<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>829.</td>
<td>Advanced Microbial Ecology</td>
<td>Fall of even years. 3(3-0) 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.</td>
</tr>
<tr>
<td>833.</td>
<td>Microbial Genetics</td>
<td>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.</td>
</tr>
<tr>
<td>841.</td>
<td>Soil Microbiology</td>
<td>Spring of even years. 3(3-0) Interdepartmental with Crop and Soil Sciences. P: MIC 425. Ecology, physiology, and biochemistry of microorganisms indigenous to soil.</td>
</tr>
<tr>
<td>851.</td>
<td>Immunology</td>
<td>Fall of odd 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.</td>
</tr>
<tr>
<td>855.</td>
<td>Molecular Evolution: Principles and Techniques</td>
<td>Fall of odd years. 3(3-0) Interdepartmental with Zoology; and Botany and Plant Pathology. Administered by Zoology. RB: (ZOL 341 Or ZOL 445) Current techniques used to characterize and compare genes and genomes. Types of genetic variation, assays of variation. Emphasis on data analysis, and computer use to conduct a phylogenetic analysis to compare organisms and infer relationships.</td>
</tr>
<tr>
<td>890.</td>
<td>Special Problems in Microbiology</td>
<td>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. Individualized laboratory or library research.</td>
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**Military Science—Descriptions of Courses**

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<tr>
<td>892.</td>
<td>Seminar</td>
<td>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.</td>
</tr>
<tr>
<td>899.</td>
<td>Master's Thesis Research</td>
<td>Fall, 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.</td>
</tr>
<tr>
<td>991.</td>
<td>Topics in Microbiology</td>
<td>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.</td>
</tr>
<tr>
<td>999.</td>
<td>Doctoral Dissertation Research</td>
<td>Fall, Spring. 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.</td>
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**Department of Military Science Office of the Provost**

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<tr>
<td>101A</td>
<td>Leadership: The Military Profession</td>
<td>Fall. 1(1-1) Not open to students with credit in MS 101B. Introduction to 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.</td>
</tr>
<tr>
<td>101B</td>
<td>Leadership: The Military Profession</td>
<td>Spring. 1(1-2) 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.</td>
</tr>
<tr>
<td>102A</td>
<td>Leadership: Wilderness Survival</td>
<td>Fall. 1(1-1) Not open to students with credit in MS 102B. 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.</td>
</tr>
<tr>
<td>102B</td>
<td>Leadership: Wilderness Survival</td>
<td>Spring. 1(1-2) 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.</td>
</tr>
<tr>
<td>201A</td>
<td>Leadership: The Military Leader</td>
<td>Fall. 1(1-1) 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, marksmanship training, and military skills.</td>
</tr>
<tr>
<td>201B</td>
<td>Leadership: The Military Leader</td>
<td>Spring. 1(1-2) 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, marksmanship training, and military skills.</td>
</tr>
<tr>
<td>202A</td>
<td>Introduction to Land Navigation and Tactics</td>
<td>Fall. 1(1-1) Not open to students with credit in MS 202A. Introduction to land navigation using military maps and lensatic compass. Planning routes using azimuth and distance. Determining location by terrain association and other methods. Introduction to infantry defensive and reconnaissance operations.</td>
</tr>
<tr>
<td>202B</td>
<td>Introduction to Land Navigation and Tactics</td>
<td>Spring. 1(1-2) Not open to students with credit in MS 202B. Introduction to land navigation using military maps and lensatic compass. Planning routes using azimuth and distance. Determining location by terrain association and other methods. Introduction to infantry defensive and reconnaissance operations.</td>
</tr>
<tr>
<td>301.</td>
<td>Leading Small Organizations</td>
<td>Fall. 3(3-2) P: (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.</td>
</tr>
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</table>
302. Leadership: Small Unit Tactics
Spring, 3(3-2) P: (MS 201)
Basic military tactics and the military communi-
cation/orders process focusing on small units.
Application of lessons learned from leadership
case studies to practical exercises of leadership.
delegation of tasks and supervision of subordi-
nates in a stressful environment.

401. Leadership: Training
Management, Counseling, and Unit Management
Fall, 3(3-2) P: (MS 202)
Army training philosophy. The lieutenant's role
in training management, personnel administration,
and logistics. Practical exercises in counsel-
ing and training presentations. Practical applica-
tion of leadership development doctrine. Labora-
tory includes practical experience in unit adminis-
tration and training management.

402. Military Law, Ethics and
Professionalism
Spring, 3(3-2) P: (MS 401)
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 profes-
sional development and leadership opportunities.

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 or seniors. Ap-
proval of department.
Individual research in areas related to military
science.

116. Campus Band
Fall, Spring, 10-3) A student may earn a maxi-
mum of 10 credits in all enrollments for this
course. R: Audition required.
Rehearsal and performance of broad range of
band literature chosen from baroque period to the
present.

117. Concert Band
Fall, Spring, 10-3) A student may earn a maxi-
mum 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, 10-6) A student may earn a maxi-
mum 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.

119. Symphony Band
Fall, Spring, 10-3) A student may earn a maxi-
mum of 10 credits in all enrollments for this
course. R: Audition required.
Rehearsal and performance of broad range of
wind and percussion literature.

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

122. Campus Orchestra
Fall, Spring, 10-2) A student may earn a maxi-
mum of 10 credits in all enrollments for this
course. R: Audition required.
Rehearsal and performance of symphonic and
concert literature written for large orchestra,
conducted by staff conductors under the super-
vision of faculty.

123. Collegiate Choir
Fall, Spring, 10-3) A student may earn a maxi-
mum of 10 credits in all enrollments for this
course. R: Audition required.
Rehearsal and performance of representative
literature for mixed choir with emphasis on ren-
aissance, baroque, classical, romantic, and con-
temporary composers.

124. Choral Union
Fall, Spring, 10-2) A student may earn a maxi-
mum 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, 10-3) A student may earn a maxi-
mum of 10 credits in all enrollments for this
course. R: Audition required.
Rehearsal and performance of broad range of
choral literature chosen from medieval period to the
present.

126. State Singers
Fall, Spring, 10-4) A student may earn a maxi-
mum of 10 credits in all enrollments for this
course. R: Audition required.
Mixed choir performing music from all periods.

127. University Chorale
Fall, Spring, 10-4) A student may earn a maxi-
mum 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, 10-3) A student may earn a maxi-
mum 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, 10-4) A student may earn a maxi-
mum of 10 credits in all enrollments for this
ensemble. R: Audition required.
Rehearsal and performance in large jazz ensem-
bles. Literature from classic bands of Ellington
and Basie to contemporary composers.

131. Jazz Combo
Fall, Spring, 10-3) A student may earn a maxi-
mum of 10 credits in all enrollments for this
ensemble. R: Audition required.
Rehearsal and performance in small jazz ensem-
bles. Literature from all historical periods of jazz.

141. Class Instruction in Piano I
Fall, Spring, 1(1-1) R: Open only to students in
the 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 stu-
dents in the 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 concurrently. R: Open
only to students in the School of Music with an
emphasis in voice.
English lyric diction. Rules or pronunciation.
Performance of English language songs in class.

144. Class Instruction in Voice II:
Music Majors
Spring, 1(1-1) P: (MUS 143) R: Open only to stu-
dents in the School of Music with an emphasis in
voice.
Italian lyric diction. Rules of pronunciation. Per-
formance of Italian language songs in class.

145. Class Instruction in Voice I
Fall, 1(1-1) R: Not open to students in the 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 stu-
dents in the School of Music with an emphasis in
voice.
Vocal techniques and exploration of vocal litera-
ture.