Diagnostic Microbiology Laboratory
Fall. 2.0-4.0 P: (MMG 463 or concurrently) R: Open only to juniors or seniors in the Department of Microbiology and Molecular Genetics or LBS Environmental Biology/Microbiology or Medical Technology or Clinical Laboratory Science or Microbiology coordinate major. SA: MPH 464, MIC 464
Diagnostic procedures for the identification of pathogenic microbes.

Special Problems in Microbiology
Fall. Spring. Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department. SA: MPH 490
Library research or tutorial instruction in advanced laboratory techniques.

Current Topics in Microbiology
Spring. 3.0-4.0 R: Open only to seniors in the Department of Microbiology and Molecular Genetics or LBS Environmental Biology/Microbiology or Microbiology coordinate major. SA: MPH 491
Capstone experience for microbiology majors. Presentation and discussion of journal articles. Writing of position papers. Topics such as microbiol physiology, ecology, genetics, molecular biology, virology, immunology, or pathogenesis.

Undergraduate Research Seminar
Spring. 1.0-1.0 P: (MMG 499 or MMG 499H) R: Open only to seniors in the Department of Microbiology and Molecular Genetics or LBS Environmental Biology/Microbiology or Microbiology coordinate major. SA: MPH 492
Presentation and group discussion of undergraduate research results.

Undergraduate Research
Fall. Spring. Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to students in the Department of Microbiology and Molecular Genetics or LBS Environmental Biology/Microbiology or Microbiology coordinate major. SA: MPH 499
Participation in a laboratory research project.

Honors Research
Fall. Spring. Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to Honors College students in the Microbiology or Environmental Biology/Microbiology major or LBS Microbiology coordinate major or LBS Environmental Biology/Microbiology coordinate major. SA: MPH 499H
Research project with thesis and oral report. A portion of Microbiology capstone experience.

MILITARY SCIENCE MS

Department of Military Science
Office of the Provost

101A Leadership: The Military Profession
Fall. 1.0-1.0 SA: MS 101 Not open to students with credit in MS 101B. Introduction to military leadership and fundamental concepts of leadership. Application of leadership doctrine. The role of the U.S. Army, Army Reserves, and National Guard. Leadership laboratory introduces basic military skills.

101B Leadership: The Military Profession
Spring. 1.0-1.0 SA: MS 101 Not open to students with credit in MS 101A. Introduction to military leadership and fundamental concepts of leadership. Application of leadership doctrine. The role of the U.S. Army, Army Reserves, and National Guard. Leadership laboratory introduces basic military skills.

102A Leadership: Wilderness Survival
Fall. 1.0-1.0 SA: MS 102 Not open to students with credit in MS 102A. Introduction to wilderness survival including the psychology of survival, survival planning, and survival kits; shelters; water procurement; fire craft; field expedient weapons, tools, and equipment; desert, tropical, and cold weather survival; basic survival medicine; and food procurement.

102B Leadership: Wilderness Survival
Spring. 1.0-1.0 SA: MS 102 Not open to students with credit in MS 102A. Introduction to wilderness survival including the psychology of survival, survival planning, and survival kits; shelters; water procurement; fire craft; field expedient weapons, tools, and equipment; desert, tropical, and cold weather survival; basic survival medicine; and food procurement.

201A Leadership: The Military Leader
Fall. 1.0-1.0 SA: MS 201 Not open to students with credit in MS 201A. Introduction to effective leadership. Communications. Value of the United States Army. Responsibilities of military officers and professionalism. Laboratory includes tactics, leadership training, and military skills.

201B Leadership: The Military Leader
Spring. 1.0-1.0 SA: MS 201 Not open to students with credit in MS 201B. Introduction to effective leadership. Communications. Value of the United States Army. Responsibilities of military officers and professionalism. Laboratory includes tactics, leadership training, and military skills.

202A Introduction to Land Navigation and Tactics
Fall. 1.0-1.0 SA: MS 202 Not open to students with credit in MS 202B. Introduction to land navigation using military maps and topographic compass. Planning routes using azimuth and distance. Determining location by terrain association and other methods. Introduction to military defensive and reconnaissance operations.

202B Introduction to Land Navigation and Tactics
Spring. 1.0-2.0 Not open to students with credit in MS 202A. Introduction to land navigation using military maps and topographic compass. Planning routes using azimuth and distance. Determining location by terrain association and other methods. Introduction to military defensive and reconnaissance operations.

301 Leading Small Organizations
Fall. 3.0-2.0 RB: (MS 101A or MS 101B) and (MS 102A or concurrently or MS 102B or concurrently) and (MS 201A or concurrently or MS 201B or concurrently) and (MS 202A or concurrently or MS 202B or concurrently) Completion of basic camp or boot camp. Must meet U.S. Army contracting requirements.
Skills required for military officers: communication, team building, delegating tasks, supervision, ethics, and physical fitness. Leading small units. Participation in physical fitness is required.

302 Leadership: Small Unit Tactics
Spring. 3.0-2.0 RB: (MS 301)
Basic military tactics and the military communication/orders process focusing on small units. Application of lessons learned from leadership case studies to practical exercises with leadership. Delegation of tasks and supervision of subordinates in a stressful environment.

401 Leadership: Training Management, Counseling, and Unit Management
Fall. Spring. 3.0-2.0 RB: (MS 302)
Army training philosophy. The lieutenant's role in training management, personnel administration, and logistics. Practical exercises in counseling and training presentations. Practical application of leadership development doctrine. Laboratory includes practical experience in unit administration and training management.

402 Military Law, Ethics and Professionalism
Fall. Spring. 3.0-2.0 RB: (MS 302)
Introduction of the military legal system and the Law of War. The basis of the military profession and the importance of ethical development to the profession of arms. Development of subordinates. Laboratory includes practical exercises in professional development and leadership opportunities.

403 Independent Study in Military Science
Fall. Spring. 1.0 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Open only to juniors or 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. 1.0-2.0 A student may earn a maximum of 10 credits in all enrollments for this course. R: Open only to students in the School of Music. Audition required. Rehearsal and performance of a broad range of chamber music literature.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>113</td>
<td>Philharmonic Orchestra</td>
<td>Fall, Spring, 1(0-5) A student may earn a maximum of 10 credits in all enrollments for this course. RB: High school and/or youth orchestra experience/or other college or university ensemble experience R: Audition required. Rehearsal and performance of symphonic and operatic repertoire.</td>
</tr>
<tr>
<td>114</td>
<td>Marching Band</td>
<td>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.</td>
</tr>
<tr>
<td>115</td>
<td>Spartan Brass</td>
<td>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.</td>
</tr>
<tr>
<td>116</td>
<td>Campus Band</td>
<td>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.</td>
</tr>
<tr>
<td>117</td>
<td>Concert Band</td>
<td>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.</td>
</tr>
<tr>
<td>118</td>
<td>Wind Symphony</td>
<td>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.</td>
</tr>
<tr>
<td>119</td>
<td>Symphony Band</td>
<td>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 a broad range of wind and percussion literature.</td>
</tr>
<tr>
<td>120</td>
<td>Symphony Orchestra</td>
<td>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.</td>
</tr>
<tr>
<td>122</td>
<td>Campus Orchestra</td>
<td>Fall, Spring, 1(0-2) A student may earn a maximum of 10 credits in all enrollments for this course. Rehearsal and performance of symphonic and concert literature written for large orchestra, conducted by staff conductors under the supervision of faculty.</td>
</tr>
<tr>
<td>123</td>
<td>Collegiate Choir</td>
<td>Fall, Spring, 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course. Rehearsal and performance of representative literature for mixed choir with emphasis on vocal jazz and contemporary styles of choral music. No vocal jazz experience necessary.</td>
</tr>
<tr>
<td>124</td>
<td>Choral Union</td>
<td>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.</td>
</tr>
<tr>
<td>125</td>
<td>Glee Club, Men and Women</td>
<td>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.</td>
</tr>
<tr>
<td>126</td>
<td>State Singers</td>
<td>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.</td>
</tr>
<tr>
<td>127</td>
<td>University Chorale</td>
<td>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.</td>
</tr>
<tr>
<td>129</td>
<td>Percussion Ensemble</td>
<td>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 works for percussion and mallet ensembles.</td>
</tr>
<tr>
<td>130</td>
<td>Jazz Band</td>
<td>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.</td>
</tr>
<tr>
<td>131</td>
<td>Jazz Combo</td>
<td>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.</td>
</tr>
<tr>
<td>141</td>
<td>Class Instruction in Piano I</td>
<td>Fall, Spring, 1(1-1) R: Open only to students in the School of Music. Use of the piano as a teaching tool.</td>
</tr>
<tr>
<td>142</td>
<td>Class Instruction in Piano II</td>
<td>Spring, 1(1-1) RB: (MUS 141) R: Open only to students in the School of Music. Use of the piano as a teaching tool.</td>
</tr>
<tr>
<td>143</td>
<td>Class Instruction in Voice I: Music Majors</td>
<td>Fall, 1(1-1) R: Open only to students in the School of Music with an emphasis in voice. C: MUS 151 concurrently. English lyric diction. Rules or pronunciation. Performance of English language songs in class.</td>
</tr>
<tr>
<td>144</td>
<td>Class Instruction in Voice II: Music Majors</td>
<td>Spring, 1(1-1) P: M: (MUS 143) R: Open only to students in the School of Music with an emphasis in voice. C: MUS 151 concurrently. Italian lyric diction. Rules of pronunciation. Performance of Italian language songs in class.</td>
</tr>
<tr>
<td>145</td>
<td>Class Instruction in Voice I</td>
<td>Fall, 1(1-1) R: Not open to students in the School of Music with an emphasis in voice. Rules of pronunciation. Vocal techniques.</td>
</tr>
<tr>
<td>146</td>
<td>Class Instruction in Voice II</td>
<td>Spring, 1(1-1) P: M: (MUS 145) R: Not open to students in the School of Music with an emphasis in voice. Vocal techniques and exploration of vocal literature.</td>
</tr>
<tr>
<td>147</td>
<td>Class Instruction in Elementary Piano I</td>
<td>Fall, Spring, 2(2-1) R: Not open to students in the School of Music. Basic notation, performance, improvisation, and transposition. Repertoire includes folksongs, simple classics, and blues.</td>
</tr>
<tr>
<td>149</td>
<td>Keyboard Skills</td>
<td>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 the School of Music. Sight-reading, transposing, figured bass, keyboard harmony, and accompanying instrumentalists and vocalists.</td>
</tr>
<tr>
<td>150A</td>
<td>Piano</td>
<td>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 the School of Music. Audition required. Private instruction in piano.</td>
</tr>
<tr>
<td>150C</td>
<td>Harp</td>
<td>Fall, Spring, 1 to 4 credits. A student may earn a maximum of 18 credits in all enrollments for this course. R: Open only to students in the School of Music. Audition required. Private instruction in harp.</td>
</tr>
<tr>
<td>150J</td>
<td>Piano; Jazz</td>
<td>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.</td>
</tr>
<tr>
<td>151</td>
<td>Voice</td>
<td>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 the School of Music. Audition required. Private instruction in voice.</td>
</tr>
<tr>
<td>151J</td>
<td>Voice; Jazz</td>
<td>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.</td>
</tr>
<tr>
<td>152A</td>
<td>Violin</td>
<td>Fall, Spring, 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Audition required. Private instruction in violin.</td>
</tr>
<tr>
<td>152B</td>
<td>Viola</td>
<td>Fall, Spring, 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Audition required. Private instruction in viola.</td>
</tr>
<tr>
<td>152C</td>
<td>Cello</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

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 the Music Therapy major and to other students in the 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 Percussion**  
Fall. 1(1-2) R: Open only to students in the School of Music with a teacher certification option.  
Techniques for playing and teaching percussion instruments at the intermediate level and beyond.

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

167 **Class Instruction in Stringed Instruments I**  
Fall. 1(1-1) R: Open only to Music majors.  
Techniques for playing and teaching stringed instruments at the elementary level.

171 **Class Instruction in Stringed Instruments I**  
Spring. 1(1-1) P:M: (MUS 171) SA: MUS 161  
Techniques for playing and teaching stringed instruments at the intermediate level and beyond.
201  Aural Skills  
Spring. 1(1-1) R: Open only to graduate students in the School of Music. SA: MUS 801
Eur training in the areas of melody, harmony, and rhythm. Sight singing using the solfege system. Computer-aided drill programs.

211  History of Western Music since 1750  
Fall. 3(3-0) P:M: (MUS 181) R: Not open to freshmen. Open only to students in the 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:M: (MUS 181) RB: (MUS 211) R: Not open to freshmen. Open only to students in the School of Music. Literature of the cultivated tradition and its theory in sociopolitical context.

230  Beginning Jazz Improvisation I  

231  Beginning Jazz Improvisation II  
Spring. 2(2-0) P:M: (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:M: (MUS 142) R: Not open to freshmen. Open only to students in the 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:M: (MUS 241) R: Not open to freshmen. Open only to students in the 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:M: (MUS 151) R: Not open to students in the 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:M: (MUS 151) R: Not open to students in the School of Music.

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:M: (MUS 270) R: Not open to freshmen. Creative and expressive techniques involving percussion instruments, autoharp, handchimes, song leading, creative movement, folk dance.

277  Principles of Music Education  
Spring. 3(2-2) P:M: (MUS 177) SA: MUS 339
Techniques for developing instructional and management skills for teaching music. On- and off-campus clinical experiences required.

280  Musicianship II  
Fall. 3(3-1) P:M: (MUS 181)
Techniques of diatonic modulation and soprano harmonization. Chromatic techniques.

281  Musicianship III  
Spring. 3(3-1) P:M: (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:M: (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:M: (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 nonharmonic 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.

301  Advanced Jazz Musicianship I  
Fall. 2(2-0) P:M: (MUS 231) R: or audition. Secondary dominants, borrowed chords and tritone substitutions. Transcriptions of recorded jazz solos.

302  Advanced Jazz Musicianship II  
Spring. 2(2-0) P:M: (MUS 301)
Penatonic scale relationships within II-V-I progressions. Aeolic approaches to improvisation, non-traditional chord progressions, transcription of recorded jazz solos.

303  Advanced Jazz Musicianship III  
Fall. 2(2-0) P:M: (MUS 302)
Continuation of Advanced Jazz Musicianship II.

304  Advanced Jazz Musicianship IV  
Spring. 2(2-0) P:M: (MUS 303) R: Open only to juniors or seniors in Music. Continuation of Advanced Jazz Musicianship III.

335  Ensemble Conducting I  
Fall. 2(2-2) P:M: (MUS 181) R: Open only to students in the School of Music with a teacher certification option and to students with a major in Music Theory or Composition and Music Theory and to students with a Music teaching minor. Introduction to conducting and rehearsal techniques.

336B  Ensemble Conducting II: Choral  
Spring. 2(2-2) P:M: (MUS 335) R: Open only to students in the School of Music with a teacher certification option and to students with a major in Composition and Music Theory. SA: MUS 336
Advanced conducting and rehearsal techniques as applied to music literature from each of the stylistic periods.

337  Conducting for Music Performance Majors  

340  Methods and Literature for Voice  
Fall. 3(3-0) RB: (MUS 151) R: Open only to majors in the 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 the School of Music.
Principles, techniques, and materials for teaching stringed instruments.

346  Keyboard Methods and Literature I  
Fall. 2(2-0) RB: Four semesters of MUS 150A. R: Open only to majors in the 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:M: (MUS 346) R: Open only to majors in the School of Music.
Intermediate and advanced methods and literature for teaching piano. Observation and teaching of piano students.

348  Piano Accompanying  
Fall, Spring. 1(0-2) A student may earn a maximum of 8 credits in all enrollments for this course. R: (MUS 149) R: Not open to freshmen. Open only to students in the School of Music.
Accompaniment of instrumental and vocal soloists.

349  Piano Performance  
Fall. 1(0-2) A student may earn a maximum of 10 credits in all enrollments for this course. R: Open only to students in the 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 15 credits in all enrollments for this course. P:M: (MUS 150A) R: Open only to majors in the School of Music.
Approval of school.
Private instruction in piano.

350C  Harp  
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 18 credits in all enrollments for this course. P:M: (MUS 150C) R: Open only to majors in the School of Music.
Approval of school.
Private instruction in harp.
Private instruction in voice.

352B Viola
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course. P:M (MUS 152B) R: Open only to majors in the 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:M (MUS 152C) R: Open only to majors in the 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:M (MUS 152D) R: Open only to majors in the 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:M (MUS 153A) R: Open only to majors in the 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:M (MUS 153B) R: Open only to majors in the 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:M (MUS 153C) R: Open only to majors in the School of Music. Approval of school.
Private instruction in clarinet.

353D Saxophone
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 24 credits in all enrollments for this course. P:M (MUS 153D) R: Open only to majors in the 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:M (MUS 153E) R: Open only to majors in the 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:M (MUS 154A) R: Open only to majors in the 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:M (MUS 154B) R: Open only to majors in the 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:M (MSU 154C) R: Open only to majors in the 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:M (MUS 154D) R: Open only to majors in the 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:M (MUS 154E) R: Open only to majors in the 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:M (MUS 155) R: Open only to majors in the School of Music. Approval of school.
Private instruction in percussion.

370 Music Therapy: Behavior Measurement and Assessment
Fall, 3(3-1) RB (MUS 270) R: Open only to Music Therapy majors.

371 Music Therapy: Treatment Planning and Case Management
Spring, 3(3-1) P:M (MUS 370) R: Open only to Music Therapy majors.

380 Musical Styles and Forms
Spring, 3(3-0) P:M (MUS 381) Completion of Tier I writing requirement. R: Open only to majors in the 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 (W)
Fall, 3(3-1) P:M (MUS 281) and completion of Tier I writing requirement.
Western art music and jazz. Stylistic and formal analysis of representative compositions and jazz improvisations. Post-tonal theory. Jazz nomenclature and harmonic practice.

Jazz instrumental writing focusing on voicing concepts for standard jazz chord progressions, melody, counter-melody, and standard forms. Beginning orchestration techniques emphasizing form.

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.

Survey of jazz from its beginnings in African American aural traditions to the present.

13 Keyboard Literature to Mid-19th Century
Fall of even years. 2(2-1) P:M (MUS 413) R: Open only to majors in the School of Music.
Keyboard styles and works of representative composers such as Bach, Couperin, Mozart, Haydn and Beethoven.

14 Keyboard Literature since the Mid-19th Century
Spring of odd years. 2(2-1) P:M (MUS 414) R: Open only to majors in the School of Music.
Keyboard styles and works of representative composers such as Schumann, Chopin, Ives and Prokofiev.

Art Song Literature: German
Fall of even years. 2(2-1) P:M (MUS 181) R: Open only to freshmen or sophomores.
Standard art song repertoire with emphasis on German Lieder. Performance of art songs in class.

Art Song Literature: European and American
Spring of odd years. 2(2-1) P:M (MUS 181) R: Open only to majors in the School of Music. Not open to freshmen or sophomores.
Standard art song repertoire with emphasis on Italian, French, and twentieth century art songs. Performance of art songs in class.

Music of the 18th Century
Fall of even years. 2(2-0) P:M (MUS 212) R: Not open to freshmen or sophomores. Open only to majors in the School of Music.
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.

19th Century European-American Music Literature
Spring of odd years. 2(2-0) P:M (MUS 212) R: Not open to freshmen or sophomores. Open only to majors in the School of Music.
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.
20th Century European and American Music Literature
Spring of even years. 2(2-0) P:M: (MUS 212) R: Not open to freshmen or sophomores. Open only to majors in the School of Music. Twentieth-century styles, genres, forms, theories, aesthetics, performance practices, instruments and masterworks in sociopolitical context. Aural and score analysis of representative works.

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

Music of South Asia and Its Diaspora
Fall of odd years. 2(2-0) R: Not open to freshmen or sophomores. Music associated with the cultures of South Asian India and Pakistan, and South Asian musical prac-tices in its Diaspora.

Music of West Africa
Spring of odd years. 2(2-0) R: Not open to freshmen or sophomores. Music associated with the cultures of West Africa.

Music of East and Southeast Asia
Fall of even years. 2(2-0) R: Not open to freshmen or sophomores. Music associated with the cultures of East and Southeast Asia.

Music of the Caribbean
Spring of even years. 2(2-0) R: Not open to freshmen or sophomores. Music with the cultures of the Caribbean.

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.

Jazz Pedagogy I
Fall. 2(2-0) P:M: (MUS 281) R: Open only to juniors or seniors in Music. Teaching theory and methodologies for jazz education in secondary schools.

Jazz Pedagogy II
Spring. 2(2-0) P:M: (MUS 438) Teaching theory and methodologies for jazz education in secondary schools.

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

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:M: (MUS 441) Independent composition or research in computer music. Assigned use of computer music studios.

Advanced Keyboard Methods and Literature I
Fall. 2(2-0) RB: (MUS 347) R: Open only to majors in the School of Music. Advanced piano literature for private lessons and classrooms.

Advanced Keyboard Methods and Literature II
Spring. 2(2-0) RB: (MUS 448) R: Open only to majors in the School of Music. Advanced piano literature for private lessons and classrooms.

Teaching Instrumental Music
Spring. 3(3-1) P:M: (MUS 177) Develop skills necessary for teaching elementary and secondary band. Role of the instrumental music educator purpose of instrumental music in the schools. Clinical experiences in schools required.

Teaching Stringed Instruments
Fall. 3(2-2) P:M: (MUS 177) Develop skills and knowledge for teaching string and orchestra programs in schools. Pedagogy, music-tainment, curriculum, materials and program administration. Clinical experiences in schools required.

Marching Band Methods
Spring. 2(2-0): R: Open to freshmen or 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.

Suzuki Methods and Materials
Spring. 2(1-2) R: Open only to majors in the School of Music. Beginning levels of Suzuki violin pedagogy.

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

Music in Early Childhood
Fall, Spring. 2(2-0) P:M: (MUS 177) R: 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.

Teaching General Music in the Elementary School
Fall. 3(2-2) P:M: (MUS 277) R: Open only to seniors or graduate students in the School of Music with a teacher certification option and to seniors or 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.

Teaching Choral Music
Spring. 3(2-2) P:M: (MUS 177) Techniques for developing choral music programs. Curriculum, pedagogy, materials, and program administration. Clinical experiences in schools required.

Teaching Secondary Classroom Music
Fall. 3(3-1) P:M: (MUS 177) Techniques for teaching general music and elective music classes in middle schools and high schools. Clinical experiences in schools required.

Music Therapy: Mental and Behavioral Disorders
Fall. 3(3-1) P:M: (MUS 371) or concurrently and PSY 280 or concurrently R: Open only to Music Therapy majors. Use of music therapy to treat clients with mental and behavioral disabilities. Clinical practicum required.

Music Therapy: Physical and Developmental Disabilities
Spring. 3(3-1) P:M: (MUS 470) or concurrently and CEP 240 or concurrently R: Open only to Music Therapy majors. Use of music therapy to treat clients with physical and developmental disabilities. Clinical practicum required.

Aesthetic Theory and Modernism
Fall. 4(4-0) Interdepartmental with Philosophy; English; History of Art; Linguistics and Languages; Romance Languages. Administered by Department of Philosophy. R: Not open to freshmen or sophomores. Problems, assumptions, and arguments of modern aesthetic theory examined in the context of debates over modernity and modernist artistic practice.

Psychology of Music: Foundations
Fall. 3(3-0) R: Not open to freshmen or sophomores. Psychoacoustics and neurophysiological processing of music. Affective response to music and musical preference. Function of music in society. Nature of musical talent.

Psychology of Music: Research Methodology and Application

Counterpoint
Fall. Spring. 2(2-0) P:M: (MUS 381) R: Open only to majors in the School of Music. Creative and analytical work with two-and three-part counterpoint in the style of J.S. Bach.

Composition
Fall. Spring. 2 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P:M: (MUS 281) R: Open only to majors in the School of Music. Private instruction in music composition.

Instrumentation and Basic Orchestration
Fall. 2(2-1) P:M: (MUS 380) R: Open only to majors in the 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.

Independent Study
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 15 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.

Special Topics in Music
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 15 credits in all enrollments for this course. R: Approval of school. Special topics supplementing regular course offerings proposed by faculty for group study.
Music—MUS

493  Music Therapy: Clinical Practicum Fall, Spring, Summer. 1 credit. Fall: Offered at various a. Spring: sites around the U.S. P:M: (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  Student Teaching in Music Fall, Spring. 9 credits. Interdepartmental with Teacher Education. R: Open only to seniors in the Bachelor of Music Education major.
Supervised music teaching experience in schools. On-campus seminar required.

NATURAL SCIENCE

College of Natural Science

101  Preview of Science Fall. 1 credit. Interdepartmental with Agriculture and Natural Resources; Engineering; Social Science. R: Approval of college.

102  Preprofessional Freshman Seminar Fall, Spring. 1(1-0)
Overview of human health care professions with emphasis on academic and nonacademic undergraduate preparation, campus resources, communication and computer skills, and collaborative learning.

150  Preview of Biomedical Research Spring. 1(1-0) Interdepartmental with Medical Technology. Administered by Medical Technology Program.
Exploration of biomedical research careers. Biomedical research in the United States: funding, safety, regulatory agencies, ethics, experimental design, trouble-shooting, and data interpretation.

192  Environmental Issues Seminar Fall, Spring. 1 credit. A student may earn a maximum of 4 credits in all enrollments for this course. Interdepartmental with Agriculture and Natural Resources; Engineering; Social Science; Communication Arts and Sciences. R: Open only to students in the College of Agriculture and Natural Resources or College of Engineering or College of Natural Science or College of Communication Arts and Sciences or 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:M: (MTH 1825 or concurrently or MTH 116 or concurrently or MTH 132 or 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:M: (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:M: (NSC 202) R: Open only to Drew Laboratory students.
Using topics relevant to a faculty member's ongoing research, students explore the relationship between science and technology and social issues.

301  Science for Elementary Schools Fall, Spring. 3(3-0) RB: Completion of an ISB and ISBL or ISP and ISPL course.
Completion of the majority of complementaries coursework in science and math. R: Open only to students in the Elementary Teacher Education Program.
Topics in earth science, life science, and physical science explored through discussion, demonstrations, readings, presentations, and field trips.

309  Special Problems Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department.
Faculty directed individualized study of an interdisciplinary problem.

301  Science Laboratories for Secondary Schools (W) Fall. 4(2-6) R: Open only to seniors in the BA degree in Chemistry, or the BS degree in Biological Science-Interdepartmental or Earth Science-Interdepartmental or General Science-Interdepartmental or Physical Science-Interdepartmental major or their associated LBS majors.
Laboratory equipment, supplies, demonstrations, exercises, and safety. Care of live organisms. Disposal of biological and chemical wastes. Field trips required.

448  Ecology, Law and Economics Spring. 3(3-0) P:M: (EC 201)
Review and integrate principles of ecology, fundamentals of law, and principles of economics into a conceptual model that describes interrelations among the natural system, the economy, and the state. Analyze and assess the legal-economic natural resource and environmental policies in the context of the integrated model. Relate the ecology-law-economics model to emerging paradigms of sustainable development, ecological economics, industrial ecology, and the Natural Step.

490  Special Problems Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department.
Faculty directed individualized study of an interdisciplinary problem.

491  Selected Topics Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department.
Selected interdisciplinary topics not normally covered in other courses.

495  Capstone in Human Biology (W) Fall, Spring. 2(2-0) P:M: Completion of Tier I writing requirement. R: Open only to seniors in the Human Biology or Lyman Briggs Human Biology major.
Integration of human biology disciplines with a focus on health and disease.

496  Directed Study in Human Biology Fall, Spring, Summer. 1 to 3 credits. P:M: Completion of Tier I writing requirement.
Directed studies in human biology.

497  Internship in Human Biology Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: Completion of Tier I writing requirement.
Practical experience applying human biology training outside the classroom setting.

498  Research in Human Biology Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. P:M: Completion of Tier I writing requirement.
Research in faculty laboratories.

499  Research Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to juniors or seniors in the College of Natural Science with a teacher certification option.
Research in faculty laboratories. Oral and written presentations.

NURSING—NUR

College of Nursing

202  Introduction to Nursing Practice I Fall. 2(1-3) R: Open only to students in the College of Nursing except students in PreNursing and Registered Nurses.
Theoretical concepts of nursing necessary for professional practice. Assessment, interpersonal communication, documentation and decision-making.

204  Introduction to Nursing Practice II Spring. 4(2-6) P:M: (NUR 202 and PHM 350 or concurrently) C: PHM 350 concurrently.
Nursing practice concepts in simulated and clinical practice settings. Development of nursing practice psychomotor skills.

215  Core Competencies in Nursing I Fall, Spring. 1(1-0) R: Open only to students in the College of Nursing.
Assessment core nursing competencies applying natural, social and nursing science.

303  Concepts of Nursing Care of the Adult Fall, Spring. 4(4-0) P:M: (NUR 204 and NUR 341) C: NUR 304 concurrently.
Family centered nursing care for adults at various levels of health and illness. Prototype health states with emphasis on associated nursing diagnosis and professional standards of care.

304  Practicum in Nursing Care of the Adult Fall, Spring. 4(0-12) P:M: (NUR 204 and NUR 341) C: NUR 303 concurrently.
Nursing care of the adult client with an emphasis on health promotion, disease prevention, care in acute and chronic illness, and rehabilitation.

305  Concepts of Nursing Care of the Childbearing Family Fall, Spring. 2(2-0) P:M: (NUR 204 and NUR 341) C: NUR 306 concurrently.
Concepts of holistic nursing care with culturally diverse childbearing families during the prenatal, intrapartum, and postpartum periods. Concepts of health promotion and risk factors in client care situations.