MUSIC (MUSIC)

MUSIC 1. Musical Genius: Exemplars in the History of Organized Sound. 3 Units.
How does music work? A broad exploration of music as defined by three major components: (i) Theories of Music (elements and parameters), (ii) Histories of Music (cultures and people), and (iii) Practitioners of Music (musicians and scholars). Lecture, discussion, guided critical listening and viewing of audio, video, and live performance, and creation of self-curated mini-projects.

MUSIC 101. Introduction to Creating Electronic Sounds. 3-4 Units.
Students explore their creative voices by learning the practical nuts and bolts of making sounds with computers and professional audio equipment. Basic concepts include mixing and production techniques used in podcasts, documentaries, live performance, electronic music, and sound art. Students will create a midterm soundscape project as well as a final class project that is focused on their particular creative interests.

MUSIC 102. Picturing Performance, Re-Envisioning the Arts. 2-4 Units.
Critical and creative exploration of the performing body as captured on film. Viewing/listening includes musicals, dance and opera on film, music video, experimental film and video, and moments of heightened musicality in feature film. Focus on examples of moving media that possess a kinship with music through gesture, rhythm or affect and through visual parameters like décor, lighting, texture, camera movement and editing. Requirements include choosing and documenting a live performance, producing a short audiovisual work involving post-production, and weekly reading and viewing/listening assignments. No previous videomaking experience required. This course must be taken for a minimum of 3 units and a letter grade to be eligible for Ways credit. Same as: MUSIC 202

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 113. Introduction to Instrumental Composition. 2 Units.
Students compose weekly exercises to improve creative fluency and develop basic control of instruments. Audio examples of diverse compositional techniques are introduced, analyzed and emulated. Prerequisite: Music 19A or Instructor’s permission.

MUSIC 118. Musics and Appropriation Throughout the World. 3 Units.
This course critically examines musical practices and appropriation through the amplification of intersectionality. We consider musics globally through recourse to ethnomusicological literature and critical race theories. Our approach begins from an understanding that the social and political contexts where musics are created, disseminated, and consumed inform disparate interpretations and meanings of music, as well as its sounds. Our goal is to shape our ears to hear the effects of slavery, colonialism, capitalism, nationalism, class, gender difference, militarism, and activism. We interrogate the process of appropriating musics throughout the world by making the power structures that shape privileges and exclusions audible. Same as: AFRICAAM 218, CSRE 118D

MUSIC 120D. Jazz Improvisation. 1-3 Unit.
This class will focus on developing a deeper understanding of, and capacity for, jazz improvisation — as it relates to individual expression as well as group interaction, communication, and cohesion. In-class soloing and ensemble playing; guided listening; ear training; internalization; personalization; collaboration; and an awareness of the historical evolution of the jazz improvisational language will all be emphasized. The coursework will be primarily based on actual instrumental performance and practice; with an extensive listening list; some reading; and complementary composition, transcribing, self-evaluation and writing assignments. Limited enrollment: Audition required. The class will appear to be closed, so students who would like to enroll must join the Axess waiting list. You will then be contacted with audition instructions.

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 123A. Undergraduate Seminar in Composition: Rhythmic Design. 1 Unit.
Students compose weekly exercises to develop creative fluency and personal style. The course focuses on listening to examples, analysis and emulation of diverse compositional techniques involving rhythm.

MUSIC 123B. Undergraduate Seminar in Composition: Pitch Design. 1 Unit.
Students compose weekly exercises to develop creative fluency and personal style. The course focuses on listening to examples, analysis and emulation of diverse compositional techniques involving pitch.

MUSIC 123C. Undergraduate Seminar in Composition: World Music. 1 Unit.
The course, which covers composition techniques currently used in film scoring as well as form basis for experimental composition, focuses on creative exploration of compositional techniques in traditional music from: Bali, Brazil, Central African Republic, India, and Japan. Prerequisite: Music 19A or Instructor’s permission.

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 personas. 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 persona. 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 by permission of, 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 126A. 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 127A. 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 127B. Advanced Orchestration. 3 Units.
Through analysis and writing exercises, students develop proficiency in advanced orchestration practices. The course covers techniques currently used in film scoring as well as form basis for new experimental orchestral composition.

MUSIC 127C. Band Arranging. 3 Units.
Develop skills and techniques related to arranging for marching and concert bands; emphasizes instrumentation, transposition, and voicing.

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 orchestra, instrument design, sound synthesis, programming, and live performance. May be repeated four times for credit. Space is limited; see https://ccrma.stanford.edu/courses/128 for information about the application and enrollment process. May be repeat 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 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 12B. Introductory Piano Class. 1 Unit.
This class is closed by design. To enroll, please sign up on the Axess 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 12BS. Introductory Piano Class, Level 2. 1 Unit.
Piano: Introductory Level 2 (Group; 10 students to a section) (A=Level 1; B=Level 2; C=Level 3). Class is closed by design. Please register on the wait-list and show up on the first day of class to receive a permission number for enrollment. Complete registration form available for download at: http://tinyurl.com/q43c48g. May be repeated for credit 5 times. Zero unit enrollment option available with instructor permission. See website: (http://music.stanford.edu) for policy and procedure.

MUSIC 12BZ. Introductory Piano Class, Level 0. 0 Units.
Same as: Group Stanford University.

MUSIC 12AZ. Introductory Piano Class. 0 Units.
Piano: Introductory Level 1 (Group; 10 students to a section) (A=Level 1; B=Level 2; C=Level 3). Class is closed by design. Please register on the wait-list 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 128S. Introductory Piano Class, Level 2. 1 Unit.
Piano: Introductory Level 2 (Group; 10 students to a section) (A=Level 1; B=Level 2; C=Level 3). Class is closed by design. Please register on the wait-list and show up on the first day of class to receive a permission number for enrollment. Complete registration form available for download at: http://tinyurl.com/q43c48g. May be repeated for credit 5 times. 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 Axess 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 12CS. Introductory Piano Class, Level 3. 1 Unit.
Piano: Introductory Level 3 (Group; 10 students to a section) (A=Level 1; B=Level 2; C=Level 3). 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 re-enrollment. Your place on the waitlist will be considered a reservation. 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://tinyurl.com/postmhn) 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.

Same as: Group

MUSIC 12CZ. Introductory Piano Class. 0 Units.
This class is closed by design. To enroll, please sign up on the Axess 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. 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 12SZ. Introductory Piano. 0 Units.
Introductory Piano (zero-unit option). Complete registration form available for download at: http://tinyurl.com/q43c48g. 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 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.
The theory, technique, and practice of instrumental conducting, with training in the art of physical gesture. Studies in clef reading, transposition, and structural analysis to develop the skills needed to read orchestral scores. Topics include baton technique; rehearsal procedure; working with soloists, singers, and composers; and conducting symphonic works as well as concertos, oratorio, opera, and Broadway musicals. Selected repertoire from the Baroque through contemporary periods will be studied and conducted in class. Prerequisite: MUSIC 130A or instructor's permission.

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 133. Food, Text, Music: A Multidisciplinary Lab on the Art of Feasting. 3-5 Units.
Students cook a collection of unfamiliar recipes each week while learning about the cultural milieu in which they originated. The course focuses on the fourteenth and fifteenth centuries, a time of great banquets that brought together chefs, visual artists, poets, musicians, and dancers. Students read late-medieval cookbooks under the guidance of professional chefs, learn songs and poetry with the help of visiting performers, and delve into a burgeoning scholarly literature on food history and sensory experience. We will also study trade routes and food networks, the environmental impact of large-scale banquets, the science of food, and the politics of plenty. This course may count towards the Medieval component of the French major, and corresponds to DLCL 121, a course requirement for the Medieval Studies Minor. Students interested in applying for course must email both professors (mgalvez@stanford.edu, jrordin@stanford.edu) by 30 November with a statement of up to 350 words that includes: (a) reasons for wanting to take the class; (b) relevant background in cooking/medieval studies/etc.; (c) stated commitment to attend all ten course meetings; and (d) any dietary restrictions/preferences.

Same as: FRENCH 166, FRENCH 266, FRENCH 366, MUSIC 333

MUSIC 135. Harmonic Convergence: Music’s Intersections with Science, Mathematics, History, and Literature. 3 Units.
Topics include music and the brain; tuning and temperament; musical form; connections between music and mathematics; and readings in history and literature with strong musical elements. Readings include "The Power of Music" (Mannes), "Musicophilia" (Sacks), "From Music to Mathematics" (Roberts), "The Kreutzer Sonata" (Tolstoy), "A Clockwork Orange" and "Honey for the Bears" (Burgess). Compositions by Bach, Mozart, Beethoven, Debussy, Schoenberg, Stravinsky, Shostakovich, and others will be studied. Goals: increased understanding of music’s relationship to other fields; improved writing skills. While ability to read music is not required, students with musical ability will be encouraged to perform relevant works in class.

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 142K. Studies in Music of the Baroque: Handel the Cosmopolitan. 4-5 Units.
Music history seminar on the operatic, sacred, and instrumental works of G.F. Handel as examples of the diversity, cosmopolitanism, expression, formal and technical features, and social uses of music in the first half of eighteenth century. Traces Handel’s career from his native Germany to an elite Roman circle of musical connoisseurs, and to the Italian opera company he founded in London and his transformation of Italian opera into a new genre of English oratorio. By analyzing Handel’s works in context, we examine the aesthetic, harmonic, and dramatic principles of the major European Baroque art-music genres. Prerequisites: MUSIC 22, MUSIC 41. (WIM at 4-unit level only.).
Same as: MUSIC 242K

MUSIC 143J. Studies in Music of the Classical Period: Franz Joseph Haydn. 3-4 Units.
Music and Musicians in the Age of EnlightenmentPrerequisites: MUSIC 22, MUSIC 41. (WIM at 4-unit level only.).
Same as: MUSIC 243J

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MUSIC 143K. Studies in Music of the Classical Period: Mozart's Operas. 3-4 Units.
Aesthetic, musical, and dramatic principles of 18th-century comic opera explored through W.A. Mozart's Abduction from the Seraglio, Marriage of Figaro, Don Giovanni, Cosi fan tutte, and Magic Flute. Comic strategies of exaggeration, farce, stock characters, ethnic caricature, and topsy-turvy social inversion; national traditions of Italian opera buffa and German Singspiel; musical forms and elements including recitative, aria, and ensemble. How Mozart's operas reflect 18th-century ideas about music, social organization, political authority, gender, sexuality, and rhetoric. Prerequisites: MUSIC 22, MUSIC 41. (WIM at 4-unit level only.).
Same as: MUSIC 243K

MUSIC 144L. Studies in Music of the Romantic Period: Wagner: The Ring of the Nibelung. 3-4 Units.
Richard Wagner's cycle of four operas, "Der Ring des Nibelungen" (1848-74), is one of the key documents of the mid-nineteenth-century revolutionary fervor in Europe and a monument of radical artistic modernism of the period. The course will examine the artistic features of this unique work and place it in the complex ideological context of its time. Prerequisites: MUSIC 23, MUSIC 42 (WIM at 4-unit level only.).
Same as: MUSIC 244L

MUSIC 145K. Studies in Western Art Music Since 1900: Concepts of New Music. 4 Units.
A survey of the history of Western classical music in the twentieth century, concentrating on shifts in the concept of New Music in the first half of the century. The aim is twofold: to study in depth a representative selection of works and to develop a historiographical framework for that study. Relevant concepts to be examined include Expressionism, Neo-Classicism, New Objectivity, Serialism, Aleatoricism, and Minimalism - all of them key terms used by music historians and critics to describe and delineate the multifaceted phenomenon of "New Music." Composers to be studied include Schoenberg, Stravinsky, Berg, Weill, Shostakovich, Reich and Glass, and others. Prerequisites: MUSIC 23, MUSIC 42. (WIM course for Music majors.).
Same as: MUSIC 245K

MUSIC 146M. New Keywords in African Sound. 3-4 Units.
This course identifies and considers new keywords for the study of contemporary African music and sound. Each week we will foster discussion around a keyword and a constellation of case studies. The sonic practices we will encounter range from South African house music to Ghanaian horn horns; from Congolese rumba bands to Tunisian trance singers; from listening to the radio in a Tanzanian homestead to making hip hop music videos on the Kenyan coast. By exploring the unexpected interconnections between contemporary African musical communities, we will discuss new keywords arising in current scholarship, including technologies like the amplifier and the hard drive, spaces like the studio and the city, and analytics like pleasure and hotness. We will also engage with established concepts for the study of postcolonial African cultures, including nationalism, cosmopolitanism, globalization, diaspora, and Pan-Africanism. This is a seminar-based course open to graduate students, upper level undergraduate students, and other students with consent of the instructor. Proficiency in music is not required. WIM at 4 units only.
Same as: AFRICAAM 146D, AFRICAST 146M, CSRE 146D, MUSIC 246M

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: CSRE 147D, MUSIC 247K

MUSIC 149J. Music, Interpretation, Meaning. 4 Units.
This course is an inquiry into music, interpretation, and meaning. These are obviously inextricably rich and complex topics; to bring our inquiry into focus, we will conduct it principally through engagement with a selection of works from the late Classical through the Modern eras that we judge invite and endure exacting attention. To deepen our encounters and our thinking, we will also study texts ranging from aphorisms to poems to philosophical and musicological essays. Students will participate through both discussion and short write responses to the topics, and will write an analytical paper, summarizing their findings as well in class. Pre-/corequisite (for music majors): MUSIC 22. (Meets Music's WIM requirement.).
Same as: MUSIC 249J

MUSIC 149N. 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.
Same as: FEMGEN 13N

MUSIC 150. Musical Acoustics. 3 Units.

MUSIC 150P. The Changing World of Popular Music. 2 Units.
This course will cover changes in the business, economics, and practices of the popular music industry. It will provide a brief historical overview of the industry and its business models. The majority of the course will focus on the industry as it works today and on forces that are causing it to change rapidly. The course will feature guest artists and executives with current experience in the field, as well as project-based assignments designed to give students hands-on experience.
Topics will include: Economics and business models of commercial music business, Technology and music production, Technology and music distribution, Technology and marketing, Leadership in the music industry; case studies, Managing creative projects, Copyright and legal issues. To secure your spot in the course, enroll in Axess and attend the first class session.
Same as: ARTSINST 150

MUSIC 150R. Robert Schumann and the Idea of Musical Romanticism. 3-5 Units.
The creative personality and musical compositions of Robert Schumann (1810-1856) as exemplars of the idea of Romanticism in European culture of the early nineteenth century. Survey of major genres (solo piano, Lieder, symphonies, chamber music, choral music) in dialogue with Romantic literary and visual cultures. Students prepare at least one or two works by Schumann or contemporary figures (Mendelssohn, Chopin, Brahms, Clara Schumann) for presentation in lecture-recital format. Prerequisites: Music 22 or equivalent (intermediate music theory), intermediate or higher performance ability in piano, strings, or voice.
MUSIC 151B. 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 multiple Stanford Athletics events, multiple community events, and travel to some away and post-season games. 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 12 times.

Throughout the twentieth century and into the present day, musicals have sought to tell stories about a broad range of American experiences and engage with complex social issues. Foremost among these themes are the topics of race and cultural appropriation, immigration and citizenship, and LGBT lives and queer identity. Even as they seek to represent diverse perspectives and facilitate progressive social change, musicals just as often can reinforce and replicate troubling conceptions surrounding gender, race, sexual identity. This course will examine works of musical theater from the 1920s to the present day in order to understand how each of these individual works, and the musical as a genre and institution, navigates this forward-and-backward tension surrounding these three topics. Our focus will be on commercially successful stage and screen musicals that cover the span of almost a hundred years, from The Jazz Singer (1927) to Hamilton (2015). In the course of lectures and discussions we will build a working vocabulary for analyzing the musical's salient components including music and lyrics, staging, libretto, choreography, and cinematography and engage with key scholarship from musicology, performance studies, film studies, and American studies. The final week of class will examine current and planned musical theater productions on campus using the tools and perspectives from the previous three parts.

MUSIC 152A. Careers in Media Technology. 2 Units.
Careers in Media Technology explores how leading audio, video, and 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 153. Online Jamming and Concert Technology. 2-4 Units.
Today's vast amount of streaming and video conferencing on the Internet lacks one aspect of musical fun and that's what this course is about: high-quality, near-synchronous musical collaboration. Under the right conditions, the Internet can be used for ultra-low-latency, uncompressed sound transmission. The course teaches open-source techniques for setting up city-to-city studio-to-studio audio links. Distributed rehearsing, production and split ensemble concerts are the goal. Setting up such links and debugging them requires knowledge of network protocols, network audio issues and some ear training. Same as: ARTSINST 141

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 learning and readings in the history and contemporary practice of sound art (lower level). Same as: ARTSTUDI 131

MUSIC 154F. Electroacoustic Music Analysis. 3-4 Units.
This course will explore the most important methodologies for analysis of electroacoustic music that have been proposed in the literature. Class meetings include lectures, student discussions of relevant literature and listening sessions. Assignments include weekly readings, homework, and a final project. Basic musical proficiency is required. Experience with programming, music analysis, or music perception/cognition is desirable.

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 156Z. "sic": Improvisation Collective. 0 Units.
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 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 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 15AX. A 24 Hour Decade History of Popular Music with Taylor Mac. 2 Units.
Performance collaboration with Stanford Live and the Curran Theater, San Francisco-br-Students selected for this Arts Intensive course will have the opportunity to participate with Taylor Mac in creating four 24-hr performances that encompass the whole of the 24-hr project. (Note: performances on Fri 9/22, Sun 9/24, Fri 9/29, and Sun 10/1, 2017).

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 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 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 160A. Stanford Philharmonia. 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. 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. 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. 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. Stanford Summer Orchestra. 1 Unit.
See website for details: https://music.stanford.edu/academic-programs/summer-studies-stanford-music/summer-session-ensembles-chorus-and-symphony. 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 160SZ. Summer Orchestra. 0 Units.
See website for details: https://music.stanford.edu/academic-programs/summer-studies-stanford-music/summer-session-ensembles-chorus-and-symphony. 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 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/ssoscp/). 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 Symphony. 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 Symphony. 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 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 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 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 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, nône 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 repeated 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, nône 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 repeated 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 161F. Stanford Wind Symphony. 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, nône 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 repeated 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 161G. Stanford Wind Symphony. 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, nône 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 repeated 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 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 166. 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 167. 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. 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 167SZ. Summer Chorus. 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 172Z. 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 174B. 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 174C. Violoncello. 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 174D. Contrabass. 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 174E. Viola Da Gamba. 1-3 Unit.
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 174F. Classical Guitar. 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 174G. Harp. 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 174H. Baroque 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 174I. Jazz Bass. 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 174J. Jazz Guitar. 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 175A. Flute. 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 175B. Oboe. 1-3 Unit.
May be repeated for credit a total of 15 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 175C. Clarinet. 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 175D. Bassoon. 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 175E. Recorder/Early Winds. 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 175F. Saxophone. 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 175G. Baroque Flute. 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 175H. Jazz Saxophone. 1-3 Unit.
May be repeated for credit a total of 15 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 176A. French Horn. 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 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 Chaplin, 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 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 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 Fauré, 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. 1-2 Unit.
By audition only. Contact instructor prior to enrolling (bnie1@gmail.com). Ability to read music expected, but students with experience singing in musical theater can be accepted. For singers and pianists as partners. Performance class in a workshop setting along with lecture/discussion of important eras of musical theater history. 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 183CZ. Interpretation of Musical Theater Repertoire. 0 Units.
By audition only: Contact instructor prior to enrolling (bnie1@gmail.com). Ability to read music expected, but students with experience singing in musical theater can be accepted. For singers and pianists as partners. Performance class in a workshop setting along with lecture/discussion of important eras of musical theater history. 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 183D. Musical Theater. 1-3 Unit.
In this workshop we will traverse the landscape of world of Musical Theater. It will serve as an introduction for the beginning actor and singer, and expand the more experienced performer’s range in this genre. The world of Musical Theater is filled with stories of love, passion, joy, violence, heartbreak and rage. The class will include an introduction to vocal and movement skills for musical theater, beginning with exercises to build an ensemble and encourage a sense of play and relaxation in supportive environment. Our class must be a place where everyone feels safe. As ensemble members, we will be responsible for each other in this environment. nStudents will choose one solo song, and perform in a group number from this exciting discipline. The instructor will work with the actors on technique, utilization of action, specificity of language, personalization, and emotional truth. A professional coach from the theater community will conduct vocal coaching. Physical warm-ups and choreography will be suited for both the dancer and non-dancer. The class will culminate in the last week with live performance for friends and family. nSTUDENTS ARE ENCOURAGED TO BRING THEIR OWN SUGGESTIONS. (Isn’t there a role you’ve always wanted to sing?) nRequired text: Broadway Musicals Show by Show by Sixth Edition - Stanley Green; Paperback.

MUSIC 183E. Singing for Musicals. 2 Units.
Do you love singing in musicals? Do you know how to sing in musicals? This course provides training in vocal technique and acting for students interested in performing musical theater. Students will learn about the physical process of singing, including posture, breath support, and vocal exercises. They will incorporate vocal technique with the study of phrasing in different styles of Broadway repertoire, and apply both to the art of acting the song. Each student will work on solo selections and ensembles, and sing in most classes. Through understanding vocal technique, students will become more confident and joyful performers. The course will culminate in a final public workshop performance. Admission to course by audition or permission of the instructor.

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 184D. Creating a Musical. 4 Units.
This practical, hands on class in the making of musicals explores all aspects of creating musical theater, including writing, composing, producing, directing, designing, and casting this most American of theater genres. The class will include direct engagement and discussion with the producers and artists of TheatreWorks Silicon Valley’s production of The Bridges of Madison County, book by Marsha Norman and music by Jason Robert Brown, including off-campus field trip to rehearsal of the show. The class will explore the creation of several renowned musicals including Stephen Sondheim’s Merrily We Roll Along, and will include live Skype interviews with Broadway composers Andrew Lippa (The Wild Party), Paul Gordon (Jane Eyre), and David Hein and Irene Sankoff (Come From Away, winner of the 2017 Drama Desk Award for Best Musical). The quarter will culminate in the creation, production, and performance of several mini-musicals created by members of the class. Instructor Robert Kelley is the Founding Artistic Director of TheatreWorks Silicon Valley, where he has directed 170 productions, including many world and regional premieres.
Same as: TAPS 177C

MUSIC 184E. Musical Theater Dance Styles. 1 Unit.
Students will be able to demonstrate period specificity, character of style through learning different musical theater dances from the early 20th C.to the present. ALL students will participate in an end of quarter showing of the choreography developed and composed in class. Class will be supplemented with the occasional guest, DJ accompaniment and video viewing.
Same as: DANCE 102

MUSIC 184F. Introduction to Theater Sound Design. 4 Units.
This course explores the history and aesthetics of theatre sound design, and provides the basic technical knowledge to create your own work. Learn how to analyze a script for sound design elements, gain practical knowledge of microphones and loudspeakers, sound editing and cueing software, and put your knowledge to work creating your own design.
Same as: TAPS 138

MUSIC 185. Technologies of Musical Expression. 3 Units.
Music is made and experienced through technology created for it. These technologies allow for expression but influence the result. This course will utilize special collections, acoustical tools, music-making apps, live musicians, and media both historical and modern to reflect on the ways people make music expressive. The course is designed around creative projects and hands on experiences with digital and analogue media, player pianos, archival manuscripts, and sound sculptures to stimulate discussion about the role of technology in our musical experiences. Projects can include performances using digital and analogue media, performance art, creating player piano rolls, or performance ethnographies, etc. WAYS credit for 3 units and grade only.

MUSIC 187. Spiritual Sound of Central Asia: Introduction to the Music of Central Asia. 1-5 Unit.
In this course, master-musician Imamyar Hasanov teaches students to perform and appreciate music from Central Asia. Students learn a spectrum of traditional Azerbaijan, Kazakh, Kyrgyz, Uyghur and Uzbek folk melodies, including improvisational art music of mugham. The class is also a seminar, with discussions led by Professor Denise Gill on music of Central Asia, guest lectures and demonstrations, and Skype interviews with a musician in Kyrgyzstan and instrument maker in Istanbul. No prerequisites or prior knowledge of Azeri, Uzbek and Kyrgyz music for this course. Both a music workshop and seminar, this course is open to students who have experience playing musical instruments and those who do not. This course must be taken for a minimum of 3 units and a letter grade to be eligible for Ways-ED credit. For Ways-CE credit, it may be taken for any number of units.

MUSIC 18A. Jazz History: Raggtime 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 192A. Foundations of Sound-Recording Technology. 3 Units.
This course serves as an introduction to the recording facilities and technology at CCRMA. Through studio based exercises and sessions students learn and practice various techniques to improve their audio literacy such as: studio operation and maintenance; microphone selection and placement giving regard to basic room and instrument acoustics; audio effects processing, concentrating on equalization and compression; other topics such as sample making/editing, mixing techniques, and audio software. Prerequisites: MUSIC 101 or consent of instructor.

MUSIC 192B. Advanced Sound Recording Technology. 3 Units.
This course aims to heighten the listening skills of students. In a series of group sessions and discussions students compare and contrast a variety of dynamic based processes and other audio effects/plug-ins which might be used in their mixes. Students also explore recording concepts and technologies that will augment their studio practices such as making customized impulse response recordings, advanced equalization practices, and exploring additional advanced studio/non-studio techniques and software. Prerequisite: 192A or consent of instructor.

MUSIC 192C. Session Recording. 1-3 Unit.
Independent engineering of recording sessions combined with instruction in the use and maintenance of other CCRMA audio/studio facilities and equipment that is required for the realization of studio informed artistic projects. Students will explore how ideas such as acoustic phenomena, interactivity, or new instruments can augment their studio practice. May be repeated for credit a total of 14 times (1 unit per quarter throughout the year - recommended or 3 units in Spring). Prerequisite: Consent of instructor.

MUSIC 192F. Sound Installation. 4 Units.
This class will cover creative, historical and theoretical aspects of sited artworks based in sound. We will create, install and critique new works that use sound with special attention the ways that sound intersects with time, space and architecture. Attention will be given both to sound as immaterial signal and to sound in its relation to visual environments and objects. The class is intended for artists, composers and others who want to explore the spatial, social and aesthetic dimensions of sound. Assigned readings will cover sound practices in the contexts of art, music, sound studies and anthropology. Experience in sound recording or production, signal processing and spatialization, or installation are valuable but not required. Curiosity and attention to sounds are.
Same as: ARTSTUDI 175

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 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 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 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 202. Picturing Performance, Re-Envisioning the Arts. 2-4 Units.
Critical and creative exploration of the performing body as captured on film. Viewing/listening includes musicals, dance and opera on film, music video, experimental film and video, and moments of heightened musicality in feature film. Focus on examples of moving media that possess a kinship with music through gesture, rhythm or affect and through visual parameters like décor, lighting, texture, camera movement and editing. Requirements include choosing and documenting a live performance, producing a short audiovisual work involving post-production, and weekly reading and viewing/listening assignments. No previous videomaking experience required. This course must be taken for a minimum of 3 units and a letter grade to be eligible for Ways credit.
Same as: MUSIC 102

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 210C. 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 211. 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 221. 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 221A. 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 ChucK computer music language. Majors (undergraduate or graduate) must take for 4 units. See http://ccrma.stanford.edu/.

MUSIC 221B. 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. This course must be taken for a minimum of 3 units and a letter grade to be eligible for WAYS credit. See http://ccrma.stanford.edu/. Prerequisite: 220A.

MUSIC 221C. 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 221D. 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 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 223B. Sonic Experiments in Composition. 2-3 Units.
The course will present post-1945 works with timbre serving as an organizing principle or compositional metaphor, in the context of historical works in which timbre plays a structural role. Composers considered may include: Alvin Lucier, Pauline Oliveros and other American experimentalists; Scelsi and his influence on the French Spectral school; the first and subsequent generations of French Spectralism; and contemporary composers of experimental music such as Peter Ablinger. Topics will include: process and form; timbre in relation to time and space; harmonicity and noise; and the influence of analog and digital technology on instrumental composition.

MUSIC 224. 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 225. Advanced Orchestral Conducting. 2-4 Units.
May be repeated for credit a total of 8 times. Prerequisite: 130B.

MUSIC 226A. 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 226B. Future Media, Media Archaeologies. 3-4 Units.

MUSIC 227. Studies in Music of the Baroque: Handel the Cosmopolitan. 4-5 Units.
usic history seminar on the operatic, sacred, and instrumental works of G.F. Handel as examples of the diversity, cosmopolitanism, expression, formal and technical features, and social uses of music in the first half of eighteenth century. Traces Handel's career from his native Germany to an elite Roman circle of musical connoisseurs, and to the Italian opera company he founded in London and his transformation of Italian opera into a new genre of English oratorio. By analyzing Handel's works in context, we examine the aesthetic, harmonic, and dramatic principles of the major European Baroque art-music genres. Prerequisites: MUSIC 22, MUSIC 41. (WIM at 4-unit level only.).

MUSIC 228. 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.).

MUSIC 229. Studies in Music of the Romantic Period: Richard Wagner. 4-5 Units.
Music and Musicians in the Age of Romanticism. Prerequisites: MUSIC 22, MUSIC 41. (WIM at 4-unit level only.).
MUSIC 243K. Studies in Music of the Classical Period: Mozart's Operas. 3-4 Units.
Aesthetic, musical, and dramatic principles of 18th-century comic opera explored through W.A. Mozart's Abduction from the Seraglio, Marriage of Figaro, Don Giovanni, Così fan tutte, and Magic Flute. Comic strategies of exaggeration, farce, stock characters, ethnic caricature, and topsy-turvy social inversion; national traditions of Italian opera buffa and German Singspiel; musical forms and elements including recitative, aria, and ensemble. How Mozart's operas reflect 18th-century ideas about music, social organization, political authority, gender, sexuality, and rhetoric. Prerequisites: MUSIC 22, MUSIC 41. (WIM at 4-unit level only.). Same as: MUSIC 143K

MUSIC 244L. Studies in Music of the Romantic Period: Wagner. The Ring of the Nibelung. 3-4 Units.
Richard Wagner's cycle of four operas, "Der Ring des Nibelungen" (1848-74), is one of the key documents of the mid nineteenth-century revolutionary fervor in Europe and a monument of radical artistic modernism of the period. The course will examine the artistic features of this unique work and place it in the complex ideological context of its time. Prerequisites: MUSIC 23, MUSIC 42 (WIM at 4-unit level only.). Same as: MUSIC 144L

MUSIC 245K. Studies in Western Art Music Since 1900: Concepts of New Music. 4 Units.
A survey of the history of Western classical music in the twentieth century, concentrating on shifts in the concept of New Music in the first half of the century. The aim is twofold: to study in depth a representative selection of works and to develop a historiographical framework for that study. Relevant concepts to be examined include Expressionism, Neo-Classicism, New Objectivity, Serialism, Aleatoricism, and Minimalism - all of them key terms used by music historians and critics to describe and delineate the multifaceted phenomenon of "New Music." Composers to be studied include Schoenberg, Stravinsky, Berg, Weill, Shostakovich, Reich and Glass, and others. Prerequisites: MUSIC 23, MUSIC 42. (WIM course for Music majors.). Same as: MUSIC 145K

MUSIC 246M. New Keywords in African Sound. 3-4 Units.
This course identifies and considers new keywords for the study of contemporary African music and sound. Each week we will foster discussion around a keyword and a constellation of case studies. The sonic practices we will encounter range from South African house music to Ghanaian honk horns; from Congolese rumba bands to Tunisian trance singers; from listening to the radio in a Tanzanian homestead to making hip hop music videos on the Kenyan coast. By exploring the unexpected interconnections between contemporary African musical communities, we will discuss new keywords arising in current scholarship, including technologies like the amplifier and the hard drive, spaces like the studio and the city, and analytics like pleasure and hotness. We will also engage with established concepts for the study of postcolonial African cultures, including nationalism, cosmopolitanism, globalization, diaspora, and Pan-Africanism. This is a seminar-based course open to graduate students, upper level undergraduate students, and other students with consent of the instructor. Proficiency in music is not required. WIM at 4 units only. Same as: AFRICAAM 146D, AFRICAST 146M, CSRE 146D, MUSIC 146M

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: CSRE 147D, MUSIC 147K

MUSIC 249J. Music, Interpretation, Meaning. 4 Units.
This course is an inquiry into music, interpretation, and meaning. These are obviously inexhaustibly rich and complex topics; to bring our inquiry into focus, we will conduct it principally through engagement with a selection of works from the late Classical through the Modern eras that we judge invite and endure exacting attention. To deepen our encounters and our thinking, we will also study texts ranging from aphorisms to poems to philosophical and musicological essays. Students will participate through both discussion and short write responses to the topics, and will write an analytical paper, summarizing their findings as well in class. Prerequisites: MUSIC 24J (for music majors): MUSIC 22. (Meets Music's WIM requirement.). Same as: MUSIC 149J

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 25. Decoding Anime. 3 Units.
Anime as an artistic form often boasts highly imaginative graphics, striking music, vibrant characters, and fantastical stories. The course aims at decoding the expressive power of anime by applying a method of multimedia analysis that focuses on the interaction between its component elements: story, image, sound and music. Through close reading of works by five leading and innovative directors the students will develop tools to analyze anime and interpret it in a larger cultural context.

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 250C. Interaction - Intermedia - Immersion. 2-3 Units.
This course explores creative and technical approaches to the design of digital musical instruments (DMIs) and other systems for interactive performance, composition and/or installations in audio, audiovisual, and other intermedia practice. Various paradigms of Human Computer Interaction (HCI) and techniques such as motion tracking, biosignal analysis, Music Information Retrieval (MIR), concatenation, and machine learning will be considered through analysis of examples of historical and current intermedia practice, framed by key concepts such as affordances and embodiment. It will focus on individual creative output and process, with a final project consisting of the realization of a creative work applying these principles.
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 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: The Art of Design. 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. See https://ccrma.stanford.edu/courses/256a/.
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 258. Orchestration and Timbral Analysis. 1-4 Unit.
Hands-on approach to orchestration and applied computational timbral analysis. For Music majors with a concentration or interest in composition or MST. Assignments in orchestration and timbre analysis, and computer-based timbre analysis. Final project involving either computer-based analysis or an advanced orchestration assignment. See http://ccrma.stanford.edu/courses/255/.

MUSIC 258A. Computational Music Theory & Analysis. 1-3 Unit.
Topics in music analysis, with emphasis on perception and cognition. Topics include engagement, expectation formulation and processing, timbre and time perception, with particular relevance to computer applications in music.

MUSIC 260. Transcultural Perspectives of South-East Asian Music and Arts. 2-3 Units.
This course will explore South-East Asian (SEA) cultures and their influence on modern and contemporary Western art, particularly in France: for instance, Claude Debussy (Gamelan’s music), Jacques Charpentier (Karnatak music), Auguste Rodin (Khmer art) and Antonin Artaud (Balinese theater). In the course of these interdisciplinary analyses - focusing particularly on music and dance - we will confront key notions in relation to transculturality: orientalism, appropriation, auto-ethnography, nostalgia and exoticism. We will also consider transculturality as inferior to contemporary creation, through the study of contemporary SEA composers. Viewings of sculptures, marionette theater, ballet, opera and cinema will play in integral role. To be eligible for WAYS credit, this course must be taken for 3 units and a letter grade. Same as: FRENCH 260A

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 260A. Computational Music Theory & Analysis. 1-3 Unit.
Topics in music analysis, with emphasis on perception and cognition. Topics include engagement, expectation formulation and processing, timbre and time perception, with particular relevance to computer applications in music.

MUSIC 260. Transcultural Perspectives of South-East Asian Music and Arts. 2-3 Units.
This course will explore South-East Asian (SEA) cultures and their influence on modern and contemporary Western art, particularly in France: for instance, Claude Debussy (Gamelan’s music), Jacques Charpentier (Karnatak music), Auguste Rodin (Khmer art) and Antonin Artaud (Balinese theater). In the course of these interdisciplinary analyses - focusing particularly on music and dance - we will confront key notions in relation to transculturality: orientalism, appropriation, auto-ethnography, nostalgia and exoticism. We will also consider transculturality as inferior to contemporary creation, through the study of contemporary SEA composers. Viewings of sculptures, marionette theater, ballet, opera and cinema will play in integral role. To be eligible for WAYS credit, this course must be taken for 3 units and a letter grade. Same as: FRENCH 260A

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 274C. Advanced Violoncello. 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 274D. Advanced Contrabass. 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 274E. Advanced Viola da Gamba. 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 274F. Advanced Classical Guitar. 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 274G. Advanced Harp. 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 274H. Advanced Baroque 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 274I. Advanced Jazz Bass. 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 274J. Advanced Jazz Guitar. 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 275A. Advanced Flute. 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 275B. Advanced Oboe. 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 275C. Advanced Clarinet. 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 275D. Advanced Bassoon. 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 250E. Advanced Recorder/Early Winds. 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.

MUSIC 275F. Advanced Saxophone. 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.

MUSIC 275G. Advanced Baroque Flute. 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 275H. Advanced Jazz Saxophone. 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 276A. Advanced French Horn. 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 276B. Advanced 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 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 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. 3-4 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 305D. Analysis from a Compositional Perspective. 4 Units.
Introduction to analysis, examining diverse examples in part chosen from, otherwise supplementing and illuminating, the graduate composers' qualifying exam list; consideration of aesthetic premises and motivations, and of implications for contemporary compositional practice.

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 312A. Aesthetics and Criticism of Music, Ancients and Moderns: Plato to Nietzsche. 3-4 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. 3-4 Units.
For graduate students. Primary texts focusing on the nature, purposes, and uses of music and other arts.

MUSIC 318. Advanced Acoustics. 1-3 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 31N. Behind the Big Drums: Exploring Taiko. 3 Units.
Preference to Freshman. Since 1992 generations of Stanford students have heard, seen, and felt the power of taiko, big Japanese drums, at Admit Weekend, NSO, or at Baccalaureate. This seminar provides students with the opportunity to get behind the big drums, literally and academically. In fact, taiko is a relative newcomer to the American music scene. The contemporary ensemble drumming form, or kumidaiko, developed in Japan in the 1950s. The first North American taiko groups emerged from the Japanese American community shortly after and coincided with increased Asian American activism. In the intervening years, taiko has spread rapidly into other communities, most surprisingly to the UK, Europe, Australia, and South America. What drives the power of these drums? In this course, we explore the musical, cultural, historical, and political perspectives of taiko through readings and discussion, by playing the drums, workshopping with taiko masters, and meeting members of the taiko community. With North American taiko as the focal point, we learn about Japanese music and Japanese American history, and explore relations between performance, cultural expression, community, and identity.
Same as: ASNAMST 31N

MUSIC 320. Introduction to Audio Signal Processing. 2-4 Units.
A first-course in signal processing with applications in computer music and audio for students comfortable with high-school algebra, calculus, complex variables, and beginning linear algebra. The lectures cover fundamentals of audio signal processing such as sinusoids, spectra, Fourier transforms, Laplace transform, z transform, linear time-invariant filters, digitizing systems, transfer-function analysis, and basic Fourier analysis in the continuous and discrete-time cases. Matlab is used for in-class demonstrations and homework/lab assignments. The labs focus on practical applications of the theory, with emphasis on working with waveforms and spectra, "getting sound", and developing proficiency in the matlab language. 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 326. 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 adds or Wagner's opera, Miyazaki anime or traditional Noh Theater of Japan, the three modes of expression (sounds, images, and word) 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 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 333. Food, Text, Music: A Multidisciplinary Lab on the Art of Feasting. 3-5 Units.
Students cook a collection of unfamiliar recipes each week while learning about the cultural milieu in which they originated. The course focuses on the fourteenth and fifteenth centuries, a time of great banquets that brought together chefs, visual artists, poets, musicians, and dancers. Students read late-medieval cookbooks under the guidance of professional chefs, learn songs and poetry with the help of visiting performers, and delve into a burgeoning scholarly literature on food history and sensory experience. We will also study trade routes and food networks, the environmental impact of large-scale banquets, the science of food, and the politics of plenty. This course may count towards the Medieval component of the French major, and corresponds to DCLL 121, a course requirement for the Medieval Studies Minor. Students interested in applying for course must email both professors (mgalvez@stanford.edu, jrodnin@stanford.edu) by 30 November with a statement of up to 350 words that includes: (a) reasons for wanting to take the class; (b) relevant background in cooking/medieval studies/etc.; (c) stated commitment to attend all ten course meetings; and (d) any dietary restrictions/preferences.
Same as: FRENCH 166, FRENCH 266, FRENCH 366, MUSIC 133

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 341. Ph.D Dissertation. 1-10 Unit.
May be repeated for credit a total of 5 times.

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, Book of Mormon, Hamilton, Dear Evan Hansen), show tunes in jazz performance, film musicals, and television. Opportunities for performance and attendance at local productions.

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 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 36H. Dangerous Ideas. 1 Unit.
Ideas matter. Concepts such as race, progress, and equality have inspired social movements, shaped political systems, and dramatically influenced the lives of individuals. Others, like gender identity, universal basic income, and historical memory play an important role in contemporary debates in the United States. All of these ideas are contested, and they have a real power to change lives, for better and for worse. In this one-unit class we will examine these dangerous ideas. Each week, a faculty member from a different department in the humanities and arts will explore a concept that has shaped human experience across time and space. Some weeks will have short reading assignments, but you are not required to purchase any materials. Same as: ARTHIST 36, COMPLIT 36A, EALC 36, ENGLISH 71, ETHICSOC 36X, FRENCH 36, HISTORY 3D, PHIL 36, POLISCI 70, SLAVIC 36

MUSIC 37N. Kī hōʻalu: The New Renaissance of a Hawaiian Musical Tradition. 3 Units.
Preference to freshman. Developed in the Hawaiian Islands during the 1830s, kī hōʻalu, or Hawaiian slack key guitar, is an art form experiencing newfound popularity coinciding with the growth of political activism in Hawaiian culture. The musical, cultural, historical, and political perspectives of Hawaiian music and kī hōʻalu, through hands-on experience, readings, discussion, and workshops. Hawaiian music and history and relationships among performance, cultural expression, community, and identity.

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 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 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 analogues; 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/420a/. 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. Time-Frequency Audio Signal Processing. 3-4 Units.
Spectrum analysis and signal processing using Fast Fourier Transforms (FFT's) 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/421a/. Prerequisites: MUSIC 320A and Music 320B or equivalent background in spectrum analysis and linear systems.

MUSIC 421N. Deep Learning for Music and Audio. 1 Unit.
Seminar reviewing the development of deep-learning methods in music and audio fields. See the course website for latest information: http://ccrma.stanford.edu/courses/mus421n/.
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 AAC). 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 effect 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’ scientific 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 others’ research and giving constructive criticism. 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 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 Fukimoto and Stanford Taiko.

A combination of practical skill-building and discussions with practicing arts professionals, this course will provide students with the foundational skills necessary to produce programs on campus and/or work in the arts. The talks and workshops will cover topics including curatorial practice and programming (for both visual and performing arts); grant writing and other fundraising methodology; budgeting and financial management; contracts and other legal considerations; and public relations and marketing. Every session is open for drop-in attendance, or students may take the entire series for credit. May be repeat for credit.
Same as: ARTSINST 50, TAPS 50

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 in all styles from rock to classical, and how to lead and participate in vocal productions and ensembles. 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. Same as: ARTSINST 50, TAPS 50

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 65AS. Voice Class 1: Beginning Voice, Level 1. 1 Unit.
Group (6 students to a section) beginning voice (A = level 1; B = level 2). Complete registration form available for download at: http://tinyurl.com/q43c48g. May be repeated for credit 5 times. Zero unit enrollment option available with instructor permission. See website: (http://tinyurl.com/postmuhn) 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. Same as: Group

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/Ensembles-Lessons/applied-music-policies/applied-music-fees-and-policies for class fee 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 65BS. Voice Class 2: Beginning Voice, Level 2. 1 Unit.
Group (6 students to a section) beginning voice (A = level 1; B = level 2). Complete registration form available for download at: http://tinyurl.com/q43c48q. May be repeated for credit 5 times. Zero unit enrollment option available with instructor permission. See website: (http://tinyurl.com/posmuhn) 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. Same as: Group

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/Ensembles-Lessons/applied-music-policies/applied-music-fees-and-policies for class fee 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 65SZ. Beginning Voice. 0 Units.
Beginning Voice (zero-unit option). Complete registration form available for download at: http://tinyurl.com/q43c48q. May be repeated 5 times. Zero unit enrollment option available with instructor permission. See website: (http://tinyurl.com/posmuhn) 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 6F. Art is My Occupation: Professional Development in Music. 1 Unit.
Open to majors and non-majors. This course is designed for students who are considering careers in performance or the music industry to explore their personal and artistic identity. Weekly guest speakers provide real world insight on topics related to professional advancement.

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 https://music.stanford.edu/ensembles-lessons/applied-music-policies/applied-music-fees-and-policies for class fee information. This class is closed by design. Please register on the waitlist and meet with Dr. Zerlang in room 111, or contact him at timzer@stanford.edu or (650) 723-1549 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 72AS. Intermediate Piano Class. 1 Unit.
Piano: Intermediate Level (Group; 10 students to a section) 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. Complete registration form available for download at: http://tinyurl.com/q43c48q. May be repeated for credit 5 times. Zero unit enrollment option available with instructor permission. See website: (http://tinyurl.com/posmuhn) 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. Same as: Group

MUSIC 72A. Intermediate Piano Class. 0 Units.
For intermediate students. Prerequisites: 12C or equivalent, audition. There is a fee for this class. Please visit https://music.stanford.edu/ensembles-lessons/applied-music-policies/applied-music-fees-and-policies for class fee 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 72Z. 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.
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 contact the instructor to (mailto: murlow@stanford.edu) to receive a permission number for enrollment. Priority to majors and jazz-ensemble participants. Zero unit enrollment option available with instructor permission. See website: (http://music.stanford.edu) for policy and procedure. May be repeated for credit a total of 14 times.

MUSIC 72ZD. Jazz Piano Class. 0 Units.
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.

MUSIC 72ZG. Gu-Zheng Class. 0 Units.
For intermediate students. Prerequisites: 12C or equivalent, audition. There is a fee for this class. Please visit https://music.stanford.edu/ensembles-lessons/applied-music-policies/applied-music-fees-and-policies for class fee 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 https://music.stanford.edu/ensembles-lessons/applied-music-policies/applied-music-fees-and-policies for class fee 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 72ZC. 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 72GZ. Gu-Zheng Class. 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 72SZ. Intermediate Piano. 0 Units.
Intermediate Piano (zero-unit option). Zero unit enrollment option available with instructor permission. See website: (http://tinyurl.com/postmu) 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 Axess 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 Axess waitlist and show up on the first day of class to receive a permission number for enrollment.

MUSIC 74AA. Introductory Violin Class Level 1: Beginner. 1 Unit.
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 74AB. Introductory Violin Class Level 2: Intermediate. 1 Unit.
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 74AC. Introductory Violin Class Level 3: Advanced Intermediate. 1 Unit.
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 74A. Classical Guitar Class. 1 Unit.
May be repeated for credit a total of 14 times. There is a fee for this class. Please visit https://music.stanford.edu/ensembles-lessons/applied-music-policies/applied-music-fees-and-policies for class fee 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 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/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 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/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 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/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 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.

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 76B. Brass Instruments 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. 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 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 7B. Musical Cultures of the World. 2-3 Units.
Ethnomusicologists study music in human life. Music is with us as we articulate and define social identities -- punk rocker, student, Japanese-American, member of a sorority, Catholic, radical, etc. --and as we acquire new identities through rites of passage such as weddings, graduations, and initiation ceremonies. Many of life's most intense moments are accompanied or created by music, but music can also be part of the everyday, with us as we work, move, and socialize. This course is about what music does in human life and what it means to participants. In other words, it is about the myriad ways that music makes us human. We will address musical meanings and practices in selected regions of Africa, Asia, Europe, and the Americas. As you encounter music in an increasingly connected world, this course will provide you with a new awareness of musical diversity and of the social implications of music making. This course must be taken for a minimum of 3 units and a letter grade to be eligible for Ways credit.

MUSIC 80. Russian Modernists: Stravinsky & Shostakovich. 3 Units.
An examination and comparison of the lives and music of Igor Stravinsky and Dmitri Shostakovich, two of the most important Modernist composers of the 20th century. Although both composers were Russians closely affiliated with St. Petersburg, their lives diverged dramatically, with Stravinsky pursuing an international career in the West while Shostakovich spent his entire life in the USSR after the Russian Revolution. Major compositions, including symphonies, operas, chamber music, and keyboard works, will be covered, as well as key writings by and about both composers. The ability to read music, while beneficial, is not required. This course must be taken for a letter grade to be eligible for Ways credit.

MUSIC 801. TGR Project. 0 Units.

MUSIC 802. TGR Dissertation. 0 Units.

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 9SI. Music + Mentorship. 1-2 Unit.
Music + Mentorship (M+M) is a coalition of Stanford University musicians who seek to empower kids in the surrounding community through music. Through M+M, volunteers commit to weekly music lessons in local schools and participate in class readings and discussions about the principles of music education. Guest lecturers include local music educators.