**ANIMAL SCIENCE**

**Description**

**General Information**

The field of animal science encompasses the sciences related to animals and their contributions and interactions with humans. This program is designed particularly for students who are interested in pursuing careers associated with the livestock, poultry, meat, and companion animal industries. The core curriculum gives students a balanced education in animal science, biological sciences, physical sciences, mathematics, communications, and humanities and social sciences.

**Options**

Each animal science student studies a core curriculum that provides a comprehensive look at animal biological systems, use of animal products, and current issues and careers in the animal industries. In addition to the core, there are seven different options from which students can choose an area of focus that meets their own individual interests and career objectives. These options include:

- Animal Biology and Biotechnology Option
- Business and Communications Option
- Companion Animal Science Option
- Equine Science Option
- Food Animal Production and Management Option
- Meat Science Option
- Veterinary Animal Science Option

**Midwest Poultry Consortium**

Students interested in any aspect of poultry science or avian biology may earn up to 24 credits through the Midwest Poultry Consortium’s Undergraduate Center of Excellence in Madison, WI. The credits may be applied toward an animal science degree from the University of Nebraska. Further details are available from the Department of Animal Science.

**3+2 year Veterinary Medicine/Animal Science B.S. Degree**

Students pursuing a DVM degree at an accredited college of veterinary medicine may obtain a BS degree in animal science, granted by the University of Nebraska, upon successful completion of the first two years of the curriculum in veterinary medicine. To be eligible, students must have completed at least 90 credit hours of pre-professional courses, all Achievement-Centered Education course requirements, and 20 credit hours in animal science courses at the University of Nebraska. Students who successfully complete the 3+2 Program, must provide transcripts and complete the Application for Degree form via MyRED. Students without MyRED access may apply for graduation in person at Husker Hub in the Canfield Administration Building, or by mail. Students should discuss the program with their academic advisor.

**College Requirements**

**College Admission**

Requirements for admission into the College of Agricultural Sciences and Natural Resources (CASNR) are consistent with general University admission requirements (one unit equals one high school year): 4 units of English, 4 units of mathematics, 3 units of natural sciences, 3 units of social sciences, and 2 units of world language. Students must also meet performance requirements: a 3.0 cumulative high school grade point average OR an ACT composite of 20 or higher, writing portion not required OR a score of 1040 or higher on the SAT Critical Reading and Math sections OR rank in the top one-half of graduating class; transfer students must have a 2.0 (on a 4.0 scale) cumulative grade point average and 2.0 on the most recent term of attendance. For students entering the PGA Golf Management degree program, a certified golf handicap of 12 or better (e.g., USGA handicap card) or written ability (MS Word file) equivalent to a 12 or better handicap by a PGA professional or high school golf coach is required. For more information, please visit http://pgm.unl.edu/requirements/.

**Admission Deficiencies/Removal of Deficiencies**

Students who are admitted to CASNR with core course deficiencies must remove these deficiencies within the first 30 credit hours at the University of Nebraska–Lincoln, or within the first calendar year at Nebraska, whichever takes longer, excluding foreign languages. Students have up to 60 credit hours to remove world language deficiencies. College-level coursework taken to remove deficiencies may be used to meet degree requirements in CASNR.

Deficiencies in the required entrance subjects can be removed by the completion of specified courses in the University or by correspondence.

The Office of Admissions, Alexander Building (south entrance), City Campus, provides information to new students on how deficiencies can be removed.

**College Degree Requirements**

**Curriculum Requirements**

The curriculum requirements of the College consist of three areas: ACE (Achievement-Centered Education), College of Agricultural Sciences and Natural Resources Core, and Degree Program requirements and electives. All three areas of the College Curriculum Requirements are incorporated within the description of the Major/Degree Program sections of the catalog. The individual major/degree program listings of classes ensures that a student will meet the minimum curriculum requirements of the College.

**World Languages/Language Requirement**

Two units of a world language are required. This requirement is usually met with two years of high school language.

**Minimum Hours Required for Graduation**

The College grants the bachelors degree in programs associated with agricultural sciences, natural resources, and related programs. Students working toward a degree must earn at least 120 semester hours of credit. A minimum cumulative grade point average of C (2.0 on a 4.0 scale) must be maintained throughout the course of studies and is required for graduation. Some degree programs have a higher cumulative grade point average required for graduation. Please check the degree program on its graduation cumulative grade point average.

**Grade Rules**

**Removal of C-, D, and F Grades**

Only the most recent letter grade received in a given course will be used in computing a student’s cumulative grade point average if the student has completed the course more than once and previously received a grade or grades below C in that course.
The previous grade (or grades) will not be used in the computation of the cumulative grade point average, but it will remain a part of the academic record and will appear on any transcript.

A student can remove from his/her cumulative average a course grade of C-, D+, D-, or F if the student repeats the same course at the University of Nebraska and receives a grade other than P (pass), I (incomplete), N (no pass), W (withdrew), or NR (no report). If a course is no longer being offered, it is not eligible for the revised grade point average computation process.

For complete procedures and regulations, see the Office of the University Registrar website at http://www.unl.edu/regrec/course-repeats (http://www.unl.edu/regrec/course-repeats/).

Pass/No Pass
Students in CASNR may take any course offered on a Pass/No Pass basis within the 24-hour limitation established by the Faculty Senate. However, a department may specify that the Pass/No Pass status of its courses be limited to non-majors or may choose to offer some courses for letter grades only.

GPA Requirements
A minimum cumulative grade point average of C (2.0 on a 4.0 scale) must be maintained throughout the course of studies and is required for graduation. Some degree programs have a higher cumulative grade point average required for graduation. Please check the degree program on its graduation cumulative grade point average.

Transfer Credit Rules
To be considered for admission, a transfer student, Nebraska resident or nonresident, must have an accumulated average of C (2.0 on a 4.0 scale) and a minimum C average in the last semester of attendance at another college. Transfer students who have completed less than 12 credit hours of college study must submit either ACT or SAT scores.

Ordinarily, credits earned at an accredited college are accepted by the University. The College, however, will evaluate all hours submitted on an application for transfer and reserves the right to accept or reject any of them. Sixty (60) is the maximum number of hours the University will accept on transfer from a two-year college. Ninety (90) is the maximum number of hours the University will accept from a four-year college. Transfer credit in the degree program must be approved by the degree program advisor on a Request for Substitution Form to meet specific course requirements, group requirements, or course level requirements in the major. At least 9 hours in the major field, including the capstone course, must be completed at the University of Nebraska—Lincoln regardless of the number of hours transferred.

The College will accept no more than 10 semester hours of C-, D+, D, and D- grades from other schools. The C-, D+, D, and D- grades can only be applied to free electives. This policy does not apply to the transfer of grades from UNO or UNK to the University of Nebraska—Lincoln.

Joint Academic Transfer Programs
The College of Agricultural Sciences and Natural Resources has agreements with many institutions to support joint academic programs. The transfer programs include dual degree programs and cooperative degree programs. Dual degree programs offer students the opportunity to receive a degree from a participating institution and also to complete requirements for a bachelor of science degree in CASNR. Cooperative programs result in a single degree from either the University of Nebraska—Lincoln or the cooperating institution.

Dual Degree Programs
A to B Programs
The A to B Program, a joint academic program offered by the CASNR and participating community colleges, allows students to complete the first two years of a degree program at the participating community college and continue their education and study in a degree program leading toward a bachelor of science degree.

The A to B Program provides a basic knowledge plus specialized coursework. Students transfer into CASNR with junior standing.

Depending on the community college, students enrolled in the A to B Program may complete the requirements for an associate of science at the community college, transfer to the University of Nebraska—Lincoln, and work toward a bachelor of science degree.

Participating community colleges include:
- Central Community College
- Metropolitan Community College
- Mid-Plains Community College
- Nebraska College of Technical Agriculture
- Nebraska Indian Community College
- Northeast Community College
- Southeast Community College
- Western Nebraska Community College

3+2 Programs
Two specialized degree programs in animal science and veterinary science are offered jointly with an accredited college or school of veterinary medicine. These two programs permit CASNR animal science or veterinary science students to receive a bachelor of science degree from the University of Nebraska—Lincoln with a degree in animal science or veterinary science after successfully completing two years of the professional curriculum in veterinary medicine at an accredited veterinary school. Students who successfully complete the 3+2 Program, must provide transcripts and complete the Application for Degree form via MyRED. Students without MyRED access may apply for graduation in person at Husker Hub in the Canfield Administration Building, or by mail. Students should discuss these degree programs with their academic advisor.

Cooperative Degree Programs
Academic credit from the University and a cooperating institution are applied towards a four-year degree from either the University of Nebraska—Lincoln (University degree-granting program) or the cooperating institution (non University degree-granting program). All have approved programs of study.

UNL Degree-Granting Programs
A University of Nebraska—Lincoln degree-granting program is designed to provide students the opportunity to complete a two-year program of study at one of the four-year institutions listed below, transfer to CASNR, and complete the requirements for a bachelor of science degree.

Chadron State College. Chadron State College offers a 2+2 program leading to a grassland ecology and management degree program and a transfer program leading to a bachelor of science in agricultural education in the teaching option.

Wayne State College. Wayne State College offers a 3+1 program leading to a bachelor of science in plant biology in the ecology and management
option and a 3+1 program leading to a bachelor of science in Applied Science.

University of Nebraska at Kearney. Transfer programs are available for students pursuing degree programs leading to a bachelor of science degree.

University of Nebraska at Omaha. Transfer programs are available for students pursuing degree programs leading to a bachelor of science degree.

Non University of Nebraska–Lincoln Degree-Granting Programs

CASNR cooperates with other institutions to provide coursework that is applied towards a degree at the cooperating institution. Pre-professional programs offered by CASNR allow students to complete the first two or three years of a degree program at the University prior to transferring and completing a degree at the cooperating institution.

Chadron State College–Range Science. The 3+1 Program in range science allows Chadron State College students to pursue a range science degree through Chadron State College. Students complete three years of coursework at Chadron State College and one year of specialized range science coursework (32 credit hours) at CASNR.

Dordt College (Iowa)–Agricultural Education: Teaching Option. This program allows students to pursue an Agricultural Education Teaching Option degree leading toward a bachelor of science in agricultural education. Students at Dordt College will complete 90 credit hours in the Agricultural Education: Teaching Option Transfer Program.

Residency

Students must complete at least 30 of the total hours for their degree using University of Nebraska–Lincoln credits. At least 18 of the 30 credit hours must be in courses offered through CASNR1 (>299) including the appropriate ACE 10 degree requirement or an approved ACE 10 substitution offered through another Nebraska college and excluding independent study regardless of the number of hours transferred. Credit earned during education abroad may be used toward the residency requirement if students register through the University of Nebraska–Lincoln and participate in prior-approved education abroad programs. University of Nebraska–Lincoln open enrollment and summer independent study courses count toward residence.

Independent Study Rules

Students wishing to take part in independent studies must obtain permission; complete and sign a contract form; and furnish copies of the contract to the instructor, advisor, departmental office, and the Dean’s Office. The contract should be completed before registration. Forms are available in 103 Agricultural Hall or online at the CASNR website.

Independent study projects include research, literature review or extension of coursework under supervision and evaluation of a departmental faculty member.

Students may only count 12 hours of independent study toward their degrees and no more than 6 hours can be counted during their last 36 hours earned, excluding senior thesis, internships, and courses taught under an independent study number.

Non University of Nebraska–Lincoln Degree-Granting Programs

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Includes courses taught by CASNR faculty through interdisciplinary prefixes (e.g., LIFE, MBIO, ENVR, SCIL, EAEP, HRTM, ENSC) and CASNR crosslisted courses taught by non-CASNR faculty.

Online and Distance Education

There are many opportunities to earn college credit online through the University of Nebraska–Lincoln. Some of these credits may be applicable not only as elective credits but also toward the fulfillment of the College’s education requirements. Credits earned online may count toward residency. However, certain offerings may not be counted toward scholarship requirements or academic recognition criteria.

Learning Outcomes

Graduates of animal science will be able to:

1. Understand the biology and chemistry of the life sciences and apply the principles to animal nutrition, growth, reproduction, genetics, and management of animals and their products.
2. Develop animal nutrition, growth, reproduction, genetics, and management recommendations related to the specific animal or animal product in the career paths related to their selected option.
3. Propose solutions to problems in the production and/or management of animals or the animal products specific to their option.
4. Produce professional oral and written communications needed in the careers related to their specific option.
Major Requirements

Core Requirements

The following basic courses are required for majors in animal science. In addition, students must select and meet the requirements of one of the animal science options, depending on their own individual interests and career objectives.

College Integrative Course (ACE 8)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCIL 101</td>
<td>Science and Decision-Making for a Complex World</td>
<td>3</td>
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</table>

Credit Hours Subtotal: 3

Departmental Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 95</td>
<td>Animal Science Major Orientation Seminar</td>
<td>0</td>
</tr>
<tr>
<td>ASCI 100 &amp; ASCI 100L</td>
<td>Fundamentals of Animal Biology and Industry and Fundamentals of Animal Biology and Industry Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 201</td>
<td>Professional Development for Careers in Animal Science</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 320</td>
<td>Animal Nutrition and Feeding</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 330</td>
<td>Animal Breeding and Genetics</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 491</td>
<td>Animal Science Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one Capstone course (ACE 10) from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 451 / AGRO 445 / RNGE 445</td>
<td>Livestock Management on Range and Pasture</td>
<td></td>
</tr>
<tr>
<td>ASCI 485</td>
<td>Animal Systems Analysis</td>
<td></td>
</tr>
<tr>
<td>ASCI 486</td>
<td>Animal Biological Systems</td>
<td></td>
</tr>
</tbody>
</table>

Credit Hours Subtotal: 16

Natural Sciences (ACE 4)

Select one of the following: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRO 215 / HORT 215 / TLMT 215</td>
<td>Genetics</td>
<td></td>
</tr>
<tr>
<td>BIOS 206</td>
<td>General Genetics 1</td>
<td></td>
</tr>
</tbody>
</table>

Select one CASNR approved Life Sciences sequence from the following: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 101 &amp; BIOS 101L</td>
<td>General Biology and General Biology Laboratory</td>
<td></td>
</tr>
<tr>
<td>LIFE 120 &amp; LIFE 120L</td>
<td>Fundamentals of Biology I and Fundamentals of Biology I laboratory 2</td>
<td></td>
</tr>
</tbody>
</table>

Credit Hours Subtotal: 8

Mathematics and Statistics (ACE 3) and Physics

Select one of the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 102 &amp; MSYM 109</td>
<td>Trigonometry and Physical Principles in Agriculture and Life Sciences 4</td>
<td></td>
</tr>
<tr>
<td>or PHYS 141 Elementary General Physics I</td>
<td>or PHYS 151 Elements of Physics</td>
<td></td>
</tr>
<tr>
<td>MATH 104</td>
<td>Applied Calculus</td>
<td></td>
</tr>
<tr>
<td>MATH 106</td>
<td>Calculus I</td>
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</table>

Credit Hours Subtotal: 10

Communications

Oral Communications (ACE 2)

Select one of the following: 5

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALEC 102</td>
<td>Interpersonal Skills for Leadership</td>
<td></td>
</tr>
<tr>
<td>COMM 101</td>
<td>Communication in the 21st Century</td>
<td></td>
</tr>
<tr>
<td>COMM 209</td>
<td>Public Speaking</td>
<td></td>
</tr>
<tr>
<td>COMM 210</td>
<td>Communicating in Small Groups</td>
<td></td>
</tr>
<tr>
<td>COMM 215</td>
<td>Visual Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 283</td>
<td>Interpersonal Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 286</td>
<td>Business and Professional Communication</td>
<td></td>
</tr>
<tr>
<td>JGEN 300</td>
<td>Technical Communication II</td>
<td></td>
</tr>
<tr>
<td>MRKT 257</td>
<td>Sales Communication</td>
<td></td>
</tr>
<tr>
<td>TMFD 121</td>
<td>Visual Communication and Presentation</td>
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Written Communications (ACE 1)

Select one of the following: 5

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 150</td>
<td>Writing and Inquiry</td>
<td></td>
</tr>
<tr>
<td>ENGL 151</td>
<td>Writing and Argument</td>
<td></td>
</tr>
<tr>
<td>ENGL 254</td>
<td>Writing and Communities</td>
<td></td>
</tr>
<tr>
<td>JGEN 120</td>
<td>Basic Business Communication</td>
<td></td>
</tr>
<tr>
<td>JGEN 200</td>
<td>Technical Communication I</td>
<td></td>
</tr>
<tr>
<td>JGEN 300</td>
<td>Technical Communication II</td>
<td></td>
</tr>
</tbody>
</table>

Communications and Interpersonal Skills

Select one of the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any ACE 1 course</td>
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<td></td>
</tr>
<tr>
<td>Any ACE 2 course</td>
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<td></td>
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Select one of the following: 7

<table>
<thead>
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<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ALEC 202</td>
<td>Foundations of Leadership Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>ALEC 207 / ADPR 207</td>
<td>Communicating Science with Public Audiences</td>
<td></td>
</tr>
<tr>
<td>ALEC 302</td>
<td>Dynamics of Effective Leadership in Organizations</td>
<td></td>
</tr>
<tr>
<td>ALEC 305</td>
<td>Presentation Strategies to Communicate Agricultural and Environmental Sciences</td>
<td></td>
</tr>
<tr>
<td>ALEC 350</td>
<td>Agriculture, the Environment &amp; Science in the Media</td>
<td></td>
</tr>
<tr>
<td>ALEC 480</td>
<td>Capstone Experience in Agricultural and Environmental Sciences Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 212</td>
<td>Debate</td>
<td></td>
</tr>
<tr>
<td>COMM 325</td>
<td>Interviewing</td>
<td></td>
</tr>
<tr>
<td>JGEN 103</td>
<td>Media Literacy</td>
<td></td>
</tr>
<tr>
<td>MNGT 311</td>
<td>Leadership, Communication and Teams</td>
<td></td>
</tr>
<tr>
<td>MNGT 365</td>
<td>Managing Diversity in Organizations</td>
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</table>

Credit Hours Subtotal: 12

Economics, Humanities and Social Sciences

Select one of the following: 8

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECN 141</td>
<td>Introduction to the Economics of Agriculture</td>
<td></td>
</tr>
<tr>
<td>ECON 200</td>
<td>Economic Essentials and Issues</td>
<td></td>
</tr>
<tr>
<td>ECON 211</td>
<td>Principles of Macroeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON 212</td>
<td>Principles of Microeconomics</td>
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</table>

Select one course each from ACE outcomes 5, 7, and 9 9

Credit Hours Subtotal: 12

Experiential Learning

Select 4 hours from the following: 9

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Internship, Extension, Research or Teaching Experience</td>
<td></td>
<td></td>
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</tbody>
</table>

Credit Hours Subtotal: 4
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ASCI 395A</td>
<td>Experiential Learning for Career Development in Animal Sciences - Industry Experiences</td>
</tr>
<tr>
<td>ASCI 395B</td>
<td>Extension and Service Experiences</td>
</tr>
<tr>
<td>ASCI 395D</td>
<td>Research Experiences</td>
</tr>
<tr>
<td>ASCI 395E</td>
<td>Experiential Learning for Career Development in Animal Sciences - Undergraduate Teaching Experience</td>
</tr>
<tr>
<td>ASCI 419 / FDST 419</td>
<td>Meat Investigations</td>
</tr>
<tr>
<td>ASCI 490A</td>
<td>Animal Science Internship - Beef Feedlot Management</td>
</tr>
<tr>
<td>AECN 499H</td>
<td>Honors Thesis</td>
</tr>
<tr>
<td>AECN 495A</td>
<td>Internship in Agricultural Financing and Banking</td>
</tr>
<tr>
<td>AECN 495B</td>
<td>Internship in Food Products Marketing Management</td>
</tr>
<tr>
<td>AECN 495C</td>
<td>Internship in Agricultural and Public Policy</td>
</tr>
<tr>
<td>EAP 395</td>
<td>Agribusiness Entrepreneurship Internship</td>
</tr>
<tr>
<td>GRAS 490</td>
<td>Internship Experience in Grazing Livestock Systems</td>
</tr>
<tr>
<td>Industry Study Tours</td>
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<tr>
<td>ASCI 311A</td>
<td>Equine Industry Study Tour</td>
</tr>
<tr>
<td>ASCI 311B</td>
<td>Meat Industry Study Tour</td>
</tr>
<tr>
<td>ASCI 311D</td>
<td>Pork Industry Study Tour</td>
</tr>
<tr>
<td>ASCI 311E</td>
<td>Beef Industry Study Tour 11</td>
</tr>
<tr>
<td>AGRI 310</td>
<td>Study Tours in International Agriculture</td>
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<tr>
<td>Animal &amp; Meat Evaluation Experience</td>
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<tr>
<td>ASCI 300A</td>
<td>Principles of Meat Evaluation, Grading and Judging</td>
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<tr>
<td>ASCI 300B</td>
<td>Principles of Livestock Evaluation and Judging</td>
</tr>
<tr>
<td>ASCI 300D</td>
<td>Principles of Meat Animal Evaluation 12</td>
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<tr>
<td>ASCI 300E</td>
<td>Principles of Horse Evaluation and Judging</td>
</tr>
<tr>
<td>ASCI 400A</td>
<td>Advanced Meat Grading and Evaluation 12</td>
</tr>
<tr>
<td>ASCI 400B</td>
<td>Advanced Livestock Evaluation and Judging 12</td>
</tr>
<tr>
<td>ASCI 400E</td>
<td>Advanced Horse Evaluation and Judging 12</td>
</tr>
<tr>
<td>ASCI 361</td>
<td>Equestrian Team Horsemanship/Equitation 12</td>
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<tr>
<td>ASCI 456</td>
<td>Beef Cattle Merchandising</td>
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<tr>
<td>ASCI 481</td>
<td>Beef Industry Scholars - Beef Summit 11</td>
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<tr>
<td>ASCI 482 / AECN 482</td>
<td>Beef Industry Scholars - National Beef Industry Policy</td>
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<tr>
<td>AGRI 388 / NRES 388</td>
<td>Employment Seminar</td>
</tr>
<tr>
<td>AGRI 389</td>
<td>Agricultural Concerns Seminar</td>
</tr>
<tr>
<td></td>
<td>Academic Quadrathlon</td>
</tr>
<tr>
<td>Credit Hours Subtotal:</td>
<td>4</td>
</tr>
<tr>
<td>Total ASCI Core Requirements</td>
<td>Complete requirements 57-62</td>
</tr>
<tr>
<td>Credit Hours Subtotal:</td>
<td>0</td>
</tr>
<tr>
<td>Option Requirements</td>
<td>Complete requirements 58</td>
</tr>
</tbody>
</table>

Credit Hours Subtotal: 58

Total Credit Hours 120

1. BIOS 206 requires both LIFE 120 & LIFE 120L and LIFE 121 & LIFE 121L as prerequisites.
2. Students enrolled in the Biology or Veterinary Option are required to take LIFE 120 and LIFE 120L.
3. Proficiency at the college algebra level must be demonstrated either by a placement exam or through college coursework. If MATH 103 is taken instead of MATH 102, only 2 hours can be counted toward this requirement.
4. Students in the Veterinary Animal Sciences Option must take PHYS 141 as a required course for admittance to the ISU CVM.
5. Pre-veterinary students should check that the selected course will fulfill their college of veterinary medicine admissions requirements.
6. Any courses from the above listings not used to fulfill the ACE 1 or ACE 2 requirements.
7. Students completing the Business and Communications Option are required to take ALEC 202 or MNGT 311.
8. ECON 212 or AECN 141 are preferred for the Food Animal Production and Management option.
9. Four (4) hours of experiential learning are required for each of the Animal Science Options. Students may select the 4 hours from any combination of courses on this list.
10. A pre-experience learning plan must be completed and approved before the experience begins and an oral or poster presentation is required.
11. Part of the Nebraska Beef Industry Scholars Minor.
12. By permission or invitation only; these are intercollegiate competitive teams.
13. With enrollment in ASCI 496.

Also, select one of the following options:

Animal Biology and Biotechnology Option
This option is designed for students considering careers that deal with basic biological principles of animals and birds. Through careful use of electives, students can develop an emphasis in genetics, growth and muscle biology, nutrition, or physiology as they establish a basic background in biological principles and develop molecular and biotechnology laboratory skills. Completion of this option provides excellent preparation for graduate study, other professional programs including medical or dental school, and many other research-based careers.

Departmental Requirements
ASCI 210 Animal Products 3
or ASCI 315 Animal Growth and Development
ASCI 340 Animal Physiological Systems 4
ASCI 341 Physiology and Management of Reproduction 4

Select 14 hours from the following: 14

ASCI 321 Companion Animal Nutrition
ASCI 322 Equine Nutrition
ASCI 342 Equine Reproduction
ASCI 410 Processed Meats
ASCI 421 Advanced Animal Nutrition
ASCI 431 Advanced Animal Breeding
ASCI 441 New Techniques in Reproductive Biology
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 432</td>
<td>Genome Analysis</td>
</tr>
<tr>
<td>ASCI 442 / BIOS 442</td>
<td>Endocrinology</td>
</tr>
<tr>
<td>ASCI 443</td>
<td>Physiology of Animal Cells and Tissues</td>
</tr>
<tr>
<td>BIIOC 432 / BIOS 432 / CHEM 432</td>
<td>Biochemistry II: Metabolism and Biological Information</td>
</tr>
<tr>
<td>ASCI 444</td>
<td>Domestic Animal Immunology</td>
</tr>
<tr>
<td>BIIOC 433 / BIOS 433 / CHEM 433</td>
<td>Biochemistry Laboratory</td>
</tr>
<tr>
<td>BIIOC 437 / BIOS 437</td>
<td>Research Techniques in Biochemistry</td>
</tr>
<tr>
<td>BIIOC 442 / STAT 442</td>
<td>Computational Biology</td>
</tr>
<tr>
<td>BIOS 420 / MBIO 420</td>
<td>Molecular Genetics</td>
</tr>
<tr>
<td>BIOS 440 / MBIO 440</td>
<td>Microbial Physiology</td>
</tr>
<tr>
<td>VBMS 407</td>
<td>Introduction to Veterinary Anatomy</td>
</tr>
<tr>
<td>VBMS 408</td>
<td>Functional Histology</td>
</tr>
<tr>
<td>VBMS 410</td>
<td>General Pharmacology and Toxicology</td>
</tr>
<tr>
<td>VBMS 424</td>
<td>Basic Molecular Infectious Diseases</td>
</tr>
<tr>
<td>VBMS 441</td>
<td>Pathogenic Microbiology</td>
</tr>
</tbody>
</table>

**Credit Hours Subtotal:** 25

**Natural Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 109A &amp; CHEM 109L</td>
<td>General Chemistry I and General Chemistry I Laboratory</td>
</tr>
<tr>
<td>CHEM 110A &amp; CHEM 110L</td>
<td>General Chemistry II and General Chemistry II Laboratory</td>
</tr>
<tr>
<td>CHEM 251 &amp; CHEM 253</td>
<td>Organic Chemistry I and Organic Chemistry I Laboratory</td>
</tr>
<tr>
<td>BIIOC 431 / BIOS 431 / CHEM 431</td>
<td>Biochemistry I: Structure and Metabolism</td>
</tr>
<tr>
<td>or BIIOC 401</td>
<td>Elements of Biochemistry</td>
</tr>
<tr>
<td>LIFE 121 &amp; LIFE 121L</td>
<td>Fundamentals of Biology II and Fundamentals of Biology II Laboratory</td>
</tr>
<tr>
<td>BIOS 312 &amp; BIOS 314</td>
<td>Microbiology and Microbiology Laboratory</td>
</tr>
</tbody>
</table>

**Credit Hours Subtotal:** 23

**Total ASCI Core Requirements**

Complete requirements 57-62

**Credit Hours Subtotal:** 62

**Option Requirements**

Complete requirements 51

**Credit Hours Subtotal:** 0

**Free Electives**

Select 10-15 hours 1

**Credit Hours Subtotal:** 10

**Total Credit Hours:** 120

1 Students planning to apply for post-graduate or professional programs should consult their academic advisor for specific program requirements.

**Business and Communications Option**

This option is designed for students considering careers with companies, financial institutions, government agencies, and other business entities that support the livestock production and processing industries. Through careful use of electives, students may receive minors in other business-related programs and develop specific expertise for positions in management, marketing, and public relations. Completion of this option provides students with a solid background in both animal science and business.

**Departmental Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 210 or ASCI 315</td>
<td>Animal Products and Animal Growth and Development</td>
</tr>
<tr>
<td>ASCI 240 or ASCI 340</td>
<td>Anatomy and Physiology of Domestic Animals and Animal Physiological Systems</td>
</tr>
<tr>
<td>ASCI 341</td>
<td>Physiology and Management of Reproduction</td>
</tr>
</tbody>
</table>

Select one of the following: 2-3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 200</td>
<td>Animal and Carcass Evaluation</td>
</tr>
<tr>
<td>ASCI 250</td>
<td>Animal Management</td>
</tr>
<tr>
<td>ASCI 251</td>
<td>Introduction to Companion Animals</td>
</tr>
<tr>
<td>ASCI 252</td>
<td>Introduction to the Horse Industry and Management</td>
</tr>
<tr>
<td>ASCI 254</td>
<td>Basic Swine Science</td>
</tr>
<tr>
<td>ASCI 271</td>
<td>Companion Animal and Equine Behavior</td>
</tr>
</tbody>
</table>

Select 4 hours of 300- and 400-level ASCI courses from the following: 4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ASCI 310</td>
<td>Fresh Meats</td>
</tr>
<tr>
<td>ASCI 315</td>
<td>Animal Growth and Development</td>
</tr>
<tr>
<td>ASCI 321</td>
<td>Companion Animal Nutrition</td>
</tr>
<tr>
<td>ASCI 322</td>
<td>Equine Nutrition</td>
</tr>
<tr>
<td>ASCI 342</td>
<td>Equine Reproduction</td>
</tr>
<tr>
<td>ASCI 354A</td>
<td>Swine Breeding &amp; Gestation 1</td>
</tr>
<tr>
<td>ASCI 354B</td>
<td>Swine Farrowing Management 1</td>
</tr>
<tr>
<td>ASCI 354D</td>
<td>Swine Nursery Management 1</td>
</tr>
<tr>
<td>ASCI 354E</td>
<td>Employee Management for Swine Industry 1</td>
</tr>
<tr>
<td>ASCI 354F</td>
<td>Swine Environment Management 1</td>
</tr>
<tr>
<td>ASCI 370</td>
<td>Animal Welfare</td>
</tr>
<tr>
<td>ASCI 410</td>
<td>Processed Meats</td>
</tr>
<tr>
<td>ASCI 411</td>
<td>HACCP and Food Safety Systems for the Food Industry</td>
</tr>
<tr>
<td>ASCI 421</td>
<td>Advanced Animal Nutrition</td>
</tr>
<tr>
<td>ASCI 422</td>
<td>Advanced Feeding and Feed Formulation</td>
</tr>
<tr>
<td>ASCI 431</td>
<td>Advanced Animal Breeding</td>
</tr>
<tr>
<td>ASCI 432</td>
<td>Genome Analysis</td>
</tr>
<tr>
<td>ASCI 441</td>
<td>New Techniques in Reproductive Biology</td>
</tr>
<tr>
<td>ASCI 442</td>
<td>Endocrinology</td>
</tr>
<tr>
<td>ASCI 443</td>
<td>Physiology of Animal Cells and Tissues</td>
</tr>
<tr>
<td>ASCI 450</td>
<td>Horse Management</td>
</tr>
<tr>
<td>ASCI 453</td>
<td>Dairy Management</td>
</tr>
<tr>
<td>ASCI 455</td>
<td>Beef Cow-Calf Management</td>
</tr>
<tr>
<td>ASCI 457</td>
<td>Beef Feedlot Management</td>
</tr>
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</table>

**Credit Hours Subtotal:** 17-18
### Natural Sciences

**Chemistry**

Select one chemistry series from the following: 2

<table>
<thead>
<tr>
<th>Series I:</th>
<th>Series II:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 105A &amp; CHEM 105L</td>
<td>CHEM 109A &amp; CHEM 109L</td>
</tr>
<tr>
<td>Chemistry in Context I and Chemistry in Context I Laboratory</td>
<td>General Chemistry I and General Chemistry I Laboratory</td>
</tr>
<tr>
<td>CHEM 106A &amp; CHEM 106L</td>
<td>CHEM 110A &amp; CHEM 110L</td>
</tr>
<tr>
<td>Chemistry in Context II and Chemistry in Context II Laboratory</td>
<td>General Chemistry II and General Chemistry II Laboratory</td>
</tr>
</tbody>
</table>

Credit Hours Subtotal: 8

### Business Courses

**ACCT 200** Accounting for Business Decisions or **ACCT 201** Introductory Accounting I

Select a minimum of four courses representing at least three of the following four areas: 12

<table>
<thead>
<tr>
<th>Finance</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECN 301</td>
<td>AECN 201</td>
</tr>
<tr>
<td>Farm Accounting, Analysis, and Tax Management</td>
<td>Farm and Ranch Management</td>
</tr>
<tr>
<td>AECN 420</td>
<td>AECN 265 / NREE 265</td>
</tr>
<tr>
<td>International Food and Agricultural Trade</td>
<td>Resource and Environmental Economics I</td>
</tr>
<tr>
<td>AECN 452</td>
<td>AECN 316</td>
</tr>
<tr>
<td>Agricultural Finance</td>
<td>Agribusiness Management</td>
</tr>
<tr>
<td>AECN 453</td>
<td>AECN 401</td>
</tr>
<tr>
<td>Agricultural and Rural Property Appraisal</td>
<td>Advanced Farm Management and Linear Programming</td>
</tr>
<tr>
<td>ECON 303</td>
<td>AECN 416</td>
</tr>
<tr>
<td>An Introduction to Money and Banking</td>
<td>Advanced Agribusiness Management</td>
</tr>
<tr>
<td>ENTR 275 / AGRO 275 / EAP 275 / HORT 275</td>
<td>ENTR 121 / MNGT 121</td>
</tr>
<tr>
<td>Agribusiness Entrepreneurial Finance</td>
<td>Introduction to Entrepreneurial Management</td>
</tr>
<tr>
<td>ENTR 388 / ABUS 388 / AGRO 388 / EAP 388 / HORT 388</td>
<td>ENTR 321 / MNGT 321</td>
</tr>
<tr>
<td>Business Systems in Entrepreneurship</td>
<td>Entrepreneurship and Innovation in Organizations</td>
</tr>
<tr>
<td>FINA 260</td>
<td>ENTR 322 / MNGT 322</td>
</tr>
<tr>
<td>Personal Finance</td>
<td>Family Business</td>
</tr>
<tr>
<td>FINA 300</td>
<td>MNGT 300</td>
</tr>
<tr>
<td>Financial Decision Making</td>
<td>Management Essentials For Contemporary Organizations</td>
</tr>
<tr>
<td>MNGT 361</td>
<td>MNGT 360</td>
</tr>
<tr>
<td>Human Resource Management</td>
<td>Managing Behavior in Organizations</td>
</tr>
<tr>
<td>SCMA 331</td>
<td>Operations and Supply Chain Management</td>
</tr>
<tr>
<td>Marketing</td>
<td></td>
</tr>
<tr>
<td>AECN 225 / EAP 225 / MRKT 225</td>
<td>Agribusiness Entrepreneurship in Food Products Marketing</td>
</tr>
<tr>
<td>AECN 235 / MRKT 235</td>
<td>Introduction to Commodity Marketing</td>
</tr>
<tr>
<td>AECN 325 / MRKT 325</td>
<td>Marketing of Agricultural Commodities</td>
</tr>
<tr>
<td>AECN 336</td>
<td>Grain Merchandising</td>
</tr>
<tr>
<td>AECN 425</td>
<td>Agricultural Marketing in a Multinational Environment</td>
</tr>
<tr>
<td>AECN 435</td>
<td>Advanced Agricultural Marketing Management</td>
</tr>
<tr>
<td>AECN 436</td>
<td>Commodity Price Forecasting</td>
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<tr>
<td>ENTR 388 / ABUS 388 / AGRO 388 / EAP 388 / HORT 388</td>
<td>Business Systems in Entrepreneurship</td>
</tr>
<tr>
<td>MRKT 300</td>
<td>Contemporary Marketing</td>
</tr>
<tr>
<td>MRKT 341 / ABUS 341</td>
<td>Marketing</td>
</tr>
<tr>
<td>MRKT 345</td>
<td>Market Research</td>
</tr>
<tr>
<td>MRKT 346 / SCMA 346</td>
<td>Marketing Channels Management</td>
</tr>
<tr>
<td>MRKT 347</td>
<td>Marketing Communication Strategy</td>
</tr>
<tr>
<td>MRKT 350</td>
<td>Marketing Analytics</td>
</tr>
<tr>
<td>MRKT 425</td>
<td>Retailing Management</td>
</tr>
<tr>
<td>Law</td>
<td></td>
</tr>
<tr>
<td>AECN 256</td>
<td>Legal Aspects in Agriculture</td>
</tr>
<tr>
<td>AECN 345</td>
<td>Policy Issues in Agriculture and Natural Resources</td>
</tr>
<tr>
<td>AECN 357 / NREE 357</td>
<td>Natural Resource and Environmental Law</td>
</tr>
<tr>
<td>AECN 445 / NREE 445</td>
<td>Agricultural and Natural Resource Policy Analysis</td>
</tr>
<tr>
<td>AECN 456 / NREE 456</td>
<td>Environmental Law</td>
</tr>
<tr>
<td>AECN 457 / NREE 457 / WATS 457</td>
<td>Water Law</td>
</tr>
<tr>
<td>BLAW 300</td>
<td>Business, Government &amp; Society</td>
</tr>
<tr>
<td>BLAW 371</td>
<td>Legal Environment</td>
</tr>
</tbody>
</table>

Credit Hours Subtotal: 15

### Additional Communication & Leadership Courses

Select one of the following: 3

| ALEC 202 | Foundations of Leadership Theory and Practice |
| ALEC 302 | Dynamics of Effective Leadership in Organizations |
ALEC 305  Presentation Strategies to Communicate Agricultural and Environmental Sciences  
MNGT 365  Managing Diversity in Organizations  

Credit Hours Subtotal: 6

**Total ASCI Core Requirements**

Complete requirements  57-62

Credit Hours Subtotal: 62

**Option Requirements**

Complete requirements  46-51

Credit Hours Subtotal: 0

**Free Electives**

Select 7-17 hours  7-17

Credit Hours Subtotal: 12

Total Credit Hours  120-121

1. Enrollment in these Swine Science online courses requires completion of ASCI 254.
2. Chemistry Series I does not provide adequate preparation for advanced chemistry or graduate school within the life sciences. If you desire this advanced training, Series II and CHEM 251 and CHEM 253 is recommended.
3. Must meet Business Qualified prerequisites.
4. Students are encouraged to consult the Undergraduate Catalog for details regarding agribusiness and agricultural economics minors.

**Companion Animal Science Option**

Designed for students with a specific interest in companion animals. For students interested in pursuing a career in the companion animal industry, this option provides an overview of the general animal sciences in combination with concentrated study of animal behavior and human interactions along with companion animal breeding and genetics, nutrition, reproduction, care, and management.

**Departmental Requirements**

ASCI 240  Anatomy and Physiology of Domestic Animals  4  
or ASCI 340  Animal Physiological Systems  
ASCI 341  Physiology and Management of Reproduction  4  
ASCI 321  Companion Animal Nutrition  3  
Select one animal management course from the following:  3  
ASCI 250  Animal Management  
ASCI 251  Introduction to Companion Animals  
ASCI 252  Introduction to the Horse Industry and Management  
Select a minimum of 7 hours from the following:  7  
ASCI 107 / FDST 107  Introduction to the Companion Animal Food Industry  
ASCI 171  Human-Companion Animal Interactions  
ASCI 210  Animal Products  
ASCI 271  Companion Animal and Equine Behavior  
ASCI 315  Animal Growth and Development  
ASCI 322  Equine Nutrition  
ASCI 342  Equine Reproduction  
ASCI 370  Animal Welfare  
BIOS 462  Animal Behavior  

**NRES 211**  Introduction to Conservation Biology  
NRES 220  Principles of Ecology  
& NRES 222  and Ecology Laboratory  
NRES 311  Wildlife Ecology and Management  
PSYC 461  Animal Learning & Cognition  

Credit Hours Subtotal: 21

**Natural Sciences**

**Chemistry**

Select one chemistry series from the following:  

Series I:  
CHEM 105A  & CHEM 105L  Chemistry in Context I  
CHEM 106A  & CHEM 106L  Chemistry in Context II  

Series II:  
CHEM 109A  & CHEM 109L  General Chemistry I  
CHEM 110A  & CHEM 110L  General Chemistry II  

Select one of the following:  3-4  
BIOS 111  Introduction to Microbiology and Human Health  
BIOS 312  Microbiology  
VBMS 303  Principles and Prevention of Livestock Diseases  

Credit Hours Subtotal: 11

**Business Courses**

Select 9 hours from the "Business Courses" category listed in the Animal Science Business Option  9

Credit Hours Subtotal: 9

**Total ASCI Core Requirements**

Complete requirements  57-62

Credit Hours Subtotal: 62

**Option Requirements**

Complete requirements  46-51

Credit Hours Subtotal: 0

**Free Electives**

Select 12-22 hours  12-22

Credit Hours Subtotal: 17

Total Credit Hours  120

1. Chemistry Series I does not provide adequate preparation for advanced chemistry or graduate school within the life sciences. If you desire this advanced training, Series II and CHEM 251 and CHEM 253 is recommended.

**Equine Science Option**

Designed for students with a specific interest in the equine area. For students interested in pursuing a career in the equine industry this option provides a combination of general animal sciences with a concentrated study of equitation, evaluation, nutrition, reproduction, and management of equine.

**Departmental Requirements**

ASCI 240  Anatomy and Physiology of Domestic Animals  4  

**NRES 211**  Introduction to Conservation Biology  
NRES 220  Principles of Ecology  
& NRES 222  and Ecology Laboratory  
NRES 311  Wildlife Ecology and Management  
PSYC 461  Animal Learning & Cognition  

Credit Hours Subtotal: 21

**Natural Sciences**

**Chemistry**

Select one chemistry series from the following:  

Series I:  
CHEM 105A  & CHEM 105L  Chemistry in Context I  
CHEM 106A  & CHEM 106L  Chemistry in Context II  

Series II:  
CHEM 109A  & CHEM 109L  General Chemistry I  
CHEM 110A  & CHEM 110L  General Chemistry II  

Select one of the following:  3-4  
BIOS 111  Introduction to Microbiology and Human Health  
BIOS 312  Microbiology  
VBMS 303  Principles and Prevention of Livestock Diseases  

Credit Hours Subtotal: 11

**Business Courses**

Select 9 hours from the "Business Courses" category listed in the Animal Science Business Option  9

Credit Hours Subtotal: 9

**Total ASCI Core Requirements**

Complete requirements  57-62

Credit Hours Subtotal: 62

**Option Requirements**

Complete requirements  46-51

Credit Hours Subtotal: 0

**Free Electives**

Select 12-22 hours  12-22

Credit Hours Subtotal: 17

Total Credit Hours  120

1. Chemistry Series I does not provide adequate preparation for advanced chemistry or graduate school within the life sciences. If you desire this advanced training, Series II and CHEM 251 and CHEM 253 is recommended.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 260</td>
<td>Basic Equitation</td>
<td>2</td>
</tr>
<tr>
<td>or ASCI 360</td>
<td>Advanced Equitation</td>
<td></td>
</tr>
<tr>
<td>ASCI 341</td>
<td>Physiology and Management of Reproduction</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 450</td>
<td>Horse Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Select one animal management course from the following:</strong></td>
<td></td>
</tr>
<tr>
<td>ASCI 250</td>
<td>Animal Management</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 251</td>
<td>Introduction to Companion Animals</td>
<td></td>
</tr>
<tr>
<td>ASCI 252</td>
<td>Introduction to the Horse Industry and Management</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Select a minimum of 7 hours from the following:</strong></td>
<td></td>
</tr>
<tr>
<td>ASCI 210</td>
<td>Animal Products</td>
<td>7</td>
</tr>
<tr>
<td>ASCI 271</td>
<td>Companion Animal and Equine Behavior</td>
<td></td>
</tr>
<tr>
<td>ASCI 315</td>
<td>Animal Growth and Development</td>
<td></td>
</tr>
<tr>
<td>ASCI 322</td>
<td>Equine Nutrition</td>
<td></td>
</tr>
<tr>
<td>ASCI 342</td>
<td>Equine Reproduction</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Credit Hours Subtotal:</strong></td>
<td>23</td>
</tr>
</tbody>
</table>

**Experiential Learning (From the Animal Science Core)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 300E</td>
<td>Principles of Horse Evaluation and Judging</td>
<td>2</td>
</tr>
<tr>
<td>or ASCI 400E</td>
<td>Advanced Horse Evaluation and Judging</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Credit Hours Subtotal:</strong></td>
<td>0</td>
</tr>
</tbody>
</table>

**Natural Sciences**

**Chemistry**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Select one chemistry series from the following:</strong></td>
<td></td>
</tr>
<tr>
<td>Series I:</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>CHEM 105A</td>
<td>Chemistry in Context I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 105L</td>
<td>and Chemistry in Context I Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 106A</td>
<td>Chemistry in Context II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 106L</td>
<td>and Chemistry in Context II Laboratory</td>
<td></td>
</tr>
<tr>
<td>Series II:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>CHEM 109A</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 109L</td>
<td>and General Chemistry I Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 110A</td>
<td>General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 110L</td>
<td>and General Chemistry II Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOS 111</td>
<td>Introduction to Microbiology and Human Health</td>
<td>3-4</td>
</tr>
<tr>
<td>BIOS 312</td>
<td>Microbiology</td>
<td></td>
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<tr>
<td>VBMS 303</td>
<td>Principles and Prevention of Livestock Diseases</td>
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</tr>
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<td><strong>Credit Hours Subtotal:</strong></td>
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</tbody>
</table>

**Business Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Select courses from the “Business Courses” category listed in the Animal Science Business Option</strong></td>
<td>9</td>
</tr>
<tr>
<td></td>
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</table>

**Total ASCI Core Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Complete requirements</strong></td>
<td>57-62</td>
</tr>
<tr>
<td></td>
<td><strong>Credit Hours Subtotal:</strong></td>
<td>62</td>
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</table>

**Option Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Complete requirements</strong></td>
<td>43-48</td>
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<td><strong>Credit Hours Subtotal:</strong></td>
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</tr>
</tbody>
</table>

**Free Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Select 10-20 credits</strong></td>
<td>10-20</td>
</tr>
</tbody>
</table>

Credit Hours Subtotal: 15

Total Credit Hours: 120

1. Chemistry Series I does not provide adequate preparation for advanced chemistry or graduate school within the life sciences. If you desire this advanced training, Series II and CHEM 251 and CHEM 253 is recommended.

**Meat Science Option**

This option is designed for students seeking careers associated with the meat and food industry, including research and product development, quality assurance, food safety, fresh meat processing, meat product manufacturing, equipment and ingredient technology, and government service. Students will build a solid foundation in product characteristics, product development, production, food safety, and marketing of fresh and processed meats.

**Departmental Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 210</td>
<td>Animal Products</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 240</td>
<td>Anatomy and Physiology of Domestic Animals</td>
<td>4</td>
</tr>
<tr>
<td>or ASCI 340</td>
<td>Animal Physiological Systems</td>
<td></td>
</tr>
<tr>
<td>ASCI 310</td>
<td>Fresh Meats</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 315</td>
<td>Animal Growth and Development</td>
<td></td>
</tr>
<tr>
<td>or ASCI 341</td>
<td>Physiology and Management of Reproduction</td>
<td>3-4</td>
</tr>
<tr>
<td>ASCI 410</td>
<td>Processed Meats</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 411</td>
<td>HACCP and Food Safety Systems for the Food Industry</td>
<td>3</td>
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</table>

**Natural Sciences**

**Chemistry**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td><strong>Select one chemistry series from the following:</strong></td>
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</tr>
<tr>
<td>Series I:</td>
<td></td>
<td>8</td>
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<tr>
<td>CHEM 105A</td>
<td>Chemistry in Context I</td>
<td></td>
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<tr>
<td>&amp; CHEM 105L</td>
<td>and Chemistry in Context I Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 106A</td>
<td>Chemistry in Context II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 106L</td>
<td>and Chemistry in Context II Laboratory</td>
<td></td>
</tr>
<tr>
<td>Series II:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>CHEM 109A</td>
<td>General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 109L</td>
<td>and General Chemistry I Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 110A</td>
<td>General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 110L</td>
<td>and General Chemistry II Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOS 111</td>
<td>Introduction to Microbiology and Human Health</td>
<td>3-4</td>
</tr>
<tr>
<td>BIOS 312</td>
<td>Microbiology</td>
<td></td>
</tr>
<tr>
<td>VBMS 303</td>
<td>Principles and Prevention of Livestock Diseases</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Credit Hours Subtotal:</strong></td>
<td>11</td>
</tr>
</tbody>
</table>

**Supporting Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Select 3 hours of ASCI or FDST courses at the 200 level or above:</strong></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Suggested courses:</strong></td>
<td></td>
</tr>
<tr>
<td>ASCI 200</td>
<td>Animal and Carcass Evaluation</td>
<td></td>
</tr>
<tr>
<td>ASCI 213</td>
<td>Meat Specifications and Procurement</td>
<td></td>
</tr>
<tr>
<td>or NUTR 213</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FDST 205</td>
<td>Food Composition and Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Credit Hours Subtotal:</strong></td>
<td>11</td>
</tr>
</tbody>
</table>
Select 6 hours of ASCI or FDST courses at the 300/400 level or above:

<table>
<thead>
<tr>
<th>Suggested courses:</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 300A  Principles of Meat Evaluation, Grading and Judging</td>
<td>2</td>
</tr>
<tr>
<td>ASCI 300B  Principles of Livestock Evaluation and Judging</td>
<td>2</td>
</tr>
<tr>
<td>ASCI 300D  Principles of Meat Animal Evaluation</td>
<td>2</td>
</tr>
<tr>
<td>ASCI 311B  Meat Industry Study Tour</td>
<td></td>
</tr>
<tr>
<td>ASCI 419   Meat Investigations</td>
<td></td>
</tr>
<tr>
<td>FDST 301   Chemistry of Food</td>
<td></td>
</tr>
<tr>
<td>FDST 363 / 363A  Heat and Mass Transfer</td>
<td></td>
</tr>
<tr>
<td>FDST 372 / NUTR 372  Food Quality Assurance</td>
<td></td>
</tr>
<tr>
<td>FDST 405 / BIOS 445  Food Microbiology</td>
<td></td>
</tr>
<tr>
<td>FDST 406 / BIOS 446  Food Microbiology Laboratory</td>
<td></td>
</tr>
<tr>
<td>FDST 460   Food Product Development Concepts I</td>
<td></td>
</tr>
</tbody>
</table>

Credit Hours Subtotal: 9

**Business Courses**
Select 3-6 hours 3

Credit Hours Subtotal: 3-6

**Total ASCI Core Requirements**
Complete requirements 57-62

Credit Hours Subtotal: 62

**Option Requirements**
Complete requirements 45-48

Credit Hours Subtotal: 0

**Free Electives**
Select 10-18 hours 10-18

Credit Hours Subtotal: 16

Total Credit Hours: 120

1. *Chemistry Series I does not provide adequate preparation for advanced chemistry or graduate school within the life sciences. If you desire this advanced training, Series II is recommended.*

2. *Only one allowed for credit here.*

3. *If student completes CHEM Series I: Select two courses from the “Business Courses” category listed in the Animal Science Business Option (6 hr).*

   *If student completes CHEM Series II: Select one course from the “Business Courses” category listed in the Animal Science Business Option (3 hr).*

**NOTE:** Experiential learning courses suggested from the following:
ASCI 300A, ASCI 300D, ASCI 311B, ASCI 395A (meat section), ASCI 400A, ASCI 419

**Food Animal Production and Management Option**

This option is designed for students interested in careers related to the production and management of beef cattle, dairy cattle, horses, poultry, and swine. Although students may emphasize a particular industry or production system, the option provides a balanced study of animal nutrition, meat animal products, reproductive physiology, breeding and genetics, and business management of animal production systems. Completion of this option provides excellent preparation for those wishing to be involved in production agriculture and the abundance of allied industries that support animal agriculture.

**Departmental Requirements**

| ASCI 200 Animal and Carcass Evaluation | 3 |
| ASCI 210 Animal Products              | 3 |
| or ASCI 315 Animal Growth and Development |   |
| ASCI 240 Anatomy and Physiology of Domestic Animals | 4 |
| or ASCI 340 Animal Physiological Systems |   |
| ASCI 250 Animal Management            | 3 |
| or ASCI 252 Introduction to the Horse Industry and Management |   |
| ASCI 341 Physiology and Management of Reproduction | 4 |

Select a minimum of 4 hours of ASCI Management courses from the following:
ASCI 254 Basic Swine Science
ASCI 354A Swine Breeding & Gestation
ASCI 354B Swine Farrowing Management
ASCI 354D Swine Nursery Management
ASCI 354E Employee Management for Swine Industry
ASCI 354F Swine Environment Management
ASCI 450 Horse Management
ASCI 451 Livestock Management on Range and Pasture
ASCI 453 Dairy Management
ASCI 455 Beef Cow-Calf Management
ASCI 457 Beef Feedlot Management

Select two supporting courses from the following: 6-7

<table>
<thead>
<tr>
<th>AECN 301 Farm Accounting, Analysis, and Tax Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECN 325 Marketing of Agricultural Commodities</td>
</tr>
<tr>
<td>ASCI 310 Fresh Meats</td>
</tr>
<tr>
<td>ASCI 370 Animal Welfare</td>
</tr>
<tr>
<td>ASCI 410 Processed Meats</td>
</tr>
<tr>
<td>ASCI 411 HACCP and Food Safety Systems for the Food Industry</td>
</tr>
<tr>
<td>ASCI 421 Advanced Animal Nutrition</td>
</tr>
<tr>
<td>ASCI 422 Advanced Feeding and Feed Formulation</td>
</tr>
<tr>
<td>ASCI 432 Genome Analysis</td>
</tr>
<tr>
<td>ASCI 441 New Techniques in Reproductive Biology</td>
</tr>
<tr>
<td>ASCI 442 Endocrinology</td>
</tr>
<tr>
<td>ASCI 443 Physiology of Animal Cells and Tissues</td>
</tr>
<tr>
<td>MSYM 342 Animal Housing Systems</td>
</tr>
</tbody>
</table>
### Animal Science

**Water Quality Strategy**
- MSYM 475
- AGRO 475
- CIVE 475
- CRPL 475
- GEOI 475
- NRES 475
- POLS 475
- SOCI 475
- SOIL 475
- WATS 475

**Soil Resources**
- AGRO 153
- HORT 153
- SOIL 153

**Forage Crop and Pasture Management**
- AGRO 240
- RNGE 240

**Introduction to Grassland Ecology and Management**
- AGRO 245
- NRES 245

**Range Management and Improvement**
- AGRO 340
- RNGE 340

**Great Plains Ecosystem**
- AGRO 440
- NRES 440
- RNGE 440

**Credit Hours Subtotal:** 27

### Natural Sciences

**Chemistry**

Select one chemistry series from the following: 1

**Series I:**
- CHEM 105A
  - Chemistry in Context I
- & CHEM 105L
  - Chemistry in Context I Laboratory
- CHEM 106A
  - Chemistry in Context II
- & CHEM 106L
  - Chemistry in Context II Laboratory

**Series II:**
- CHEM 109A
  - General Chemistry I
- & CHEM 109L
  - General Chemistry I Laboratory
- CHEM 110A
  - General Chemistry II
- & CHEM 110L
  - General Chemistry II Laboratory

Select one of the following: 3-4

- BIOS 111
  - Introduction to Microbiology and Human Health
- BIOS 312
  - Microbiology
- VBMS 303
  - Principles and Prevention of Livestock Diseases

**Credit Hours Subtotal:** 11

### Business Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECN 201</td>
<td>Farm and Ranch Management</td>
<td>4</td>
</tr>
<tr>
<td>AECN 235</td>
<td>Introduction to Commodity Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MRKT 235</td>
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</table>

Select one additional business course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>AECN 256</td>
<td>Legal Aspects in Agriculture</td>
<td></td>
</tr>
<tr>
<td>AECN 265</td>
<td>Resource and Environmental Economics I</td>
<td></td>
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<tr>
<td>NREE 265</td>
<td></td>
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<td>AECN 301</td>
<td>Farm Accounting, Analysis, and Tax</td>
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<tr>
<td>Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AECN 325</td>
<td>Marketing of Agricultural Commodities</td>
<td></td>
</tr>
<tr>
<td>MRKT 325</td>
<td></td>
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<tr>
<td>AECN 336</td>
<td>Grain Merchandising</td>
<td></td>
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</tbody>
</table>

### Free Electives

Select 4-15 hours

**Credit Hours Subtotal:** 10

### Total Credit Hours

120

---

1. Chemistry Series I does not provide adequate preparation for advanced chemistry or graduate school within the life sciences. If you desire this advanced training, Series II and CHEM 251 and CHEM 253 is recommended.

### Veterinary Animal Science Option

This option is designed for students planning a career in veterinary medicine, and provides for completion of the pre-veterinary course requirements for application to the joint University of Nebraska/Iowa State University program for the doctorate of veterinary medicine (DVM) degree. However, it can easily be adapted to meet specific requirements for other colleges of veterinary medicine. Courses in animal management, nutrition, physiology and related areas complement the foundational science courses and provide a comprehensive background for careers in veterinary medicine. Completion of the option also provides excellent preparation for graduate study or other professional programs in the biological sciences. Students admitted to veterinary college after three years of undergraduate study may earn a bachelor of science degree through a 3+2 program (three years of undergraduate study plus two years of veterinary school).

### Departmental Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 210</td>
<td>Animal Products</td>
<td>3</td>
</tr>
<tr>
<td>or ASCI 315</td>
<td>Animal Growth and Development</td>
<td></td>
</tr>
<tr>
<td>ASCI 340</td>
<td>Animal Physiological Systems</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 341</td>
<td>Physiology and Management of Reproduction</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 250</td>
<td>Animal Management</td>
<td></td>
</tr>
<tr>
<td>ASCI 251</td>
<td>Introduction to Companion Animals</td>
<td></td>
</tr>
<tr>
<td>ASCI 252</td>
<td>Introduction to the Horse Industry and</td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASCI 254</td>
<td>Basic Swine Science</td>
<td></td>
</tr>
<tr>
<td>&amp; ASCI 354A</td>
<td>and Swine Breeding &amp; Gestation</td>
<td></td>
</tr>
<tr>
<td>or ASCI 354B</td>
<td>Swine Farrowing Management</td>
<td></td>
</tr>
<tr>
<td>or ASCI 354D</td>
<td>Swine Nursery Management</td>
<td></td>
</tr>
<tr>
<td>or ASCI 354E</td>
<td>Employee Management for Swine Industry</td>
<td></td>
</tr>
<tr>
<td>or ASCI 354FS</td>
<td>Swine Environment Management</td>
<td></td>
</tr>
</tbody>
</table>

Select 3 hours of additional courses from the following: 3
Animal Science

ASCI 321  Companion Animal Nutrition
ASCI 322  Equine Nutrition
ASCI 342  Equine Reproduction
ASCI 410  Processed Meats
ASCI 421  Advanced Animal Nutrition
ASCI 431  Advanced Animal Breeding
ASCI 432  Genome Analysis
ASCI 441  New Techniques in Reproductive Biology
ASCI 442 / BIOS 442  Endocrinology
ASCI 443  Physiology of Animal Cells and Tissues
ASCI 444  Domestic Animal Immunology
BIOC 432 / BIOS 432 / CHEM 432  Biochemistry II: Metabolism and Biological Information
BIOC 433 / BIOS 433 / CHEM 433  Biochemistry Laboratory
BIOC 437 / BIOS 437  Research Techniques in Biochemistry
BIOC 442 / STAT 442  Computational Biology
BIOS 420 / MBIO 420  Molecular Genetics
BIOS 440 / MBIO 440  Microbial Physiology
VBMS 407  Introduction to Veterinary Anatomy
VBMS 408  Functional Histology
VBMS 410  General Pharmacology and Toxicology
VBMS 424  Basic Molecular Infectious Diseases
VBMS 441  Pathogenic Microbiology

Credit Hours Subtotal: 17

Natural Sciences

CHEM 109A & CHEM 109L  General Chemistry I and General Chemistry I Laboratory 4
CHEM 110A & CHEM 110L  General Chemistry II and General Chemistry II Laboratory 4
CHEM 251 & CHEM 253  Organic Chemistry I and Organic Chemistry I Laboratory 4

Select one of the following: 3

BIOC 401  Elements of Biochemistry
BIOC 431 / BIOS 431 / CHEM 431  Biochemistry I: Structure and Metabolism

Organismic Biology

LIFE 121 & LIFE 121L  Fundamentals of Biology II and Fundamentals of Biology II Laboratory 4
BIOS 312 & BIOS 314  Microbiology and Microbiology Laboratory 4
PHYS 141  Elementary General Physics I 5

Credit Hours Subtotal: 23

Business Courses

Select one course from the “Business Courses” category listed in the Animal Science Business Option. 3

NOTE: Two writing courses (6 hr) and one oral communications course (3 hr) are required. Communications elective must be a writing course. Select appropriate course from listing given under “Core Requirements.”

Credit Hours Subtotal: 3

Total ASCI Core Requirements

Complete requirements 62
Credit Hours Subtotal: 62

Option Requirements

Complete requirements 46
Credit Hours Subtotal: 0

Free Electives

Select 15 hours 15
Credit Hours Subtotal: 15
Total Credit Hours 120

From the core curriculum—math and physics, students MUST take PHYS 141.
PHYS 141 is a required course for admittance to most colleges of veterinary medicine, including the ISU CVM. Although PHYS 142 is not required for admission to the ISU CVM, it is required by other colleges of veterinary medicine including KSU.

Additional Major Requirements

Animal science requirements are the same as outlined for the College of Agricultural Sciences and Natural Resources.

Requirements for Minor Offered By Department

Animal Science Minor (18 credits)

Requirements for Minor

ASCI 240  Anatomy and Physiology of Domestic Animals 1 4

Select one 100-level ASCI course from the following: 3

ASCI 100  Fundamentals of Animal Biology and Industry 1
ASCI 151  Introductory Companion Animal Biology 1

Select one 200-level animal management course from the following: 2-3

ASCI 250  Animal Management
ASCI 251  Introduction to Companion Animals
ASCI 252  Introduction to the Horse Industry and Management
ASCI 254  Basic Swine Science 1

Select one additional 200-level course from the following: 2-3

ASCI 200  Animal and Carcass Evaluation
ASCI 210  Animal Products 1
ASCI 213  Meat Specifications and Procurement 1
ASCI 260  Basic Equitation
ASCI 271  Companion Animal and Equine Behavior 1

Select 5-7 hours of ASCI courses at the 300/400 level. 5-7

Two (2) hours from Animal Science (ASCI) experiential learning courses may be used.
The following are online courses at the 300/400 level for the minor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 310</td>
<td>Fresh Meats 1</td>
<td>3</td>
</tr>
<tr>
<td>ASCI 321</td>
<td>Companion Animal Nutrition 1</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 322</td>
<td>Equine Nutrition 1</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 342</td>
<td>Equine Reproduction 1</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 354A</td>
<td>Swine Breeding &amp; Gestation 1</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 354B</td>
<td>Swine Farrowing Management 1</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 354D</td>
<td>Swine Nursery Management 1</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 354E</td>
<td>Employee Management for Swine Industry 1</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 354F</td>
<td>Swine Environment Management 1</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 370</td>
<td>Animal Welfare 1</td>
<td>1</td>
</tr>
<tr>
<td>ASCI 422</td>
<td>Advanced Feeding and Feed Formulation 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Credit Hours Subtotal: 18

Total Credit Hours 18

1 Available online courses for those wishing to complete the minor online.
2 Independent study courses, ASCI 399 and ASCI 496 are excluded.

Animal Science Minor (12 credits)

Twelve (12) credits of ASCI courses above 300 level excluding ASCI 399 Independent Study in Animal Science and ASCI 496 Independent Study in Animal Science.

Nebraska Beef Industry Scholars (NBIS) Minor (19-21 credits)

The Nebraska Beef Industry Scholars minor is designed to develop graduates to become future leaders of the beef industry as they will:

- Understand issues that affect beef production and have the ability to develop solutions to beef industry problems.
- Understand interactions of the animal, plant, and social sciences affecting beef production and management.
- Develop a unique network with leaders of the beef industry.
- Have exceptional oral and written communication skills.
- Have exceptional leadership skills.
- Have outstanding technical knowledge in at least one area of expertise (beef production economics, beef feedlot engineering, live beef animal and carcass evaluation, beef nutrition, beef animal physiology, meat science, genetic improvement of beef cattle, beef products, pre-veterinary animal science, range and forage science, etc.).

The NBIS minor is inherently multidisciplinary and actively engages faculty from animal science, agricultural economics, and agricultural leadership, education and communication (ALEC).

NBIS Minor Requirements

A minimum cumulative GPA of 3.0 for all minor related coursework must be obtained in order to complete the minor.

Total Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
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Select 2 hours of internship experience from the following:

- AECN 395A: Experiential Learning for Career Development in Animal Sciences - Industry Experiences
- ASCI 395B: Extension and Service Experiences
- GRAS 490: Internship Experience in Grazing Livestock Systems
- AECN 495C: Internship in Agricultural and Public Policy

Select two elective courses from the following: 4-6

- ASCI 310: Fresh Meats
- ASCI 370: Animal Welfare
- ASCI 455: Beef Cow-Calf Management
- ASCI 457: Beef Feedlot Management

Credit Hours Subtotal: 19-21

Total Credit Hours 19-21

ASCI 42 Animal Science Professional Development Experience

Prerequisites: Permission

Description: Cooperative education in an established or organized international or professional development experience program in Animal Science.

Credit Hours: 0
Max credits per semester: 0
Max credits per degree: 0
Grading Option: Pass No Pass

ASCI 95 Animal Science Major Orientation Seminar

Prerequisites: Animal Science Major

Description: The Animal Science Major Orientation Seminar provides Animal Science majors an opportunity to interact with Animal Science Faculty and other Animal Science students in an encouraging and supportive environment during their first semester in the major. Weekly topics will include discussions with Animal Science faculty, academic success resources, intrapersonal and leadership development and academic and co-curricular planning. The course is required for all Animal Science majors regardless of when the major is declared.

Credit Hours: 0
Max credits per semester: 0
Max credits per degree: 0
Grading Option: Pass No Pass

Prerequisite for: ASCI 201

Groups: Introductory

ASCI 100 Fundamentals of Animal Biology and Industry

Description: Overview of the industries in animal science; fundamentals of animal biology related to their application in those industries; and trends and current issues related to production and consumption of animal products important for human welfare.

Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

Prerequisite for: ASCI 100L, ASCI 210, ASCI 271
ASCI 100L Fundamentals of Animal Biology and Industry Laboratory
Prerequisites: Previous or concurrent enrollment in ASCI 100
Description: Introductory animal science laboratory designed to introduce basic principles of animal biology and management.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 107 Introduction to the Companion Animal Food Industry
Crosslisted with: FDST 107
Description: The companion animal food industry, products, processes, and career opportunities.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 150 Animal Production Skills
Description: Introductory course in skills related to proper care and management of production animals. Laboratory sessions develop fundamental skills of animal husbandry.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 151 Introductory Companion Animal Biology
Description: Domestication, anatomy, care, nutrition, reproduction and welfare of dogs, cats, rabbits, and other companion animals.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

ASCI 171 Human-Companion Animal Interactions
Description: Roles of companion animals in society (therapy, research, and entertainment). The responsibilities of humans in these relationships.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 181 Beef Industry Scholars - Freshman Seminar
Notes: Letter grade only.
Description: Introduction to the Nebraska and United States beef industry. Discussion of issues by invited beef industry leaders and on-site visits of industry organizations.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Offered: SPRING
Prerequisite for: ASCI 281

ASCI 200 Animal and Carcass Evaluation
Prerequisites: Sophomore standing.
Description: Comparative evaluation of animals and their carcasses and products. Basic animal growth and development and the characteristics of beef, pork, lamb, and poultry that determine carcass value. Federal and industry product standards. Introduction of economic selection objectives, measurements of animal performance, use of performance records to estimate genetic value and application of procedures of genetic evaluation.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ASCI 201 Professional Development for Careers in Animal Science
Prerequisites: ASCI 95
Description: Identify potential careers related to animals and develop career goals and experiential learning plans.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Offered: SPRING

ASCI 210 Animal Products
Prerequisites: ASCI 100
Description: Knowledge of edible animal products with particular emphasis to meat products from livestock and poultry. Includes all aspects of the meat industry from slaughter to consumption. Methods of slaughter and fabrication, conversion of muscle to meat, processing techniques, preservation and storage, and consumer related topics discussed and demonstrated.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ASCI 213 Meat Specifications and Procurement
Crosslisted with: NUTR 213
Notes: For those students who have an interest in a career in Culinary Science, Meat Science, and/or Dietetics.
Description: Selecting and purchasing meat for the hotel, restaurant, institutional industry, and the retail markets.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Prerequisite for: ASCI 310; ASCI 343, NUTR 343

ASCI 240 Anatomy and Physiology of Domestic Animals
Prerequisites: BIOS 101 or LIFE 120 or equivalent; and CHEM 105 or CHEM 105A and 105L or CHEM 109 or CHEM 109A and 109L equivalent.
Description: Fundamentals of the anatomy and physiology of domestic animals.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Grading Option: Graded with Option
Prerequisite for: ASCI 315; ASCI 320; ASCI 341; ASCI 342; ASCI 486; NUTR 450; NUTR 455; VBMS 303; VBMS 410
ASCI 250 Animal Management
Prerequisites: Sophomore standing.
Description: Principles of managing animals in typical production systems. Basics of managing beef, dairy, horses, poultry, sheep, and swine through the life cycle for economic and efficient production.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ASCI 251 Introduction to Companion Animals
Description: Overview of pets, their care, nutrition, reproduction behavior, and health issues; exploration of other ways in which these animals can be used (e.g., in therapy, teaching).
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Offered: FALL
Prerequisite for: ASCI 271

ASCI 252 Introduction to the Horse Industry and Management
Description: Provides an introduction to the equine industry including history and basic biology of the horse, proper care and acceptable management procedures, and current issues. An overview of basic equine anatomy and physiology will be discussed as it relates to managerial principles associated with proper hoof care, disease prevention, breeding and genetics, nutritional management, reproduction, and animal welfare.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Prerequisite for: ASCI 271

ASCI 254 Basic Swine Science
Description: Basic disciplines and concepts involved in swine production including: industry structure, trends and statistics; production phases and building; genetic improvement; reproduction; nutrition; health and bio-security; nutrient management; marketing and meat quality; and career opportunities in the swine industry. This course is taught by Iowa State University as part of the GPIDEA/Ag*IDEA course offerings, Registration with permission from your adviser and CASNR Online Education Office.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded
Prerequisite for: ASCI 354J; ASCI 354K; ASCI 354M

ASCI 260 Basic Equitation
Prerequisites: Sophomore standing
Description: Study and application of basic equitation principles for the novice rider. Review of fundamental horse safety and horsemanship to include handling, grooming, equipping, riding western or English, and the relationship of riding to physical and mental well-being. Development of balanced seat, hands and posture at all the natural gaits of the horse. Emphasis will be on control of the horse through the use of the primary and secondary aids. Welfare and communication considerations in order to have effective horse-human relationships.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option
Prerequisite for: ASCI 360

ASCI 271 Companion Animal and Equine Behavior
Prerequisites: ASCI 100 or ASCI 251 or ASCI 252 or BIOS 101 or LIFE 120
Description: Companion animal and equine behavior. Application of behavior principles to describe normal and problem behaviors of common companion animals and horses.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Offered: SPRING

ASCI 281 Beef Industry Scholars - Issues
Prerequisites: ASCI 181
Notes: Letter grade only
Description: Nebraska beef industry and supporting organizations (the Nebraska Cattlemen and the Nebraska Beef Council). Tours, attending meetings, and discussion of issues by invited beef industry leaders.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Prerequisite for: ASCI 311E

ASCI 300A Principles of Meat Evaluation, Grading and Judging
Description: Comparative evaluation of meat characteristics of beef carcasses, beef primal cuts, pork carcasses, pork primal cuts, and lamb carcasses. Federal grade standards for beef carcass and application of USDA Institutional Meat Purchase Specifications.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option
Offered: SPRING
Prerequisite for: ASCI 400A
ASCI 300B Principles of Livestock Evaluation and Judging
Prerequisites: Junior standing. ASCI 200 recommended.
Notes: Opportunity to become members of the University of Nebraska Livestock Judging Team.
Description: Principles of livestock judging and presentation of oral reasons. Evaluation of body structure and composition differences in breeding and market livestock as related to their use in meat production. Live animal, performance records, genetic evaluations, and breeding livestock scenarios evaluated. Presentation of oral reasons to defend selection decisions.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option
Prerequisite for: ASCI 300D; ASCI 400B

ASCI 300D Principles of Meat Animal Evaluation
Prerequisites: ASCI 300B
Notes: The University of Nebraska Meat Animal Evaluation Team will be selected from students in this course.
Description: Further expertise in breeding animal, market animal, and carcass evaluation. Live animal and carcass grading and pricing.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 300E Principles of Horse Evaluation and Judging
Prerequisites: Junior standing recommended.
Notes: Students will have an opportunity to become members of the University of Nebraska Horse Judging Team.
Description: Conformation associated with equine structural form and performance standards. Evaluation of performance classes as governed by breed association standards and industry regulations. Presentation of oral reasons to defend selection decisions.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 310 Fresh Meats
Prerequisites: ASCI 210
Description: Fresh meat from beef, pork, lamb, and poultry. Characteristics of muscle, meat technology, preservation, merchandising concepts, and markets.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Prerequisite for: ASCI 343, NUTR 343

ASCI 311A Equine Industry Study Tour
Description: Study tour of livestock and/or meat/food processors. Provide an understanding of the industry's operations and problems.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 311B Meat Industry Study Tour
Description: Study tour of livestock and/or meat/food processors. Provide an understanding of the industry's operations and problems.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 311D Pork Industry Study Tour
Description: Study tour of livestock and/or meat/food processors. Provide an understanding of the industry's operations and problems.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 311E Beef Industry Study Tour
Description: Study tour of livestock and/or meat/food processors. Provide an understanding of the industry's operations and problems.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 315 Animal Growth and Development
Prerequisites: ASCI 240 or 340
Description: Provide insight into the growth and development of the structural tissues in animals. The physiological, genetic, nutritional, and environmental factors that can affect growth and development of animals will be discussed in terms of both livestock and domestic animals.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

ASCI 320 Animal Nutrition and Feeding
Prerequisites: ASCI 240 or 340; CHEM 106A and CHEM 106L or CHEM 110A and CHEM 110L.
Description: Fundamentals of nutrition and feeding of domestic livestock, nutrients and nutrient requirements, characteristics of feedstuffs, methods of feeding, and the feed industry.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Offered: FALL/SPR
Prerequisite for: ASCI 321; ASCI 450; ASCI 455; ASCI 457; ASCI 486

ASCI 321 Companion Animal Nutrition
Prerequisites: ASCI 320 or NRES 311; CHEM 106 or CHEM 106A and 106L or CHEM 110 or CHEM 110A and 110L.
Description: Digestive anatomy and physiology of companion animals including dogs, cats, small mammals, and exotic species. Unique nutrient requirements, pet food formulation, and regulations.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Offered: SPRING
ASCI 322 Equine Nutrition
Notes: ASCI 320 recommended.
Description: Equine nutrition including digestive anatomy and physiology. Nutritional requirements of horses as related to growth, reproduction, and performance. The relationship of nutrition to disease and environment. Management practices and application of current equine nutritional research.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option
ASCI 330 Animal Breeding and Genetics
Prerequisites: AGRO 215 or BIOS 206; STAT 218 or MATH 106 or equivalent.
Description: Principles of animal genetics and genomics, and their application to improvement of livestock and companion animals. Topics include: characterization of allelic and genetic variation associated with animal performance, principles of selection, inbreeding and crossbreeding, advances in molecular genetics, and their applications to the development of breeding programs to enhance animal productivity and well-being.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Grading Option: Graded with Option
Offered: FALL
Prerequisite for: ASCI 455
ASCI 340 Animal Physiological Systems
Prerequisites: LIFE 121; CHEM 110 or CHEM 110A and 110L; MATH 102, 103, 104, or MATH 106.
Description: A comprehensive look at the major physiological systems that comprise the mammalian body. Anatomical organization and functionality of the nervous system, muscle, cardiovascular system, respiratory system, digestive system, urinary system, reproductive system, endocrine system, and immune system. Labs offer hands-on learning experiences through dissections, clinical demonstrations, and interactive multimedia.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Grading Option: Graded with Option
Offered: FALL
Prerequisite for: ASCI 315; ASCI 320; ASCI 341; ASCI 486; VBMS 303; VBMS 403; VBMS 410
ASCI 341 Physiology and Management of Reproduction
Prerequisites: ASCI 240 or 340
Description: Comparative anatomy and physiology of reproduction in domestic animals. Endocrine regulation of reproductive function, patterns of reproduction, economic consequences of sub-optimal reproductive performance, environmental influences on reproductive efficiency, application of selected techniques for controlling reproduction. Laboratory provides application of techniques used in reproductive management.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Grading Option: Graded with Option
Offered: FALL
Prerequisite for: ASCI 450; ASCI 455
ASCI 342 Equine Reproduction
Prerequisites: ASCI 240 or equivalent. ASCI 341 recommended.
Description: Anatomy and physiology of stallion and mare reproductive systems. Estrous detection systems, artificial and natural breeding techniques, infertility, semen collection and processing, reproductive management, and record keeping.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option
ASCI 343 Meat CulinologyTMIII: Foodservice Applications
Crosslisted with: NUTR 343
Prerequisites: ASCI/NUTR 210 or ASCI/NUTR 213 or ASCI/NUTR 310.
Description: Cookery principles and methods role in maintaining meat yield and quality characteristics. Cookery techniques to maximize guest satisfaction and insure foodservice and/or restaurant financial integrity. Flavor enhancement and cookery technology application in center of the plate concept development.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
ASCI 354A Swine Breeding & Gestation
Description: Concepts related to: reproductive physiology and endocrinology of boars and sows; genetic selection programs; development programs for future replacement gilts and boars; semen collection, evaluation, and preparation; detection of estrus and artificial insemination; pregnancy diagnosis; feeding and house programs for gestating sows; environmental management; records; diseases; and development of quality assurance programs for identifying and solving reproductive problems. This course is taught by North Carolina State University and is part of the GPIEDA/AgIDEA courses offerings. Registration with permission from your advisor and CASNR Online Education.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
ASCI 354B Swine Farrowing Management
Description: Advanced integration and application of reproductive management concepts during farrowing and lactation. Identification of production trends; formulation of strategies to improve productivity; and parturition and neonatal management. This course is taught by the University of Missouri and is part of the GPIEDA/AgIDEA course offerings. Registration with permission from your advisor and CASNR Online Education Office.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
ASCI 354D Swine Nursery Management
Description: Overview of the critical management, housing, and financial considerations relevant to the successful operation of a swine nursery, grow-finish, or wean to finish enterprise, including: nutrient requirements; building and facility management; and marketing. This course is taught by Penn State as part of the GPIDEA/Ag*IDEA course offerings. Registration with permission from your advisor and CASNR Online Education Office.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 354E Employee Management for Swine Industry
Description: Effective employee management in swine production units. Assist students in understanding the principles, policies, and practices related to procurement, development, maintenance, and utilization of employees. This course is taught by an institutional member of the GPIDEA/AgIDEA consortium. Registration is with permission from your adviser and CASNR Online Education Office.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 354F Swine Environment Management
Description: Response of swine to thermal environment, ventilation system design and analysis, heating and cooling systems and examples of various designs for all phases of production. Trouble shooting ventilation systems and energy analysis of production units. This course is taught by Iowa State University as part of the GPIDEA/Ag*IDEA consortium. Registration with permission from your advisor and CASNR Online Education Office.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 354G Advanced Swine Science
Prerequisites: ASCI 254
Notes: This course is taught by Kansas State University and is part of the GPIDEA/AgIDEA consortium. Registration is with permission from your advisor and CASNR Online Education Office.
Description: An in-depth application of basic concepts covered in Basic Swine Science, focused on the scientific principles to the economical and sustainable production of pork. Detailed analysis of benchmarking, production systems, reproduction, pig flow, ventilation, and herd health are discussed. Become knowledgeable regarding the science, complexity, and technology applied in modern swine production businesses.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 354K Swine Health and Biosecurity
Prerequisites: ASCI 254
Notes: This course is taught by Iowa State University and is part of the GPIDEA/Ag*IDEA consortium. Registration is with permission from your advisor and CASNR Online Education Office.
Description: Overview of standard biosecurity protocols and identification of behavior and clinical signs of illness in pigs. Treatment administration and prevention methods. Introduction to immune system function and basic swine disease transmission.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 354M Marketing and Risk Management in the Swine Industry
Prerequisites: ASCI 254
Notes: This course is taught by North Carolina State University and is part of the GPIDEA/AgIDEA consortium. Registration is with permission from your advisor and CASNR Online Education Office.
Description: Describe industry structure, markets, and risk that characterize the US swine sector. Review futures and options markets and contracts and their usage to manage risks in US swine production.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 354N Agricultural Business Management
Description: Effective management of small livestock operations. Emphasis on organization, finance, and marketing. Registration with permission from your advisor and CASNR Online Education Office.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 354P Swine Genetics
Description: An analysis of the principles of population genetics as applied to swine, including: selection; genetic parameters; genotypes, linkage, and mapping; hybrid vigor; biotechnology; and the role of genetics in swine health and production. This course is taught by Iowa State University as part of the GPIDEA/Ag*IDEA course offerings.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 354Q Basic Swine Science
Description: Overview of the critical management, housing, and financial considerations relevant to the successful operation of a swine nursery, grow-finish, or wean to finish enterprise, including: nutrient requirements; building and facility management; and marketing. This course is taught by Penn State as part of the GPIDEA/Ag*IDEA course offerings. Registration with permission from your advisor and CASNR Online Education Office.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 354R Swine Environment Management
Description: Response of swine to thermal environment, ventilation system design and analysis, heating and cooling systems and examples of various designs for all phases of production. Trouble shooting ventilation systems and energy analysis of production units. This course is taught by Iowa State University as part of the GPIDEA/Ag*IDEA consortium. Registration with permission from your advisor and CASNR Online Education Office.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 354S Advanced Swine Science
Prerequisites: ASCI 254
Notes: This course is taught by Kansas State University and is part of the GPIDEA/Ag*IDEA consortium. Registration is with permission from your advisor and CASNR Online Education Office.
Description: An in-depth application of basic concepts covered in Basic Swine Science, focused on the scientific principles to the economical and sustainable production of pork. Detailed analysis of benchmarking, production systems, reproduction, pig flow, ventilation, and herd health are discussed. Become knowledgeable regarding the science, complexity, and technology applied in modern swine production businesses.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 354T Swine Health and Biosecurity
Prerequisites: ASCI 254
Notes: This course is taught by Iowa State University and is part of the GPIDEA/Ag*IDEA consortium. Registration is with permission from your advisor and CASNR Online Education Office.
Description: Overview of standard biosecurity protocols and identification of behavior and clinical signs of illness in pigs. Treatment administration and prevention methods. Introduction to immune system function and basic swine disease transmission.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 354U Marketing and Risk Management in the Swine Industry
Prerequisites: ASCI 254
Notes: This course is taught by North Carolina State University and is part of the GPIDEA/Ag*IDEA consortium. Registration is with permission from your advisor and CASNR Online Education Office.
Description: Describe industry structure, markets, and risk that characterize the US swine sector. Review futures and options markets and contracts and their usage to manage risks in US swine production.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 354V Agricultural Business Management
Description: Effective management of small livestock operations. Emphasis on organization, finance, and marketing. Registration with permission from your advisor and CASNR Online Education Office.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 354W Swine Genetics
Description: An analysis of the principles of population genetics as applied to swine, including: selection; genetic parameters; genotypes, linkage, and mapping; hybrid vigor; biotechnology; and the role of genetics in swine health and production. This course is taught by Iowa State University as part of the GPIDEA/Ag*IDEA course offerings.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 354X Basic Swine Science
Description: Overview of the critical management, housing, and financial considerations relevant to the successful operation of a swine nursery, grow-finish, or wean to finish enterprise, including: nutrient requirements; building and facility management; and marketing. This course is taught by Penn State as part of the GPIDEA/Ag*IDEA course offerings. Registration with permission from your advisor and CASNR Online Education Office.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 354Y Swine Environment Management
Description: Response of swine to thermal environment, ventilation system design and analysis, heating and cooling systems and examples of various designs for all phases of production. Trouble shooting ventilation systems and energy analysis of production units. This course is taught by Iowa State University as part of the GPIDEA/Ag*IDEA consortium. Registration with permission from your advisor and CASNR Online Education Office.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 354Z Advanced Swine Science
Prerequisites: ASCI 254
Notes: This course is taught by Kansas State University and is part of the GPIDEA/Ag*IDEA consortium. Registration is with permission from your advisor and CASNR Online Education Office.
Description: An in-depth application of basic concepts covered in Basic Swine Science, focused on the scientific principles to the economical and sustainable production of pork. Detailed analysis of benchmarking, production systems, reproduction, pig flow, ventilation, and herd health are discussed. Become knowledgeable regarding the science, complexity, and technology applied in modern swine production businesses.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 355A Equine Science
Description: In-depth exploration of the issues involved in animal use. The historical, biological, ethical, and social aspects of human/animal interactions in Western culture.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ASCI 355B Equine Science
Description: In-depth exploration of the issues involved in animal use. The historical, biological, ethical, and social aspects of human/animal interactions in Western culture.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ASCI 355C Equine Science
Description: In-depth exploration of the issues involved in animal use. The historical, biological, ethical, and social aspects of human/animal interactions in Western culture.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
ASCI 381 Beef Industry Scholars - Practicum
Prerequisites: ASCI 311E, ALEC 350
Notes: Letter grade only.
Description: Financial risk management, beef processing, animal health, and related emerging issues.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Offered: SPRING
Prerequisite for: ASCI 481

ASCI 395A Experiential Learning for Career Development in Animal Sciences - Industry Experiences
Description: Extension and application of the animal science curriculum within the context of industry (e.g., internship), extension and service, research, or teaching experience. A faculty adviser for the area of interest must be identified prior to registering for the course.
Credit Hours: 1-6
Min credits per semester: 1
Max credits per semester: 6
Max credits per degree: 6
Grading Option: Graded with Option
Prerequisite for: ASCI 482, AECN 482

ASCI 395B Extension and Service Experiences
Description: Extension and application of the animal science curriculum within the context of industry (e.g., internship), extension and service, research, or teaching experience. A faculty adviser for the area of interest must be identified prior to registering for the course.
Credit Hours: 1-6
Min credits per semester: 1
Max credits per semester: 6
Max credits per degree: 6
Grading Option: Graded with Option
Prerequisite for: ASCI 482, AECN 482

ASCI 395D Research Experiences
Description: Extension and application of the animal science curriculum within the context of industry (e.g., internship), extension and service, research, or teaching experience. A faculty adviser for the area of interest must be identified prior to registering for the course.
Credit Hours: 1-6
Min credits per semester: 1
Max credits per semester: 6
Max credits per degree: 6
Grading Option: Graded with Option
Prerequisite for: ASCI 482, AECN 482

ASCI 395E Experiential Learning for Career Development in Animal Sciences - Undergraduate Teaching Experience
Description: Extension and application of the animal science curriculum within the context of industry (e.g., internship), extension and service, research, or teaching experience.
Credit Hours: 1-6
Min credits per semester: 1
Max credits per semester: 6
Max credits per degree: 6
Grading Option: Graded with Option

ASCI 399 Independent Study in Animal Science
Prerequisites: Permission.
Description: Individual or group projects in research, literature review, or extension of course work under supervision and evaluation of a departmental faculty member.
Credit Hours: 1-5
Min credits per semester: 1
Max credits per semester: 5
Max credits per degree: 12
Grading Option: Graded with Option

ASCI 400A Advanced Meat Grading and Evaluation
Prerequisites: ASCI 300A
Description: Comparative evaluation of the meat characteristics of beef, pork, and lamb that affect product merit and the scientific basis of the factors that influence the relative value. Federal meat grades and their application, industry grading system and their application, and application of Institutional Meat Purchase Specifications. Application of the above topics, as well as critical decision making and written justification of meat product merit, practiced in-depth.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 400B Advanced Livestock Evaluation and Judging
Prerequisites: ASCI 300B or equivalent experience.
Notes: The University of Nebraska Senior Livestock Judging Team will be selected from students in this course.
Description: Livestock judging and evaluation applying principles learned in ASCI 300B. Field trips to commercial and purebred livestock operations and exhibitions. Network with producers to learn varied livestock production philosophies. Develop a proficiency in brief, concise oral presentation of reasons for making a decision.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 400E Advanced Horse Evaluation and Judging
Prerequisites: ASCI 300E or equivalent, recommended.
Notes: The University Horse Judging Team will be selected from students in this course. Field trips are a major component of the course.
Description: Advanced horse judging and analysis. Evaluate conformation and score multiple performance events. The development and presentation of concise oral reasons to defend placing decisions.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 410 Processed Meats
Crosslisted with: ASCI 810
Prerequisites: ASCI 210 or equivalent. Junior standing.
Notes: 3 cr II classroom. 3 cr I, II, III web.
Description: Modern meat processing industry and its use of science and technology. The fabrication, processing, preservation, sanitation, food safety, ethnic evolvement, and utilization of manufactured and processed meat. Actual laboratory preparation of processed meats and by-products of the meat packing industry.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
**ASCI 411 HACCP and Food Safety Systems for the Food Industry**  
**Prerequisites:** An understanding of food production and processing operations. Recommended: ASCI 310, 410, and FDST 205; or NUTR 343.  
**Description:** Principles, implementation, sanitation, and standard operating procedures that function to support the Hazard Analysis and Critical Control Point (HACCP) System. Food safety hazards and their relationship to food borne illness in the meat and food industry.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option  

**ASCI 419 Meat Investigations**  
**Crosslisted with:** ASCI 819, FDST 419, FDST 819  
**Prerequisites:** ASCI 210  
**Description:** Conduct independent research and study meat industry problems in processing, production, storage, and preparation of meat and meat products.  
**Credit Hours:** 1-3  
**Min credits per semester:** 1  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option  

**ASCI 421 Advanced Animal Nutrition**  
**Crosslisted with:** ASCI 821  
**Prerequisites:** ASCI 320  
**Description:** Advanced course dealing with the nutrition of domestic animals. In-depth coverage of nutrients, nutrient metabolism, and nutrient requirements. Biochemical and physiological functions of nutrients in life processes.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option  
**Prerequisite for:** ASCI 925, NUTR 925; ASCI 926, NUTR 926; ASCI 927, NUTR 927  

**ASCI 422 Advanced Feeding and Feed Formulation**  
**Crosslisted with:** ASCI 822  
**Prerequisites:** ASCI 320 or equivalent.  
**Description:** Feeding practices for domestic animals. Applied animal nutrition and feed formulation.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option  

**ASCI 431 Advanced Animal Breeding**  
**Crosslisted with:** ASCI 831  
**Prerequisites:** ASCI 330  
**Description:** Application of genetic principles to animal breeding. Critical examination of current and potential selection programs and crossbreeding systems. Determination of performance objectives. Expected responses to selection methods and dissemination of improvement in an industry.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option  

**ASCI 432 Genome Analysis**  
**Crosslisted with:** ASCI 832  
**Prerequisites:** AGRO 215 and BIOL 401 or equivalent  
**Description:** Theoretical and practical aspects of: structure and function of eukaryotic genomes; genome sequencing and assembling, polymorphism and isoform detection and genotyping; gene and genome annotation; strategies used to identify genetic variants responsible for phenotypic differences; and personalized genomics, social and ethical aspects associated with genomic information.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded  
**Offered:** SPRING  

**ASCI 441 New Techniques in Reproductive Biology**  
**Crosslisted with:** ASCI 841  
**Prerequisites:** ASCI 341 or equivalent.  
**Description:** Mammalian early embryonic development. Basic aspects of embryology and development biology. Modern technologies in animal reproductive biology, in vitro maturation and fertilization, embryo transfer, cloning, assisted reproductive technologies, transgenic animals, and embryonic stem cells.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option  

**ASCI 442 Endocrinology**  
**Crosslisted with:** ASCI 842, BIOS 442, BIOS 842, VBMS 842  
**Prerequisites:** A course in vertebrate physiology and/or biochemistry.  
**Description:** Mammalian endocrine glands from the standpoint of their structure, their physiological function in relation to the organism, the chemical nature and mechanisms of action of their secretory products, and the nature of anomalies manifested with their dysfunction.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded with Option  

**ASCI 443 Physiology of Animal Cells and Tissues**  
**Crosslisted with:** ASCI 843  
**Prerequisites:** LIFE 121; ASCI 240 or ASCI 340 or BIOS 213; BIOS 401 or BIOL 431  
**Description:** Molecular, cellular, and tissue dependent functions of neurons, skeletal and smooth muscle, vasculature, and immune cells. Cellular regulation of important physiological processes including blood flow, gas exchange, inorganic solute homeostasis, acid-base balance, water balance, appetite control, and thermal regulation will also be studied. Understand cellular and molecular processes that ensure homeostasis and promote integration of physiological systems.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded  
**Offered:** SPRING
ASCI 444 Domestic Animal Immunology
Crosslisted with: ASCI 844
Prerequisites: LIFE 120, LIFE 121; ASCI 240 or BIOS 213 or ASCI 340
Description: Learn the fundamental knowledge of the animal immune system, and how to utilize immunology to improve animal health and production. Become familiar with common immunoassays, immunological diseases and immunotherapy.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded
Offered: FALL
Groups: Biology, Psychology, Politics

ASCI 450 Horse Management
Prerequisites: Senior standing or permission; ASCI 320; ASCI 341
Notes: ASCI 330 recommended
Description: Light horse production. Nutrition, reproduction, management, housing, and principle usage of light horses.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Offered: FALL
ACE: ACE 10 Integrated Product

ASCI 451 Livestock Management on Range and Pasture
Crosslisted with: AGRO 445, AGRO 845, ASCI 851, RNGE 445, GRAS 445
Prerequisites: ASCI 250 and AGRO 240 or 340; AECN 201 recommended.
Notes: AECN 201 recommended. Capstone course. All students required to participate in a one-week field trip in central or western Nebraska prior to beginning of fall semester. Therefore, students must notify instructor at time of early registration (Dates are given in class schedule.)
Description: Analyzing the plant and animal resources and economic aspects of pasturage. Management of pasture and range for continued high production emphasized.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Offered: FALL
ACE: ACE 10 Integrated Product

ASCI 453 Dairy Management
Crosslisted with: ASCI 453H
Prerequisites: Senior standing and ASCI 250, or permission. ASCI 240, 320 and 330 recommended.
Description: Management of a dairy enterprise for efficient production of a quality product. Emphasis on specific problems in breeding, feeding, reproduction, facilities, herd health, and in harvesting and marketing of milk and related economic considerations.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ASCI 453H Dairy Management
Crosslisted with: ASCI 453
Prerequisites: Senior standing and ASCI 250, or permission. ASCI 240, 320 and 330 recommended.
Description: Management of a dairy enterprise for efficient production of a quality product. Emphasis on specific problems in breeding, feeding, reproduction, facilities, herd health, and in harvesting and marketing of milk and related economic considerations.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ASCI 455 Beef Cow-Calf Management
Prerequisites: Senior standing or permission; ASCI 320; ASCI 330 or 341
Description: Integrated management specific to the beef cow-calf enterprise necessary to achieve biologic and economic efficiency.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 456 Beef Cattle Merchandising
Prerequisites: Senior standing. ASCI 300B and 330 recommended.
Notes: Students are responsible for planning and conducting the annual UNL bull sale.
Description: Develop skills to merchandise breeding cattle including advertising, genetic and phenotype selection, data collection, and conducting a bull sale.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded with Option

ASCI 457 Beef Feedlot Management
Prerequisites: Senior standing or permission; ASCI 320
Description: Advanced preparation in the feeding of cattle for slaughter. Emphasis on the nutrition and management of feedlot cattle and related health and economic considerations. Covers the beef enterprise from weaning to market and relates closely to beef cow-calf production.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Grading Option: Graded with Option

ASCI 481 Beef Industry Scholars - Beef Summit
Prerequisites: ASCI 381
Notes: Requires working with the Nebraska Cattlemen and the instructor to develop the summit. Letter grade only.
Description: Identification of a major issue confronting the Nebraska beef industry. Organize a Nebraska summit meeting to discuss and bring the identified issue to resolution.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Offered: FALL
Prerequisite for: ASCI 482, AECN 482
ASCI 482 Beef Industry Scholars - National Beef Industry Policy
Crosslisted with: AECN 482
Prerequisites: ASCI 481; ASCI 395A or ASCI 395B or GRAS 490 or AECN 495C
Notes: Requires attending the National Cattlemen's Beef Association (NCBA) annual convention and then, communicating the new policy and issues to local organizations and undergraduate student groups. Letter grade only.
Description: Discuss and dissect issues from the NCBA convention researching the pros and cons of current and proposed policy.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Offered: SPRING

ASCI 485 Animal Systems Analysis
Prerequisites: Junior or Senior standing or permission
Notes: For majors in the College of Agricultural Sciences and Natural Resources with an interest in careers in livestock production units, the meat industry, or related agribusinesses.
Description: Goal setting, information gathering, and application of problem solving methods in animal science. Develops ability to analyze and solve problems in all segments of animal science by integration of information from all pertinent disciplines and sources.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Offered: FALL/SPR
ACE: ACE 10 Integrated Product

ASCI 486 Animal Biological Systems
Prerequisites: Junior or Senior standing; ASCI 240 or 340; ASCI 320; AGRO 215 or BIOS 206
Notes: Capstone course. For seniors with an interest in careers involving animal science disciplines, animal biology, and related fields.
Description: How to integrate information from the animal science disciplines to understanding animals as biological systems. The processes of growth, adaptation, and lactation. Analyzing the interrelationship of each discipline within animal production. Using case studies, scenarios, and problem solving assignments to examine how alterations in nutrition and metabolism, genetic makeup, endocrine profile and/or the environment impact or effect the animal as a whole.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option
Offered: FALL
ACE: ACE 10 Integrated Product

ASCI 490A Animal Science Internship - Beef Feedlot Management
Prerequisites: Acceptance into the Beef Feedlot Management Program.
Description: Management internship in a beef feedlot. Organizational and financial structure of the beef feedlot and experience in making decisions related to: animal production, marketing, business management, and personnel management.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded with Option

ASCI 491 Animal Science Seminar
Prerequisites: Senior standing.
Description: Student-led discussion of selected current topics significant to the livestock, poultry, and meat industry. Concerns and issues of society as they relate to local, national, and international animal agriculture.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Pass No Pass

ASCI 496 Independent Study in Animal Science
Crosslisted with: ASCI 896
Prerequisites: 12 hrs animal science or closely related areas and permission.
Description: Individual or group projects in research, literature review, or extension of course work under the supervision and evaluation of a departmental faculty member.
Credit Hours: 1-5
Min credits per semester: 1
Max credits per semester: 5
Max credits per degree: 12
Grading Option: Graded with Option

ASCI 499H Honors Thesis
Prerequisites: Admission to the University Honors Program and permission; AGRI 299H recommended.
Description: Conduct a scholarly research project and write a University Honors Program or undergraduate thesis.
Credit Hours: 3-6
Min credits per semester: 3
Max credits per semester: 6
Max credits per degree: 6
Grading Option: Graded

PLEASE NOTE
This document represents a sample 4-year plan for degree completion with this major. Actual course selection and sequence may vary and should be discussed individually with your college or department academic advisor. Advisors also can help you plan other experiences to enrich your undergraduate education such as internships, education abroad, undergraduate research, learning communities, and service learning and community-based learning.
Animal Science

Animal Science - Animal Biology & Biotechnology
Animal Science - Business & Communications
Animal Science - Companion Animal Science
Animal Science - Equine Science
Animal Science - Food Animal Production & Management
Animal Science - Meat Science
Animal Science - Veterinary Animal Sciences

Career Information
The following represents a sample of the internships, jobs and graduate school programs that current students and recent graduates have reported.

Jobs of Recent Graduates
• Nutritionist, Dekalb Feeds - Ely IA
• Pet Care Technician Manager, Nebraska Animal Medical Center - Lincoln NE
• 4-H Extension Assistant, Nebraska Extension - Omaha NE
• Operations Management Associate, Cargill Meat Solutions - Schuyler NE
• Animal Behaviorist, Capital Humane Society - Lincoln NE
• Horse Trainer and Riding Instructor, Self-Employed - Lincoln NE
• Cattle Health Assistant, Adams Land and Cattle Co. - Broken Bow NE
• Farm Manager, Rock Creek Swine - Nebraska City NE
• Animal Protein Manager, Cargill - Wichita KS
• Herdsman/cattle manager, Rippe Gelbviah - Hubbell NE

Internships
• Beef Sales Intern, Cargill Meat Solutions - Witchita KS
• Kentucky Equine Management Internship, Adena Springs - Paris KY
• Intern, Henry Doorly Zoo - Omaha NE
• Feedlot Intern, Rhea Cattle Co. - Arlington NE
• Clydesdale Handler Intern, Anheuser-Busch - St. Louis MO
• Animal Welfare Intern, Nebraska Humane Society - Omaha NE
• Communications and Marketing Intern, American Hereford Association - Blue Rapids KS
• Feedlot Intern, U.S. Meat Animal Research Center - Clay Center NE
• Animal Care Intern, Willowbrook Wildlife Center - Glen Ellyn IL
• Equine Racetrack Practitioner Intern, Arapahoe Park Racetrack - Aurora CO

Graduate & Professional Schools
• Ruminant Nutrition, University of Nebraska-Lincoln - Lincoln NE
• Professional Program of Veterinary Medicine, University of Nebraska-Lincoln - Lincoln NE
• Animal biology, University of CA-Davis - Davis CA
• Masters in Conservation Medicine, Tufts University - Medford MA
• Range Management Program, Texas Christian University - Fort Worth TX
• Animal Breeding and Genetics, University of Nebraska-Lincoln - Lincoln NE
• Animal Science, Physiology, University of Nebraska - Lincoln NE
• Masters of Science in Leadership Education: Leadership Development Emphasis, University of Nebraska-Lincoln - Lincoln NE
• Agriculture Economics, MS, Oklahoma State - Stillwater OK
• Poultry Nutrition, University of Nebraska - Lincoln NE