; passing piano-proficiency examination; or, consent of instructor.

**MUSIC 122B. Analysis of Tonal Music. 4 Units.**

Complete movements, or entire shorter works of the 18th and 19th centuries, are analyzed in a variety of theoretical approaches. Prerequisites: MUSIC 23 and MUSIC 24C; passing piano-proficiency examination; or, consent of instructor.

**MUSIC 122C. Introduction to 20th-Century Composition. 4 Units.**

Contemporary works, with emphasis on music since 1945. Projects in free composition based on 20th-century models. Prerequisites: MUSIC 23 and MUSIC 24C; passing piano-proficiency examination; or, consent of instructor.

**MUSIC 123. Undergraduate Seminar in Composition. 3 Units.**

Current trends in composition. May be repeated for credit a total of 7 times. Prerequisites: Music major; 23 or consent of instructor.

**MUSIC 124A. Songwriters Workshop. 1-2 Unit.**

Laboratory for composers of any kind of vernacular music: singer-songwriters; folk singers; laptop dance music composers; rock and pop bands; rappers; writers of instrumentals or music with lyrics; solo artists and collaborators; etc. Compositional strategies for songwriting, overview of exemplars, discussion of aesthetic issues, and development of artistic personae. Weekly critique session for students and faculty to share work and offer feedback. Music theory and literacy not required. Aimed, however, at those with at least some experience as writers, whether casual or extensive. For bands at least half of members must be enrolled.

**MUSIC 124B. Songwriters Workshop. 3 Units.**

Laboratory for composers of any kind of vernacular music: singer-songwriters; folk singers; laptop dance music composers; rock and pop bands; rappers; writers of instrumentals or music with lyrics; solo artists and collaborators; etc. Compositional strategies for songwriting, overview of exemplars, discussion of aesthetic issues, and development of artistic personae. Weekly critique session for students and faculty to share work and offer feedback. Music theory and literacy not required. Aimed, however, at those with at least some experience as writers, whether casual or extensive. For bands at least half of members must be enrolled. Enrollment in 3-unit course is limited and invites lessons with instructor.

**MUSIC 125. Individual Undergraduate Projects in Composition. 1-3 Unit.**

May be repeated for credit a total of 14 times. Prerequisites: music major, and one quarter of 123.

**MUSIC 126. Introduction to Thoroughbass. 1-3 Unit.**

The development of continuo techniques and skills for figured-bass realization. Performance and analysis of selected repertoire, using thoroughbass principles and exercises based on historical theoretical treatises. Prerequisite: 21.

**MUSIC 127. Instrumentation and Orchestration. 3 Units.**

Individual instruments, instrumental groups within the orchestra, and combinations of groups. Arrangements from piano to orchestral music. Score analysis with respect to orchestration. Practical exercises using chamber ensembles and school orchestra. Prerequisite: 23.

**MUSIC 128. Stanford Laptop Orchestra: Composition, Coding, and Performance. 1-5 Unit.**

Classroom instantiation of the Stanford Laptop Orchestra (SLOrk) which includes public performances. An ensemble of more than 20 humans, laptops, controllers, and special speaker arrays designed to provide each computer-mediated instrument with its sonic identity and presence. Topics and activities include issues of composing for laptop orchestras, instrument design, sound synthesis, programming, and live performance. May be repeated four times for credit.

Same as: CS 170

**MUSIC 129. Advanced Ear-Training/Musicianship. 1-2 Unit.**

A course in advanced aural analysis and musicianship skills for students who have completed the Music 24 series. Topics of study include analysis by ear of large scale forms, chromatic or extended-tertian harmony, modulations to distantly related keys, chromatic or atonal melodies, modal harmony and melody, as well as alternative forms of aural analysis.

**MUSIC 130A. Introduction to Conducting. 3 Units.**

Baton techniques and rehearsal procedures. The development of coordination of the members of the body involved in conducting; fluency in beat patterns and meters; dynamics, tempi, cueing, and use of the left hand in conducting. Prerequisites: 122B and diagnostic musicianship exam given first day of class.

**MUSIC 130B. Elementary Orchestral Conducting. 3 Units.**

Prerequisites: 127 or previous orchestral performance experience, 130A.

**MUSIC 130C. Elementary Choral Conducting. 3 Units.**

Techniques specific to the conducting of choral ensembles: warm-ups, breathing, balance, blend, choral tone, isolation principles, recitative conducting, preparation, and conducting of choral/orchestral works. Prerequisite: 130A.

**MUSIC 140J. Studies in Music of the Middle Ages: Music and Memory. 3-4 Units.**

Prerequisites: MUSIC 21, MUSIC 40. (WIM at 4-unit level only.). Same as: MUSIC 240J

**MUSIC 141J. Studies in Music of the Renaissance. 2-4 Units.**

Prerequisites: MUSIC 21, MUSIC 40. (WIM at 4-unit level only.). Same as: MUSIC 241J

**MUSIC 142J. Studies in Music of the Baroque: Monteverdi's Theater Music. 3-4 Units.**

Prerequisites: MUSIC 22, MUSIC 41. (WIM at 4-unit level only.). Same as: MUSIC 242J

**MUSIC 143J. Studies in Music of the Classical Period: Franz Joseph Haydn. 3-4 Units.**

Music and Musicians in the Age of Enlightenment Prerequisites: MUSIC 22, MUSIC 41. (WIM at 4-unit level only.). Same as: MUSIC 243J

**MUSIC 144J. Studies in Music of the Romantic Period: Faust in 19th-century Music. 3-4 Units.**

Prerequisites: MUSIC 23, MUSIC 42 (WIM at 4-unit level only.). Same as: MUSIC 244J

**MUSIC 145J. Studies in Western Art Music Since 1900: The Music & Ideas of Charles Ives. 4 Units.**

Prerequisites: MUSIC 23, MUSIC 42. (WIM at 4-unit level only.). Same as: MUSIC 245J

**MUSIC 146J. Studies in Ethnomusicology: Listening to the Local: Music Ethnography of the Bay Area. 3-5 Units.**

An introduction to music ethnography through student research on musical life in the Bay Area. Focus is on the intersections of music, social life, and cultural practice by engaging with people as they perform music and culture in situ. Techniques taught include participant-observation, interviewing and oral history, writing fieldnotes, recording, transcription, analysis, and ethnographic writing. Pre-/corequisite (for music majors): MUSIC 22. (WIM at 4 units only.).

Same as: MUSIC 246J

**MUSIC 147J. Studies in Music, Media, and Popular Culture: The Soul Tradition in African American Music. 3-4 Units.**

The African American tradition of soul music from its origins in blues, gospel, and jazz to its influence on today's r&b, hip hop, and dance music. Style such as rhythm and blues, Motown, Southern soul, funk, Philadelphia soul, disco, Chicago house, Detroit techno, trip hop, and neo-soul. Soul's cultural influence and global reach; its interaction with politics, gender, place, technology, and the economy. Pre-/corequisite (for music majors): MUSIC 22. (WIM at 4 units only.).

Same as: AFRICAAM 19, AMSTUD 147J, CSRE 147J, MUSIC 247J

**MUSIC 147K. Studies in Music, Media, and Popular Culture: Music and Urban Film. 3-4 Units.**

How music and sound work in urban cinema. What happens when music's capacity to transform everyday reality combines with the realism of urban films? Provides an introduction to traditional theories of film music and film sound; considers how new technologies and practices have changed the roles of music in film. Readings discuss film music, realistic cinema, urban musical practices and urban culture. Viewing includes action/adventure, Hindi film, documentary, film noir, hip hop film, the musical, and borderline cases by Jean-Luc Godard, Spike Lee, Wong Kar-Wai and Tsai Ming-Liang. Pre- or corequisite (for music majors): MUSIC 22. (WIM at 4 unit level only.).

Same as: MUSIC 247K

**MUSIC 147L. Studies in Music, Media, and Popular Culture: Latin American Music and Globalization. 3-4 Units.**

Focuses on vernacular music of Latin America and the Caribbean, including Mexico, Cuba, Dominican Republic, Peru, Brazil, Colombia, and Argentina. Musical examples discussed in relation to: globalization, migration, colonialism, nationalism, diaspora, indigeneity, politics, religion, dance, ethnicity, and gender. How music reflects and shapes cultures, identities, and social structures. Genres addressed: bachata, bossa nova, cumbia, forro, ranchero, reggaeton, rock, salsa, tango, and others. Seminar, guest performances, reading, listening, and analysis. Pre-/corequisite (for music majors): MUSIC 22. (WIM at 4 units only.).

Same as: MUSIC 247L

**MUSIC 148J. Studies in Perf Practice: Reactions to the Record: Early Recordings, Lost Styles, and Music's Future. 3-4 Units.**

This is a seminar on the transformation of musical style in the era of recordings in light of their roots in cultural trends, including shifting hierarchies between composer and performer, work and notation, text and act. Early recordings will be studied as documents of musical values and conceptions different from those around us today. Methodologies of performance analysis will be explored and used to contextualize sources, which include historic recordings from Stanford's Archive of Recorded Sound, performance documents, and field research with performers, composers, critics, and listeners. Repertoire includes works for orchestra, piano, strings, chamber ensemble and voice. Outstanding contributions from seminar members may be featured in the Music Department's May 2014 Reactions to the Record symposium. May be repeated for credit. Pre- or corequisite (for music majors): MUSIC 22. (WIM at 4-unit level only.). Same as: MUSIC 248J

**MUSIC 150. Musical Acoustics. 3 Units.**

The physics of vibrating systems, waves, and wave motion. Time- and frequency-domain analysis of sound. Room acoustics, reverberation, and spatialization. The acoustics of musical instruments: voice, strings, and winds. Emphasis is on the practical aspects of acoustics in making music. Hands-on and computer-based lab. See <http://ccrma.stanford.edu/courses/150/>.

**MUSIC 150D. The Paradigm Shift. 1 Unit.**

Examination of the idea of 'paradigm shift' by considering paradigm shifts in different academic fields of inquiry. Serial accumulation of guest lectures by distinguished faculty representing the University's many and varied departments, each asking and answering the question 'What is the most important paradigm shift in the history of my field? Are paradigm shifts revolution or evolution? Do they move us closer to truth? How frequently do they occur? Can humans plan for, cause, or resist them?'. Same as: POLISCI 133D

**MUSIC 152A. Careers in Media Technology. 1 Unit.**

Careers in Media Technology explores how leading audio, music, and video technology companies, such as Pandora, Adobe, Sonos, Dolby, Gracenote, iZotope, and Avid bring products from idea to market. We examine best practices, roles, day-to-day responsibilities, desired skillsets, and department/team function. This seminar is intended for all students considering full-time positions or internships in media technology industry. No prior engineering background required. Topics include: product management, project management (agile), software development in large organizations, UX/UI design, marketing, hardware development, R&D, sales, operations (HR, IP/patents), and the hiring process. Online lectures available. Class time includes discussion and meetings with industry professionals.

**MUSIC 154. History of Electronic Music. 1-5 Unit.**

What is electronic music? Acoustic, computer music, algorithmic composition, tape music, glitch, electronic, musique concrète, noise, laptop music, DJ'ing, organized sound...what do these labels mean? This course will provide a brief historical survey of electroacoustic music and discuss some of the most salient questions associated with it, from both a compositional and musicological point of view. Topics to be covered include: definitions of musical sounds; Schaefferian theory and musique concrète; serialism and elektronische Musik; tape music and computer music in the USA; analysis of electroacoustic music; sampling and intellectual property; algorithmic and computer-assisted composition; live-electronics and improvisation. The course does not require previous experience in the field. Classes will be based on discussion of selected listening and reading materials, as well as hands-on digital experimentation with sounds.

**MUSIC 154A. Sound Art I. 4 Units.**

Acoustic, digital and analog approaches to sound art. Familiarization with techniques of listening, recording, digital processing and production. Required listening and readings in the history and contemporary practice of sound art. (lower level). Same as: ARTSTUDI 131

**MUSIC 154B. Aesthetics of Experimental Electronic Music, 1980 to Today. 3-5 Units.**

In this course, students will listen to, analyze, and interpret experimental electronic music since 1980. We will explore how technologies influence music making, audiences; experiences, distribution outlets and performance contexts for electronic music. How do artists generate meaning and expressivity when using experimental tools and styles? Emphasis on developing vocabulary and frameworks for informed discourse surrounding electronic music, drawing from both academic and journalistic traditions. Topics include electronic dance music, dubstep, hip hop, internet music culture, drone, noise, microsound, electroacoustic, and sound art. Highly recommended for music majors taking the MST specialization. For upper-level undergraduates and graduate students.

**MUSIC 154D. Symposium on Manufacturing Techniques for Music and Art. 1-3 Unit.**

A guided symposium on the many techniques for making music and art objects. The course will be tailored to student interest and needs as it covers computer controlled machining, traditional techniques, and innovative methods of creating physical objects for music and art.

**MUSIC 155. Intermedia Workshop. 3-4 Units.**

Students develop and produce intermedia works. Musical and visual approaches to the conceptualisation and shaping of time-based art. Exploration of sound and image relationship. Study of a wide spectrum of audiovisual practices including experimental animation, video art, dance, performance, non-narrative forms, interactive art and installation art. Focus on works that use music/sound and image as equal partners. Limited enrollment. Prerequisites: consent of instructors, and one of FILMPROD 114, ARTSTUDI 131, 138, 167, 177, 179, or MUSIC 123, or equivalent. May be repeated for credit. Same as: ARTSTUDI 239, MUSIC 255

**MUSIC 156. "sic": Improvisation Collective. 1 Unit.**

Small ensemble devoted to learning trans-idiomatic improvisation techniques and composing indeterminate pieces in a workshop setting. One major concert. Prerequisite: access to an instrument. Improvisational experience and conventional instrumental virtuosity not required. May be repeated for credit for a total of 3 times.

**MUSIC 158. Stanford Community Chorus. 1 Unit.**

Chorus members explore many different types of music and singing in a fun and supportive environment, including folk, spirituals, popular songs, and traditional choral music. The course culminates in an informal performance. No audition is required to join; experienced music readers and non-readers alike are welcome. The ensemble is open to both Stanford students and community members. There is a \$25 fee for music. Offered in collaboration with Stanford Continuing Studies. Enrollment limited to 15 students and 30 community members. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 159. Early Music Singers. 1 Unit.**

Small choir specializing in Medieval, Renaissance, and early Baroque vocal music. One major concert per quarter. May be repeated for credit for a total of 15 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.



**MUSIC 159J. Performance as Analysis: Late-Medieval Music in Action. 1-3 Unit.**

This experimental course channels embodied musical knowledge into text-based analysis and reflection. Part I features an intensive period of seven workshops and rehearsals: working closely with members of Cut Circle (<http://cutcircle.org>) as well as specialists in computer science and art history, students prepare a concert to be held during Week 2 of the quarter. Part II (Weeks 3-5) comprises a more typical twice-a-week schedule in which we reflect on, contextualize, and analyze the music and our experience performing it. A final paper is due in about Week 7; regular meetings conclude after Week 5. Prerequisites: good sight-singing skills; at least one quarter's experience in MUSIC 165 (Chamber Chorale) or an ensemble of a similar caliber. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University. **Week 1:** Mon 4 January: 4:30 - 7:00n Wed 6 January: 4:30 - 7:00n Fri 8 January: 4:30 - 7:00n All three meetings in Dinkelspiel Auditorium. **Week 2:** Sat 9, and Sun 10 January: 2:30 - 6pm, BRHn **Week 3-5:** Tues 12 January: 4:30 - 7:00, MemChun Wed 13 January: 6pm call for 7:30p concert, MemChun **Weeks 6-10:** No class meeting. **Final paper due in week 7.**

**MUSIC 159K. Stanford Facsimile Singers. 1 Unit.**

Small vocal ensemble performing late-medieval and Renaissance music from original sources. Exposes students to unfamiliar notational systems through often lavish music manuscripts and prints; builds sight-singing skills. May be repeated for credit for a total of three times. Zero-unit enrollment option available with instructor permission. Prerequisites: basic sight-singing. Prior training in voice not required.

**MUSIC 159KZ. Stanford Facsimile Singers. 0 Units.**

Small vocal ensemble performing late-medieval and Renaissance music from original sources. Exposes students to unfamiliar notational systems through often lavish music manuscripts and prints; builds sight-singing skills. May be repeated for credit for a total of three times. Zero-unit enrollment option available with instructor permission. Prerequisites: basic sight-singing. Prior training in voice not required.

**MUSIC 159Z. Early Music Singers. 0 Units.**

Small choir specializing in Medieval, Renaissance, and early Baroque vocal music. One major concert per quarter. May be repeated for credit for a total of 15 times for 0 unit. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 160. Stanford Symphony Orchestra. 1 Unit.**

70- to 100-member ensemble performing major orchestral works; minimum one concert per quarter. Admission and enrollment based on audition. For audition and contact information, please refer to the SSO/SPO/SNE website at (<http://sso.stanford.edu>). All participants must enroll. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 160A. Stanford Philharmonia Orchestra. 1 Unit.**

Prerequisite: audition, one year of 160, or consent of instructor. Admission and enrollment based on audition. For audition and contact information, please refer to the SSO/SPO/SNE website at (<http://sso.stanford.edu>). All participants must register. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 160AZ. Stanford Philharmonia Orchestra. 0 Units.**

Prerequisite: audition, one year of 160, or consent of instructor. May be repeated for credit. Admission and enrollment based on audition. For audition and contact information, please refer to the SSO/SPO/SNE website at (<http://www.stanford.edu/group/sso/cgi-bin/wordpress/member-login/>). All participants must register. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 160B. Stanford New Ensemble. 1 Unit.**

Performing compositions of the 20th century, recent works of this century, and new works by Stanford faculty and student composers. Musicians collaborate with composers and artists visiting and performing at Stanford. One concert per quarter. Admission and enrollment based on audition. For audition and contact information, please refer to the SSO/SPO/SNE website at (<http://www.stanford.edu/group/sso/cgi-bin/wordpress/member-login/>). All participants must register. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 160BZ. Stanford New Ensemble. 0 Units.**

Performing compositions of the 20th century, recent works of this century, and new works by Stanford faculty and student composers. Musicians collaborate with composers and artists visiting and performing at Stanford. One concert per quarter. Admission and enrollment based on audition. For audition and contact information, please refer to the SSO/SPO/SNE website at (<http://www.stanford.edu/group/sso/cgi-bin/wordpress/member-login/>). All participants must register. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 160C. Stanford Baroque Soloists. 1 Unit.**

Elite string group focusing on concerti by Corelli, Vivaldi and other Italians, Bach, Handel and other Germans, as well as theater music by Purcell and Lully. Each member expected to solo as well as play backup. Performances each quarter, played standing, student-led without conductor. Coaching will emphasize leadership and ensemble techniques, intonation and blend, particulars of eighteenth century notation and performance practice. Modern instruments, modern pitch, baroque bows as available. Limited to six violins, three violas, three cellos, bass, admission by audition. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. Contact instructor for audition and enrollment information: [apmartin@stanford.edu](mailto:apmartin@stanford.edu). May be repeated for credit for total completion of 15 and total 15 units. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.



**MUSIC 160CZ. Stanford Baroque Soloists. 0 Units.**

Elite string group focusing on concerti by Corelli, Vivaldi and other Italians, Bach, Handel and other Germans, as well as theater music by Purcell and Lully. Each member expected to solo as well as play backup. Performances each quarter, played standing, student-led without conductor. Coaching will emphasize leadership and ensemble techniques, intonation and blend, particulars of eighteenth century notation and performance practice. Modern instruments, modern pitch, baroque bows as available. Limited to six violins, three violas, three cellos, bass, admission by audition. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. Contact instructor for audition and enrollment information: [apmartin@stanford.edu](mailto:apmartin@stanford.edu). May be repeated for credit for 0 units. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 160S. Summer Orchestra. 1 Unit.**

50- to 100-member ensemble performing major orchestral works. May be repeated for credit. Auditions: June 28 & 29; Rehearsal Schedule: 6/30, 7/2, 7/6, 7/7, 7/9, 7/13, 7/14, 7/16; Dress Rehearsal 7/17, 7:00-9:30PM; Performance: 7/18, 7:30PM. Email instructor with questions: <mailto:awittstr@stanford.edu>. Please visit <http://www.stanford.edu/group/sso/cgi-bin/wordpress/member-login/auditions/auditionexcerpts/> for information on audition requirements. nOnline sign-up available in Spring 2015! Stay tuned at the Stanford Symphony Orchestra website: <http://www.stanford.edu/group/sso/cgi-bin/wordpress/> nBy enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 160SZ. Summer Orchestra. 0 Units.**

50- to 100-member ensemble performing major orchestral works. May be repeated for credit. Auditions: June 28 & 29; Rehearsal Schedule: 6/30, 7/2, 7/6, 7/7, 7/9, 7/13, 7/14, 7/16; Dress Rehearsal 7/17, 7:00-9:30PM; Performance: 7/18, 7:30PM. Email instructor with questions: <mailto:awittstr@stanford.edu>. Please visit <http://www.stanford.edu/group/sso/cgi-bin/wordpress/member-login/auditions/auditionexcerpts/> for information on audition requirements. nOnline sign-up available in Spring 2015! Stay tuned at the Stanford Symphony Orchestra website: <http://www.stanford.edu/group/sso/cgi-bin/wordpress/> nBy enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University. nZero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 160Z. Stanford Symphony Orchestra. 0 Units.**

70- to 100-member ensemble performing major orchestral works; minimum one concert per quarter. Admission and enrollment based on audition. For audition and contact information, please refer to the SSO/SPO/SNE website at (<http://www.stanford.edu/group/sso/cgi-bin/wordpress/member-login/>). All participants must enroll. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 161A. Stanford Wind Ensemble. 1 Unit.**

40- to 50-member ensemble performing transcriptions of symphonic music, brass band music, and repertoire composed specifically for symphonic band. One concert per quarter. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 161AZ. Stanford Wind Ensemble. 0 Units.**

40- to 50-member ensemble performing transcriptions of symphonic music, brass band music, and repertoire composed specifically for symphonic band. One concert per quarter. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 161B. Jazz Orchestra. 1 Unit.**

Jazz Orchestra is an undergraduate large ensemble performance class. Admission is by audition and/or permission of instructor. The class meets three times per week and presents a minimum of one formal concert per quarter with a major jazz artist. The class endeavors to provide students with the opportunity to perform, at the highest level, jazz compositions and arrangements of a serious nature, and provide opportunities for challenging and creative improvisational situations. Emphasis is placed on the understanding of the structural, psychological, and emotional components of the materials studied and performed. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. May be repeated for total of 15 times. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 161BZ. Jazz Orchestra. 0 Units.**

Jazz Orchestra is an undergraduate large ensemble performance class. Admission is by audition and/or permission of instructor. The class meets three times per week and presents a minimum of one formal concert per quarter with a major jazz artist. The class endeavors to provide students with the opportunity to perform, at the highest level, jazz compositions and arrangements of a serious nature, and provide opportunities for challenging and creative improvisational situations. Emphasis is placed on the understanding of the structural, psychological, and emotional components of the materials studied and performed. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. May be repeated for total completion of 15 and 0 (zero) unit. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 161C. Red Vest Band. 1 Unit.**

A small ensemble of the Leland Stanford Junior University Marching Band open to members of the LSJUMB by audition and consent of instructor. Members perform at all men's and women's home basketball games and travel to some away and post-season games. Twice-weekly rehearsals focus on introduction of new student arrangements and the LSJUMB's repertoire of rock, funk, and traditional styles. May be repeated for credit a total of 7 times. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 161D. Stanford Brass Ensemble. 1 Unit.**

Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. Performance of works for full brass choir and for smaller ensembles of brass instruments. Once weekly rehearsals. May be repeated for credit. Prerequisite: audition and consent of instructor. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 161DZ. Stanford Brass Ensemble. 0 Units.**

Performance of works for full brass choir and for smaller ensembles of brass instruments. Once weekly rehearsals. May be repeated for credit. Prerequisite: audition and consent of instructor. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 161E. Stanford Afro-Latin Jazz Orchestra. 1 Unit.**

Ensemble dedicated to the performance, interpretation and study of Afro-Latin music and its fusion with North American jazz. Repertoire includes the music of Brazil, Cuba, Dominican Republic, Puerto Rico, Peru and Argentina, as well as the United States. Idioms studied include Latin Jazz, Danzon, Son Montuno, Samba, Bossa, Traditional and Modern Salsa, Timba, Lando, and Candombe. African roots of the music are also presented including songs and rhythms from the Lucumi and Arara traditions. Focus is placed on learning rhythms, associated syncopations and also clave phrasing. One weekly rehearsal and a concert are required per quarter. Other playing opportunities available at the discretion of the group. Regular openings for brass/wind players, drummers, percussionists, pianists, bassists, and vocalists. Guest openings on violin, guitar and vibraphone. Inclusion of other instruments at the discretion of the director. Members should have basic reading ability and some related ensemble experience (e.g. jazz band). Ability to read and play complex syncopations are mandatory. Percussionists with experience in bongo, congas, timbales and pandeiro desired. Vocalists with fluency or exposure to Spanish and/or Portuguese also preferred. May be repeat for credit. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 161EZ. Stanford Afro-Latin Jazz Orchestra. 0 Units.**

Ensemble dedicated to the performance, interpretation and study of Afro-Latin music and its fusion with North American jazz. Repertoire includes the music of Brazil, Cuba, Dominican Republic, Puerto Rico, Peru and Argentina, as well as the United States. Idioms studied include Latin Jazz, Danzon, Son Montuno, Samba, Bossa, Traditional and Modern Salsa, Timba, Lando, and Candombe. African roots of the music are also presented including songs and rhythms from the Lucumi and Arara traditions. Focus is placed on learning rhythms, associated syncopations and also clave phrasing. One weekly rehearsal and a concert are required per quarter. Other playing opportunities available at the discretion of the group. Regular openings for brass/wind players, drummers, percussionists, pianists, bassists, and vocalists. Guest openings on violin, guitar and vibraphone. Inclusion of other instruments at the discretion of the director. Members should have basic reading ability and some related ensemble experience (e.g. jazz band). Ability to read and play complex syncopations are mandatory. Percussionists with experience in bongo, congas, timbales and pandeiro desired. Vocalists with fluency or exposure to Spanish and/or Portuguese also preferred. May be repeat for credit for total of 0 (zero) unit. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 162. Symphonic Chorus. 1 Unit.**

180- to 200-voice choral ensemble, performing major choral masterworks with orchestra. One concert per quarter. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 162Z. Symphonic Chorus. 0 Units.**

180- to 200-voice choral ensemble, performing major choral masterworks with orchestra. One concert per quarter. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 163. Memorial Church Choir. 1 Unit.**

Official choir of Memorial Church, furnishing music for Sunday services and special occasions in the church calendar. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 163Z. Memorial Church Choir. 0 Units.**

Official choir of Memorial Church, furnishing music for Sunday services and special occasions in the church calendar. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 165. Chamber Chorale. 1 Unit.**

Select 24-voice choral ensemble, specializing in virtuoso choral repertoire from all periods of Western art music. Annual touring commitment required. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 165Z. Chamber Chorale. 0 Units.**

Select 24-voice choral ensemble, specializing in virtuoso choral repertoire from all periods of Western art music. Annual touring commitment required. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 167. University Singers. 1 Unit.**

Select, 50-voice choral ensemble, performing choral repertoire from all periods of Western art music. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 167S. Summer Chorus. 1 Unit.**

80- to 100-voice non-auditioned ensemble, performing major choral masterworks and choral repertoire from all periods of Western art music. Concert July 31, 2015 in Memorial Church. Details at: <https://music.stanford.edu/academic-programs/summer-studies-stanford-music/summer-session-ensembles>. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. May be repeated for credit for a total of 0 (zero) unit. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 167SZ. Summer Chorus. 0 Units.**

80- to 100-voice non-auditioned ensemble, performing major choral masterworks and choral repertoire from all periods of Western art music. Concert July 31, 2015 in Memorial Church. For details see: <https://music.stanford.edu/academic-programs/summer-studies-stanford-music/summer-session-ensembles>. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. May be repeated for credit for a total of 0 (zero) unit. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 167Z. University Singers. 0 Units.**

Select, 50-voice choral ensemble, performing choral repertoire from all periods of Western art music. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 169. Stanford Taiko. 1 Unit.**

Select 15- to 18-member North American taiko ensemble, performing all-original repertoire for Japanese drums. Multiple performances in Winter and Spring quarters, also touring; instrument construction and maintenance. Admission by audition in Autumn Quarter only. May be repeated for credit a total of 14 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 169Z. Stanford Taiko. 0 Units.**

Select 15- to 18-member North American taiko ensemble, performing all-original repertoire for Japanese drums. Multiple performances in Winter and Spring quarters, also touring; instrument construction and maintenance. Admission by audition in Autumn Quarter only. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 170. Collaborative Piano. 1 Unit.**

Performance class in a workshop setting. Techniques of collaboration with vocalists and instrumentalists in repertoire ranging from songs and arias to sonatas and concertos. Prerequisite: private-lesson proficiency level in piano, or consent of instructor.

**MUSIC 171. Chamber Music. 1 Unit.**

Admission based on audition. Weekly one-hour coachings from Music department faculty. Search for instructor section in Axess. Classical string quartets and piano/string groups are supervised by the St. Lawrence String Quartet. Two masterclasses and one performance per quarter are required. May be repeated for credit. All participants must enroll. Zero unit enrollment option available with instructor permission. See website for policy, procedure, and audition sign up: <http://music.stanford.edu/> By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 171Z. Chamber Music. 0 Units.**

Admission based on audition. Weekly one-hour coachings from Music department faculty. Search for instructor section in Axess. Classical string quartets and piano/string groups are supervised by the St. Lawrence String Quartet. Two masterclasses and one performance per quarter are required. May be repeated for credit. All participants must enroll. Zero unit enrollment option available with instructor permission. See website for policy, procedure, and audition sign up: <http://music.stanford.edu/> By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 172A. Piano. 1-3 Unit.**

Private lessons and group master class weekly. May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 172B. Organ. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 172C. Harpsichord. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 172D. Jazz Piano. 1-3 Unit.**

By invitation only; priority to majors and jazz-ensemble participants. May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 172E. Fortepiano. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 172F. Carillon. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 172G. Gu-Zheng. 1-3 Unit.**

Private lessons weekly. May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 173. Voice. 1-3 Unit.**

Private lessons and group master classes weekly. May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 174A. Violin. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.





**MUSIC 176B. Trumpet. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 176C. Trombone. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 176D. Tuba. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 176E. Jazz Trumpet. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 177. Percussion. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 177A. Drum Set Lessons. 1-3 Unit.**

These lessons will be geared toward the individual student's desires and needs. All levels are welcome, but students should contact instructor to set up initial meeting, prior to enrolling in the course. Students will explore drumset technique, coordination, reading and a study various styles including, Jazz, Rock, R&B, Blues, Latin and Brazilian music. Students will use different texts as needed. These texts may include: Syncopation by Ted Reed, Modern Reading Text in 4/4 by Louis Bellson, A Funky Primer by Charles Dowd, Advanced Techniques for the Modern Drummer by Jim Chapin, and others. Students will also use material created by David for his classes "Around the World on a Drumset" and "Chart Reading Demystified." These lessons are designed to be both fun and challenging. Students will play along with recordings and are encouraged to bring in recordings of music that they enjoy. May be repeated for credit a total of 15 times. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 179Z. Applied Music Private Lessons. 0 Units.**

Students enroll in appropriate instructor section for private instrumental/vocal lessons using this zero unit enrollment option. Available only with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information.

**MUSIC 182. Diction for Singers. 1 Unit.**

The international phonetic alphabet and its application to German, French, and Italian vocal literature. Open also to pianists interested in vocal coaching and choral conducting.

**MUSIC 183A. German Art Song Interpretation. 1 Unit.**

By audition only. For advanced singers and pianists as partners. Performance class in a workshop setting. Composers include Beethoven, Schubert, Wolf and Strauss. May be repeated for credit a total of 2 times. Enrollment limit: 20 (ten singers maximum). Prerequisite: consent of instructor. Recommended prerequisite: 170 (pianists) or 182 (singers).

**MUSIC 183B. French Art Song Interpretation. 1 Unit.**

By audition only. For advanced singers and pianists as partners. Performance class in a workshop setting. Composers include Faureacute;, Debussy, Ravel and Poulenc. May be repeated for credit a total of 2 times. Enrollment limit: 20 (ten singers maximum). Prerequisite: consent of instructor. Recommended prerequisite: 170 (pianists) or 182 (singers).

**MUSIC 183C. Interpretation of Musical Theater Repertoire. 1 Unit.**

By audition only; ability to read music required. For singers and pianists as partners. Performance class in a workshop setting. Composers include Kern, Porter, Gershwin, Rodgers, Sondheim, Lloyd Weber, Jason Robert Brown and others. May be repeated for credit a total of 2 times. Enrollment limit: 20 (ten singers maximum). Prerequisite: consent of instructor. Recommended prerequisite: 170 (pianists).

**MUSIC 184A. Editing and Performing Early Music. 1-3 Unit.**

This course is a practical workshop in early music vocal repertoire. The main focus of this course is to use original source material to explore editorial practice. Having prepared the score, students learn to perform the piece from an historically informed performance practice point of view. In addition to broadening the student's knowledge of vocal repertoire, the following skills are developed: text preparation, foreign language translation and diction; rehearsal for performance and/or recording. Prerequisite: vocal or instrumental instruction, as the class is open to singers or collaborative artists. May be repeated for credit a total of 4 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 184AZ. Editing and Performing Early Music. 0 Units.**

This course is a practical workshop in early music vocal repertoire. The main focus of this course is to use original source material to explore editorial practice. Having prepared the score, students learn to perform the piece from an historically informed performance practice point of view. In addition to broadening the student's knowledge of vocal repertoire, the following skills are developed: text preparation, foreign language translation and diction; rehearsal for performance and/or recording. Prerequisite: vocal or instrumental instruction, as the class is open to singers or collaborative artists. All participants must enroll. May be repeated for a total of 4 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 184B. Topics in Opera Stagecraft. 1-3 Unit.**

This course is a practical workshop in vocal repertoire for the stage. Each quarter's offering emphasizes a specific genre or period, therefore the course can be repeated with permission of the instructor. In addition to broadening the student's knowledge of vocal repertoire, the following skills are developed: text preparation, foreign language translation and diction; rehearsal etiquette for performance and/or recording. Prerequisite: vocal or instrumental instruction, as the class is open to singers or collaborative artists. May be repeated for credit a total of 4 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 184BZ. Topics in Opera Stagecraft. 0 Units.**

This course is a practical workshop in vocal repertoire for the stage. Each quarter's offering emphasizes a specific genre or period, therefore the course can be repeated with permission of the instructor. In addition to broadening the student's knowledge of vocal repertoire, the following skills are developed: text preparation, foreign language translation and diction; rehearsal etiquette for performance and/or recording. Prerequisite: vocal or instrumental instruction, as the class is open to singers or collaborative artists. May be repeated for credit a total of 4 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 184C. Dramatic Vocal Arts: Songs and Scenes Onstage. 1-2 Unit.**

Studies in stagecraft, acting and performance for singers, culminating in a public performance. Repertoire to be drawn from the art song, opera, American Songbook and musical theater genres. Audition or consent of instructor required. May be repeated for credit a total of 4 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 184CZ. Dramatic Vocal Arts: Songs and Scenes Onstage. 0 Units.**

Studies in stagecraft, acting and performance for singers, culminating in a public performance. Repertoire to be drawn from the art song, opera, American Songbook and musical theater genres. Audition or consent of instructor required. May be repeated for credit a total of 4 times. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure. By enrolling in this course you are giving consent for the video and audio recording and distribution of your image and performance for use by any entity at Stanford University.

**MUSIC 185. Music Across Media: Music Video to Postclassical Cinema. 4 Units.**

What makes music videos, YouTube clips and musical numbers in today's films engaging? What makes them tick? Emphasis is on aesthetics and close reading. How music videos and its related forms work. Uses of the body, how visual iconography operates, what lyrics and dialogue can do, how and what music can say, and how it can work with other media. Questions of representation such as how class, ethnicity, gender, race, and nationality function. Viewership and industry practices.

Same as: FILMSTUD 141, FILMSTUD 341, MUSIC 385

**MUSIC 186. Religion and Music in South Asia. 4-5 Units.**

How music and other arts in South Asia are intertwined with religion. Classical, devotional, folk, and popular examples introduce Gods as musicians, sound as God, music as yoga, singing as devotion, music as iquest;ecstasyquest;-inducing, music as site for doctrinal argument, music and religion as vehicles for nationalism. Co-taught by professors of Music and Religious Studies, focusing Hinduism and Islam in India, Pakistan, and the diaspora. Music practice along with academic study; guest artists and films; no background required.

Same as: MUSIC 286, RELIGST 259

**MUSIC 186A. Music and Religious Experience in the Contemporary World. 3-5 Units.**

Explores the central role of music in the performance and experience of religion, positioning music not as an adjunct to silent rituals and liturgy, but as the catalyst and carrier of religious experience, indeed as religious experience itself. Topics include: trance, spirit possession, heightened religious experience, sacred sound and chant, shamanism, politics, and identity. Musical traditions include: Zimbabwean mbira music, African-American church music, Southeast Asian Buddhist ritual music, South Asian Hindu and Islamic devotional music, shamanistic music of Southeast Asia.

Same as: MUSIC 286A, RELIGST 156, RELIGST 256

**MUSIC 186B. American Song in the 20th Century and after. 3-4 Units.**

Critical and creative exploration of song in the Americas. About twenty-five key examples will guide discussion of the interactions between words, music, performance and culture. Weekly listening, reading and assignments will be organized around central themes: love, sex and romance; war and politics; labor and money; place; identity; society and everyday life. Genres include art song; blues, gospel, jazz and country; pop, soul, rock and hip-hop; bossa nova, nueva cancioacute;n and salsa; electronic and experimental. Takehome and in-class assignments will include critical and creative writing, and music composition, production and performance; final projects may emphasize any of the above.

Same as: AMSTUD 186B, MUSIC 286B

**MUSIC 187. Music and Culture from the Land of Fire: Introduction to Azerbaijani Mugham. 1-5 Unit.**

Nestled in the Caucasus, Azerbaijan is a crossroads between East and West; its rich musical heritage contains threads of Turkish, Central Asian, Persian, Caucasian, Russian, and Arabic traditions. In this course, master-musician Imamyar Hasanov teaches students to perform and appreciate Azeri music. Content includes classical mugham, Eastern theory, improvisation and microtonality. Weiquest;ll discuss Azeri music culture, supplemented by guest lecturers and Skypeiquest; interviews with musicians in Azerbaijan. Open to students with any experience playing a musical instrument (including voice). No previous experience with Azeri music necessary. Supported by the SF World Music Festival. Questions? Email [schultz@stanford.edu](mailto:schultz@stanford.edu).

**MUSIC 192A. Foundations of Sound-Recording Technology. 3 Units.**

For upper division undergraduates and graduate students; preference given to Music majors with MST specialization. Topics: elementary electronics; the physics of sound transduction and microphone operation, selection, and placement; mixing consoles; connectors and device interconnection; grounding and shielding; principles of analog magnetic recording; operation maintenance of recording equipment; and principles of recording engineering. Enrollment limited. Prerequisites: MUSIC 150, algebra, physics basics, and consent of instructor.

**MUSIC 192B. Advanced Sound Recording Technology. 3 Units.**

Topics: noise reduction techniques; dynamics and time-delay audio effects; the principles of digital audio; disk- and tape-based digital recorders; digital audio workstations and editing; advanced multitrack techniques; SMPTE and MIDI time code and device synchronization; MIDI sequencing and synchronization. See <http://ccrma.stanford.edu/courses/>. Prerequisite: 192A.

**MUSIC 192C. Session Recording. 1-2 Unit.**

Independent engineering of recording sessions. May be repeated for credit a total of 14 times. Prerequisites: 192A,B.

**MUSIC 197. Undergraduate Teaching Apprenticeship. 1-2 Unit.**

Work in an apprentice-like relationship with faculty teaching a student-initiated course. Prerequisite: consent of instructor. (Staff).

**MUSIC 198. Concentrations Project. 4 Units.**

For concentration program participants only. Must be taken in senior year. Multiple concentrators may enroll in one section of 198 per concentration.

**MUSIC 199. Independent Study. 1-5 Unit.**

For advanced undergraduates and graduate students who wish to do work outside the regular curriculum. Before registering, student must present specific project and enlist a faculty sponsor. May be repeated for credit a total of 14 times.

**MUSIC 200A. Proseminar in Musicology and Music Bibliography. 3-4 Units.**

Introduction to research in music, bibliographical materials, major issues in the field, philosophy, and methods in music history. Guest lecturers and individual research topics.

**MUSIC 200B. Proseminar in Ethnomusicology. 3-5 Units.**

A graduate-level introduction to the field of ethnomusicology. Issues and debates are traced through the history of the discipline, with emphasis on influences from anthropology, performance studies, linguistics, and cultural studies. Topics include music and: social organization, "culture," structure, practice, comparison, representation, globalization, identity, transcription, and embodiment.

**MUSIC 201. CCRMA Colloquium. 1 Unit.**

Weekly review of work being done in the field, research taking place at CCRMA, and tools to make the most of the CCRMA technical facilities.

**MUSIC 208C. Architecture, Acoustics and Ritual in Byzantium. 1-3 Unit.**

Onassis Seminar "Icons of Sound: Architecture, Acoustics and Ritual in Byzantium". This year-long seminar explores the creation and operations of sacred space in Byzantium by focusing on the intersection of architecture, acoustics, music, and ritual. Through the support of the Onassis Foundation (USA), nine leading scholars in the field share their research and conduct the discussion of their pre-circulated papers. The goal is to develop a new interpretive framework for the study of religious experience and assemble the research tools needed for work in this interdisciplinary field.

Same as: ARTHIST 208C, ARTHIST 408C, CLASSICS 175, MUSIC 408C, REES 208C, REES 408C, RELIGST 208C, RELIGST 308C

**MUSIC 220A. Fundamentals of Computer-Generated Sound. 2-4 Units.**

What are the basic tools that computer music researchers and artists use to create sound? This course will include a summary of digital synthesis techniques (additive, subtractive, wavetable, frequency modulation and physical-modeling), signal processing techniques for digital effects, (reverberation, panning, filters), and basic psychoacoustics. Programming experience is recommended, but not required. Course will use the ChuckK computer music language. Majors (undergraduate or graduate) must take for 4 units. See <http://ccrma.stanford.edu/>.

**MUSIC 220B. Compositional Algorithms, Psychoacoustics, and Computational Music. 2-4 Units.**

The use of high-level programming language as a compositional aid in creating musical structures. Advanced study of sound synthesis techniques. Simulation of a reverberant space and control of the position of sound within the space. See <http://ccrma.stanford.edu/>. Prerequisite: 220A.

**MUSIC 220C. Research Seminar in Computer-Generated Music. 2-4 Units.**

Individual projects in composition, psychoacoustics, or signal processing. See <http://ccrma.stanford.edu/>. May be repeated for credit. Prerequisite: 220B.

**MUSIC 220D. Research in Computer-Generated Music. 1-10 Unit.**

Independent research projects in composition, psychoacoustics, or signal processing. See <http://ccrma.stanford.edu/>. May be repeated for credit. Prerequisite: 220C.

**MUSIC 221. Topics in the History of Theory. 3-5 Units.**

The intersection of music theory and compositional practice in different eras of Western music history. Primary sources in music theory and issues such as notation, rhythm, mode, dissonance treatment, counterpoint, tonality, form, rhetoric, affect and imitation, expression, linear analysis, 12-tone and set theory, in light of relevant repertoire and modern scholarship. May be repeated for credit a total of 5 times.

**MUSIC 222. Sound in Space. 1-4 Unit.**

Historical background, techniques and theory on the use of space in music composition and diffusion. Listening and analysis of relevant pieces. Experimental work in spatialization techniques leading to short studies to be diffused in concert at the end of the quarter.

**MUSIC 223. Composition for Electronic Musicians. 1-4 Unit.**

Composition for any combination of acoustic and electroacoustic instrumentation, computer-generated sound, invented instruments, sound-sculptures, and multi-disciplinary elements including theater and visual media. Project-based laboratory to advance original student works, supported by lectures on the fundamentals of composition. Concert performance of final works. Taught at CCRMA with a focus on engendering deliberate conversation on the enrichment of a cultural context for new media. Open to undergraduates and graduates.

**MUSIC 223T. Computer Music Improvisation and Algorithmic Performance. 2-4 Units.**

This seminar will investigate how to approach configuring a set of composition tools for real time composition. Composition programming, ensemble rehearsal, and performance. Determining algorithmic composition beginning by imagining a process or a structure, applying a mapping process to transform that structure (which resides in the conceptual domain), into sound (which may reveal the original conception). Investigation of gestural mapping that occurs when a sonic result is achieved by an act of interpretation, whether it be reading a score and/or improvising.

**MUSIC 230. Advanced Orchestral Conducting. 2-4 Units.**

May be repeated for credit a total of 8 times. Prerequisite: 130B.

**MUSIC 231. Advanced Choral Conducting. 2-4 Units.**

Individual instruction continuing trajectory of Music 130C. Focus on gestural technique and analysis of works by genre and historical period. May be repeated for credit a total of 8 times. Prerequisite: 130C.

**MUSIC 236. Future Media, Media Archaeologies. 3-4 Units.**

Hand-on. Media technologies from origins to the recent past. Students create artworks based on Victorian era discoveries and inventions, early developments in electronic media, and orphaned technologies. Research, rediscover, invent, and create devices of wonder and impossible objects. Readings in history and theory. How and what media technologies mediate. Same as: ARTSTUDI 236

**MUSIC 240J. Studies in Music of the Middle Ages: Music and Memory. 3-4 Units.**

Prerequisites: MUSIC 21, MUSIC 40. (WIM at 4-unit level only.). Same as: MUSIC 140J

**MUSIC 241J. Studies in Music of the Renaissance. 2-4 Units.**

Prerequisites: MUSIC 21, MUSIC 40. (WIM at 4-unit level only.). Same as: MUSIC 141J

**MUSIC 242J. Studies in Music of the Baroque: Monteverdi's Theater Music. 3-4 Units.**

Prerequisites: MUSIC 22, MUSIC 41. (WIM at 4-unit level only.). Same as: MUSIC 142J

**MUSIC 243J. Studies in Music of the Classical Period: Franz Joseph Haydn. 3-4 Units.**

Music and Musicians in the Age of Enlightenment Prerequisites: MUSIC 22, MUSIC 41. (WIM at 4-unit level only.).

Same as: MUSIC 143J

**MUSIC 244J. Studies in Music of the Romantic Period: Faust in 19th-century Music. 3-4 Units.**

Prerequisites: MUSIC 23, MUSIC 42 (WIM at 4-unit level only.).

Same as: MUSIC 144J

**MUSIC 245J. Studies in Western Art Music Since 1900: The Music & Ideas of Charles Ives. 4 Units.**

Prerequisites: MUSIC 23, MUSIC 42. (WIM at 4-unit level only.).

Same as: MUSIC 145J

**MUSIC 246J. Studies in Ethnomusicology: Listening to the Local: Music Ethnography of the Bay Area. 3-5 Units.**

An introduction to music ethnography through student research on musical life in the Bay Area. Focus is on the intersections of music, social life, and cultural practice by engaging with people as they perform music and culture in situ. Techniques taught include participant-observation, interviewing and oral history, writing fieldnotes, recording, transcription, analysis, and ethnographic writing. Pre-/corequisite (for music majors): MUSIC 22. (WIM at 4 units only.).

Same as: MUSIC 146J

**MUSIC 247J. Studies in Music, Media, and Popular Culture: The Soul Tradition in African American Music. 3-4 Units.**

The African American tradition of soul music from its origins in blues, gospel, and jazz to its influence on today's r&b, hip hop, and dance music. Style such as rhythm and blues, Motown, Southern soul, funk, Philadelphia soul, disco, Chicago house, Detroit techno, trip hop, and neo-soul. Soul's cultural influence and global reach; its interaction with politics, gender, place, technology, and the economy. Pre-/corequisite (for music majors): MUSIC 22. (WIM at 4 units only.).

Same as: AFRICAAM 19, AMSTUD 147J, CSRE 147J, MUSIC 147J

**MUSIC 247K. Studies in Music, Media, and Popular Culture: Music and Urban Film. 3-4 Units.**

How music and sound work in urban cinema. What happens when music's capacity to transform everyday reality combines with the realism of urban films? Provides an introduction to traditional theories of film music and film sound; considers how new technologies and practices have changed the roles of music in film. Readings discuss film music, realistic cinema, urban musical practices and urban culture. Viewing includes action/adventure, Hindi film, documentary, film noir, hip hop film, the musical, and borderline cases by Jean-Luc Godard, Spike Lee, Wong Kar-Wai and Tsai Ming-Liang. Pre- or corequisite (for music majors): MUSIC 22. (WIM at 4 unit level only.).

Same as: MUSIC 147K

**MUSIC 247L. Studies in Music, Media, and Popular Culture: Latin American Music and Globalization. 3-4 Units.**

Focuses on vernacular music of Latin America and the Caribbean, including Mexico, Cuba, Dominican Republic, Peru, Brazil, Colombia, and Argentina. Musical examples discussed in relation to: globalization, migration, colonialism, nationalism, diaspora, indigeneity, politics, religion, dance, ethnicity, and gender. How music reflects and shapes cultures, identities, and social structures. Genres addressed: bachata, bossa nova, cumbia, forro, ranchero, reggaeton, rock, salsa, tango, and others. Seminar, guest performances, reading, listening, and analysis. Pre-/corequisite (for music majors): MUSIC 22. (WIM at 4 units only.).

Same as: MUSIC 147L

**MUSIC 248J. Studies in Perf Practice: Reactions to the Record: Early Recordings, Lost Styles, and Music's Future. 3-4 Units.**

This is a seminar on the transformation of musical style in the era of recordings in light of their roots in cultural trends, including shifting hierarchies between composer and performer, work and notation, text and act. Early recordings will be studied as documents of musical values and conceptions different from those around us today. Methodologies of performance analysis will be explored and used to contextualize sources, which include historic recordings from Stanford's Archive of Recorded Sound, performance documents, and field research with performers, composers, critics, and listeners. Repertoire includes works for orchestra, piano, strings, chamber ensemble and voice. Outstanding contributions from seminar members may be featured in the Music Department's May 2014 Reactions to the Record symposium. May be repeated for credit. Pre- or corequisite (for music majors): MUSIC 22. (WIM at 4-unit level only.). Same as: MUSIC 148J

**MUSIC 250A. Physical Interaction Design for Music. 3-4 Units.**

This lab and project-based course explores how we can physically interact with real-time electronic sound. Students learn to use and design sensors, circuits, embedded computers, communication protocols and sound synthesis. Advanced topics include real-time media, haptics, sound synthesis using physical model analogs, and human-computer interaction theory and practice. Course culminates in musical performance with or exhibition of completed design projects. A \$50 lab fee will be added to your bill upon enrollment in this course. See <http://ccrma.stanford.edu/>.

**MUSIC 250B. Interactive Sound Art. 1-4 Unit.**

A project based course where students will create Interactive Sound Art Installations focusing on the acoustical properties of reverberation. See <http://ccrma.stanford.edu/courses/250b/>.

**MUSIC 251. Psychophysics and Music Cognition. 1-5 Unit.**

Lecture, lab and experiment-based course in perception, psychoacoustics, cognition, and neuroscience of music. (WIM at 4 or 5 units only.).

**MUSIC 252. Introduction to Music Notation Software. 1-2 Unit.**

Learn to use music notation programs Finalereg.; Sibeliusreg; and open-source alternatives.

**MUSIC 253. Symbolic Musical Information. 2-4 Units.**

Focus on symbolic data for music applications including advanced notation systems, optical music recognition, musical data conversion, and internal structure of MIDI files.

Same as: CS 275A

**MUSIC 254. Music Query, Analysis, and Style Simulation. 2-4 Units.**

Leveraging off three synchronized sets of symbolic data resources for notation and analysis, the lab portion introduces students to the open-source Humdrum Toolkit for music representation and analysis. Issues of data content and quality as well as methods of information retrieval, visualization, and summarization are considered in class. Grading based primarily on student projects. Prerequisite: 253 or consent of instructor. Same as: CS 275B

**MUSIC 255. Intermedia Workshop. 3-4 Units.**

Students develop and produce intermedia works. Musical and visual approaches to the conceptualisation and shaping of time-based art. Exploration of sound and image relationship. Study of a wide spectrum of audiovisual practices including experimental animation, video art, dance, performance, non-narrative forms, interactive art and installation art. Focus on works that use music/sound and image as equal partners. Limited enrollment. Prerequisites: consent of instructors, and one of FILMPROD 114, ARTSTUDI 131, 138, 167, 177, 179, or MUSIC 123, or equivalent. May be repeated for credit.

Same as: ARTSTUDI 239, MUSIC 155



**MUSIC 256A. Music, Computing, Design I: Art of Design for Computer Music. 3-4 Units.**

Creative design for computer music software. Programming, audiovisual design, as well as software design for musical tools, instruments, toys, and games. Provides paradigms and strategies for designing and building music software, with emphases on interactive systems, aesthetics, and artful product design. Course work includes several programming assignments and a "design+implement" final project. Prerequisite: experience in C/C++ and/or Java.

Same as: CS 476A

**MUSIC 256B. Music, Computing, Design II: Virtual and Augmented Reality for Music. 3-4 Units.**

Aesthetics, design, and exploration of creative musical applications of virtual reality (VR) and augmented reality (AR), centered around VR and mobile technologies. Comparison between AR, VR, and traditional software design paradigms for music. Topics include embodiment, interaction design, novel instruments, social experience, software design + prototyping. Prerequisite: MUSIC 256A / CS 476A.

Same as: CS 476B

**MUSIC 257. Neuroplasticity and Musical Gaming. 3-5 Units.**

What changes in a musician's brain after hours and years of daily practice? How do skills that make a great violinist transfer to other abilities? Can directed neuroplasticity be used to target skill learning? This course will include fundamentals of psychoacoustics and auditory neuroscience. Focus will be development of video games that use perceptually motivated tasks to drive neural change. Emphasis will be on music, linguistic, and acoustic based skills. Programming experience is highly recommended, but not required.

**MUSIC 260. Music of South Asia. 3-4 Units.**

Focuses on the history, theory, and practice of South Asian music with particular emphasis on the classical traditions of North and South India. Also addresses regional folk, popular, and devotional musical styles of India, Pakistan, and Afghanistan. Topics include: raga, tala, vocal and instrumental genres, improvisation, aesthetics, music transmission, musical nationalism, social organization of musicians, music and ritual, music and gender, and technology. Lecture with discussion, some singing (no experience necessary), guest performances, reading, listening, and analysis.

**MUSIC 264. Musical Engagement: Use correlation analysis and big data to identify and predict musical behaviors. 1-3 Unit.**

The course will use data analysis to explore why people engage in music. The course will be one part lab, one part seminar, meeting once a week for two hours. Students will learn to apply correlation analysis to a vast corpus of actual performance data using the latest analytics and query tools, developing insights into what motivates the musical preferences and behaviors of both performers and listeners. A basic proficiency in Java, MatLab, and SQL query language will be developed along the way.

**MUSIC 269. Research in Performance Practices. 1-5 Unit.**

Directed reading and research. May be repeated for credit a total of 5 times.

**MUSIC 272A. Advanced Piano. 1-3 Unit.**

Private lessons and group masterclass weekly. May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 272B. Advanced Organ. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 272C. Advanced Harpsichord. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 272D. Advanced Jazz Piano. 1-3 Unit.**

By invitation only; priority to majors and jazz-ensemble participants. May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 272E. Advanced Fortepiano. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 272F. Advanced Carillon. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 272G. Advanced Gu-Zheng. 1-3 Unit.**

Private lesson weekly. May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 273. Advanced Voice. 1-3 Unit.**

Private lessons and group master class weekly. May be repeated for credit. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 274A. Advanced Violin. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 274B. Advanced Viola. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.



**MUSIC 276C. Advanced Trombone. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 276D. Advanced Tuba. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 276E. Advanced Jazz Trumpet. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 277. Advanced Percussion. 1-3 Unit.**

May be repeated for credit a total of 14 times. Admission is by audition only. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 277A. Advanced Drum Set. 1-3 Unit.**

May be repeated for credit a total of 15 times. There is a fee for this class. Please visit <http://music.stanford.edu/Academics/LessonSignups.html> for class fees and audition information. All participants must enroll. Zero unit enrollment option available with instructor permission. See website: (<http://music.stanford.edu>) for policy and procedure.

**MUSIC 280. TA Training Course. 1 Unit.**

Required for doctoral students serving as teaching assistants. Orientation to resources at Stanford, guest presentations on the principles of common teaching activities, supervised teaching experience. Students who entered in the Autumn should take 280 in the Spring prior to the Autumn they begin teaching.

**MUSIC 286. Religion and Music in South Asia. 4-5 Units.**

How music and other arts in South Asia are intertwined with religion. Classical, devotional, folk, and popular examples introduce Gods as musicians, sound as God, music as yoga, singing as devotion, music as iquest;ecstasyquest;-inducing, music as site for doctrinal argument, music and religion as vehicles for nationalism. Co-taught by professors of Music and Religious Studies, focusing Hinduism and Islam in India, Pakistan, and the diaspora. Music practice along with academic study; guest artists and films; no background required.

Same as: MUSIC 186, RELIGST 259

**MUSIC 286A. Music and Religious Experience in the Contemporary World. 3-5 Units.**

Explores the central role of music in the performance and experience of religion, positioning music not as an adjunct to silent rituals and liturgy, but as the catalyst and carrier of religious experience, indeed as religious experience itself. Topics include: trance, spirit possession, heightened religious experience, sacred sound and chant, shamanism, politics, and identity. Musical traditions include: Zimbabwean mbira music, African-American church music, Southeast Asian Buddhist ritual music, South Asian Hindu and Islamic devotional music, shamanistic music of Southeast Asia.

Same as: MUSIC 186A, RELIGST 156, RELIGST 256

**MUSIC 286B. American Song in the 20th Century and after. 3-4 Units.**

Critical and creative exploration of song in the Americas. About twenty-five key examples will guide discussion of the interactions between words, music, performance and culture. Weekly listening, reading and assignments will be organized around central themes: love, sex and romance; war and politics; labor and money; place; identity; society and everyday life. Genres include art song; blues, gospel, jazz and country; pop, soul, rock and hip-hop; bossa nova, nueva cancioacute;n and salsa; electronic and experimental. Takehome and in-class assignments will include critical and creative writing, and music composition, production and performance; final projects may emphasize any of the above.

Same as: AMSTUD 186B, MUSIC 186B

**MUSIC 300A. Medieval Notation. 3-4 Units.**

Western notation of the Middle Ages and Renaissance: principles, purposes, and transcription.

**MUSIC 300B. Renaissance Notation. 4 Units.**

Western notation of the Middle Ages and Renaissance: principles, purposes, and transcription.

**MUSIC 300C. Medieval Methodologies. 3 Units.**

An introduction to the essential tool-kit for medievalists, this course will give all medievalists a great head start in knowing how to access and interpret major works and topics in the field. Stanford's medieval faculty will explain the key sources and methods in the major disciplines from History to Religion, French to Arabic, English to Chinese, and Art History to German and Music. In so doing, students will be introduced to the breadth and interdisciplinary potential of Medieval Studies. A workshop devoted to Digital Technologies and Codicology/Palaeography will offer elementary training in these fundamental skills.

Same as: DLCL 300, ENGLISH 300

**MUSIC 302. Research in Musicology. 1-5 Unit.**

Directed reading and research. May be repeated for credit a total of 14 times.

**MUSIC 305A. Analysis and Repertoire: Medieval and Renaissance. 4 Units.**

Analytical approaches to genres, styles, forms, and techniques of Western music from [chant and early polyphony through the sixteenth century]. Issues of aesthetics, history, and interpretation viewed through representative repertoire, readings, and analytical methods.

**MUSIC 305B. Analysis and Repertoire: Baroque to Early Romantic. 4 Units.**

Analytical approaches to genres, styles, forms, and techniques of Western music from the seventeenth through the mid-nineteenth centuries. Issues of aesthetics, history, and interpretation viewed through representative repertoire, readings, and analytical methods.

**MUSIC 305C. Analysis and Repertoire: Late-Romantic to Contemporary. 4 Units.**

Analytical approaches to genres, styles, materials and techniques of Western music from the mid-nineteenth century through the present. Questions of aesthetics, history and performance explored through musical analysis. Representative repertoire and readings, and a range of analytical methods.

**MUSIC 310. Research Seminar in Musicology. 3-5 Units.**

For graduate students. Topics vary each quarter. May be repeated for credit a total of 8 times.

**MUSIC 310A. Music and Critical Theory. 3-5 Units.**

The seminar provides an opportunity to study some of the seminal texts of Critical Theory dealing with music. Concentrating on Theodor Adorno's writings on music, we will also include key philosophers who informed Adorno's thinking (in particular Kant, Hegel and Nietzsche), influential nineteenth-century aesthetics of music (Hoffmann, Schopenhauer and Hanslick), other contemporaries of Adorno (for example, Ernst Bloch), and some later authors whose work was influenced by the Frankfurt School (such as Carl Dahlhaus). We will also consider the impact of Critical Theory on recent scholarship. Weekly meetings will be organized around various topics, ranging from central concepts such as "Enlightenment" and "musical material" to individual composers. Music by Wagner, Mahler, Schoenberg, Stravinsky and Weill will feature prominently on the syllabus. Same as: GERMAN 310A

**MUSIC 312A. Aesthetics and Criticism of Music, Ancients and Moderns: Plato to Nietzsche. 4 Units.**

For graduate students. Primary texts focusing on the nature, purposes, and uses of music and other arts.

**MUSIC 312B. Aesthetics and Criticism of Music, Contemporaries: Heidegger to Today. 4 Units.**

For graduate students. Primary texts focusing on the nature, purposes, and uses of music and other arts.

**MUSIC 318. Advanced Acoustics. 1-5 Unit.**

Current topics. May be repeated for credit.

**MUSIC 319. Research Seminar on Computational Models of Sound Perception. 1-3 Unit.**

All aspects of auditory perception, often with emphasis on computational models. Topics: music perception, signal processing, auditory models, pitch perception, speech, binaural hearing, auditory scene analysis, basic psychoacoustics, and neurophysiology. See <http://ccrma.stanford.edu/courses/>. May be repeated for credit a total of 14 times.

**MUSIC 320A. Introduction to Audio Signal Processing Part I: Spectrum Analysis. 3-4 Units.**

Digital signal representations and transforms for music and audio research. Topics: complex numbers, sinusoids, spectrum representation, sampling and aliasing, the Discrete Fourier Transform (DFT), Fourier theorems, z transform, Laplace transform, and associated Matlab software. See <http://ccrma.stanford.edu/courses/320/>.

**MUSIC 320B. Introduction to Audio Signal Processing Part II: Digital Filters. 3-4 Units.**

Digital filters for music and audio research. Topics: digital filter structures, frequency response, z transforms, transfer-function analysis, and associated Matlab software. See <http://ccrma.stanford.edu/courses/320/>.

**MUSIC 321. Readings in Music Theory. 1-5 Unit.**

Directed reading and research. May be repeated for credit a total of 15 times.

**MUSIC 323. Doctoral Seminar in Composition. 3-4 Units.**

Illustrated discussions of compositional issues and techniques. Presentation of relevant topics, including students' own compositional practice. May be repeated for credit a total of 14 times.

**MUSIC 324. Graduate Composition Forum. 1 Unit.**

Community forum for all graduate student composers. Discussion of completed and in-progress work by students, faculty, and visiting composers. Repertoire listening sessions. Planning of upcoming Department events. Special area exam topic presentations, final doctoral project presentations, and review of portfolios. Many sessions are open to the public. May be repeated for credit.

**MUSIC 325. Individual Graduate Projects in Composition. 1-5 Unit.**

May be repeated for credit.

**MUSIC 330. Musicology Dissertation Colloquium. 1-4 Unit.**

Weekly meetings for all musicology students 4th year and beyond to discuss research and writing strategies, share and critique work in progress, and discuss issues in professional development (preparing abstracts, conference papers, C.V. and job interviews, book reviews, submitting articles for publication). Open to 3rd-year students.

**MUSIC 341. Ph.D Dissertation. 1-10 Unit.**

May be repeated for credit a total of 5 times.

**MUSIC 351A. Seminar in Music Perception and Cognition I. 1-3 Unit.**

A seminar on topics in music perception and cognition. Students will study and discuss recent research as well as design and implement experiments.

**MUSIC 351B. Seminar in Music Perception and Cognition II: Musical Gesture. 1-3 Unit.**

Exploring how musical activities are related to gestural communication by surveying recent human behavioural literature and forming own interest-driven research questions. Reviewed research topics include different techniques in music gesture recording and analysis, auditory perception related to gesture, and issues related to educational and therapeutic applications. The class activities involve discussions on articles and on experimental designs for possible research proposals.

**MUSIC 364. Data-Driven Research in Music Cognition. 2-4 Units.**

Project-based course exploring the impact of music on human behavior using evidence of user engagement with music in large-scale datasets including publicly available industrial and social-media data and corpuses published for research purposes. Data-driven research complements laboratory-based behavioral and imaging research by focusing on framing and addressing music-related questions using pre-existing datasets. Class meetings include lectures, guest speakers, and student discussions of background literature and projects. Assignments include weekly readings, labs, and a final project. Basic musical proficiency is required. Experience with programming, data visualization, statistics, or music cognition is desirable.

**MUSIC 385. Music Across Media: Music Video to Postclassical Cinema. 4 Units.**

What makes music videos, YouTube clips and musical numbers in today's films engaging? What makes them tick? Emphasis is on aesthetics and close reading. How music videos and its related forms work. Uses of the body, how visual iconography operates, what lyrics and dialogue can do, how and what music can say, and how it can work with other media. Questions of representation such as how class, ethnicity, gender, race, and nationality function. Viewership and industry practices.

Same as: FILMSTUD 141, FILMSTUD 341, MUSIC 185

**MUSIC 390. Practicum Internship. 1 Unit.**

On-the-job training under the guidance of experienced, on-site supervisors. Meets the requirements for curricular practical training for students on F-1 visas. Students submit a concise report detailing work activities, problems worked on, and key results. May be repeated for credit. Prerequisite: qualified offer of employment and consent of adviser.

**MUSIC 399. D.M.A. Final Project. 1-10 Unit.**

May be repeated for credit a total of 5 times.

**MUSIC 408C. Architecture, Acoustics and Ritual in Byzantium. 1-3 Unit.**

Onassis Seminar "Icons of Sound: Architecture, Acoustics and Ritual in Byzantium". This year-long seminar explores the creation and operations of sacred space in Byzantium by focusing on the intersection of architecture, acoustics, music, and ritual. Through the support of the Onassis Foundation (USA), nine leading scholars in the field share their research and conduct the discussion of their pre-circulated papers. The goal is to develop a new interpretive framework for the study of religious experience and assemble the research tools needed for work in this interdisciplinary field.

Same as: ARTHIST 208C, ARTHIST 408C, CLASSICS 175, MUSIC 208C, REES 208C, REES 408C, RELIGST 208C, RELIGST 308C



**MUSIC 420A. Signal Processing Models in Musical Acoustics. 3-4 Units.**

Computational methods in musical sound synthesis and digital audio effects based on acoustic physical models. Topics: mass-spring-dashpot systems; electric circuit analogies; finite difference schemes; state-space models and the modal representation; impedance; ports; acoustic simulation using delay lines, digital filters, and nonlinear elements; interpolation and sampling-rate conversion; delay effects; wave digital filters; real-time computational models for musical instruments and effects, both acoustic and electronic. See <http://ccrma.stanford.edu/courses/420/>. Prerequisites: MUSIC 320A and MUSIC 320B or equivalent; PHYSICS 21 or equivalent course applying Newton's laws of motion; and CS 106B or equivalent programming in C and C++.

**MUSIC 421A. Audio Applications of the Fast Fourier Transform. 3-4 Units.**

Spectrum analysis and signal processing using Fast Fourier Transforms (FFTs) with emphasis on audio applications. Topics: Fourier theorems; FFT windows; spectrum analysis; spectrograms; sinusoidal modeling; spectral modeling synthesis; FFT convolution; FIR filter design and system identification; overlap-add and filter-bank-summation methods for short-time Fourier analysis, modification, and resynthesis. See <http://ccrma.stanford.edu/courses/421/>. Prerequisites: Music 320A and Music 320B or equivalent background in spectrum analysis and linear systems. Same as: FFT

**MUSIC 422. Perceptual Audio Coding. 3 Units.**

History and basic principles: development of psychoacoustics-based data-compression techniques; perceptual-audio-coder applications (radio, television, film, multimedia/internet audio, DVD, EMD). In-class demonstrations: state-of-the-art audio coder implementations (such as AC-3, MPEG) at varying data rates; programming simple coders. Topics: audio signals representation; quantization; time to frequency mapping; introduction to psychoacoustics; bit allocation and basic building blocks of an audio codec; perceptual audio codecs evaluation; overview of MPEG-1, 2, 4 audio coding and other coding standards (such as AC-3). Prerequisites: knowledge of digital audio principles, familiarity with C programming. Recommended: 320, EE 261. See <http://ccrma.stanford.edu/>.

**MUSIC 423. Graduate Research in Music Technology. 1-10 Unit.**

Research discussion, development, and presentation by graduate students, visiting scholars, and CCRMA faculty in the areas of music and/or audio technology. Permission of instructor required. See <http://ccrma.stanford.edu/courses/423/> for latest information. May be repeated for credit.

**MUSIC 424. Signal Processing Techniques for Digital Audio Effects. 3-4 Units.**

Techniques for dynamic range compression, reverberation, equalization and filtering, panning and spatialization, digital emulation of analog processors, and implementation of time-varying effects. Single-band and multiband compressors, limiters, noise gates, de-essers, convolutional reverberators, parametric and linear-phase equalizers, wah-wah and envelope-following filters, and the Leslie. Students develop effects algorithms of their own design in labs. Prerequisites: digital signal processing, sampling theorem, digital filtering, and the Fourier transform at the level of 320 or EE 261; Matlab and modest C programming experience. Recommended: 420 or EE 264; audio effects in mixing and mastering at the level of 192.

**MUSIC 451A. Basics in Auditory and Music Neuroscience. 2-5 Units.**

Understanding basic concepts and techniques in cognitive neuroscience using electroencephalography (EEG) specific to auditory perception and music cognition via seminar and laboratory exercise work. Acquiring and practicing skills in experimental design, data analysis, and interpretation, writing for scientific reports and research proposals, and giving a critical review of others' work. Seminar discusses related literature in neuroanatomy, neurophysiology, psychology, and neuroimaging. Laboratory focuses on electroencephalography (EEG) techniques, classic paradigms for recording evoked response, and associated data analysis methods.

**MUSIC 451B. Advanced Research in Auditory and Music Neuroscience. 2-5 Units.**

Advancing research skills in cognitive neuroscience specific to auditory perception and music cognition by doing individual research project. Activities include surveying literature, designing own study, discussing other's work; research and giving constructive criticisms, writing research proposals, reports and critical reviews. Laboratory works covers advanced electroencephalography (EEG) recording and analysis techniques. Seminar discusses related literature in basic and clinical research in neurophysiology and neuropsychology. Final project is aimed at producing presentable data based on hypothesis-driven experiment. Prerequisite: Music 451A.

**MUSIC 451C. Auditory EEG Research III: Coordinated Actions and Hyperscanning. 2-5 Units.**

Advancing EEG research skills in cognitive neuroscience specific to music cognition by conducting a group research project. In particular, this course focuses on basics for 2-person EEG (hyperscanning) paradigms and explores how coordinated actions and social interactions during musical ensemble are processed in the two brains. Laboratory works covers advanced electroencephalography (EEG) recording and analysis techniques specifically for oscillation and phase coherence across brain areas and between subjects. Seminar activities include surveying literature, discussing research articles and giving criticisms, and writing research reports. Lab scheduled separately Prerequisite: Music 451A.

**MUSIC 801. TGR Project. 0 Units.**

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**MUSIC 802. TGR Dissertation. 0 Units.**

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