821. Advanced Microbial Physiology
Spring of even-numbered years. 4(4-0)
MPH 302.
Mechanisms and regulation of physiologic and metabolic activities unique to prokaryotes including fermentation, photosynthesis, respiration and autotrophy.

822. Microbial Genetics
Winter. 3(3-0) BCH 311.
Gene structure, gene function, and genetic regulation at the classical and molecular levels in prokaryotes and lower eukaryotes.

827. Immunochemistry
Spring of even-numbered years. 3(3-0)
MPH 405; BCH 452 or ZOL 441; CSM 383 recommended.
Structure and reactivity of antigens and antibodies; synthesis of immunoglobulins. Emphasis is on current advances and research concepts.

829. Host-Parasite Relationships
Fall. 3(0-3) MPH 427, MPH 429 or approval of department.
Pathogenesis and host responses to selected bacterial, parasitic, and fungal pathogens. Emphasis is on current research models which exemplify a variety of host-parasite relationships.

831. Bacterial Diversity
Spring of odd-numbered years. 3(3-0)
MPH 303, MPH 304; BCH 401 or BCH 453 or concurrently.
Morphological and physiological properties of diverse groups of bacteria and how these properties relate to their ecological niche and importance.

832. Bacterial Diversity Laboratory
Spring of odd-numbered years. 2(0-6)
MPH 331 or concurrently.
Representative groups of bacteria will be isolated and studied.

842. Advanced Soil Microbiology
Fall of odd-numbered years. 3(3-0)
MPH 425 or approval of department. Interdepartmental with the Department of Crop and Soil Sciences.
Biochemistry, biology, and community ecology of microorganisms indigenous to soil. Emphasis is on current research problems.

843. Soil Microbiology Laboratory
Fall of odd-numbered years. 2(0-6)
MPH 442 concurrently or approval of department. Interdepartmental with the Department of Crop and Soil Sciences.
Fundamental techniques of dealing with microorganisms indigenous to soil. Metabolic activity of microorganisms. Interaction between microorganisms and plants.

890. Special Problems in Microbiology
Fall, Winter, Spring, Summer. 2 to 6 credits. May reenroll for a maximum of 12 credits. Approval of department.

899. Master's Thesis Research
Fall, Winter, Spring, Summer. Variable credits. Approval of department.

900. Topics in Microbiology
Fall, Winter, Spring, Summer. 2(2-0)
May reenroll if different topic is taken. Approval of department.
Topics will be selected from taxonomic subdisciplines such as bacteriology, virology, protozoology, mycology, algology, and helminthology; and from interfacing disciplines such as microbial genetics, immunology, physiology, and ecology.

999. Doctoral Dissertation Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

MILITARY SCIENCE M S
Office of the Provost

101. Introduction to the Military Profession
(M S 121.) Fall, Winter, Spring. 1(1-1) Approval of department.
Analysis of the military profession from several academic perspectives. Exploration of the technical, ethical, and personal ramifications of service as an officer in the U.S. Army. Lab introduces military skills.

102. Military Leadership I
(M S 041A.) Winter. 1(1-1) M S 101 or approval of department.
Introduction to military leadership. Draws upon examples from military history to illustrate what a military leader must be, know, and do to lead soldiers in battle. Lab includes both military skills and leadership applications.

103. Army Physical Fitness Training
Spring. 1(1-0) M S 102 or approval of department.
The leader's role in implementing the Army Physical Fitness Program to provide for the physical well being of subordinates. Individual and group fitness programs are introduced. Includes rappelling and smallbore rifle marksmanship.

201. Military First Aid
(M S 221.) Fall. 1(1-1) M S 103 or approval of department.
Emergency first aid techniques including casualty evaluation, lifesaving measures, CPR, and environmental injury prevention. Lab includes military skills and first aid applications.

202. Military Leadership II
(M S 041B.) Winter. 1(1-1) M S 201 or approval of department.
Descriptive model of small unit leadership. Provides cadets with a realistic preview of the small unit leader's role in the Army. Lab includes small unit drill and ceremonies.

203. Land Navigation
(M S 223.) Spring. 1(1-2) M S 202 or approval of department.
Use of topographic and special use maps to include intersection, resection, modified resection, and polar coordinates. Development of overlays for tactical operations. Lab includes actual land navigation in the field using the leascope compass.

301. Command and Control Communications
Fall. 3(2-3) M S 203 or approval of department.
Tactical wire and radio communications systems and employment during tactical operations to provide effective control of military operations. Encryption/decryption, use of codes, and electronic warfare. Lab emphasizes practical application of communication skills.

302. Military Leadership III
Winter. 3(2-3) M S 301 or approval of department.
Application of the theories and models of the behavioral sciences to leadership as it functions in a military environment. Case studies from military history. Lab emphasizes practical leadership applications.

303. Small Unit Tactics
(M S 325.) Spring. 3(2-3) M S 302 or approval of department.
Offensive and defensive military tactics. Incorporates practical exercises which allow cadets to view the modern battlefield through the eyes of the infantry platoon leader. Lab emphasizes tactical employment of the infantry squad and platoon.

401. Training Management and Unit Administration
(M S 346.) Fall. 3(2-2) M S 303 or approval of department.
The Army training management system and the leader's role as a trainer. Operations and administration in military units to provide effective personnel management and logistic support. Oral and written military communication. Lab includes practical experiences in unit administration.

402. Military Leadership IV
(M S 041D.) Winter. 3(2-2) M S 401 or approval of department.
Leadership assessment, development, and training practices. Integration of theory, practice, and self-assessment in leadership. Development of subordinates and the role of the noncommissioned officer. Lab includes leadership development and assessment exercises.

403. Military Law, Ethics, and Professionalism
(M S 427.) Spring. 3(2-2) M S 402 or approval of department.
Military legal system and the responsibilities of leaders in the application of military justice. Examination of fundamental values and principles of conduct in the profession of arms. Lab includes practical exercises in professional development.

499. Independent Study in Military Science
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 6 credits. Approval of department.
Individual research and study in an area related to military science as approved and directed by the Department of Military Science.

MUSIC MUS

College of Arts and Letters

112. Chamber Music
Fall, Winter, Spring, Summer. 1(1-0) May reenroll for a maximum of 18 credits. Approval of department.
Performance of works for small ensembles.

118. Band
A. Marching Band
Fall. 1 credit. May reenroll for credit. Membership determined by audition.
The Marching Band participates at football games.
Descriptions — Music

of Courses

B. Spartan Brass
Winter. 1 credit. May reenroll for credit. Membership determined by audition. The Spartan Brass participates at basketball games.

C. Concert Band
Fall, Winter, Spring. 1 credit. May reenroll for credit. Membership determined by audition. Public appearances are scheduled on campus each term.

D. Symphonic Band
Fall, Winter, Spring. 1 credit. May reenroll for credit. Membership determined by audition. A high level of achievement in performing ability is required. Concerts are scheduled both on and off campus.

E. Wind Ensemble
Fall, Winter, Spring. 1 credit. May reenroll for a maximum of 12 credits. Membership determined by audition. A high level of performance is required. Full range of wind literature is performed. Public concerts are presented both on and off campus.

F. Recreatory Band
Fall, Winter, Spring, Summer. 1 credit. May reenroll for a maximum of 12 credits. Membership determined by audition. Public appearances are scheduled on campus each term.

133A. Symphony Orchestra
Fall, Winter, Spring. 1(0-5) May reenroll for a maximum of 12 credits. Admission by audition. Preparation and performance of symphony and operatic repertoire under direction of faculty and guest conductors of international reputation.

133B. Chamber Orchestra
Fall, Winter, Spring. 1(0-5) May reenroll for a maximum of 12 credits. Membership determined by audition. A specialized ensemble of advanced performers concentrating on the repertoire of the classic composers, and modern repertoire for chamber orchestra. Rehearsals and performances with faculty and guest artists.

135. Music in Elementary Education
Fall, Winter, Spring, Summer. 4(3-3) Elementary education majors. Study of music learning strategies in the elementary schools. Music concepts and literature are developed through listening, performing, creative and analytical skills. Methods and materials are emphasized.

141. Class Instruments and Voice
Fall, Winter. 1(0-2) Knowledge of notation. Music majors, or approval of department. Class instruction in piano, voice, violin, cello, clarinet, and cornet.

142. Class Instruments and Voice
Winter. Spring. 1(0-2) MUS 141.

143. Class Instruments and Voice
Spring. 1(0-2) MUS 142.

144. Elementary Piano
Fall, Winter, Spring. 2(2-2) MUS 145 or approval of department. Elementary Education and Physical Education and Recreation majors.

Beginning class piano instruction. Development of ability to play the three principal chords in all keys and to harmonize simple melodies using these chords. Transposition of simple melodies. Ability to play melodies and rhythms suitable for use in lower intermediate grades or in recreation work.

148. Elementary Piano
Winter, Spring. 2(2-2) MUS 147. Elementary Education majors. Continuation of MUS 147.

150. Keyboard Instruments and Harp
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Audition required. Instruction in piano, organ and harp.

151. Voice
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Audition required.

152. Stringed Instruments
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Audition required.

153. Woodwind Instruments
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Audition required.

154. Brass Instruments
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Audition required.

155. Percussion
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Audition required.

160. Basic Harmony
Fall. 3(3-1) Fundamentals of basic musicianship: notation, clefs, scales, intervals, triads, meter, rhythm, and tonality. The analysis and writing of diatonic harmony in the style of the Bach 4-part chorale.

161. Basic Harmony
Winter. 3(3-1) MUS 180. Continuation of MUS 180.

162. Basic Harmony
Spring. 3(3-1) MUS 181. Continuation of MUS 181.

163. Aural Harmony
Fall, Winter, Spring, Summer. 1(0-2) MUS 180 concurrently. The aural counterpart of basic harmony. Drill in harmonic, melodic and rhythmic dictation. Sight singing and keyboard harmony.

164. Aural Harmony
Fall, Winter, Spring, Summer. 1(0-2) MUS 183; MUS 181 concurrently.

165. Aural Harmony
Fall, Winter, Spring, Summer. 1(0-2) MUS 184; MUS 182 concurrently.

190. State Singers
Fall, Winter, Spring. 1(0-4) May reenroll for a maximum of 12 credits. Membership determined by audition; ability to sight read. Four hours of rehearsals a week. Attendance at all rehearsals and public performance obligatory.

191. Chorus
Fall, Winter, Spring. Summer. 1(0-2-1/2) May reenroll for a maximum of 12 credits. Two and one-half hours of rehearsals per week. Attendance at all rehearsals and public concerts obligatory.

192. Glee Club, Men and Women
Fall, Winter, Spring. 1(0-3) May reenroll for a maximum of 12 credits. Membership determined by audition. Three hours of rehearsals a week. Attendance at all rehearsals and public concerts obligatory.

193. University Chorale
Fall, Winter, Spring, 1(0-4) Audition. Choral ensemble designed primarily for graduate and upper class undergraduate students. Representative literature for chamber chorale with emphasis on Renaissance, Baroque, and contemporary composers. Limited to 25 students.

195. Jazz Laboratory Band
Fall, Winter, Spring, Summer. 1(0-4) May reenroll for a maximum of 12 credits. Membership determined by audition. Practical experience in playing music in the jazz idiom. Techniques of rehearsing a stage band. Playing of student arrangements; performance of jazz composition and arrangements in concert.

196. Jazz Combo Performance
Fall, Winter, Spring. 1(0-3) May reenroll for a maximum of 12 credits. Audition. Small group playing experience for advanced performers and improvisors, with additional emphasis on the writing of arrangements for the group.

200H. Honors Work
Fall, Winter, Spring, Summer. 1 to 16 credits. May reenroll for a maximum of 16 credits. Approval of department.

208. Basic Keyboard Tuning: Theory and Practice I
Fall, Summer. 2(2-2). MUS 182, MUS 185 or approval of department. Basic acoustics. Historical development of musical scales and tuning systems. Classical and modern methods of keyboard tuning.

209. Basic Keyboard Tuning: Theory and Practice II
Winter. 2(1-3) MUS 208. Continuation of MUS 208.

210. Basic Keyboard Tuning: Theory and Practice III
Spring. 2(1-3) MUS 209. Continuation of MUS 209.

211. Introduction to Music Literature I (A)
Fall. 4(4-0) Student may not receive credit in both HUM 201 and MUS 211. Comparative study of selected musical works in historical context with emphasis on their relationships to society in general and the other arts in particular. From Antiquity through the Renaissance.
212. **Methods of teaching music** in special education programs.

213. **Introduction to Music Literature III (A)**

- **Spring:** Summer of even-numbered years. 4(4-0) Student may not receive credit in both HUM 262 and MUS 212.
- Comparative study of selected musical works in historical context with emphasis on their relationships to society in general and the other arts in particular. From 1600 to 1800.

214. **Advanced Class Piano**

- Fall. 1(0-2) MUS 143 or approval of department.
- Continuation of Class Piano MUS 143. Special emphasis given to developing practical skills at the piano for use in the public school classroom.

215. **Advanced Class Piano**

- Winter. 1(0-2) MUS 241 or approval of department.
- Continuation of MUS 241.

216. **Advanced Class Piano**

- Spring. 1(0-2) MUS 242 or approval of department.
- Continuation of MUS 242.

217. **Music in Special Education**

- Fall, Winter, Spring, Summer. 3(3-0) MUS 135. Special education majors.
- Methods of teaching music in special education programs.

218. **Introduction to School Music**

- Fall, Spring. 1(1-1) Sophomores in Music Education or approval of department.
- An overview of the field of school music. Study and discussion of historical background, current trends, and teaching responsibilities at all curricular levels.

219. **German Diction for Singers**

- Fall. 1(1-1) Three terms of MUS 151.
- Practice and training in German lyric diction. Rules of pronunciation; emphasis on spoken drill and performance of German art songs in class.

220. **Fundamentals of Music**

- Fall, Winter, Spring. 3(3-1) Nonmajors.
- Fundamentals of music to develop understanding and knowledge of scales and modes, key signatures, chord structures, chord progressions and non-harmonic tones.

221. **Popular Music Styles**

- Winter. 3(3-0)
- Style characteristics of prominent genres of popular music in twentieth century America. The evolution of popular musical taste.

222. **Popular Music Styles**

- Spring. 3(3-0)
- A survey of style characteristics of prominent genres of popular music in the United States from 1900 to the present.

223. **Advanced Harmony**

- Fall. 3(3-1) MUS 182.
- Continuation of MUS 182, with added vocabulary and technical discussion of nineteenth-century harmony. Creative writing in small forms.

224. **Advanced Harmony**

- Winter. 3(3-1) MUS 280.
- Continuation of MUS 280.

225. **Advanced Harmony**

- Spring. 3(3-1) MUS 281.
- Continuation of MUS 281.

226. **Advanced Aural Harmony**

- Fall. Winter, Spring. 1(0-2) MUS 185; MUS 280 concurrently.
- Aural counterpart of advanced harmony. Drill in harmonic, melodic, and rhythmic dictation. Sight singing and keyboard harmony.

227. **Advanced Aural Harmony**

- Fall. Winter, Spring, Summer. 1(0-2) MUS 283; MUS 281 concurrently.

228. **Advanced Aural Harmony**

- Fall. Winter, Spring. 1(0-2) MUS 284; MUS 282 concurrently.

229. **Advanced Keyboard Tuning: Theory and Practice I**

- Fall. 3(2-2) MUS 210 or approval of department.

230. **Advanced Keyboard Tuning: Theory and Practice II**

- Winter. 3(2-2) MUS 308.
- Continuation of MUS 308.

231. **Advanced Keyboard Tuning: Theory and Practice III**

- Spring. 3(2-2) MUS 309.
- Continuation of MUS 309.

232. **Church Service Playing**

- Winter, Spring. 2(2-0)
- May enroll for a maximum of 6 credits. Three terms of pipe organ.
- Instruction in adapting piano and orchestral accompaniment to organ; choosing organ and choir repertoire appropriate to church season; hymn playing, modulation, and ways to help unify service.

233. **Music Workshop**

- Summer. 1 to 6 credits. May enroll for a maximum of 12 credits. Approval of department.

234. **Jazz and America**

- Spring. 3(3-0) Juniors or approval of department.
- Jazz fundamentals, history, styles, and social significance.

235. **Composing and Arranging for Jazz Ensembles**

- Fall, Winter, Spring. 3(3-2) MUS 182; approval of department.
- Techniques of composition and arranging in jazz idiom for various instrumental and/or vocal ensembles. Analytical studies of scores, recorded examples and published stage band materials. Writing for films and commercials.

236. **Ensemble and Conducting**

- Winter. 3(4-4) MUS 335.
- Continuation of MUS 335.

237. **Class Instruments**

- Fall, Winter, Spring. 1(0-2)
- May enroll for credit. Majors.
- Study for one term of instruments not included among basic instruments. Not more than two may be studied at same time. Class instruction in viola, string bass, flute, oboe, bassoon, French horn, trombone, and percussion.

238. **Teaching Music in the Elementary School I**

- Fall, Winter, Spring. 3(3-0)
- Approval of department.
- Procedures and program of music instruction in the elementary school. Special emphasis on instructional problems of early elementary children.

239. **Methods and Literature**

- Fall. Summer of odd-numbered years. 2(1-2) Six terms of study on applied instrument or voice, or approval of department.
- Methods of teaching voice or instruments. Study of appropriate teaching literature.
Descriptions — Music of Courses

345. **Methods and Literature**
Winter. 2(1-2) Six terms of study on applied instrument or voice, or approval of department. Methods of teaching voice or instruments. Study of appropriate literature.

349. **Methods and Literature**
Spring, Summer of even-numbered years. 2(1-2) Six terms of study on applied instrument or voice, or approval of department. Methods of teaching voice or instruments. Study of appropriate teaching literature.

350. **Keyboard Instruments and Harp**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Six terms of MUS 150 or approval of department. Continuation of MUS 150.

351. **Voice**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Six terms of MUS 151 or approval of department. Continuation of MUS 151.

352. **Stringed Instruments**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Six terms of MUS 152 or approval of department. Continuation of MUS 152.

353. **Woodwind Instruments**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Six terms of MUS 153 or approval of department. Continuation of MUS 153.

354. **Brass Instruments**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Six terms of MUS 154 or approval of department. Continuation of MUS 154.

355. **Percussion**
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 24 credits. Six terms of MUS 155 or approval of department. Continuation of MUS 155.

356. **Piano Sight Reading and Accompanying**
Fall, Winter, Spring. 2(0-4) May reenroll for a maximum of 12 credits. Piano major or approval of department. Sight reading, Transposing. Under supervision accompanying instrumental and vocal soloists.

357. **Piano Accompanying**
Fall, Winter, Spring. 1(0-5) May reenroll for a maximum of 15 credits. Piano major or approval of instructor. Instruction in the art of accompaniment. Accompaniment of instrumental and vocal soloists.

358. **Studies in Style and Form**
Fall, Summer. 2(2-1) MUS 282.
Analysis and creative writing of technical and structural practices in music of various periods, with special emphasis on the twentieth century.

359. **Studies in Style and Form**
Spring, Summer. 2(2-1) MUS 282.
Analysis and creative writing of technical and structural practices in music of various periods, with special emphasis on the twentieth century.

360. **Orchestration**
Fall, Summer. 2(2-0) MUS 282.
Modern orchestral resources and scoring for various instrumental groups.

361. **Orchestration**
Winter, Summer. 2(2-0) MUS 283.
Continuation of MUS 283.

362. **Orchestration**
Spring, Summer. 2(2-0) MUS 284.
Continuation of MUS 284.

363. **Counterpoint**
Fall. 2(2-0) MUS 285.
Creative and analytical work with two-part counterpoint in the style of J. S. Bach.

364. **Counterpoint**
Spring. 2(2-0) MUS 286.
Creative and analytical work with three-part counterpoint in the style of J. S. Bach.

365. **Counterpoint**
Spring. 2(1-2) MUS 287.
Creative and analytical work with three and four-part counterpoint in the style of J. S. Bach.

400. **Clinical Training in Music Therapy**
Fall, Winter, Spring, Summer. 1 to 16 credits. Music therapy majors. Six months internship in an accredited neuropsychiatric hospital.

400H. **Honors Work**
Fall, Winter, Spring, Summer. 1 to 16 credits. May reenroll for a maximum of 16 credits. Approval of department.

403. **Music Literature for Children**
Fall, Winter, Spring, Summer. 3(3-0) MUS 346, or E 336 or E 335.
Appropriate musical materials for both performance and listening instruction in elementary and secondary schools. Particular emphasis on the music of culturally different peoples.

408. **Piano Technology I**
Fall. 3(2-2) MUS 310 or approval of department. Methods of and practice in restoring the original tone of old pianos. Repairing or replacing all worn parts. Advanced concert tuning and tone regulation.

409. **Piano Technology II**
Winter. 3(2-2) MUS 408.
Continuation of MUS 408.

410. **Piano Technology III**
Spring. 3(2-2) MUS 409.
Continuation of MUS 409.

411. **Opera**
Winter of odd-numbered years. 2(1-2) Six terms of voice or approval of department. History of opera from 1600 to the present.

412. **Oratorio**
Fall of even-numbered years. Summer. 2(1-2) Six terms of voice or approval of department. History of oratorio from 1600 to the present.

415A. **Renaissance Music**
Fall. 2 credits. MUS 182 or approval of department.

415B. **19th Century Music**
Fall. 2 credits. MUS 182 or approval of department.

415C. **Keyboard Music, Seventeenth through Eighteenth Centuries**
Fall of even-numbered years. 2 credits. MUS 182 or approval of department.

415E. **German Lieder**
Fall of odd-numbered years. 2 credits. MUS 182 or approval of department.

415F. **Organ Literature to 1700**
Fall of odd-numbered years. 2 credits. MUS 182 or approval of department.

416A. **Baroque Music**
Winter. 2 credits. MUS 182 or approval of department.

416B. **Twentieth Century Music, European**
Winter. 2 credits. MUS 182 or approval of department.

416C. **Piano Music, Nineteenth Century**
Winter of odd-numbered years. 2 credits. MUS 182 or approval of department.

416E. **French-Italian Art Song**
Winter of even-numbered years. 2 credits. MUS 182 or approval of department.

416F. **Organ Literature From 1700 to 1900**
Winter of even-numbered years. 2 credits. MUS 182 or approval of department.

417A. **Classical Music**
Spring. 2 credits. MUS 182 or approval of department.

417B. **Twentieth Century Music, American**
Spring. 2 credits. MUS 182 or approval of department.

417C. **Piano Music, Twentieth Century**
Spring of odd-numbered years. 2 credits. MUS 182 or approval of department.

417E. **English-American Art Song**
Spring of even-numbered years. 2 credits. MUS 182 or approval of department.

417F. **Organ Literature From 1900 to Present**
Spring of even-numbered years. 2 credits. MUS 182 or approval of department.
421. Music and Worship  
Fall. 3(3-0) MUS 226 or approval of department.  
Relationship of music and liturgy to Christian worship. Traditional liturgies and forms of service of the Christian churches with emphasis on function and place of music in worship.

422. Hymnology  
Winter. 3(3-0) MUS 226 or approval of department.  
Creek and Latin hymns, canticles, and transition from psalmody into hymnody. Hymns and tunes studied with emphasis on their natural place in church year. Special attention to anthem settings of hymns and adaptation of traditional melodies, especially Gregorian.

423. Choral Repertoire for the Church  
Spring, Summer. 3(3-0) Approval of department.  
Choral literature for church choirs; emphasis on motets, anthems, responses, and materials for both youth and adult choirs.

430. Marching Band Methods and Materials  
Winter. 2(2-0) MUS Education Juniors or approval of instructor.  
Basic marching techniques, show development, charting techniques, use of accessory groups, and appropriate materials for high school marching band.

435. Advanced Conducting  
Spring, Summer. 2(2-0) Approval of department.  
Development of conducting skills through rehearsals and analysis of literature appropriate for secondary school performing ensembles.

438. Brass and Woodwind Techniques  
Spring, Summer. 2(1-2) Senior music majors.  
Materials and contemporary pedagogical practices of group wind instrumental instruction.

440. Fundamentals of Electronic Music  
Fall, Summer. 2(2-0) MUS 282.  
Instruction in the use of the Electronic Music Studio.

441. Fundamentals of Electronic Music  
Winter. 2(1-2) MUS 440.  
Supervised use of the Electronic Music Studio.

442. Composition in Electronic Music  
Spring, Summer. 2(1-2) MUS 441.  
Assigned use of the Electronic Music Studio.

450. Recreational Music  
Spring, Summer. 1 to 2 credits.  
Organization and administration of a community music program for adults; community chorus, orchestra, and band. Nonsymphonic instruments and their use in recreation. Summer camp and playground music. Recreational music as it is organized and used by industries.

462. Studio Teaching and Observation  
Fall. 2(1-2) MUS 347, MUS 348, MUS 349.  
Supervised studio teaching in classes and private lessons plus one-hour seminar each week.

463. Studio Teaching and Observation  
Winter. 2(1-2) MUS 462.  
Continuation of MUS 462.

464. Studio Teaching and Observation  
Spring. 2(1-2) MUS 463.  
Continuation of MUS 463.

470. Influence of Music on Behavior  
Fall. 3(3-0) Nuclear of psychology or approval of department.  
Study of the physiological and psychological effects of music; relation of music to health. Experimental studies, related to philosophical and psychological theory will be reviewed.

471. Music Therapy Techniques  
Winter. 3(3-0) MUS 470.  
Survey of procedures in music therapy; investigation of the role of music as a tool in treatment of mentally ill, mentally and physically handicapped; introduction to hospital organization.

472. Music Therapy Techniques  
Spring. 3(3-0) MUS 471.  
Continuation of MUS 471.

480. Advanced Studies in Style and Form  
Fall. 3(3-0) MUS 380, MUS 381, MUS 382.  
Continuation of MUS 382.

481. Advanced Studies in Style and Form  
Winter. 2(2-1) MUS 480.  
Continuation of MUS 480.

482. Advanced Studies in Style and Form  
Spring. 2(2-1) MUS 481.  
Continuation of MUS 481.

483. Composition  
Fall, Winter, Spring, Summer. 2(2-0) May reenroll for a maximum of 6 credits. MUS 282 or approval of department.  
Guided projects in creative writing.

485. Psychology of Music  
Fall, Summer. 3(3-0) Approval of department. Interdepartmental with and administered by the Department of Psychology.  
Musical behavior with emphasis on psychological aspects of perception, learning, affective response, and ability. Emphasis on social and cultural influences in forming musical tastes, including mass media media.

487. Psychology of Music  
Winter. 2(2-2) PSY 466 or approval of department. Interdepartmental with and administered by the Department of Psychology.  
Basic research concepts and experimental methods in psychology of music research. Practical training in conducting experimental research of musical behavior.

490. Independent Study: Special Problems in Music Research  
Fall, Winter, Spring. 1 to 4 credits. May reenroll for credit. Seniors and approval of department.  
Individual problems in music research.

495. Opera Workshop  
Fall, Winter, Spring. 1 to 2 credits. May reenroll for a maximum of 6 credits. Approval of department.  
Practical experience in performance and production of opera and opera scenes.

499. Special Topics  
Fall, Winter, Spring, Summer. 1 to 5 credits. May reenroll for a maximum of 10 credits if a different topic is taken. Juniors, or approval of department.  
Offered on an experimental basis according to instructor availability and student interest.

502. Seminar in History of Music  
Summer. 4(5-0) May reenroll for a maximum of 12 credits. Approval of department.  
Critical study in depth of music literature and performance practices within historical perspective.

503. Seminar in Music Education  
Spring of odd-numbered years, Summer of even-numbered years. 3(3-0) Approval of department.  
Consideration of the historical and philosophical basis for music instruction in education.

504. Seminar in Music Learning  
Fall, Winter. 3(3-0) Approval of department.  
Detailed analysis of the conditions of music learning for teachers of music including consideration of perception, maturation and concept formation.

505. Seminar in Music Curriculum  
Winter, Summer. 3(3-0) Approval of department.  
Development of goals, objectives, learning sequence and evaluative techniques for music learning at all instructional levels.

506. Seminar in Music Education Methodology  
Spring of odd-numbered years; Summer of even-numbered years. 3(3-0) Approval of department.  
Critical analysis of various methodologies in music teaching. Emphasis on the impact of methods and their applications to improvements of musical growth in performance, cognitive, and affective domains.

511. Introduction to Research in Music Education and Music Therapy  
Fall, Summer. 3(3-0) Approval of department.  
Conducting and critically interpreting research in music education and music therapy. Library skills, experimental research, and statistical analysis are emphasized.

512. Research Problems in Music  
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 15 credits.

513. Chamber Music  
Fall, Winter, Spring. 1(1-0) May reenroll for a maximum of 6 credits. Approval of department.  
Performance of works for small ensembles.

515. Seminar in Chamber Music: 18th Century  
Fall. 2(2-0) Approval of department.  
Intensive study of selected chamber music works of the 18th century.

516. Seminar in Chamber Music: 19th Century  
Winter. 2(2-0) Approval of department.  
Intensive study of selected chamber music works of the 19th century.

Music — Descriptions of Courses
Courses — Music

817. Seminar in Chamber Music: 20th Century
Spring, 2(2-0) Approval of department.
Intensive study of selected chamber music works of
the 20th century.

820. Music Workshop
Summer, 1 to 9 credits. May reenroll
for a maximum of 9 credits. Approval of department.

821. Advanced Methods and Materials
in Elementary Music
Fall, Winter, Spring, Summer, 3(3-0)
May reenroll for a maximum of 9 credits if different
methods and materials are taken. Graduate students in
Music Education or approval of department.
Continuation of MUS 820.
Teaching methods and materials for special topics
in elementary music, such as music literature, Orff, Kodaly, and
integrated arts.

824. Research Methods and Materials
Fall, Winter, Summer, 3 or 4 credits.
A critical examination of encyclopedias, indices, and
other aids to research, and of the organization,
presentation and documentation of research results.

830. Sixteenth Century Counterpoint
Fall of even-numbered years, Summer.
3(3-0) MUS 832 or approval of department.
Study and writing of counterpoint based upon
the works of Orlando Lasso andPalestrina.
Continuation of MUS 830.

831. Sixteenth Century Counterpoint
Fall of odd-numbered years, Summer.
3(3-0) MUS 832.
Continuation of MUS 830.

832. Sixteenth Century Counterpoint
Spring of odd-numbered years, Summer.
3(3-0) MUS 832.
Continuation of MUS 831 to include a study of
nineteenth-century counterpoint.

834. Seminar in Composition
Fall, Winter, Spring, Summer, 3(2-0)
May reenroll for a maximum of 24 credits. Approval
of department.
Study of contemporary music with emphasis on
compositional procedures.

835. Composition
Fall, Winter, Spring, Summer, 1 to 2 credits.
May reenroll for a maximum of 24 credits.
Approval of department.
Advanced composition.

836. Seminar in Conducting
Fall, Winter, Spring, Summer, 1 to 3 credits.
May reenroll for a maximum of 18 credits.
Approval of department.
Advanced conducting techniques applicable to
choral and instrumental music of all periods.

843. Pedagogy of Theory
Fall, Summer, 3(3-0) Approval of department.
Methods, content, and textbooks for teaching basic theory.

844. Pedagogy of Theory
Winter, Summer, 3(3-0) Approval of department.
Continuation of MUS 843 with emphasis upon
new instructional media, and upon methods and
materials in ear training and sight singing.

845. Pedagogy of Theory
Spring, Summer, 3(3-0) Approval of department.
Methods, content, and textbooks for teaching counterpoint, form, and
orchestration.

846. Minor Instrument Study, String
Fall, Winter, Spring, Summer, 1(1-0)
May reenroll for a maximum of 12 credits.
Secondary instrument for students enrolled in
string specialist program.

847. Minor Instrument Study: Brass
Fall, Winter, Spring, Summer, 1(1-0)
May reenroll for a maximum of 12 credits.
Secondary instrument for students enrolled in
brass specialist program.

850. Applied Music
Fall, Winter, Spring, Summer, 1 to 3 credits.
May reenroll for a maximum of 27 credits.

851. Minor Instrument Study: Voice
Fall, Winter, Spring, Summer, 1(1-0)
May reenroll for a maximum of 12 credits. Approval
of department.
Study of vocal techniques for students in majors other than
applied music.

852. Choral Technique and Materials
Spring, Summer, 3(3-0) May reenroll
for a maximum of 9 credits. Completion of under-
graduate program in music education.
Advanced course for further development of
choral proficiency. Demonstrations of choral
techniques, conducting by students, examination
and evaluation of new materials.

855. Problems in Analysis
Fall, Winter, Spring, Summer, 4(4-0)
May reenroll for a maximum of 8 credits.
Course of department.
An application of analytical procedures to school music repertoire.

860. Materials of Music
Fall, Winter, Summer, 1 to 4 credits.
MUS 252.
Correlation of the areas of music theory as a basis for
the study of 19th and 20th century music.

880. Materials of Music
Winter, Spring, 1 to 4 credits. MUS
880.
Continuation of MUS 880.

899. Master's Thesis Research
Fall, Winter, Spring, Summer, Variable credit. Approval of department.

903. Seminar in Musicology
Fall, Winter, Summer, 3(3-0) Approval of department.
Problems of music education with study of and
readings from aesthetics, philosophy, measurement evaluation, and teacher training.

915. Medieval Music
Fall, 3(3-0) Approval of department.
Investigation of various developments in European music to middle of 15th century. Some
attention given to Gregorian Chant as well as to various types of secular Monody, but greater
stress laid on the forms and styles of Polyphonic music.

916. Renaissance Music
Winter, 3(3-0) Approval of department.
Investigation of developments in European music
from 1450 to 1600, tracing developments in both sacred and secular music.

917. Music of the 17th Century
Spring. 3(3-0) Approval of department.
Instrumental and vocal music of Early Baroque
period.

918. Music of the 18th Century
Fall, 3(3-0) Approval of department.
Intensive study of selected topics in 18th century
music.

919. Music of the 19th Century
Winter, 3(3-0) Approval of department.
Intensive study of selected topics in 19th century
music.

920. Music of the 20th Century
Spring, 3(3-0) Approval of department.
Intensive study of selected topics in 20th century
music.

924. Seminar in Musicology
Fall, Winter, Spring, 3 credits. May
reenroll for a maximum of 15 credits. Approval of department.

943. Survey of the History of Theory
Winter, 2(2-0) Approval of department.
Significant theoretical treatises from the 6th cen-
tury B.C. to the early 20th century.

954. Administration of Music Education Programs
Spring of even-numbered years. 3(3-0)
Approval of department.
Techniques for administering school music and
higher education music programs.

955. Current Tendencies in Music Education
Winter of even-numbered years. 3(3-0)
Approval of department.
Current trends and practices in public school
music education.

956. Advanced Research Techniques in Music
Winter, 3(3-0) Approval of department.
Selected research techniques in music education
with emphasis on experimental design and computerized data analysis.

960. Analytical Studies
Fall, 3(3-0) Approval of department.
Analysis of melody, harmony, rhythm, color,
texture, counterpoint, and form in part-music
from the thirteenth to the late sixteenth/early seventeenth century.
115. The Nature and Continuity of Life (N)  
Fall, Winter, Spring, 4(3-2)  
A—The development and testing of scientific concepts as examples of our attempts to understand the world. Selected topics from the life sciences illustrate the nature of scientific investigation.  
B—Theories of the origin, development and structure of life and the universe of which it is a part. Examination of contemporary problems associated with defining life and death.  
C—Consideration of social and ethical issues relating to our increasing control of reproduction and heredity. Reproduction and heredity from molecular, cellular and organismic perspectives, including human structure and function.  
D—The nature of living things, contrasting various scientific and non-scientific views. The implications of the modern scientists understanding of life for our beliefs and values.

122. Human Biosocial Evolution (N)  
Fall, Winter, Spring, 4(3-2)  
Current understanding of human beings and their beliefs as products of biological and cultural evolution. Implications for the future of humanity.

128. The Sociology of Science (N)  
Fall, Winter, Spring, 4(3-2)  
A—The role of science in the development of contemporary societies. The contribution of science to clarification and solution of social problems.  
B—The nature and significance of science and technology in Western culture, with emphasis on their relationship to other creative activities, particularly those within the arts.

129. Biotechnology and Human Values (N)  
Fall, Winter, Spring, 4(4-0)  
Human health examined from evolutionary and ecological viewpoints. Emphasis will be on the impact of a technological environment on our health.

135. Changing Concepts of the Universe (N)  
Fall, Winter, Spring, Summer, 4(3-2)  
Students may not receive credit in more than one of the following: AST 119, AST 217, AST 229, N S 125, N S 155, N S 156.  
A—The origin and development of scientific explanations of the physical world. The origins of modern science and scientific revolutions.  
B—The role of science in the development of Western ideas about reality. The origin and development of mechanistic concepts of the physical world and their exploration through dialogue.  

142. Life, Its Environment (N)  
Fall, Winter, Spring, 4(3-2)  
Natural ecological systems and the impact of human biological and cultural development on them. Examination of specific ecological problems and the role of science in seeking solutions.

158. Cosmology. Humanity's Place in the Universe (N)  
(N S 125, N S 135) Fall, Winter, Spring, Summer, 4(3-2)  
Students may not receive credit in more than one of the following: AST 119, AST 217, AST 229, N S 125, N S 155.  
Our attempts to understand the universe and our place within it. The interaction between scientific concepts and the beliefs and values of the culture in which they are proposed.