

## Descriptions — Microbiology of Courses

**828. Bacterial Diversity Laboratory**  
Fall of odd-numbered years. 2(0-6)  
P: MIC 827 or concurrently. R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources.  
Isolation and identification of representative groups of bacteria.

**829. Advanced Microbial Ecology**  
Fall of even-numbered years. 2(0-3) Interdepartmental with Crop and Soil Sciences.  
Functional roles of microorganisms, their population dynamics and interactions, and their mechanisms of evolutionary change in natural communities, laboratory experiments, and mathematical models.

**833. Microbial Genetics**  
Fall. 3(3-0)  
R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources.  
Gene structure and function. Genetic regulation at classical and molecular levels in prokaryotes and lower eukaryotes.

**835. Eukaryotic Molecular Genetics**  
Spring. 3(3-0) Interdepartmental with Genetics.  
P: BCH 462, ZOL 341. R: Open only to graduate students in the colleges of Agriculture and Natural Resources, Engineering, Human Medicine, Natural Science, Osteopathic Medicine, and Veterinary Medicine.  
Gene structure and function in animals, plants, and fungi. Basic aspects of modern human genetics and the genetic basis for disease. Molecular genetic analyses. Eukaryotic modeling systems.

**841. Soil Microbiology**  
Spring of even-numbered years. 3(3-0) Interdepartmental with Crop and Soil Sciences.  
P: MIC 425.  
Ecology, physiology, and biochemistry of microorganisms indigenous to soil.

**851. Immunology**  
Fall of odd-numbered years. 3(3-0)  
R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources.  
Functional aspects of immune responses; synthesis, structure, and function of effector molecules; cell-cell interactions; current advances and research techniques.

**890. Special Problems in Microbiology**  
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. Approval of department.  
Individualized laboratory or library research.

**892. Seminar**  
Fall, Spring. 1(1-0) A student may earn a maximum of 6 credits in all enrollments for this course.  
R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, College of Human Medicine, College of Natural Science, College of Osteopathic Medicine, or College of Veterinary Medicine.  
Student review and presentation of selected topics in microbiology and public health.

**899. Master's Thesis Research**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 24 credits in all enrollments for this course.  
R: Open only to graduate students in Microbiology and Public Health.

**991. Topics in Microbiology**  
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.  
Topics are selected from traditional subdisciplines such as bacteriology, virology, cell biology, and immunology or from transecting subdisciplines such as microbial genetics, physiology, molecular biology and ecology.

**999. Doctoral Dissertation Research**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 99 credits in all enrollments for this course.  
R: Open only to graduate students in Microbiology and Public Health.

## MILITARY SCIENCE MS

### Department of Military Science Office of the Provost

**101. Leadership: The Military Profession**  
Fall, Spring. 1(1-1)  
Analysis of military profession from several academic perspectives. Technical, ethical, and personal ramifications of officership. Introduction to military leadership. Lab introduces military skills.

**102. Leadership: Land Navigation**  
Fall, Spring. 1(1-1)  
Military topographic and special maps: intersection, resection, modified resection, and polar coordinates. Tactical operation overlays. Preview of small unit leader's role in the Army. Lab: use of lensatic compass.

**201. Leadership Assessment Program, the Military Leader**  
Fall, Spring. 1(1-1)  
Individual leadership development using standardized assessment technology. Administration, personal relations, and decision making. Military writing and professional obligations. Lab includes rappelling and marksmanship.

**202. Leadership: First Aid/Fitness Training**  
Fall, Spring. 1(1-1)  
Emergency first aid including casualty evaluation, life-saving measures, CPR, and environmental injury prevention. Leader's role in implementing Army Physical Fitness Program. Individual and group fitness programs. Lab: hands on leadership training.

**301. Leadership: Command and Control Communication**  
Fall, Spring. 3(3-2)  
P: MS 202.  
Wire and radio communications for tactical operations. Encryption/decryption, use of codes, and electronic warfare. Theories and models of behavioral sciences for leadership. Lab emphasizes communication skills.

**302. Leadership: Small Unit Tactics**  
Fall, Spring. 3(3-2)  
P: MS 301.  
Military topographic and special maps: intersection, resection, modified resection, and polar coordinates. Tactical operation overlays. Preview of small unit leader's role in the Army. Lab: use of lensatic compass.

**401. Leadership: Management**  
Fall, Spring. 3(2-3)  
P: MS 302.  
Army training personnel administration and logistics systems, and the leader's role as a trainer and effective manager. Oral and written communication. Leadership assessment and development. Lab: practical experience in unit administration.

**402. Military Law, Ethics and Professionalism**  
Spring. 3(2-3)  
P: MS 401.  
Military legal system. Application of military justice. Fundamental values and principles of conduct in the profession of arms. Development of subordinates and the role of noncommissioned officers. Lab includes leadership development assessment.

**490. Independent Study in Military Science**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course.  
R: Open only to juniors and seniors. Approval of department.  
Individual research in areas related to military science.

## MUSIC MUS

### School of Music College of Arts and Letters

**112. Chamber Music**  
Fall, Spring. 1(0-2) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance of broad range of chamber music literature.

**114. Marching Band**  
Fall. 1(0-9) A student may earn a maximum of 6 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance of broad range of marching band literature at football games.

**115. Spartan Brass**  
Spring. 1(0-2) A student may earn a maximum of 6 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance of broad range of brass literature at basketball and hockey games.

**116. Campus Band**  
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course.  
Rehearsal and performance of broad range of band literature chosen from baroque period to the present.

**117. Concert Band**  
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance of broad range of wind literature from various historical periods and styles.

**118. Wind Symphony**  
Fall, Spring. 1(0-6) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance of broad range of wind literature from various periods and styles.

**120. Symphony Orchestra**  
Fall, Spring. 1(0-6) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance of symphonic and operatic repertoire.

- 121. Chamber Orchestra**  
Fall, Spring. 1(0-4) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance of representative chamber works of baroque, classic and contemporary composers.
- 122. Campus Orchestra**  
Fall, Spring. 1(0-2)  
Rehearsal and performance of symphonic and concert literature written for large orchestra, conducted by staff conductors under the supervision of faculty.
- 123. Collegiate Choir**  
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance of representative literature for mixed choir with emphasis on renaissance, baroque, classical, romantic, and contemporary composers.
- 124. Choral Union**  
Fall, Spring. 1(0-2) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
University and community chorus. One evening rehearsal per week, culminating in performance of a major work with orchestra.
- 125. Glee Club, Men and Women**  
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course.  
Rehearsal and performance of broad range of choral literature chosen from medieval period to the present.
- 126. State Singers**  
Fall, Spring. 1(0-4) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Mixed choir performing music from all periods.
- 127. University Chorale**  
Fall, Spring. 1(0-4) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Mixed chamber choir for experienced singers performing representative literature from all periods.
- 129. Percussion Ensemble**  
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance of representative works for percussion and mallet ensembles.
- 130. Jazz Band**  
Fall, Spring. 1(0-4) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance in large jazz ensemble. Literature from classic bands of Ellington and Basie to contemporary composers.
- 131. Jazz Combo**  
Fall, Spring. 1(1-2) A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance in small jazz ensembles. Literature from all historical periods of jazz.
- 141. Class Instruction in Piano I**  
Fall, Spring. 1(1-1)  
R: Open only to students in School of Music.  
Use of the piano as a teaching tool.
- 142. Class Instruction in Piano II**  
Spring. 1(1-1)  
P: MUS 141. R: Open only to students in School of Music.  
Use of the piano as a teaching tool.
- 143. Class Instruction in Voice I: Music Majors**  
Fall. 1(1-1)  
C: MUS 151. R: Open only to students in School of Music with an emphasis in voice.  
English lyric diction. Rules of pronunciation. Performance of English language songs in class.
- 144. Class Instruction in Voice II: Music Majors**  
Spring. 1(1-1)  
P: MUS 143. C: MUS 151. R: Open only to students in School of Music with an emphasis in voice.  
Italian lyric diction. Rules of pronunciation. Performance of Italian language songs in class.
- 145. Class Instruction in Voice I**  
Fall. 1(1-1)  
R: Not open to students in School of Music with an emphasis in voice.  
Rules of pronunciation. Vocal techniques.
- 146. Class Instruction in Voice II**  
Spring. 1(1-1)  
P: MUS 145. R: Not open to students in School of Music with an emphasis in voice.  
Vocal techniques and exploration of vocal literature.
- 147. Class Instruction in Elementary Piano I**  
Fall, Spring. 2(2-1)  
R: Not open to students in School of Music.  
Basic notation, performance, improvisation, and transposition. Repertoire includes folksongs, simple classics, and blues.
- 148. Class Instruction in Elementary Piano II**  
Fall, Spring. 2(2-1)  
P: MUS 147. R: Not open to students in School of Music.  
Note reading and performance, folksongs, easy ragtime, jazz, and shorter classics.
- 149. Keyboard Skills**  
Fall, Spring. 1(0-2) A student may earn a maximum of 4 credits in all enrollments for this course.  
R: Open only to students in School of Music.  
Sight-reading, transposing, figured bass, keyboard harmony, and accompanying instrumentalists and vocalists.
- 150A. Piano**  
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 18 credits in all enrollments for this course.  
R: Open only to students in School of Music. Audition required.  
Private instruction in piano.
- 150B. Pipe Organ**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Open only to students in School of Music. Audition required.  
Private instruction in pipe organ.
- 150C. Harp**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Open only to students in School of Music. Audition required.  
Private instruction in harp.
- 150J. Piano: Jazz**  
Fall, Spring. 1 to 2 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in piano.
- 151. Voice**  
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course.  
R: Open only to students in School of Music and students in Music teaching minor. Audition required.  
Private instruction in voice.
- 151J. Voice: Jazz**  
Fall, Spring. 1 to 2 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in voice.
- 152A. Violin**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in violin.
- 152B. Viola**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in viola.
- 152C. Cello**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in cello.
- 152D. Double Bass**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in double bass.
- 152J. Stringed Instruments: Jazz**  
Fall, Spring. 1 to 2 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in a stringed instrument.
- 153A. Flute**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in flute.
- 153B. Oboe**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in oboe.
- 153C. Clarinet**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in clarinet.
- 153D. Saxophone**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in saxophone.

**Descriptions — Music  
of  
Courses**

**153E. Bassoon**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in bassoon.

**153J. Woodwind Instruments: Jazz**  
Fall, Spring. 1 to 2 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in a woodwind instrument.

**154A. Trumpet**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in trumpet.

**154B. Horn**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in horn.

**154C. Trombone**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in trombone.

**154D. Euphonium**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in euphonium.

**154E. Tuba**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in tuba.

**154J. Brass Instruments: Jazz**  
Fall, Spring. 1 to 2 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in a brass instrument.

**155. Percussion Instruments**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 16 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in percussion instruments.

**155J. Percussion Instruments: Jazz**  
Fall, Spring. 1 to 2 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
R: Audition required.  
Private instruction in percussion instruments.

**160. Class Instruction in Guitar**  
Fall. 1(1-0)  
R: Open only to students in Music Therapy and to other students in School of Music with a teacher certification option.  
Chording, strumming and finger picking techniques. Accompanying and song leading with guitar. Reading of notation and tablature. Classical and popular styles.

**161. Class Instruction in Stringed Instruments**  
Fall. 2(2-2)  
R: Open only to students in Music Therapy and to other students in School of Music with a teacher certification option.  
Techniques for playing and teaching stringed instruments.

**162. Class Instruction in Flute and Saxophone**  
Spring. 1(0-2)  
R: Open only to students in School of Music with a teacher certification option.  
Techniques for playing and teaching flute and saxophone.

**163. Class Instruction in Clarinet**  
Fall. 1(0-2)  
R: Open only to students in School of Music with a teacher certification option.  
Techniques for playing and teaching clarinet.

**164. Class Instruction in Double Reed Instruments**  
Spring. 1(0-2)  
R: Open only to students in School of Music with a teacher certification option.  
Techniques for playing and teaching oboe and bassoon.

**165. Class Instruction in High Brass Instruments**  
Fall. 1(0-2)  
R: Open only to students in School of Music with a teacher certification option.  
Techniques for playing and teaching trumpet and horn.

**166. Class Instruction in Low Brass Instruments**  
Spring. 1(0-2)  
R: Open only to students in School of Music with a teacher certification option.  
Techniques for playing and teaching trombone, euphonium, and tuba.

**167. Class Instruction in Percussion Instruments**  
Fall. 2(1-2)  
R: Open only to students in Music Therapy and to other students in School of Music with a teacher certification option.  
Techniques for playing and teaching percussion instruments.

**180. Fundamentals of Music**  
Fall. 2(2-1)  
Conceptual and notational presentation of the basic components of musical structure. No previous familiarity with music is assumed.

**181. Musicianship I**  
Spring. 3(3-1)  
P: MUS 180.  
Hierarchical musical structure through species counterpoint and figured bass. Linear and vertical aspects of tonality.

**182. Ear Training and Sight Singing I**  
Fall. 1(1-1)  
Dictation, melody singing using solfege (movable do) syllables, intervals to octave, error detection, quarter note values in rhythm, part singing.

**183. Ear Training and Sight Singing II**  
Spring. 1(1-1)  
P: MUS 182.  
Dictation, singing melodies in major and minor keys. Simple modulation, chromatic alteration, error detection, rhythms, triads and components, part singing.

**200. Introduction to Music Theory**  
Fall. 1(1-1)  
R: Open only to graduate students in School of Music.  
Elements of music theory, with emphasis on voice-leading and harmonic analysis in diatonic and chromatic music.  
SA: MUS 800

**201. Aural Skills**  
Spring. 1(1-1)  
R: Open only to graduate students in School of Music.  
Ear training in the areas of melody, harmony, and rhythm. Sight singing using the solfege system. Computer-aided drill programs.  
SA: MUS 801

**211. History of Western Music to 1750**  
Fall. 3(3-0)  
P: MUS 181. R: Not open to freshmen. Open only to students in School of Music.  
Music from ancient Greece through the Baroque. Literature and theory of plainsong, instrumental and vocal traditions, and vocal polyphony before 1750 in sociopolitical context.

**212. History of Western Music Since 1750**  
Spring. 3(3-0)  
P: MUS 211. R: Not open to freshmen. Open only to students in School of Music.  
Literature of the cultivated tradition and its theory in sociopolitical context.

**230. Beginning Jazz Improvisation I**  
Fall. 2(2-0)  
P: MUS 181. R: Not open to freshmen.  
Keys, modes, chord progressions as improvisational tools. Blues form in basic keys. Aural transcription of recorded solos.

**231. Beginning Jazz Improvisation II**  
Spring. 2(2-0)  
P: MUS 230. R: Not open to freshmen.  
Performance of complete tunes using II,-V-I progressions in all major and minor keys. Transcriptions of recorded jazz solos.

**241. Advanced Class Instruction in Piano I**  
Fall. 1(1-1)  
P: MUS 142. R: Not open to freshmen. Open only to students in School of Music with an emphasis in voice.  
Use of the piano as a teaching tool in school music.

**242. Advanced Class Instruction in Piano II**  
Spring. 1(1-1)  
P: MUS 241. R: Not open to freshmen. Open only to students in School of Music with an emphasis in voice.  
Use of the piano as a teaching tool in school music.

**248. German Diction for Singers**  
Fall. 1(1-1)  
P: MUS 151. R: Open only to students in School of Music.  
German lyric diction. Rules of pronunciation. Performance of German art songs in class.

**249. French Diction for Singers**  
Spring. 1(1-1)  
P: MUS 151. R: Open only to students in School of Music.  
French lyric diction. Rules of pronunciation. Performance of French art songs in class.

**260. Introduction to School Music**  
Fall, Spring. 2(2-1)  
R: Not open to freshmen. Open only to students in the School of Music with a teacher certification option and to students with a Music teaching minor.  
Historical foundations, current trends, and teaching responsibilities in school music at all curricular levels.

**270. Music Therapy: Foundations and Principles**  
Fall. 3(3-0)

R: Not open to freshmen.

History, philosophy and scope of the practice of music therapy. Use of music in treating people with special needs. Field trips required.

**271. Music Therapy: Instrumental, Vocal and Movement Techniques**  
Spring. 3(3-0)

P: MUS 270. R: Not open to freshmen.

Creative and expressive techniques involving percussion instruments, autoharp, handchimes, song leading, creative movement, folk dance.

**280. Musicianship II**  
Fall. 3(3-1)

P: MUS 181.

Techniques of diatonic modulation and soprano harmonization. Chromatic techniques.

**281. Musicianship III**  
Spring. 3(3-1)

P: MUS 280.

Research base for formal categorization. Large-scale principles of musical organization. Chromatic substitution and chords derived from voice-leading.

**282. Advanced Ear Training and Sight Singing I**  
Fall. 1(1-1)

P: MUS 183.

Dictation including recognition of triads, functions, cadences, seventh-chord harmonies, chord components. Two-and four-part dictation and singing.

**283. Advanced Ear Training and Sight Singing II**  
Spring. 1(1-1)

P: MUS 282.

Recognition of harmonic functions in major keys, minor keys, and modulations. Dictation in two-and four-part textures including augmented-sixth chords and non-harmonic tones.

**290. Independent Study**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course.

R: Approval of school.

Special projects arranged by an individual student and a faculty member in areas supplementing regular course offerings.

**330. Advanced Jazz Improvisation I**  
Fall. 2(2-0)

P: MUS 231. R: Not open to freshmen and sophomores.

Secondary dominants, borrowed chords, and tritone substitutions. Transcription of recorded jazz solos.

**331. Advanced Jazz Improvisation II**  
Spring. 2(2-0)

P: MUS 330. R: Not open to freshmen and sophomores.

Pentatonic scale relationships within II-V-I progressions. Aleatoric approaches to improvisation. Non-traditional chord progressions. Transcription of recorded jazz solos.

**335. Ensemble Conducting I**  
Fall. 2(2-2)

P: MUS 181. R: Open only to students in the School of Music with a teacher certification option and to students with a Music teaching minor.

Introduction to conducting and rehearsal techniques.

**336. Ensemble Conducting II**  
Spring. 2(2-2)

P: MUS 335. R: Open only to students in the School of Music with a teacher certification option and to students with a Music teaching minor.

Advanced conducting and rehearsal techniques as applied to music literature from each of the stylistic periods.

**337. Conducting for Music Performance Majors**

Fall, Spring. 1(1-1)

R: Open only to Music Performance majors.

Beat patterns, clefs, and transpositions of string, wind, and percussion instruments. Score reading and analysis. Rehearsal techniques.

**339. Teaching School Music**  
Spring. 3(2-2)

P: MUS 260. R: Open only to students in the School of Music with a teacher certification option and to students with a Music teaching minor.

Techniques for developing instructional and management skills for teaching school music. On- and off-campus clinical experiences required.

**340. Methods and Literature for Voice**  
Fall. 3(3-0)

P: Four semesters of MUS 151. R: Open only to majors in School of Music.

Methods of teaching voice. Literature for both private lessons and classrooms.

**341. String Pedagogy**  
Spring. 2(2-1)

R: Open only to majors in School of Music.

Principles, techniques, and materials for teaching stringed instruments.

**346. Keyboard Methods and Literature I**  
Fall. 2(2-0)

P: Four semesters of MUS 150A. R: Open only to majors in School of Music.

Beginning and intermediate methods and literature for teaching piano. Observation and teaching of beginning piano students.

**347. Keyboard Methods and Literature II**  
Spring. 2(2-0)

P: MUS 346. R: Open only to majors in School of Music.

Intermediate and advanced methods and literature for teaching piano. Observation and teaching of piano students.

**348. Piano Accompanying**

Fall, Spring. 1(0-3) A student may earn a maximum of 8 credits in all enrollments for this course.

P: MUS 149. R: Not open to freshmen. Open only to students in School of Music.

Accompaniment of instrumental and vocal soloists.

**349. Piano Performance**

Fall, Spring. 1(0-2) A student may earn a maximum of 10 credits in all enrollments for this course.

C: MUS 150A or MUS 350A. R: Open only to students in School of Music.

Critique and analysis of individual performances in a group setting.

**350A. Piano**

Fall, Spring. 2 to 3 credits. A student may earn a maximum of 18 credits in all enrollments for this course.

P: MUS 150A. R: Open only to majors in School of Music, approval of school.

Private instruction in piano.

**350B. Pipe Organ**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 18 credits in all enrollments for this course.

P: MUS 150B. R: Open only to majors in School of Music, approval of school.

Private instruction in pipe organ.

**350C. Harp**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 18 credits in all enrollments for this course.

P: MUS 150C. R: Open only to majors in School of Music, approval of school.

Private instruction in harp.

**351. Voice**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 18 credits in all enrollments for this course.

P: MUS 151. R: Open only to majors in School of Music and to students in Music teaching minor, approval of school.

Private instruction in voice.

**352A. Violin**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

P: MUS 152A. R: Open only to majors in School of Music, approval of school.

Private instruction in violin.

**352B. Viola**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

P: MUS 152B. R: Open only to majors in School of Music, approval of school.

Private instruction in viola.

**352C. Cello**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

P: MUS 152C. R: Open only to majors in School of Music, approval of school.

Private instruction in cello.

**352D. Double Bass**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

P: MUS 152D. R: Open only to majors in School of Music, approval of school.

Private instruction in double bass.

**353A. Flute**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

P: MUS 153A. R: Open only to majors in School of Music, approval of school.

Private instruction in flute.

**353B. Oboe**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

P: MUS 153B. R: Open only to majors in School of Music, approval of school.

Private instruction in oboe.

**353C. Clarinet**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

P: MUS 153C. R: Open only to majors in School of Music, approval of school.

Private instruction in clarinet.

**Descriptions — Music  
of  
Courses**

**353D. Saxophone**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.  
P: MUS 153D. R: Open only to majors in School of Music, approval of school.  
Private instruction in saxophone.

**353E. Bassoon**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.  
P: MUS 153E. R: Open only to majors in School of Music, approval of school.  
Private instruction in bassoon.

**354A. Trumpet**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.  
P: MUS 154A. R: Open only to majors in School of Music, approval of school.  
Private instruction in trumpet.

**354B. Horn**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.  
P: MUS 154B. R: Open only to majors in School of Music, approval of school.  
Private instruction in horn.

**354C. Trombone**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.  
P: MSU 154C. R: Open only to majors in School of Music, approval of school.  
Private instruction in trombone.

**354D. Euphonium**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.  
P: MUS 154D. R: Open only to majors in School of Music, approval of school.  
Private instruction in euphonium.

**354E. Tuba**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.  
P: MUS 154E. R: Open only to majors in School of Music, approval of school.  
Private instruction in tuba.

**355. Percussion**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course.  
P: MUS 155. R: Open only to majors in School of Music, approval of school.  
Private instruction in percussion.

**363. Methods and Materials of Elementary Music I**

Fall, Spring. 2(2-0)  
R: Not open to freshmen and sophomores. Not open to students in the School of Music.  
How children learn music from early childhood to grade three.

**364. Methods and Materials of Elementary Music II**

Spring. 2(2-0)  
P: MUS 363. R: Not open to freshmen and sophomores. Not open to students in the School of Music.  
How children learn music in grades 4-6.

**370. Music Therapy: Behavior Measurement and Assessment**

Fall. 3(3-1)  
P: MUS 270. R: Open only to Music Therapy majors.  
Observation and assessment of behavior. Principles of behavioral change. Design of treatment. Ethics and standards of clinical practice. Field trips required.

**371. Music Therapy: Treatment Planning and Case Management**

Spring. 3(3-1)  
P: MUS 370. R: Open only to Music Therapy majors.  
Supervised clinical practice in music therapy. Goals and objectives of treatment. Design and evaluation of treatment programs. Field trips required.

**380. Musical Styles and Forms**

Fall. 3(3-1)  
P: MUS 281. R: Open only to majors in School of Music.  
Form in pre-20th century Western music. Stylistic analysis of representative medieval, renaissance, baroque, and 18th and 19th century compositions.

**381. 20th Century Music Theory**

Spring. 3(3-1)  
P: MUS 380.  
Western art music and jazz. Stylistic and formal analysis of representative compositions and jazz improvisations. Post-tonal theory. Jazz nomenclature and harmonic practice.

**412. History of Oratorio**

Spring of even-numbered years. 2(2-0)  
P: MUS 211. R: Open only to majors in School of Music.  
History and literature of oratorio since 1600.

**413. Keyboard Literature to Mid-19th Century**

Fall of even-numbered years. 2(2-1)  
P: MUS 281. R: Open only to majors in School of Music.  
Keyboard styles and works of representative composers such as Bach, Couperin, Mozart, Haydn and Beethoven.

**414. Keyboard Literature since the Mid-19th Century**

Spring of odd-numbered years. 2(2-1)  
P: MUS 413. R: Open only to majors in School of Music.  
Keyboard styles and works of representative composers such as Schumann, Chopin, Ives and Prokofiev.

**415. Art Song Literature: German**

Fall of even-numbered years. 2(2-1)  
P: MUS 181. R: Open only to majors in School of Music.  
Standard art song repertoire with emphasis on German Lieder. Performance of art songs in class.

**416. Art Song Literature: European and American**

Spring of odd-numbered years. 2(2-1)  
P: MUS 181. R: Open only to majors in School of Music.  
Standard art song repertoire with emphasis on Italian, French, and twentieth century art songs. Performance of art songs in class.

**420. Music of the 18th Century**

Fall of even-numbered years. 2(2-0)  
P: MUS 212. R: Not open to freshmen and sophomores. Open only to Music majors.  
Late baroque and early classical traditions: styles, genres, forms, theories, aesthetics, performance practices, instruments and masterworks in sociopolitical context. Aural and score analysis of representative works.

**421. 19th Century European-American Music Literature**

Spring of odd-numbered years. 2(2-0)  
P: MUS 212. R: Not open to freshmen and sophomores.  
Late classical and romantic period traditions: styles, genres, forms, theories, aesthetics, performance practice, instruments and masterworks in sociopolitical context. Aural and score analysis of representative works.

**422. 20th Century European and American Music Literature**

Spring of even-numbered years. 2(2-0)  
P: MUS 212. R: Not open to freshmen and sophomores.  
Twentieth-century styles, genres, forms, theories, aesthetics, performance practices, instruments and masterworks in sociopolitical context. Aural and score analysis of representative works.

**423. History of Opera**

Fall of odd-numbered years. 2(2-0)  
P: MUS 212. R: Open only to majors in School of Music.  
Musical, cultural, and social significance of opera since 1600.

**427. Music of Asia, the Pacific, and the Near East**

Fall. 2(2-0)  
P: MUS 212. R: Open only to majors in School of Music.  
Music in the cultures of the Asian continent and Pacific islands. Techniques of ethnomusicology, listening and analysis.

**428. Music of Africa, Europe, and the Americas**

Spring. 2(2-0)  
P: MUS 212. R: Open only to majors in School of Music.  
Music in the cultures of Africa, Europe, and the Americas with emphasis on folk and vernacular traditions. Techniques of ethnomusicology, listening and analysis.

**432. Jazz Arranging I**

Fall. 2(2-0)  
P: MUS 281.  
Jazz instrumental writing focusing on voicing concepts for standard jazz chord progressions, melody and counter-melody, and standard forms. Beginning orchestration techniques which emphasize form.

**433. Jazz Arranging II**

Spring. 2(2-0)  
P: MUS 432.  
Jazz instrumental writing focusing on orchestration and arranging concepts for large jazz ensembles. Voicing of chords within and across sections. Orchestration techniques which emphasize form.

**435. Opera Theatre**

Fall, Spring. 1 to 2 credits. A student may earn a maximum of 8 credits in all enrollments for this course.  
R: Audition required.  
Rehearsal and performance of complete operas and operatic excerpts.

**440. Electronic and Computer Music Literature**

Fall. 3(3-0)  
P: MUS 281. R: Not open to freshmen and sophomores.  
Music literature composed with tape recorders, synthesizers and computers.

**441. Introduction to Computer Music**

Fall. 3(3-0)  
P: MUS 281. R: Not open to freshmen.  
Digital synthesizers, samplers, and Musical Instrument Digital Interface. Computer sequencing and timbre editing software. Compositional techniques of computer music.

- 442. Independent Projects in Computer Music**  
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.  
P: MUS 441.  
Independent composition or research in computer music. Assigned use of computer music studios.
- 448. Advanced Keyboard Methods and Literature I**  
Fall. 2(2-0)  
P: MUS 347. R: Open only to majors in School of Music. Advanced piano literature for private lessons and classrooms.
- 449. Advanced Keyboard Methods and Literature II**  
Spring. 2(2-0)  
P: MUS 448. R: Open only to majors in School of Music. Advanced piano literature for private lessons and classrooms.
- 457. Teaching Instrumental Music in the Elementary School**  
Fall. 3(2-2)  
P: MUS 339. R: Open only to seniors and graduate students in the School of Music and to seniors and graduate students with a Music teaching minor. Techniques for developing instrumental music programs in grades 4-6. Topics include curriculum, pedagogy, materials, and program administration. Clinical experiences in schools required.
- 458. Teaching Instrumental Music in the Secondary School**  
Spring. 3(2-2)  
P: MUS 339. R: Open only to seniors and graduate students in the School of Music and to seniors and graduate students with a Music teaching minor. Techniques for developing instrumental music programs in grades 7-12. Topics include curriculum, pedagogy, materials, and program administration. Clinical experiences in schools required.
- 460. Computers in School Music**  
Fall. 2(2-1)  
R: Not open to freshmen and sophomores. Open only to students in the School of Music with a teacher certification option and to students with a Music teaching minor. Techniques and principles of computer-assisted music instruction in school programs. Emphasis on appropriate software and hardware for teaching and management.
- 461. Marching Band Methods**  
Spring. 2(2-0)  
R: Not open to freshman and sophomores. Open only to students in the School of Music with a teacher certification option and to students with a Music teaching minor. Administration of school marching bands. Technical and philosophical aspects.
- 462. Suzuki Methods and Materials**  
Spring. 2(1-2)  
R: Open only to majors in School of Music. Beginning levels of Suzuki violin pedagogy.
- 463. Methods and Materials of Elementary Music I**  
Fall, Spring. 2(2-0)  
R: Not open to freshmen and sophomores. Not open to students in the School of Music. How children learn music from early childhood to grade three.
- 464. Methods and Materials of Elementary Music II**  
Spring. 2(2-0)  
P: MUS 363. R: Not open to freshmen and sophomores. Not open to students in the School of Music. How children learn music in grades 4-6.
- 465. Music in Early Childhood**  
Fall, Spring. 2(2-0)  
P: MUS 260. R: Not open to freshmen and sophomores. Open only to students in the School of Music with a teacher certification option and to students with a Music teaching minor. Music learning activities and teaching strategies for children ages three to six.
- 467. Teaching General Music in the Elementary School**  
Fall. 3(2-2)  
P: MUS 339. R: Open only to seniors and graduate students in the School of Music with a teacher certification option and to seniors and graduate students with a Music teaching minor. Techniques for teaching general music to students in grades K-6. Topics include curriculum, pedagogy, materials, and program administration. Clinical experience in schools required.
- 468. Teaching Choral Music in the Secondary School**  
Spring. 3(2-2)  
P: MUS 339. R: Open only to seniors and graduate students in the School of Music with a teacher certification option and to seniors and graduate students with a Music teaching minor. Techniques for developing choral music programs in grades 7-12. Topics include curriculum, pedagogy, materials, and program administration. Clinical experience in schools required.
- 470. Music Therapy: Mental and Behavioral Disorders**  
Fall. 3(3-1)  
P: MUS 371. R: Open only to Music Therapy majors. Use of music therapy to treat clients with mental and behavioral disabilities. Clinical practicum required.
- 471. Music Therapy: Physical and Developmental Disabilities**  
Spring. 3(3-1)  
P: MUS 470. R: Open only to Music Therapy majors. Use of music therapy to treat clients with physical and developmental disabilities. Clinical practicum required.
- 474. Aesthetic Theory and Modernism**  
Fall. 4(4-0) *Interdepartmental with Philosophy, History of Art, English, Linguistics and Languages, and Romance Languages. Administered by Philosophy.*  
R: Not open to freshmen and sophomores. Problems, assumptions, and arguments of modern aesthetic theory examined in the context of debates over modernity and modernist artistic practice.
- 476. Psychology of Music: Foundations**  
Fall. 3(3-0)  
R: Not open to freshmen and sophomores. Psychoacoustics and neurophysiological processing of music. Affective response to music and musical preference. Function of music in society. Nature of musical talent.
- 477. Psychology of Music: Research Methodology and Application**  
Spring. 2(2-0)  
P: MUS 476. Research projects and proposal writing. Application of elementary statistical concepts in evaluating responses to music.
- 480. Counterpoint**  
Fall, Spring. 2(2-0)  
P: MUS 381. R: Open only to majors in School of Music. Creative and analytical work with two- and three-part counterpoint in the style of J.S. Bach.
- 483. Composition**  
Fall, Spring. 2 credits. A student may earn a maximum of 12 credits in all enrollments for this course.  
P: MUS 281. R: Open only to majors in School of Music. Private instruction in music composition.
- 484. Instrumentation and Basic Orchestration**  
Fall. 2(2-1)  
P: MUS 381. R: Open only to majors in School of Music. Four families of orchestral instruments: strings, woodwinds, brass, and percussion. Acoustics, notation, range, articulation, dynamics, technique, and timbre for individual instruments and orchestral sections.
- 485. Advanced Orchestration**  
Spring. 2(2-0)  
P: MUS 484. R: Open only to majors in School of Music. Transcription techniques. Orchestral devices and styles. Additional percussion material, harp, and auxiliary instruments.
- 490. Independent Study**  
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course.  
R: Approval of school. Special projects arranged by an individual student and a faculty member in areas supplementing regular course offerings.
- 491. Special Topics in Music**  
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 10 credits in all enrollments for this course.  
R: Approval of school. Special topics supplementing regular course offerings proposed by faculty for group study.
- 493. Music Therapy: Clinical Practicum**  
Fall, Spring, Summer. 1 credit.  
P: MUS 471. R: Open only to Music Therapy majors. Six months of internship in an approved music therapy clinical program at an accredited treatment center.
- 495. Directed Teaching**  
Fall, Spring. 9 credits. *Interdepartmental with Teacher Education.*  
P: MUS 260, MUS 335, MUS 336, MUS 339, TE 250; MUS 457, MUS 458 or MUS 467, MUS 468. R: Open only to seniors in Instrumental Music Education, Stringed Instrument Music Education, and Vocal-General Music Education. Supervised Music teaching experience in Schools, on-campus seminar required.
- 830. Research Methods and Materials in Music**  
Fall. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course.  
R: Approval of school. Organization, presentation, and documentation of research. Encyclopedias, indices, databases, and other aids.
- 835. Medieval Music**  
Fall. 3(3-0)  
P: MUS 830 recommended. R: Open only to graduate students in School of Music. European music to 1400. Emphasis on polyphonic music, with some attention to Gregorian chant and secular monophony.

**Descriptions — Music  
of  
Courses**

**836. Renaissance Music**  
*Spring, 3(3-0)*

R: Open only to graduate students in School of Music. European music, sacred and secular, from 1400 to 1600.

**837. 17th-Century Music**  
*Fall, 3(3-0)*

P: MUS 830 recommended. R: Open only to graduate students in School of Music. Instrumental and vocal music in Europe from 1600 to 1700. Development of genres and of national styles.

**844. Secondary or Specialist Emphasis:  
Piano**

*Fall, Spring, 1(1-0)* A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to graduate students in School of Music. Approval of school. Audition required. Not open to students with an emphasis in piano. Instruction in piano for students whose principal instrument is not piano.

**845. Secondary or Specialist Emphasis:  
Voice**

*Fall, Spring, 1(1-0)* A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to graduate students in School of Music. Not open to students with an emphasis in voice. Approval of school. Audition required. Instruction in vocal techniques for students whose principal emphasis is not voice.

**846. Secondary or Specialist Emphasis:  
String**

*Fall, Spring, 1(1-0)* A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to graduate students in School of Music. Approval of school. Audition required. Instruction in violin, viola, cello, or double bass.

**847. Secondary or Specialist Emphasis:  
Brass**

*Fall, Spring, 1(1-0)* A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to graduate students in School of Music. Approval of school. Audition required. Instruction in trumpet, trombone, euphonium, or tuba.

**848. Secondary or Specialist Emphasis:  
Woodwind**

*Fall, Spring, 1(1-0)* A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to graduate students in School of Music. Approval of school. Audition required. Instruction in flute, clarinet, oboe, bassoon, or saxophone.

**849. Piano Performance**

*Fall, Spring, 1(1-0)* A student may earn a maximum of 10 credits in all enrollments for this course. R: Open only to graduate students in School of Music. Approval of school. Critique and analysis of individual performances of piano literature in a group setting.

**850A. Piano**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in piano and to master's students in Music Education. Approval of school. Audition required. Private instruction in piano.

**850B. Organ**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in organ. Approval of school. Audition required. Private instruction in pipe organ.

**850C. Harp**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in harp. Approval of school. Audition required. Private instruction in harp.

**851. Voice**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in voice. Approval of school. Audition required. Private instruction in voice.

**852A. Violin**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in violin. Approval of school. Audition required. Private instruction in violin.

**852B. Viola**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in viola. Approval of school. Audition required. Private instruction in viola.

**852C. Cello**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in cello. Approval of school. Audition required. Private instruction in cello.

**852D. Double Bass**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in double bass. Approval of school. Audition required. Private instruction in double bass.

**853A. Flute**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in flute. Approval of school. Audition required. Private instruction in flute.

**853B. Oboe**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in oboe. Approval of school. Audition required. Private instruction in oboe.

**853C. Clarinet**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in clarinet. Approval of school. Audition required. Private instruction in clarinet.

**853D. Saxophone**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in saxophone. Approval of school. Audition required. Private instruction in saxophone.

**853E. Bassoon**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in bassoon. Approval of school. Audition required. Private instruction in bassoon.

**854A. Trumpet**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in trumpet. Approval of school. Audition required. Private instruction in trumpet.

**854B. Horn**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in horn. Approval of school. Audition required. Private instruction in horn.

**854C. Trombone**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in trombone. Approval of school. Audition required. Private instruction in trombone.

**854D. Euphonium**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in euphonium. Approval of school. Audition required. Private instruction in euphonium.

**854E. Tuba**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in tuba. Approval of school. Audition required. Private instruction in tuba.

**855. Percussion**

*Fall, Spring, 1 to 3 credits.* A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to master's students in Music Performance with an emphasis in percussion. Approval of school. Audition required. Private instruction in percussion.



**856. Chamber Music**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to graduate students in School of Music. Approval of school. Audition required.

Performance of pre-20th century chamber music under faculty direction.

**857. 20th-Century Chamber Music**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course.

R: Open only to graduate students in School of Music. Approval of school. Audition required.

Performance of 20th century chamber music under faculty direction.

**858A. Seminar in Band Conducting**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 36 credits in all enrollments for this course.

R: Open only to graduate students in School of Music. Approval of school. Audition required.

Advanced band conducting, including core repertoire examination and execution with emphasis on score analysis and preparation.

**858B. Seminar in Orchestral Conducting**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

P: Approval of department. R: Open only to graduate students in School of Music. Approval of school; audition required.

Advanced conducting techniques for the orchestral literature of all periods for string, chamber, and symphony orchestras.

**858C. Seminar in Choral Conducting**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 36 credits in all enrollments for this course.

R: Open only to graduate students in School of Music. Approval of school. Audition required.

Advanced conducting techniques for choral and instrumental music of all periods.

**859. Choral Techniques and Materials**

Spring of even-numbered years. 3(3-0) A student may earn a maximum of 15 credits in all enrollments for this course.

R: Open only to graduate students in School of Music. Advanced development of choral proficiency. Demonstrations of choral techniques. Conducting by students.

Examination and evaluation of new materials. Variable content.

**860. Seminar in History and Philosophy of Music Education**

Spring of even-numbered years. 2(2-0)  
R: Open only to graduate students in College of Arts and Letters and in College of Education.

Major philosophies influencing American music education. Rise of music curricula and studies from Ancient Greece to the present.

**861.**

**Seminar in Psychology of Music Education**

Fall. 2(2-0)

R: Open only to graduate students in College of Arts and Letters and College of Education.

Psychological foundations of music teaching and learning. Psychological research on problems of music teaching.

**862. Seminar in Music Curriculum Development**

Fall. 2(2-0)

R: Open only to graduate students in College of Arts and Letters and in College of Education.

History of and trends in music education curricula. Curriculum development and curricular models.

**863. Seminar in Music Education Methodology**

Spring of odd-numbered years. 2(2-0)

R: Open only to graduate students in College of Arts and Letters and College of Education.

Psychological, philosophical, and aesthetic theories of methods and pedagogy that undergird music education.

**864. Research in Music Education and Music Therapy**

Fall, Summer of even-numbered years. 3(3-0)

R: Open only to graduate students in College of Arts and Letters and in College of Education.

Methods of research in music education and music therapy. Conceptualizing and implementing a study. Systematic information retrieval. Proposal writing.

**865. Advanced Methods and Materials in Secondary Music Education**

Fall, Spring. 1 to 3 credits. A student may earn

a maximum of 6 credits in all enrollments for this course.

Current methods and materials for teaching music in secondary schools. Topics vary.

**866. Advanced Methods and Materials in Elementary Music Education**

Fall, Spring. 1 to 3 credits. A student may earn

a maximum of 6 credits in all enrollments for this course.

Current methods and materials for teaching music in elementary schools. Topics vary.

**868. Current Studies in Music Therapy**

Fall. 2(2-0)

R: Open only to graduate students in Music Therapy and in Music Education.

Evaluation of current research in such areas of music therapy as stress and pain reduction, and music psychotherapy.

**869. Education, and Administration in Music Therapy**

Spring. 2(2-0)

R: Open only to graduate students in Music Therapy.

Administration of clinical and educational programs in music therapy. Curriculum development. Clinical preparation. Ethical, fiscal, and regulatory issues.

**870. Contrapuntal Techniques I**

Fall of odd-numbered years. 3(3-0)

R: Open only to graduate students in School of Music.

Techniques of voice-leading through imitative counterpoint. Compositional exercises modeled after sacred vocal polyphony of the sixteenth century, principally Palestrina and Victoria.

**871. Contrapuntal Techniques II**

Spring of even-numbered years. 3(3-0)

P: MUS 870. R: Open only to graduate students in School of Music.

Compositional exercises modeled after instrumental polyphony of the eighteenth century, principally J.S. Bach. Influence of fugal technique in the nineteenth and twentieth centuries.

**872. Tonal Forms**

Fall. 2(2-0)

R: Open only to graduate students in School of Music.

Music from the period of common practice and its relationship to music composition. Interplay of melody, harmony, rhythm, and timbre in various structural units.

**873. Early 20th Century Techniques**

Spring. 2(2-0)

R: Open only to graduate students in School of Music. Melodic, harmonic, rhythmic, and textural devices employed in early twentieth century music.

**874. Schenkerian Analysis**

Fall. 2(2-0)

R: Open only to graduate students in School of Music. Thought, works, and influences of Heinrich Schenker. Techniques of linear analysis emphasizing the role of long-range voice-leading musical structure.

**875. Analysis of Musical Scores**

Summer. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course.

R: Open only to graduate students in School of Music. Analysis of choral, orchestral, and band music as a means of enhancing interpretation and performance.

**876. History of Music Theory**

Fall of odd-numbered years. 3(3-0)

P: MUS 830 recommended. R: Open only to graduate students in School of Music.

Principal western theories of music from Pythagoras to the present. Ideas contributing to the development of modern musical thought and their place in western intellectual history.

**880. Composition**

Fall, Spring. 2(2-0) A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to graduate students in School of Music. Advanced guided projects in creative writing of music.

**881. Seminar in Composition**

Fall, Spring. 2(2-0) A student may earn a maximum of 20 credits in all enrollments for this course.

R: Open only to graduate students in School of Music. Study of contemporary music, with emphasis on compositional procedures.

**882. Composition with Computers**

Fall. 2(2-1)

R: Open only to graduate students in School of Music. Current applications of microcomputers in musical composition.

**883. Advanced Computer Music Projects**

Spring. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course.

P: MUS 882 or MUS 441. R: Open only to graduate students in School of Music and in Computer Science.

Techniques and principles of composition and research with computers. Use of computer hardware and software.

**890. Independent Study**

Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 20 credits in all enrollments for this course.

R: Approval of school.

Special projects, directed reading, and research arranged by an individual graduate student and a faculty member in areas supplementing regular course offerings.

**891. Special Topics**

Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 25 credits in all enrollments for this course.

R: Approval of school.

Special topics supplementing regular course offerings proposed by faculty on a group study basis for graduate students.



**Descriptions — Music  
of  
Courses**

**892A. Seminar in Music History**

Fall, Spring. 1 to 6 credits. A student may earn a maximum of 12 credits in all enrollments for this course.

R: Open only to graduate students in School of Music. Approval of school.

Various areas of music history, such as major composers, development of genres, criticism, or cultural context.

**896. Recital Performance**

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 10 credits in all enrollments for this course.

R: Open only to master's students in Music Performance. Approval of school.

Directed experience in recital performance in partial fulfillment of Plan B master's degree requirements.

**897. Concert Conducting**

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 10 credits in all enrollments for this course.

R: Open only to master's students in Music Performance. Approval of school.

Directed experience in concert conducting in partial fulfillment of Plan B master's degree requirements.

**898. Master's Research**

Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 20 credits in all enrollments for this course.

R: Open only to master's students in School of Music. Approval of school.

Directed research in support of Plan B master's degree requirements.

**899. Master's Thesis Research**

Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 20 credits in all enrollments for this course.

R: Open only to master's students in School of Music. Approval of school.

Directed research in partial fulfillment of Plan A master's degree requirements.

**935. Seminar in 18th Century Music**

Spring of odd-numbered years. 3(3-0)

R: Open only to graduate students in School of Music. Research on topics in eighteenth-century music.

**936. Seminar in 19th-Century Music**

Fall of even-numbered years. 3(3-0)

R: Open only to doctoral students in School of Music. Selected topics in 19th-century music.

**937. Seminar in 20th-Century Music**

Spring of even-numbered years. 3(3-0)

R: Open only to doctoral students in School of Music. Selected topics in 20th-century music.

**950A. Piano**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in piano. Approval of school. Audition required.

Private instruction in piano.

**950B. Organ**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in organ. Approval of school. Audition required.

Private instruction in pipe organ.

**950C. Harp**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in harp. Approval of school. Audition required.

Private instruction in harp.

**951. Voice**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in voice. Approval of school. Audition required.

Private instruction in voice.

**952A. Violin**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in violin. Approval of school. Audition required.

Private instruction in violin.

**952B. Viola**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in viola. Approval of school. Audition required.

Private instruction in viola.

**952C. Cello**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in cello. Approval of school. Audition required.

Private instruction in cello.

**952D. Double Bass**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in double bass. Approval of school. Audition required.

Private instruction in double bass.

**953A. Flute**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in flute. Approval of school. Audition required.

Private instruction in flute.

**953B. Oboe**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in oboe. Approval of school. Audition required.

Private instruction in oboe.

**953C. Clarinet**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in clarinet. Approval of school. Audition required.

Private instruction in clarinet.

**953D. Saxophone**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in saxophone. Approval of school. Audition required.

Private instruction in saxophone.

**953E. Bassoon**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in bassoon. Approval of school. Audition required.

Private instruction in bassoon.

**954A. Trumpet**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in trumpet. Approval of school. Audition required.

Private instruction in trumpet.

**954B. Horn**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in horn. Approval of school. Audition required.

Private instruction in horn.

**954C. Trombone**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in trombone. Approval of school. Audition required.

Private instruction in trombone.

**954D. Euphonium**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in euphonium. Approval of school. Audition required.

Private instruction in euphonium.

**954E. Tuba**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in tuba. Approval of school. Audition required.

Private instruction in tuba.

**955. Percussion**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 24 credits in all enrollments for this course.

R: Open only to doctoral students in Music Performance with an emphasis in percussion. Approval of school. Audition required.

Private instruction in percussion.

**958A. Seminar in Band Conducting**

Fall, Spring. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course.

R: Open only to doctoral students in School of Music. Approval of school; audition required.

Advanced band conducting, including core repertoire examination and execution, with emphasis on score analysis and preparation.

**958B. Seminar in Orchestral Conducting**  
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course.  
R: Open only to doctoral students in School of Music. Approval of school; audition required.  
Advanced conducting techniques for the orchestral literature of all periods for string, chamber, and symphony orchestras.

**958C. Seminar in Choral Conducting**  
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course.  
R: Open only to doctoral students in School of Music. Approval of school; audition required.  
Advanced conducting techniques for choral and instrumental music of all periods.

**960. Seminar in Measurement in Music Education**  
Spring of odd-numbered years. 2(2-0)  
P: MUS 864, MUS 965 or approval of school. R: Open only to graduate students in Music Education or approval of school.  
Theory and practice in measuring the outcomes of music instruction in the cognitive, affective and psychomotor domains.

**961. Seminar in Music Teacher Education**  
Fall of odd-numbered years. 2(2-0)  
R: Open only to graduate students in College of Arts and Letters and in College of Education.  
Issues, techniques, and problems in the preparation of school music educators.

**962. Seminar in Aesthetics in Music Education**  
Fall of even-numbered years. 2(2-0)  
R: Open only to graduate students in College of Arts and Letters and in College of Education.  
Historical foundations of aesthetics. Concept of aesthetic education and implementation in the music classroom.

**963. Seminar in Administration of Music Programs**  
Spring of even-numbered years. 2(2-0)  
R: Open only to graduate students in College of Arts and Letters and in College of Education.  
Techniques and problems in administering music programs in schools, colleges, and universities.

**964. Seminar in Music Education Trends**  
Fall of odd-numbered years. 2(2-0)  
R: Open only to graduate students in College of Arts and Letters and in College of Education.  
Trends in music education, 1950-present. Comparison with former trends in American music education, 1600-1950.

**965. Advanced Research Methods in Music Education**  
Fall. 3(3-0)  
P: MUS 864. R: Open only to graduate students in College of Arts and Letters and in College of Education.  
Music education research projects using computerized statistical analysis.

**970. Pedagogy of Theory I**  
Fall of odd-numbered years. 2(2-0)  
R: Open only to graduate students in School of Music.  
Organization, goals, and procedures for teaching music theory to undergraduates. Choice and sequencing of topics, pacing, supplementary materials, educational philosophies, and relevance to performance.

**971. Pedagogy of Theory II**  
Spring of even-numbered years. 2(2-0)  
R: Open only to graduate students in School of Music.  
Organization, goals, and procedures for teaching music theory to undergraduates. Ear training and sight singing, and their application to general musicianship.

**972. Analytical Studies I**  
Fall. 3(3-0)  
R: Open only to graduate students in School of Music.  
Melody, harmony, rhythm, color, texture, counterpoint, and structure in selected musical masterpieces from the 13th century to the early 19th century.

**973. Analytical Studies II**  
Spring. 3(3-0)  
R: Open only to graduate students in School of Music.  
Melody, harmony, rhythm, color, texture, counterpoint, and structure in selected musical masterpieces from the nineteenth and twentieth centuries.

**974. Atonality, Serialism, and Set Theory**  
Spring. 2(2-0)  
R: Open only to graduate students in School of Music.  
Atonal and paratonal music. Related compositional and analytical systems. Serialism, integral serialism, and set theory.

**975. Readings in Music Theory**  
Spring of odd-numbered years. 2(2-0)  
R: Open only to graduate students in School of Music.  
Current topics in music theory. Research paper required.

**980. Composition**  
Fall, Spring. 2(2-0) A student may earn a maximum of 24 credits in all enrollments for this course.  
R: Open only to graduate students in School of Music.  
Advanced guided projects in creative writing of music.

**990. Doctoral Independent Study**  
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 20 credits in all enrollments for this course.  
R: Approval of school.  
Special projects, directed reading, and research arranged by an individual doctoral candidate and a faculty member in areas supplementing the regular course offerings.

**991. Special Topics**  
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 25 credits in all enrollments for this course.  
R: Approval of school.  
Special topics supplementing regular course offerings proposed by faculty on a group study basis for doctoral students.

**992. Seminar in Musicology**  
Spring. 3(3-0) A student may earn a maximum of 18 credits in all enrollments for this course.  
R: Open only to graduate students in School of Music.  
Topics in musicology such as early notations, music editing, or historical performance practices.

**996. Doctoral Recital Performance**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 30 credits in all enrollments for this course.  
R: Open only to doctoral students in Music Performance.  
Directed experience in recital performance in partial fulfillment of requirements for the Doctor of Musical Arts degree.

**997. Doctoral Concert Conducting**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 30 credits in all enrollments for this course.  
R: Open only to doctoral students in Music Performance.  
Directed experience in concert conducting in partial fulfillment of requirements for the Doctor of Musical Arts degree.

**999. Doctoral Dissertation Research**  
Fall, Spring, Summer. 1 to 40 credits. A student may earn a maximum of 40 credits in all enrollments for this course.  
R: Open only to doctoral students in School of Music. Approval of school.

## NATURAL SCIENCE NSC College of Natural Science

**101. Preview of Science**  
Fall. 1(1-0) Interdepartmental with Agriculture and Natural Resources, Engineering, and Social Science.  
R: Approval of College  
Overview of natural sciences. Transitional problems. Communications and computer skills. Problem solving skills. Diversity and ethics problems in science. Science and society.

**192. Environmental Issues Seminar**  
Fall, Spring. 1(1-0) A student may earn a maximum of 4 credits in all enrollments for this course. Interdepartmental with Agriculture and Natural Resources, Engineering, and Social Science.  
R: Open only to students in the College of Agriculture and Natural Resources, College of Engineering, College of Natural Science, and College of Social Science. Approval of College.  
Environmental issues and problems explored from a variety of perspectives, including legal, scientific, historical, political, socio-economic, and technical points of view.

**201. Science Problem Solving Seminar I**  
Fall. 2(2-0)  
P: Drew Section of MTH 0823 or MTH 116 or MTH 132 concurrently. R: Approval of college.  
Problem solving principles and strategies used in the disciplines of science and mathematics. Activities reflecting the types of problems encountered.

**202. Science Problem Solving Seminar II**  
Spring. 2(2-0)  
P: NSC 201. R: Approval of college.  
Continuation of NSC 201.

**203. Drew Laboratory Directed Studies**  
Fall, Spring, Summer. 1 to 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course.  
P: NSC 202. R: Open only to Drew Laboratory students.  
Using topics related to a faculty member's ongoing research, students explore the relationship between science and technology and social issues.

**320. Introduction to Theory and Applications of Modern Microscopy**  
Spring. 2(1-2)  
P: Completion of University mathematics requirement. R: Open only to juniors and seniors.  
General principles of operation of electron, laser, and scanning probe microscopes. Applications of microscopy. Specimen preparation for microscopy.