MUSIC

**Director of undergraduate studies:** Ian Quinn, 205 STOECK, 432-2986, dus.music@yale.edu; yalemusic.yale.edu

The Department of Music offers introductory and advanced instruction in the history of music, the theory of music, composition, music technology, and performance. The Music major provides a general music program in the humanities, as well as preparation for graduate studies or for careers in music.

**COURSES FOR NONMAJORS AND MAJORS**

Introductory courses, numbered from 100 to 199, are open to all undergraduates and require no previous experience in music.

Qualified students, whether majorsing in Music or not, may offer up to four terms of instruction in performance for academic credit toward the 36-course-credit requirement for the bachelor’s degree. Of these four course credits, only two may be applied to the major in Music. Auditions for lessons are held at the beginning of the fall term; students sign up at the School of Music auditions site. Students who audtion for lessons are placed into one of three groups: 1) noncredit instruction for a fee; 2) lessons for academic credit at the 300 level, graded pass-fail; or 3) lessons for academic credit at the 400 level, graded A–F. Only students with exceptional proficiency are placed into 400-level lessons.

Students accepted for noncredit instruction are charged $550 for ten hours of lessons per term or $275 for six hours of lessons per term. The fees are added to the Student Financial Services bill and are not refundable after the first two weeks of lessons each term. Declared music majors in their junior or senior year may receive noncredit lessons at a discounted rate: six hours of lessons per term at no charge or ten hours of lessons per term for $275.

**COURSE NUMBERING**

Level I courses, which are introductory courses numbered from 100 to 199, are open to all undergraduates and require no previous experience in music. Intermediate courses (Levels II and III) are numbered in the 200s and 300s, and may require a familiarity with music notation. Advanced courses (Level IV) are numbered in the 400s and are for seniors, juniors, and qualified sophomores. Level III and IV courses are intended primarily for students majoring in music, but they may be elected by others who meet the stated prerequisites.

**PREREQUISITES**

The following music theory/musicianship courses are prerequisite for the major, MUSI 210, 211, 218, 219, or equivalents. Students taking MUSI 360, 361, 460, or 461 are required to be concurrently enrolled in a 200-level music theory/musicianship course (MUSI 210, 211, 218, or 219) for both terms, or they must complete one term of the theory/musicianship requirement before enrolling in MUSI 360 or 460 and two terms before enrolling in MUSI 361 or 461. All courses used to fulfill these prerequisites or corequisites must be taken for a letter grade.

**PLACEMENT PROCEDURES**

Students must take the Music Department’s music theory placement test to determine their placement in the 200-level theory/ musicianship sequence. Advanced Placement test scores do not satisfy the music theory prerequisites for performance instruction. Although the faculty of the School of Music attempts to accommodate those who qualify for credit instruction, it cannot guarantee that they will be enrolled with the teacher of their choice.

**REQUIREMENTS OF THE MAJOR**

Both the standard major and the intensive major require twelve term courses, eleven of which must be numbered 300 or above, excluding the prerequisites, MUSI 210, 211, 218, and 219. To gain a comprehensive familiarity with the history and theory of music, a student majoring in Music completes a survey of music history from the medieval period to the present, a survey of world music, a two-course music theory requirement, and an upper-level music course with the WR designation. The survey courses in music history and world music are MUSI 350, MUSI 351,352, and 353. Students choose two courses from the music theory series numbered 301 through 311 to satisfy the music theory requirement. Also required is one Level III or IV course in the Department of Music bearing the WR designation during the junior or senior year. Four additional term courses in music chosen from Levels II, III, and IV (only one of which is from Level II) complete the major. Prospective majors are advised to begin the required courses by their sophomore year.

Students intending to go on to graduate work are advised to study German and French to achieve at least a reading knowledge of those languages. All Music majors are urged to undertake regular studies in musical performance.

**Credit/D/Fail** Courses taken Credit/D/Fail may not be counted toward the requirements of the major.

**SENIOR REQUIREMENT**

Each student majoring in Music must satisfy the senior requirement by completing a senior essay, composition, or recital in a course from the range MUSI 490–497.

**The standard major** Students must submit a completed Senior Project Form to the director of undergraduate studies by the end of the course selection period in the term during which the project will be completed. The Senior Project Form, available in the departmental
office, includes a brief description of the project and a timeline for completion. The form must be signed by the project’s primary and secondary advisers, at least one of whom is a member of the faculty of the Department of Music.

**The intensive major** The intensive major is for students of high standing who are qualified to do sustained independent and original work in the history or theory of music or in composition. Students wishing to elect the intensive major must register for the senior project in the fall term of their senior year (MUSI 490, 492, or MUSI 494). A plan for progress must be included in the project proposal at the beginning of the fall term, specifying a deliverable end-of-term product with approximately the same scope as a one-term senior project. Upon satisfactory completion of this work, a student may be admitted to the intensive major, which consists of a second term of registration for the senior project (MUSI 491, MUSI 493, or MUSI 495). The additional course for the intensive major is supplementary to the twelve term courses that constitute the standard major.

**ADVISING**

**Simultaneous B.A./M.A. program** Undergraduates with exceptionally strong preparation in music history or music theory may complete a course of study leading to the simultaneous award of the B.A. and M.A. degrees after eight terms of enrollment. Students may not enroll in Yale College for more than eight terms to qualify for the simultaneous award of both degrees. Declared majors in Music may apply for the program until the last day of classes in their fifth term of enrollment if they have completed at least two graduate courses in the Department of Music, at least one numbered 700 or higher, with grades of B+ or above, and if their overall grade average is A– or above. Applicants must demonstrate progress toward proficiency in a foreign language examined by the Department of Music.

Students in the simultaneous program fulfill the requirements for the intensive major in Music. They also take eight graduate courses in the Department of Music, with average grades of B+ or higher and grades of A or A– in at least two of the courses. They satisfy the Yale College requirements for the program (see "Simultaneous Award of the Bachelor’s and Master’s Degrees" in section K, Special Programs, in the Academic Regulations), and they pass a departmental examination in a modern foreign language.

**B.A./M.M. program** The Bachelor of Arts/Master of Music program is designed for students with outstanding abilities in performance who are also interested in a liberal arts education. Admission to the B.A./M.M. program is through acceptance into Yale College as well as a separate, successful audition through the School of Music, either before matriculation into Yale College, or after the third year of the B.A. program.

B.A./M.M. students usually complete requirements for the Bachelor of Arts in their first four years and for the Master of Music after one year of the Master of Music program in the School of Music (fifth year). Before their fourth year students should have completed, at a minimum, the following:

- *music majors*: four terms of performance (MUSI 360, 361, 460, 461) and MUSI 210 and 211 by the end of the junior year
- *majors in subjects other than music*: four terms of performance (MUSI 360, 361, 460, 461) and four courses, including two from the MUSI 301–311 series, and two of MUSI 350, 351, 352, or 353, by the end of the junior year

Students cannot accelerate the undergraduate program in the B.A./M.M. program.

In their fourth year, students must take MUS 540 and MUS 544 each term, and they are advised to take two terms of a performance ensemble if schedules permit. B.A./M.M. students who major in an orchestral instrument are required to participate in the Yale Symphony or the School of Music Philharmonia. Guitarists and keyboard players should consult with their major teacher about requisites beyond the lessons and seminar.

By the end of the fifth year all students participating in the B.A./M.M. program must have met the School of Music’s standard in musicianship and music history either through testing or course work. They must also have completed language and keyboard proficiency requirements.

**REQUIREMENTS OF THE MAJOR**

**Prerequisites** MUSI 210, 211, 218, and 219, or equivalents

**Number of courses** 12 term courses beyond prereqs, 11 numbered 300 or above

**Specific courses required** MUSI 350, MUSI 351, 352, 353; 2 from MUSI 301–311; 1 Level III or IV music course with the WR designation

**Distribution of courses** 4 addtl courses from Levels II, III, IV, of which only 1 is from Level II

**Senior requirement** One-term senior essay or project in MUSI 490–497

**Intensive major** Two-term senior essay or project (MUSI 490, 491, or 492, 493, or 494, 495)

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**FACULTY OF THE DEPARTMENT OF MUSIC**

**Professors** Kathryn Alexander (Adjunct), Richard Cohn, Michael Friedmann (Adjunct), Daniel Harrison, Paul Hawkshaw (Adjunct), James Hepokoski (Chair), Richard Lalli (Adjunct), Patrick McCreless, Leon Plantinga (Emeritus), Ian Quinn, Ellen Rosand (Emeritus), Gary Tomlinson, Michael Veal

**Associate Professors** Robert Holzer (Adjunct), Brian Kane, Gundula Kreuzer, Markus Rathey (Adjunct), Toshiyuki Shimada (Adjunct)

**Assistant Professors** Konrad Kaczmarek, Henry Parkes, Anna Zayaruznaya
Lecturers  Daniel Egan, Andrew Gerle, Grant Herreid, Annette Jolles, Sara Kohane, Joshua Rosenblum, Stanley Scott, Wendy Sharp, Maho Ishiguro

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Freshman Seminars

* MUSI 012a, One Thousand Years of Love Songs  Anna Zayaruznaya
  History of the love song in Western culture from the twelfth-century troubadours to contemporary popular hits. Music and the shifting social constructions of desire over the past millennium. The song repertory’s engagement with ideas and movements such as courtly love, humanism, romanticism, sexual libertinism, and the LGBT rights movement. Enrollment limited to freshmen. Preregistration required; see under Freshman Seminar Program.  HU  RP

* MUSI 020b, Conducted Improvisation Ensemble  Michael Veal
  Exploration and elaboration of the conduction (i.e., conducted improvisation) methods of Lawrence “Butch” Morris (1947–2013). Ensemble rehearsals; weekly listening assignments to familiarize students with different approaches to improvised music; assigned readings that provide historical context for students’ musical work. Players of all instruments and skill levels are welcome. Enrollment limited to freshmen. Preregistration required; see under Freshman Seminar Program.  HU  RP

Level I

MUSI 110a or b, Introduction to the Elements of Music  Staff
  The fundamentals of musical language (notation, rhythm, scales, keys, melodies, and chords), including writing, analysis, singing, and dictation. Intended for students who have no music reading ability.  HU

MUSI 112a, Listening to Music  Staff
  Development of aural skills that lead to an understanding of Western music. The musical novice is introduced to the ways in which music is put together and is taught how to listen to a wide variety of musical styles, from Bach and Mozart, to Gregorian chant, to the blues.  HU

MUSI 131b, Introduction to the History of Western Music: 1800 to the Present  Gundula Kreuzer
  A survey of nineteenth- and twentieth-century composers, genres, and styles of music in Europe and America, with an emphasis on ways of listening. No prerequisites.  HU

MUSI 145b, The History and Style of Rock Music  Daniel Harrison
  A survey of major styles, genres, and artists in popular commercial music ca. 1960–2010. Analysis of individual songs, albums, and repertories, supported by study of cultural contexts, careers and biographies, and developments in the recording industry.  HU

MUSI 175b, The Mathematics of Music  Richard Cohn
  An introduction to applied mathematics in the context of music theory and analysis. Concepts from algebra, modular arithmetic, set theory, geometry, and elementary topology are applied to the study of musical rhythms, melodies, and chords across a wide repertoire of classical, atonal, and popular musics. Prerequisite: ability to read music.  QR, HU

Level II

* MUSI 210a or b, Elementary Studies in Analysis and Model Composition I  Staff
  Practical investigation of the basic principles of tonal harmony, counterpoint, and composition through exercises in analysis, motivic development, phrase rhythm, texture, form, performance, and model composition. Recommended to be taken concurrently with MUSI 218 or 219. Admission after MUSI 110 or by the music theory placement test. See the Calendar for the Opening Days or the Music department Web site for information about the placement test. To be followed by MUSI 211.  HU

* MUSI 211a or b, Elementary Studies in Analysis and Model Composition II  Staff
  Continuation of MUSI 210. Recommended to be taken concurrently with MUSI 218 or 219. Admission after MUSI 210 or by the music theory placement test. See the Calendar for the Opening Days or the Music department Web site for information about the placement test.  HU  RP

* MUSI 214a, Songwriting for Musical Theater  Joshua Rosenblum
  Introduction to elements of music- and lyric-writing for theater songs. Focus on the development of compositional proficiency in the musical theater idiom and on the refinement of each student’s compositional voice as composer and/or lyricist. Prerequisite: MUSI 110 or equivalent. Enrollment limited to 12.  HU  RP

* MUSI 218a or b, Elementary Musicianship I  Staff
  Exercises in melodic and harmonic dictation, sight-singing, keyboard harmony, and aural analysis. Admission after MUSI 110 or by the music theory placement test. See the Calendar for the Opening Days or the Music department Web site for information about the placement test.  RP  ½ Course cr

* MUSI 219a or b, Elementary Musicianship II  Staff
  Continuation of MUSI 218. Prerequisite: MUSI 218. Recommended to be taken concurrently with MUSI 210 or 211.  RP  ½ Course cr
* MUSI 220a and MUSI 221b, The Performance of Chamber Music  Wendy Sharp
Coached chamber music emphasizing the development of ensemble skills, familiarization with the repertory, and musical analysis through performance. Admission by audition only. May be repeated for credit. For audition information e-mail wendy.sharp@yale.edu. Credit for MUSI 220 only on completion of MUSI 221.  RP ½ Course cr per term

* MUSI 221b, The Performance of Chamber Music  Wendy Sharp
Preparing and performing chamber music works, including rehearsal techniques, leading, developing musical concepts, learning to work effectively in a small group, and performing. Weekly coaching and rehearsals, bimonthly studio classes, and end-of-term recitals. Open to qualified Yale College instrumentalists and pianists by audition only. Prerequisite: MUSI 220. May be repeated for credit. For audition information e-mail wendy.sharp@yale.edu.  RP ½ Course cr per term

* MUSI 222a or b, The Performance of Vocal Music  Richard Lalli
A course for singers and pianists that emphasizes the analysis and musical preparation of classical solo song and operatic repertoire. Examination of structure (poetic, harmonic, motivic), discussion of style, exploration of vocal techniques, and introduction to the International Phonetic Alphabet. Students are strongly encouraged to supplement the course with individual voice instruction. Admission by audition only. May be repeated for credit. For audition information e-mail richard.lalli@yale.edu.  HU RP

* MUSI 223a, The Performance of Early Music  Grant Herreid
A study of musical styles of the twelfth through early eighteenth centuries, including examination of manuscripts, musicological research, transcription, score preparation, and performance. Students in this class form the nucleus of the Yale Collegium Musicum and participate in a concert series at the Beinecke Library. Admission by audition only. May be repeated for credit. For audition information e-mail grant.herreid@yale.edu.  HU RP

* MUSI 224a, Musical Theater Performance I  Annette Jolles
The structure and meaning of traditional and contemporary musical theater repertoire. Focus on ways to "read" a work, decipher compositional cues for character and action, facilitate internalization of material, and elicit lucid interpretations. For singers, pianists, and directors. Prerequisites: MUSI 211 and 219, or with permission of instructor. Admission by audition only. May be repeated for credit. For audition information e-mail dan.egan@yale.edu.  HU RP

* MUSI 226b, Musical Theater Performance II  Andrew Gerle
The collaborative process and its effect on musical theater performance. Choreography, music direction, and origination of new works. Analysis of texts, scripts, and taped or filmed performances; applications in students' own performance. May be repeated for credit. For audition information e-mail dan.egan@yale.edu.  RP

* MUSI 231a, Laptop Ensembles: Study and Performance  Konrad Kaczmarek
Introduction to music technology through a combination of classroom learning and live performance. The appropriation of music technology through software and hardware hacking; laptop-based production and performance tools; hybrid electroacoustic instruments and electronic chamber music; live audio processing; novel approaches to notation and conducting. Students create new works and perform in a concert at the end of the term. Counts toward the Music major as a Level III course with permission of instructor.

* MUSI 232a or b, Central Javanese Gamelan Ensemble  Maho Ishiguro
An introduction to performing the orchestral music of central Java and to the theoretical and aesthetic discourses of the gamelan tradition. Students form the nucleus of a gamelan ensemble that consists primarily of tuned gongs and metallophones; interested students may arrange for additional private instruction on more challenging instruments. The course culminates in a public performance by the ensemble. No previous musical experience required.  RP

* MUSI 236a, American Musical Theater History  Daniel Egan
Critical examination of relevance and context in the history of the American musical theater. Historical survey, including nonmusical trends, combined with text and musical analysis.  WR, HU RP

MUSI 278a / AFAM 193a, Dub and Hip-Hop, Musical Technologies of the Black Atlantic  Michael Veal and John Klaess
Historical and music-analytical survey of the history of two genres that transformed the sound and structure of global popular music in the 1970s and beyond: Jamaican dub music and African-American hip-hop music. Narrative focuses on specific recording studios, producers and engineers, and successive forms of music production technology.  HU, SO

* MUSI 295b, Electronic Dance Music and Creative Techniques  Kathryn Alexander
Survey of creative techniques used in electronic dance music, such as digital sampling, synthesis, MIDI sequencing, DSP, and mixing. Focus on evolving EDM genres and repertoire. Prerequisite: MUSI 110 or 200 level music theory course or equivalent.  HU RP

Level III

All courses numbered 300 and above require the ability to read music.

* MUSI 301b, Modal Counterpoint: Analysis and Composition  Patrick McCreless
Studies in the theory, analysis, and composition of sixteenth-century modal polyphony. Prerequisite: MUSI 211. Enrollment limited to 18. Preference to Music majors according to class.  RP
**MUSI 302a, Tonal Counterpoint: Analysis and Composition**  Daniel Harrison  
Intermediate studies in the theory, analysis, and composition of the music of the early and mid-eighteenth century. Prerequisite: MUSI 211. Enrollment limited to 18. Preference to Music majors according to class.  HU

**MUSI 309a, Musical Spaces, Sets, and Geometries**  Richard Cohn  
Conception and representation of pitch and rhythm systems using set, group, and graph theory. Focus on European concert music of the late nineteenth and twentieth centuries. Prerequisite: MUSI 211. Enrollment limited to 18. Preference to Music majors according to class.  Q8

**MUSI 312a, Composition Seminar I**  Kathryn Alexander  
Intermediate analytic and creative projects in music composition, instrumentation, and scoring for visual media. Study of compositional procedures and techniques in different genres and styles. Group and individual lessons to supplement in-class activities. Enrollment limited to 20. Students with questions should contact the instructor at kathryn.alexander@yale.edu. Prerequisite: MUSI 210 or 211 or equivalent.  WR, HU RP

**MUSI 313b, Composition Seminar II**  Konrad Kaczmarek  
Intermediate analytic and creative projects in music composition, instrumentation, and recording and production techniques. Study of compositional procedures and techniques in different genres and styles. Group and individual lessons to supplement in-class lectures. Enrollment limited to 20. Students with questions should contact the instructor at konrad.kaczmarek@yale.edu. Prerequisite: MUSI 210 or MUSI 211 and/or MUSI 312.  RP

**MUSI 314b, Advanced Composition for Musical Theater**  Staff  
Intermediate and advanced project-oriented studies in composition of musical theater. Prerequisite: MUSI 210. May be repeated for credit. Enrollment limited to 12.  HU RP

**MUSI 319a, Advanced Musicianship**  Michael Friedmann  
Development of students' ability to recognize and generate structures and processes particular to music of the twentieth century. Student composers and advanced performers of post-tonal music expand their perceptive skills. Course activities include singing (and playing), dictation, identification, improvisation, and recognition. Musical examples from the works of Schoenberg, Bartók, Debussy, and Stravinsky. Enrollment limited to 14.

**MUSI 322b / THST 318b, Analyzing, Directing, and Performing Early Opera**  Grant Herreid  
Study of a seventeenth-century Venetian opera, with attention to structural analysis of text and music. Exploration of period performance practice, including rhetorical expression, musical style, gesture, dance, Italian elocution, and visual design. Production of the opera in conjunction with the Yale Baroque Opera Project. Open to all students, but designed especially for singers and directors. Prerequisites: MUSI 211 and 219. Admission by audition only. May be repeated for credit. For audition information e-mail grant.herreid@yale.edu.  HU RP

**MUSI 323a, Introduction to Conducting**  Toshiyuki Shimada  
An introduction to conducting through a detailed study of the problems of baton technique. Skills applied to selected excerpts from the standard literature, including concertos, recitatives, and contemporary music.

**MUSI 324b, Intermediate Conducting**  Toshiyuki Shimada  
Intermediate studies in baton technique and score preparation. After MUSI 323.

**MUSI 331a, Arranging for Voices**  Jeffrey Klitz  
An introduction to vocal arranging through analysis and skill-based exercises in the medium. Development of vocabulary and analytical skill in identifying form, function, and traditional arranging techniques through applied study, listening, and inspection of scores produced for theater, concert, recording, and historical venues. Prerequisite: MUSI 211 or equivalent. Admission by audition only. To audition, students should submit PDF scores of two arrangements, with MP3 recordings if available.  RP

**MUSI 332b, Analysis and Performance of Early Music**  Grant Herreid  
Continuation of MUSI 322. Analytical techniques applied to interpretation and performance. Emphasis on the development of vocal technique and sight-reading skills. Students in this class form the nucleus of the Yale Collegium Musicum. Prerequisite: MUSI 223 or equivalent. Admission by audition only. May be repeated for credit. For audition information see www.yale.edu/oci.  HU RP

**MUSI 333a / THST 309a, Women on Stage, From Baroque to Beyoncé**  Gundula Kreuzer and Annecies Andries  
Investigation of women’s representation and involvement in musical performances over last 400 years. Opera and popular music in dialogue with gender studies, performance studies, and recently burgeoning field of voice studies. Topics include: rise of women virtuose in seventeenth-century Italy; various gender stereotypes in opera and society; role of technology in twentieth-century female artistry; gender-bending in performance art; marketing of the female body; and musical construction of feminism and racial identity. Prerequisite: reading knowledge of music and several years of musical experience.  WR, HU

**MUSI 343b / CGSC 343b, Music Cognition**  Ian Quinn  
A survey of historical and current approaches to questions about the perception and cognition of music. Topics include psychoacoustics; the cognitive neuroscience of music; relationships between music and language; the nature of musical knowledge; and debates about aesthetics, evolutionary psychology, and musical universals. Prerequisite: MUSI 110 or familiarity with music notation.  SO
* MUSI 345a / FILM 359a, Introduction to Sound Studies  
Brian Kane
A broad introduction to sound studies, an emerging field that analyzes both the technologies and the cultural techniques involved in the production, reception, and meaning of sound and listening. Topics include soundscapes, voice, modes of listening, audio technologies, electronic music, and noise. How sound studies intersects with more traditional methods of music studies.  
HU

* MUSI 350b, History of Western Music: Middle Ages and Renaissance  
Anna Zayaruznaya
A detailed investigation of the history of musical style from A.D. 900 to 1600. Preference to Music majors according to class.  
HU

* MUSI 352a, History of Western Music: The Nineteenth and Twentieth Centuries  
James Hepokoski
A detailed investigation of the history of musical style from 1800 to the present. Preference to Music majors according to class.  
HU

* MUSI 352a / AFST 352a, Topics in World Music  
Michael Veal
A critical introduction to selected cultures of world music. Specific cultures vary from year to year but generally include those of Native America, South Asia, Southeast Asia, sub-Saharan Africa, the Middle East, and the Caribbean. Preference to Music majors according to class.  
HU

* MUSI 371b / ENAS 344b, Musical Acoustics and Instrument Design  
Lawrence Wilen and Konrad Kaczmarek
Practical study of musical acoustics. The physics and design of musical instruments, with attention to all aspects of sound, from the origin of the vibration in the instrument to the perception by the listener. Student teams design and construct novel instruments and produce relevant applications. Requires a basic knowledge of physics, including concepts of kinetic and potential energy and Newton’s laws.  
QR, HU, SC, RP

MUSI 372a / CPSC 134a, Programming Musical Applications  
Scott Petersen
Topics in computer music, including musical representations for computing, automated music analysis and composition, interactive systems, and virtual instrument design. Use of domain-specific programming languages and libraries to explore how the principles of computer science can be applied to music to create new interfaces, instruments, and tools. Recommended preparation: the ability to read music or play an instrument.  
QR

Level IV

* MUSI 412a, Composition Seminar III  
Konrad Kaczmarek
Advanced analytic and creative projects in music composition and chamber music. Ongoing study of contemporary procedures and compositional techniques. Group and individual lessons to supplement in-class lectures. Admission by audition only. May be repeated for credit. Enrollment limited to 10. To audition, students should upload two PDF scores and MP3 recordings in a single zip file by 4 p.m. on Wednesday, September 6, to the designated Music 412 Audition assignment page at the Canvas site. Students with questions should contact the instructor at konrad.kaczmarek@yale.edu. Prerequisites: both MUSI 312 and 313.  
RP

* MUSI 413b, Composition Seminar IV  
Kathryn Alexander
Advanced analytic and creative projects in music composition and scoring for visual media. Ongoing study of evolving contemporary procedures and compositional techniques. Group and individual lessons to supplement in-class lectures. Admission by audition only. May be repeated for credit. Enrollment limited to 10. To audition, students should upload two PDF scores and MP3 recordings in a single zip file by 4 p.m. on Wednesday, January 17, to the designated Music 413 Audition assignment page at the Canvas site. Students with questions should contact the instructor at kathryn.alexander@yale.edu. Prerequisites: both MUSI 312 and 313.  
RP

* MUSI 426a, Chamber Music of Robert Schumann: Analysis and Performance  
Michael Friedmann
A study of selected chamber works by Schumann, coupling analytical research with practical performance issues. Advanced violinists, violists, cellists, clarinetists, oboists, hornists, and pianists admitted by audition.  

MUSI 427a / CPSC 431a, Computer Music: Algorithmic and Heuristic Composition  
Scott Petersen
Study of the theoretical and practical fundamentals of computer-generated music, with a focus on high-level representations of music, algorithmic and heuristic composition, and programming languages for computer music generation. Theoretical concepts are supplemented with pragmatic issues expressed in a high-level programming language. Ability to read music is assumed. After CPSC 202 and 223.  
QR

MUSI 428b / CPSC 432b, Computer Music: Sound Representation and Synthesis  
Scott Petersen
Study of the theoretical and practical fundamentals of computer-generated music, with a focus on low-level sound representation, acoustics and sound synthesis, scales and tuning systems, and programming languages for computer music generation. Theoretical concepts are supplemented with pragmatic issues expressed in a high-level programming language. Ability to read music is assumed. After CPSC 202 and 223.  
QR

* MUSI 436a, Apocalypse 1317  
Anna Zayaruznaya
Close study of a copy of the apocalyptic poem *Roman de Fauvel*, copied c. 1317 at the French royal court, and the wealth of songs in a variety of genres it preserves. Exploration of technologies of music writing in early fourteenth-century Paris and how different media (poem, song, and image) together can perform political critique in an early multimedia object. Prerequisite: some knowledge of modern music notation.  
WR, HU
* MUSI 450b, Special Topics in Music, Multimedia Art, and Technology Konrad Kaczmarek
Live audio and video processing using the visual programming environment Max/MSP/Jitter. Topics include human computer interaction (HCI), instrument design, alternative controllers, data mapping, algorithmic composition, real-time digital signal processing, communication over the network, and programming for mobile devices. HU

Research Seminars
* MUSI 445b, Trends in European Orchestral Music, 1950 to the Present Patrick McCreless
Survey of prominent European compositional styles that have emerged since the end of World War II, with a focus on compositions for larger ensembles. Readings include analytical and historical scholarship, as well as statements by the composers themselves. Emphasis on analytical engagement with the compositions and on the rich diversity and vitality of contemporary art music. Prerequisites: MUSI 211 and 219 or equivalents. WR, HU
* MUSI 478b / MUSI 578, Music, Service, and Society Sebastian Ruth
The role of musicians in public life, both on and off the concert stage. New ways in which institutions of music can participate in the formation of civil society and vibrant communities. The potential influence of music on the lives of people experiencing political or social oppression. HU RP

Individual Study
* MUSI 471a and MUSI 472b, Individual Study Ian Quinn
Original essay in ethnomusicology, music history, music theory, or music technology and/or multimedia art under the direction of a faculty adviser. Admission to the course upon submission to the department of the essay proposal by the registration deadline, and approval of the director of undergraduate studies.

Individual Instruction in Performance
* MUSI 360a or b, Performance: First Term Richard Gard
Individual instruction in the study and interpretation of musical literature. Auditions for assignment to instructors (for both credit and noncredit lessons) are required for freshmen and some returning students, and are held only at the beginning of the fall term. For details, see the Music department’s program description in the YCPS.
* MUSI 361a or b, Performance: Second Term Richard Gard
Continuation of MUSI 360.
* MUSI 362a or b, Performance: Third Term Richard Gard
Continuation of MUSI 361. For details, see the Music department’s program description in the YCPS.
* MUSI 363a or b, Performance: Fourth Term Richard Gard
Continuation of MUSI 362.
* MUSI 364a or b, Performance: Beyond Fourth Term Richard Gard
Continuation of MUSI 363. 0 Course cr
* MUSI 460a or b, Advanced Performance: First Term Richard Gard
Individual instruction for advanced performers in the study and interpretation of musical literature. Auditions for assignment to instructors (for both credit and noncredit lessons) are required for freshmen and some returning students, and are held only at the beginning of the fall term. For details, see the Music department’s program description in the YCPS.
* MUSI 461a or b, Advanced Performance: Second Term Richard Gard
Continuation of MUSI 460.
* MUSI 462a or b, Advanced Performance: Third Term Richard Gard
Continuation of MUSI 461. For details, see the Music department’s program description in the YCPS. Prerequisite: MUSI 361 or 461.
* MUSI 463a or b, Advanced Performance: Fourth Term Richard Gard
Continuation of MUSI 462.
* MUSI 464a or b, Advanced Performance: Beyond Fourth Term Richard Gard
Continuation of MUSI 463. 0 Course cr

Senior Projects
* MUSI 490a and MUSI 491b, The Senior Essay Ian Quinn
Preparation of a senior essay under faculty supervision. Admission by permission of the director of undergraduate studies.
* MUSI 492a and MUSI 493b, The Senior Project in Composition Ian Quinn
Preparation of a senior composition project under faculty supervision. Admission by permission of the composition faculty of the Department of Music. Prerequisites: MUSI 312, 315, 412, and 413.
* MUSI 494a and MUSI 495b, The Senior Project in Musical Theater Composition  Ian Quinn
Preparation of a senior composition project in the field of musical theater under faculty supervision. Admission by permission of the coordinator of the Shen Curriculum. Two terms of MUSI 314 or equivalent.

* MUSI 496a and MUSI 497b, The Senior Recital  Ian Quinn
Preparation and performance of a senior recital and accompanying essay under faculty supervision. Admission by permission of the director of undergraduate studies. Prerequisite: MUSI 461.