Department of Agribusiness, Plant & Animal Sciences

Department Description
The Department of Agribusiness, Plant & Animal Sciences prepares students for many exciting and challenging employment opportunities, and offers a wide variety of course work in agriculture. The close relationship between teachers and students creates a learning atmosphere that encourages the development of the finest students. Students receive excellent training from case studies and practical “hands on” experience provided by work on the University farm, Livestock Center, internships, and practicum experience. Facilities include classrooms, laboratories, greenhouses, a farm mechanics shop, and University farm and livestock facilities, used for faculty and student learning and research.

All Agribusiness, Plant & Animal Sciences majors are exposed to on-the-job training through internships. A wide variety of locations and environments are available throughout the United States and occasionally abroad.

The employment opportunities for students with a background in Agriculture are excellent. Examples of career opportunities available in agriculture are specialists in crop consulting, plant and animal genetics, soil and water, environmental, GPS/GIS, machinery management, agronomy, farm and ranch management, finance, agricultural economics, real estate appraisal, education, food processing, animal health, plant and animal nutrition, marketing, food safety, range resource management, government agency workers and researchers, as well as many others.

Department Degrees
Agribusiness, Plant & Animal Sciences majors may choose from the following degrees:

Bachelor of Science in Agronomy, Crop and Soil Sciences (642)
Agronomy is the study of science and technology of plants and soils and their interaction with humans, animals and the environment. Agronomy encompasses work in the areas of crop production, soil science, plant genetics, and plant physiology. Students will be prepared for careers or graduate school in production, international, and sustainable agriculture; soil and natural resource conservation; and precision agriculture.

Bachelor of Science in Agribusiness (643)
Agribusiness is designed to prepare a student for employment in a variety of fields, including business finance, marketing, international agriculture, agricultural marketing, policy formation, farm and ranch management, resource economics, rural development, bank, and real estate appraisal.

Bachelor of Science in Agriculture Technology (644)
Agriculture Technology is the study of technical principles and problems in agriculture industries. Agriculture is becoming more and more high tech, and the need for well prepared and knowledgeable agricultural technicians is expanding, such as GPS/GIS specialists and other specialized computer applications.

Bachelor of Science in Animal Science (645)
Animal Science is designed for students who desire to work in animal production agriculture or associated animal agribusiness. Students in this emphasis will be taught animal anatomy and physiology, nutrition, reproduction, health, genetics, meat science, grazing, and the fundamentals of running an animal-based production business. Graduates will be prepared to enter the workforce or continue in graduate programs.

Bachelor of Science in Animal Health and Veterinary Sciences (646)
Bio-veterinary science is designed to prepare the student to enter Veterinary School or other related Animal Health graduate course work. It will give the student the background to apply and be successful in veterinary school. There are exciting careers in veterinary practice, industry and research as well as government opportunities. It is a very rapidly growing industry and profession.

Bachelor of Science – Major in Agriculture Education Composite (825)
Agricultural Education will prepare students for employment opportunities in teaching agriculture, as well as agribusiness occupations. Highly qualified teachers are in short supply nationwide. Graduates will be prepared to enter the workforce or continue onto graduate school.

Associate Degree in Agriculture Management (344)
The A.A.S. Degree in Agriculture Management is offered for the student who plans to enter the work force immediately following the completion of their degree.
Associate Degree in Beef Production Management (347)
The A.A.S. Degree in Beef Production Management prepares students to apply practical skill sets. Skills in animal health, nutrition, reproduction, and meat sciences are taught. This degree is offered for the student who plans to enter the work force immediately following the completion of their degree.

Associate Degree in Veterinary Technology
The veterinary technician curriculum is designed to prepare students in animal health, nursing, and husbandry. The program focuses primarily on domestic species. Veterinary Technician students are prepared for employment in private veterinary practice as technicians, research technicians, technical support staff at veterinary teaching hospitals, zoos, in private industry and USDA support staff. Graduates will be eligible to sit for state and national board examinations for registration as licensed veterinary technicians. Acceptance into the program is required for class registration. Applications are available online or from department office assistants.

Minor in Agriculture Business, Science & Technology (102)
The Agriculture Business, Science & Technology minor is for those students NOT majoring in Agribusiness, Plant and Animal Sciences.

Minor in Animal Science (140)
The Animal Science minor is for those students NOT majoring in Agribusiness, Plant & Animal Sciences.

Students taking AS, ASV or Activ Equine classes will be transported by van from campus to the Livestock Center. Vans will pick students up west of the Hart Building and return students to the same place. Students please plan your schedules accordingly.
## AAS in Agricultural Management (344)

**Major Requirements**

- **Core Courses**: Take these courses:
  - AGBUS 100 1
  - AGBUS 180A 2
  - AGBUS 180B 2
  - AGBUS 210 3
  - AGBUS 347 3
  - AGBUS 398 1
  - AGRON 220 3
  - AGRON 220L 1
  - AGRON 286 3

- **Core Courses**: Take 28 credits:
  - AGRON 122 3
  - AGRON 270 2
  - AGRON 297 2
  - AGRON 310 3
  - AGRON 321 3
  - AGRON 325 3
  - AGRON 420 4
  - AGRON 425 3
  - AGRON 435 3
  - AGRON 440 3
  - AGRON 455 3

- **Core Courses**: Take 3 credits:
  - AGTEC 122 2
  - AGTEC 124 2
  - AGTEC 132 2
  - AGTEC 186 1
  - AGTEC 230 2
  - AGTEC 294 3
  - AGTEC 301 4
  - AGTEC 320 3
  - AGTEC 335 4
  - AGTEC 360 4
  - AGTEC 474 3
  - AGTEC 486 3
  - ME 105 4

- **Supplemental Courses**
  - AS 333 3
  - AS 336 3
  - AS 355 4
  - AS 360 4
  - BIO 225 3
  - AGRON 220 3
  - AGRON 220L 1
  - AS 247 2
  - AS 340 4
  - AS 430 4
  - AS 465 3
  - BIO 325 3

**Program Notes**: No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

**Total Major Credits=50**

This major is available on the following tracks:

- Fall-Winter---- YES
- Winter-Spring---- YES
- Spring-Fall---- YES

## AAS in Beef Production Management (347)

**Major Requirements**

- **Core Courses**: Take these courses:
  - AGBUS 100 1
  - AGBUS 180 2
  - AGBUS 210 3
  - AGBUS 398 1
  - AGRON 122 3
  - AGRON 124 2
  - AGRON 132 2
  - AGRON 186 1
  - AGRON 230 2
  - AGRON 294 3
  - AGRON 301 4
  - AGRON 320 3
  - AGRON 335 4
  - AGRON 360 4
  - AGRON 474 3
  - AGRON 486 3
  - ME 105 4

- **Supplemental Courses**
  - AS 333 3
  - AS 336 3
  - AS 355 4
  - AS 360 4
  - BIO 225 3
  - AGRON 210 3
  - AGRON 330 3
  - AGRON 335 3
  - AGRON 340 4
  - AGRON 345 4
  - AGRON 360 4
  - AGRON 430 4

- **Supplemental Courses**
  - AS 247 2
  - AS 340 4
  - AS 430 4
  - AS 465 3
  - BIO 325 3

**Program Notes**: No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

**Total Major Credits=50**

This major is available on the following tracks:

- Fall-Winter---- YES
- Winter-Spring---- YES
- Spring-Fall---- YES
### AAS in Veterinary Technology (364)

**Take Required Foundation Courses (19 credits)**

**Major Requirements**

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**Continued next column**

### Program Notes:

- **No Double Counting of Major Courses**
- **No Grade Less Than C- in Major Courses**

**Total Major Credits=49**

This major is available on the following tracks:

- Fall-Winter---- YES
- Winter-Spring---- YES
- Spring-Fall---- YES
### BS in Agronomy, Crop and Soil Sciences (642)

#### Take Required Foundation Courses

#### Major Requirements

**No Double Counting of Major Courses - No Grade Less Than C- in Major Courses**

<table>
<thead>
<tr>
<th>CORE COURSES</th>
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<th>Program Notes:</th>
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<td>Take these courses:</td>
<td>Select and complete a cluster from the following pre-approved clusters:</td>
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<tr>
<td>AGBUS 100 1</td>
<td>AGRON 310 3</td>
<td>1001 Equine</td>
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<td>AGRON 122 2</td>
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</tr>
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<td>AGTEC 220 3</td>
<td>AGRON 345 3</td>
<td>1003 Animal Reproduction</td>
</tr>
<tr>
<td>AGRON 120 2</td>
<td>AGRON 350 3</td>
<td>1004 Natural Resource Management</td>
</tr>
<tr>
<td>AGRON 321 3</td>
<td>AGRON 420 3</td>
<td>1008 GIS in Agriculture and Natural Resources</td>
</tr>
<tr>
<td>AGRON 325 3</td>
<td>AGRON 435 2</td>
<td>1009 Ag Technology</td>
</tr>
<tr>
<td>CHEN 105 4</td>
<td>AGRON 445 3</td>
<td>1010 Animal Production</td>
</tr>
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<td>AS 150 1</td>
<td>AGRON 270 3</td>
<td>1011 Animal Nutrition</td>
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<td>CHEM 105 25</td>
<td>AGRON 297 2</td>
<td>1012 Beef Production</td>
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<tr>
<td>CHEM 105 25</td>
<td>AGRON 425 3</td>
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<td>AGRON 440 3</td>
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<tr>
<td>CHEM 105 25</td>
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#### Total Major Credits=67

#### Additional Elective Credits Required for Graduation - 1

**Program Notes:**

- Students planning to attend grad school please meet with your faculty advisor to plan early.

**Additional Elective Credits Required for Graduation - 1**

### BS in Agribusiness (643)

#### Take Required Foundation Courses

#### Major Requirements

**No Double Counting of Major Courses - No Grade Less Than C- in Major Courses**

<table>
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<td>Select and complete one cluster from the following pre-approved clusters:</td>
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<tr>
<td>AGBUS 100 1</td>
<td>1001 Equine</td>
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<td>AS 150 3</td>
<td>1003 Animal Reproduction</td>
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<td>AGBUS 122 3</td>
<td>1004 Natural Resource Management</td>
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<tr>
<td>AGTEC 220 3</td>
<td>1005 Soil Management</td>
</tr>
<tr>
<td>AGBUS 180A 2</td>
<td>1006 Crop Protection</td>
</tr>
<tr>
<td>AGBUS 210 3</td>
<td>1008 GIS in Agriculture and Natural Resources</td>
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<td>AGBUS 238 3</td>
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<td>AGRON 347 3</td>
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<td>ECON 151 3</td>
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</table>

#### Total Major Credits=55

**Program Notes:**

- Select and complete a 12 credit complimentary cluster approved by your faculty advisor.

#### This major is available on the following tracks:

**Fall-Winter---- YES**

**Winter-Spring---- YES**

**Spring-Fall---- YES**
## BS in Agriculture Technology (644)

### Take Required Foundation Courses

#### Major Requirements

- No Double Counting of Major Courses
- No Grade Less Than C- in Major Courses

### CORE COURSES

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<thead>
<tr>
<th>Course</th>
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### AGBUSINESS COURSES

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<tr>
<td>AGRBUS 180A</td>
<td>2</td>
</tr>
<tr>
<td>AGRBUS 210</td>
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<tr>
<td>AS 150</td>
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### AGTEC COURSES

<table>
<thead>
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<tr>
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<td>AGTEC 230</td>
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<td>AGTEC 294</td>
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<td>AGTEC 301</td>
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### Agribusiness Courses

<table>
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<tr>
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<tr>
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<td>AGRBUS 210</td>
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<td>AS 150</td>
<td>3</td>
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</table>

### Total Major Credits: 67

### BS in Agriculture Technology (644)

### Additional Elective Credits Required for Graduation - 1

- Fall-Winter: YES
- Winter-Spring: YES
- Spring-Fall: YES

### Program Notes:

- Select and complete one cluster from the following pre-approved clusters:
  - 1001 Equine
  - 1002 Animal Health
  - 1003 Animal Reproduction
  - 1004 Natural Resource Management
  - 1005 Soil Management
  - 1006 Crop Production
  - 1007 Crop Protection
  - 1008 GIS in Agriculture and Natural Resources
  - 1010 Animal Production
  - 1011 Animal Nutrition
  - 1012 Beef Production

- Students planning to attend grad school please meet with your faculty advisor to plan early.
BS in Animal Science (645)

Take Required Foundation Courses

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Total Major Credits=67

Additional Elective Credits Required for Graduation - 1

This major is available on the following tracks:

<table>
<thead>
<tr>
<th>Track</th>
<th>Availability</th>
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<tr>
<td>Spring-Fall</td>
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CORE COURSES
Take these courses 1st semester:
- AGRUS 100 1
- AGRON 122 3
- AGTEC 220 3
- AGRUS 180B 2
- AGRUS 347 3
- AGRUS 398 1
- AGRUS 450 3
- AGRUS 300 1
- AS 215 4
- AS 220 3
- AS 247 2
- AS 315 3
- AS 335 3
- AS 336 3
- AS 355 4
- AS 425 4
- CHEM 105 4

Take these courses 2nd semester:
- AGRUS 180A 2
- AGRUS 210 3
- AS 150 8
- AGRUS 410 3
- AGRUS 420 3
- AGRUS 430 3
- AGRUS 435 3
- AS 330 2
- AS 340 4
- AS 347 2
- AS 360 4
- AS 370 3
- AS 430 4
- AS 465 3
- BIO 225 3
- BIO 325 3

AG BUSINESS COURSES
Take 1 course:
- AGRUS 410 3
- AGRUS 420 3
- AGRUS 430 3
- AGRUS 435 3

ANIMAL SCIENCE COURSES
Take 1 course:
- AGRUS 410 3
- AGRUS 420 3
- AGRUS 430 3
- AGRUS 435 3

SUPPLEMENTAL COURSES
Take 3 credits:
- AGRUS 410 3
- AGRUS 420 3
- AGRUS 430 3
- AGRUS 435 3

Program Notes:
Select and complete a 12 credit complimentary cluster approved by your faculty advisor.

Students planning to attend grad school please meet with your faculty advisor to plan early.

Additional Elective Credits Required for Graduation - 1

This major is available on the following tracks:

<table>
<thead>
<tr>
<th>Track</th>
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<tbody>
<tr>
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<td>Spring-Fall</td>
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</table>
# BS in Animal and Veterinary Science (646)

## Take Required Foundation Courses

### Major Requirements

*No Double Counting of Major Courses - No Grade Less Than C- in Major Courses*

<table>
<thead>
<tr>
<th>CORE COURSES</th>
<th>Take these courses 1st semester</th>
<th>Take these courses 2nd semester</th>
<th>ANIMAL SCIENCE COURSES</th>
<th>SUPPLEMENTAL COURSES</th>
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**Total Major Credits=55**

This major is available on the following tracks:

- Fall-Winter---- YES
- Winter-Spring---- YES
- Spring-Fall---- YES

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Program Notes:

- Complete these 2 clusters, 1100 Pre-Veterinary
- 1013 Animal Health
- Chemistry

Students planning to attend grad school please meet with your faculty advisor to plan early.

*Note to students: FDMAT 222 needs to be taken to satisfy a major requirement as well as partially satisfy the Foundations Quantitative Reasoning requirement. Full completion of Foundations will also require FDMAT 108T.*
BS in Agriculture Education Composite (825)

Take Required Foundation Courses

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

<table>
<thead>
<tr>
<th>EDUCATION CORE</th>
<th>CORE COURSES</th>
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<tr>
<td>20</td>
<td>AGRON 220L</td>
<td>1</td>
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<tr>
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<td>AGRON 220L</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>AGRON 286</td>
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</tr>
<tr>
<td>20</td>
<td>AS 150</td>
<td>3</td>
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<td>AS 220</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>AS 336</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>HORT 320</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>ME 105</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
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</tr>
</tbody>
</table>

Total Major Credits=60

Education Core Credits=20

This major is available on the following tracks:

Fall-Winter---- YES  
Winter-Spring---- YES  
Spring-Fall---- NO

Minor in Agricultural Business, Science & Technology (102)

Minor Requirements

No Double Counting of Minor Courses - No Grade Less Than C- for Minor Courses

<table>
<thead>
<tr>
<th>CORE COURSES</th>
<th>SUPPLEMENTAL COURSES</th>
<th>Program Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take these courses:</td>
<td>Take 13 credits:</td>
<td></td>
</tr>
<tr>
<td>AGBUS 180A</td>
<td>2</td>
<td>AGBUS 210</td>
</tr>
<tr>
<td>AGBUS 180B</td>
<td>2</td>
<td>AGBUS 347</td>
</tr>
<tr>
<td>AGRON 220</td>
<td>3</td>
<td>AGRON 122</td>
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<tr>
<td>AGRON 220L</td>
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<td>AGRON 310</td>
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<tr>
<td>AGTEC 220</td>
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<td>AGRON 321</td>
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<td>12</td>
<td>AGRON 330</td>
<td>3</td>
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<tr>
<td>12</td>
<td>AGRON 425</td>
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<td>12</td>
<td>AGRON 440</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>AGTEC 132</td>
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</tbody>
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Continued next column

Continued from previous column

AGTEC 186 | 1 |
AGTEC 230 | 2 |
AGTEC 294 | 3 |
AGTEC 301 | 4 |
AGTEC 335 | 4 |
AGTEC 360 | 4 |

Total Minor Credits=25

This minor is available on the following tracks:

Fall-Winter---- YES  
Winter-Spring---- YES  
Spring-Fall---- YES
Minor in Animal Science (140)

Minor Requirements

No Double Counting of Minor Courses - No Grade Less Than C- for Minor Courses

<table>
<thead>
<tr>
<th>CORE COURSES</th>
<th>SUPPLEMENTAL COURSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take these courses:</td>
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<tr>
<td>AS 150 3</td>
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<td>AS 220 3</td>
<td>AS 247 2</td>
</tr>
<tr>
<td>AS 315 3</td>
<td>AS 330 2</td>
</tr>
<tr>
<td>AS 336 3</td>
<td>AS 333 3</td>
</tr>
<tr>
<td>AS 355 4</td>
<td>AS 340 4</td>
</tr>
<tr>
<td>BIO 225 5</td>
<td>AS 347 2</td>
</tr>
<tr>
<td></td>
<td>AS 360 4</td>
</tr>
<tr>
<td></td>
<td>AS 430 4</td>
</tr>
<tr>
<td></td>
<td>AS 490 1-3</td>
</tr>
<tr>
<td></td>
<td>BIO 325 3</td>
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</tr>
<tr>
<td>Total Minor Credits=25</td>
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</tr>
</tbody>
</table>

This minor is available on the following tracks:

- Fall-Winter---- YES
- Winter-Spring---- YES
- Spring-Fall---- YES

Geographical Information Systems (GIS) Technology Minor (222)

Minor Requirements

No Double Counting of Minor Courses

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>GIS Project</th>
<th>Supplemental Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take these courses:</td>
<td>Take 1 course*:</td>
<td>Take 2 courses:</td>
</tr>
<tr>
<td>CIT 220 3</td>
<td>AGTEC 486 3</td>
<td>AGRON 425 3</td>
</tr>
<tr>
<td>FDMAT 221, 222 or 223 3</td>
<td>GEOF 440 3</td>
<td>CIT 203 3</td>
</tr>
<tr>
<td>GEOG 140 1</td>
<td></td>
<td>COMM 130 3</td>
</tr>
<tr>
<td>GEOG 230 3</td>
<td></td>
<td>GEOF 240 3</td>
</tr>
<tr>
<td></td>
<td>*A directed studies or other project oriented class may be substituted for this requirement with the Geography Chairs permission.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Advanced/Appplied Courses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Take 1 course:</td>
<td></td>
</tr>
<tr>
<td>AGTEC 286 3</td>
<td></td>
</tr>
<tr>
<td>GEOG 340 3</td>
<td></td>
</tr>
<tr>
<td>GEOF 340 3</td>
<td></td>
</tr>
</tbody>
</table>

| Total Major Credits=22 |

This major is available on the following tracks:

- Fall-Winter---- YES
- Winter-Spring---- YES
- Spring-Fall---- YES
### Agribusiness, Plant & Animal Science Pre-approved Clusters

<table>
<thead>
<tr>
<th>Cluster Name</th>
<th>Code</th>
<th>Courses</th>
</tr>
</thead>
</table>
| **Agribusiness** | 1000 | Take these courses:  
AGBUS 210 Agriculture Economics 3  
AGBUS 347 Agricultural Marketing 3  
AGBUS 450 Agribusiness Management 3  
Select 2 classes from the following:  
AGBUS 410 Agriculture Policy & Trade 3  
AGBUS 420 Agribusiness Operations Management 3  
AGBUS 430 Agriculture Price Analysis 3  
AGBUS 435 Agriculture Commodity Marketing 3  
Total Credits 15 |
| **Equine** | 1001 | Take these courses:  
AS 220 Feeds and Nutrition 3  
AS 240 Horse Production 4  
AS 425 Advanced Nutrition 4  
Select 2-4 credits from the following:  
AS 247 Animal Handling 2  
AS 347 Advanced Animal Handling 2  
Total Credits 13 |
| **Animal Health** | 1002 | Take these courses:  
AS 215 Anatomy/Physiology 4  
AS 315 Animal Health 3  
BIO 221 Microbiology 3  
BIO 222 Microbiology Lab 1  
Take one course:  
AS 240 Horse Production 4  
AS 260 Beef Production 4  
AS 370 Dairy Production 3  
Total Credits 14 |
| **Animal Reproduction** | 1003 | Take these courses:  
AS 330 Artificial Insemination 2  
AS 336 Animal Reproduction 3  
AS 430 Advanced Reproduction 4  
Take one course:  
AS 333 Livestock Genetics 3  
BIO 375 Genetics and Molecular Biology 3  
Take one course:  
AS 240 Horse Production 4  
AS 260 Beef Production 4  
AS 370 Dairy Production 3  
Take one course:  
AS 340 Horse Production 4  
Total Credits 15 |
| **Natural Resources** | 1004 | Take 4 courses:  
BIO 225 Range Ecology I 3  
BIO 302 Ecology 4  
BIO 325 Range Ecology II 3  
BIO 455 Rangeland Inventory & Analysis Lab 3  
BIO 466 Rangeland Vegetation Manipulation & Improvement 3  
Total Credits 12 |
| **Soil Management** | 1005 | Take these courses:  
AGRON 220 Introduction to Soils 3  
AGRON 310 Soils Fertility and Plant Nutrition 3  
AGRON 325 Irrigation and Drainage 3  
AGRON 425 Soil Management 3  
Total Credits 12 |
| **Crop Production** | 1006 | Take these courses:  
AGRON 310 Tree, Fruit and Vegetable Management 3  
AGRON 330 Forage Crops 3  
AGRON 435 Potato Science 3  
AGRON 455 Cereal Science 3  
Total Credits 12 |
| **Crop Protection** | 1007 | Take these courses:  
AGRON 321 Soil Fertility and Plant Nutrition 3  
AGRON 325 Irrigation and Drainage 3  
AGRON 420 Crop Protection 4  
AGRON 445 Crop Advisor Certification 2  
Total Credits 12 |
| **GIS in Agriculture and Natural Resources** | 1008 | Take these courses:  
AGTEC 286 Introduction to GIS 3  
AGTEC 474 Mechanical Systems Analysis 3  
AGTEC 486 Advanced GIS in Agriculture and Natural Resources 3  
Take one course:  
AGTEC 470 Advanced GIS and Spatial Analysis 3  
Total Credits 12 |
| **Agriculture Technology** | 1009 | Take these courses:  
AGTEC 320 Agricultural Machinery 3  
AGTEC 335 Electronic Systems Diagnostics and Repairs 4  
AGTEC 360 Agricultural Hydraulics 4  
AGTEC 474 Mechanical Systems Analysis 3  
Take one course:  
AGTEC 486 Advanced GIS in Agriculture and Natural Resources 3  
Total Credits 14 |
| **Animal Production** | 1010 | Take these courses:  
AS 150 Introduction to Livestock 3  
AS 215 Anatomy & Physiology 4  
AS 220 Feeds and Nutrition 3  
Take one course:  
AS 340 Horse Production 4  
AS 360 Beef Production 4  
AS 370 Dairy Production 3  
Total Credits 13 |
| **Animal Nutrition** | 1011 | Take these courses:  
AGRON 330 Forage Crops 3  
AS 220 Feeds and Nutrition 3  
AS 325 Advanced Nutrition 4  
Chem 106 General Chemistry 4  
Total Credits 14 |
| **Beef Production** | 1012 | Take these courses:  
AS 220 Feeds and Nutrition 3  
AS 360 Beef Production 4  
Take 5 - 7 credits:  
AGBUS 450 Agribusiness Management 3  
AS 330 Artificial Insemination 2  
AS 333 Livestock Genetics 3  
AS 336 Animal Reproduction 3  
AS 355 Principles of Meat Science 4  
AS 425 Advanced Nutrition 4  
AS 430 Applied Reproduction 4  
Total Credits 12 |
| **Agriculture Introductory Module** | 1014 | Take these courses:  
AGBUS 100 Ag Orientation 1  
AGBUS 180A Agricultural Computing 2  
AGBUS 210 Agriculture Economics 3  
AGTEC 220 Preventive Maintenance and Machinery Management 3  
AGRON 122 Introduction to Plant Science 3  
AS 150 Introduction to Livestock Production 3  
Total Credits 15 |
| **GIS** | 6801 | Take these courses:  
GEOG 140 Introduction to GPS 3  
Take one course:  
AGTEC 286 Introduction to GIS 3  
GEOG 230 Introduction to GIS 3  
Take one course:  
FDMAT 221 Biostatistics 3  
FDMAT 222 Social Studies Statistics 3  
FDMAT 223 Intermediate Statistics 3  
Take one course:  
AGTEC 486 Advanced GIS in Agriculture and Natural Resources 3  
GEOG 340 Advanced GIS and Spatial Analysis 3  
GEOG 410 Introduction to GIS/GPS 3  
Take one course:  
GEOG 140 Introduction to GPS 3  
CIT 203 CIT Fundamentals 3  
CIT 220 Introduction to Databases 3  
COMM 130 Visual Media 3  
Total Credits 13 |
<table>
<thead>
<tr>
<th>Course Descriptions</th>
<th>Credits*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGBUS 100 Agriculture Orientation</td>
<td>(1:1:0)</td>
</tr>
<tr>
<td>Total Course Fees: $25.00</td>
<td></td>
</tr>
<tr>
<td>An orientation to successful business and living practices, and a survey of occupational opportunities in the Agriculture field.</td>
<td></td>
</tr>
<tr>
<td>(Fall, Winter)</td>
<td></td>
</tr>
</tbody>
</table>

| AGBUS 180A Agricultural Accounting | (2:1:2) |
| This class will prepare students to use Excel as a farm management tool. In addition, it will prepare them to use Excel in more advanced university classes. Farmers and ranchers regularly make decisions that involve sizeable sums and substantial risks. More accurate and timely information helps reduce the risk involved. | |
| (Fall, Winter) | |

| AGBUS 180B Agricultural Computing | (2:1:2) |
| This course is designed for students to learn fundamental accounting principles by using the microcomputer and a spreadsheet program. Students will gain additional expertise in using the spreadsheet program by using it in learning accounting principles and applying those principles to solve farm management problems. | |
| (Fall, Winter, Spring) | |

| AGBUS 200 Agricultural Spanish | (3:0:0) |
| This course has been designed to provide students with the ability to communicate with Spanish speakers on a basic level, with emphasis on farm and ag-related issues. No previous Spanish experience is required. | |
| (As needed) | |

| AGBUS 210 Agricultural Economics | (3:3:0) |
| A systematic introduction to basic economic concepts and issues as they relate to the agribusiness sector in the U.S. economy. | |
| (Fall, Winter) | |

| AGBUS 232 Agricultural Sales and Merchandising | (3:2:2) |
| The retail sales and merchandising of agricultural products. | |
| (Winter) | |

| AGBUS 238 Agribusiness Leadership | (2:2:1) |
| Provides opportunities to develop leadership and increase occupational competency. | |
| (Fall, Winter) | |

| AGBUS 347 Agricultural Marketing | (3:3:1) |
| Total Course Fees: $10.00 | |
| Prerequisites: ECON 111 | Fundamental marketing principles applied to agricultural marketing. |
| (Fall, Winter, Spring) | (Fall, Winter) | |

| AGBUS 398 Occupational Internship | (1:0:0) |
| Internships provide actual work experience that will add to or enhance the career preparation and learning of individual students. The ideal internships would take place during a student's off-track semester and requires a minimum of 7 weeks of quality full time work experience. Internships must be approved by department internship coordinators. | |
| (Fall, Winter, Spring) | |

| AGBUS 410 Agricultural Policy and Trade | (3:3:0) |
| Prerequisites: AGBUS210; ECON 111 | An advanced course in the study of policy formulation, government actions, societal and environmental issues, and programs that influence the agricultural sectors of production, marketing, and finances. |
| (Winter, Spring) | |

| AGBUS 420 Agribusiness Operations Analysis | (3:3:1) |
| Total Course Fees: $20.00 | Principles and procedures in the analysis and research of agricultural business operations. |
| (Alternating Fall, Winter) | (Alternating Fall, Winter, Spring) | |

| AGBUS 430 Agricultural Price Analysis | (3:3:1) |
| Application of statistical tools for price analysis. Emphasis on price making process for specific agricultural commodities. | |
| (Alternating Fall, Winter, Spring) | |

| AGBUS 435 Agriculture Commodity Marketing | (3:3:1) |
| Prerequisites: AGBUS210; AGBUS347; AGBUS 430; FDMAT221 | An advanced agricultural marketing course intended to provide students with an understanding of the structure and operation of agriculture commodity markets and their critical role in the agribusiness sector as well as the overall economy. |
| (Fall, Winter) | |

| AGBUS 440 Agribusiness Finance | (3:3:0) |
| Prerequisites: AGBUS180; AGBUS210; FDMAT221 | Theory of financial decision making as applied to farms and firms related to agriculture. Topics include asset pricing models, financial markets, capital structure, and farmland control, term structure of interest rates, risk management and credit evaluation. An advanced agribusiness course intended to provide students with an understanding of the structure and operation of agriculture finance. |
| (Fall, Winter) | |

| AGBUS 450 Agriculture Business Management | (3:3:1) |
| Prerequisites: AGBUS180; AGBUS210 | Application of approved practices, concepts, principles and tools of management in an agricultural business. |
| (Fall, Winter, Spring) | |

| AGBUS 498 Occupational Internship 2 | (1:0:0) |
| Internships provide actual work experience that will add to or enhance the career preparation and learning of individual students. The ideal internships would take place during a student's off-track semester and requires a minimum of 7 weeks of quality full time work experience. Internships must be approved by department internship coordinators. | |
| (Fall, Winter, Spring) | |

| AGED 297 Ag Education Practicum | (2:1:2) |
| The purpose of this course is to allow those students interested in teaching high school agriculture to gain an early field experience. Students will be required to spend at least 4 hours in the semester observing and participating in lecture and laboratory activities. | |
| (Fall, odd; Winter, even) | |

| AGED 380 Connecting Education and Employment | (3:3:0) |
| Prepares future Agricultural educators to teach school and career options to secondary students who desire a career in agriculture or related field of endeavor. | |
| (Fall, odd; Winter, even) | |

| AGED 450 Curriculum Development/Assessment in Occupational Education | (2:2:0) |
| This course will help students develop an understanding of the basic techniques of identifying and selecting instructional materials and methods to effectively teach agriculture at the secondary level. This course mainly focuses on course construction in professional-technical curriculum development in agriculture and its related fields. | |
| (Fall, odd; Winter, even) | |

| AGED 452 Methods of Teaching Agriculture | (3:3:0) |
| Competence in teaching methods, along with competence in the technical subject matter is essential to be effective as a teacher of agriculture. | |
| (Fall, odd; Winter, even) | |

| AGED 460 Experiential Laboratory Methods | (2:1:2) |
| This course is to help students develop specific skill sets in agricultural curriculum laboratory exercises. The course will focus on the experiential method of teaching and developing skills that can be transferred to secondary students relative to agricultural course work. | |
| (Fall, odd; Spring, even) | |

| AGRON 115 Feeding the World | (3:0:0) |
| Insight into world populations, world food production, and an understanding of the need to educate those throughout the world, so that they might have the opportunity to become self-sufficient. | |
| (Fall, Winter) | |

| AGRON 122 Introduction to Plant Science | (3:3:0) |
| The basic principles of structure, form and function of plants in both the higher and lower plant kingdoms. | |
| (Fall, Winter) | |

| AGRON 220 Introduction to Soils | (3:3:0) |
| A basic course dealing with the formation of soils as well as the physical, chemical and biological properties of soils. | |
| (Fall, Winter) | |

* Credit Description (Credit Hours : Lecture Hours per week : Lab Hours per week)
AGRON 220L Introduction to Soils Lab  
Hands on experience determining soil texture, structure, color, measuring soil pH, nitrates, and fertilizers.  
(Fall, Winter, Spring)

AGRON 270 Agro-Ecology  
Total Course Fees: $25.00  
This course if to help students become aware of environmental issues around the world. These issues will be addressed multidimensionally. We will want a holistic approach, “How does man interact with these issues?”  
(Fall, Spring)

AGRON 297 Agricultural Practicum  
Development and improvement of selected occupational competencies.  
(Fall, Spring)

AGRON 300 Agricultural Seminar  
Total Course Fees: $25.00  
This class will help ensure students they are on track for graduation with a review of student grad reports and internship experiences.  
(Fall, Winter)

AGRON 310 Tree Fruit and Vegetable Management  
Shows the importance of fruit and vegetable crops in U.S. agriculture, and their contribution to the national economy and the human diet.  
(Fall, Spring)

AGRON 321 Soil Fertility and Plant Nutrition  
Prerequisites: AGRON122; AGRON220  
Field identification and measurement of plant nutrient deficiencies, petiole analysis and crop fertilization methods.  
(Winter, Spring)

AGRON 325 Irrigation and Drainage  
Total Course Fees: $25.00  
Principles and application of soil, water and plant relations, agricultural meteorology, and irrigation.  
(Fall, Spring - even years)

AGRON 330 Forage Crops  
Total Course Fees: $25.00  
A composite study of an important field of agronomy; forage crops used in the livestock industry. Applied production principles and management requirements will be emphasized for each crop. History and biology of major crops.  
(Fall, Spring - even years)

AGRON 420 Crop Protection and Pesticide Licensing  
Prerequisites: AGRON122; AGRON220  
This course will examine crop protection through the use of pesticides, cultural and biological control methods.  
(Spring Fall)

AGRON 425 Soil Management  
The science and application of crops science and physiology. This class will apply cellular and biochemical analysis of plant physiology to the more applied aspects of plant growth specifically agricultural crops.  
(Fall, Winter - even years; Spring - odd years)

AGRON 435 Potato Science  
Total Course Fees: $25.00  
Basic understanding and practical application of potato production. Become more knowledgeable of potato management.  
(Winter, Spring - odd years)

AGRON 440 Crop Physiology  
Prerequisites: AGRON122; CHEM *; BIO 100  
The science and application of crop science and physiology. This class will apply cellular and biochemical analysis of plant physiology to the more applied aspects of plant growth specifically agricultural crops.  
(Fall, Winter - odd years; Spring - even years)

AGRON 445 Crop Advisor Certification  
The international Certified Crop Advisor program is designed to provide qualified credentials to professionals in agriculture who consult and make nutrient and pesticide recommendations to Grower/Producers. Completion of the course prepares students to take two required examinations for CCA certification.  
(Winter Spring)

AGRON 455 Cereal Crops  
Total Course Fees: $25.00  
Crop history and biology of major cereal crops. Class will cover both warm and cool season cereal crops. Introduction of principles involved in cereal chemistry, development and processing.  
(Winter, Spring - odd years)

AGTEC 122 Small Engines  
Total Course Fees: $10.00  
(Fall, Winter, Spring)

AGTEC 124 Compact Equipment  
Total Course Fees: $10.00  
Test and repair procedures for engines, electrical, power trains, and hydraulics found on compact equipment.  
(Fall, Winter, Spring)

AGTEC 125 Agricultural Maintenance Welding  
An overview in the use of electric arc and oxy acetylene welding equipment with an emphasis upon maintenance welding as it pertains to farm and ranch applications.  
(Winter - odd years)

AGTEC 132 Climate Control  
System theory, diagnosis, and repair of agricultural systems.  
(Winter, Spring - odd years)

AGTEC 186 GPS Applications in Agriculture  
This course will examine the technology and application of global positioning systems (GPS) in agriculture discussing topics in GPS error and correction methods for GPS error as they apply to agricultural situations. Students will be instructed how to use and apply recreational, PDS, DGPS and RTK GPS systems for collecting agriculture related data. Students will use PDA GPS systems to collect detailed data such as field boundaries and areas of interest (weed patch). The DGPS and RTK GPS sections will include collecting large amounts of data over large areas such as yield maps. AutoSteer and guidance steering systems will be discussed and demonstrated.  
(Fall, Spring)

AGTEC 220 Preventive Maintenance and Machinery Management  
Total Course Fees: $10.00  
An overview of preventive maintenance and care of equipment.  
(Fall, Spring)

AGTEC 230 Agriculture Electrification - AC  
Principles, systems and applications of electrical energy in agriculture.  
(Winter, Spring - even years)

AGTEC 286 Introduction to Geographical Information Systems  
This course is designed to teach the basics of geographical information systems in agriculture and natural resources and how global positioning systems and geographical information systems can be used to improve agricultural and natural resource management.  
(Fall, Spring)

AGTEC 290 Individual Study  
Independent study, special assignment and/or advanced inquiry in an area of special interest, approved after consultation with instructor in charge.  
(Fall, Winter, Spring)

AGTEC 294 Agricultural Fabrication  
Rapid mechanization of agriculture over the past generation has made the shop work a larger and more essential part of agriculture operations. Those in agriculture are realizing that unless they develop the agriculture mechanic type skills, their ability to perform at a high productive level will be reduced. The purpose of this course is to help students develop specific skills used in agriculture mechanics focusing on the experiential method of teaching and developing skills that can be utilized in the agriculture industry.  
(Winter - even years)
AGTEC 301 Major Diesel Engine Repair (4:2:4)
To give the student competency in understanding and practical application and use of the principles and practices of major diesel engine repair. The purpose of this class is to teach the mechanics and operational procedures and repair of tractors and other forms of farm power units with emphasis on adjustments, operations, and care of the power unit. It includes classroom and lab study of how an engine works to convert energy to productive use. (Winter, odd years)
AGTEC 320 Agricultural Machinery (3:2:2)
Total Course Fees: $10.00
Selection, servicing, maintenance, operation, testing, repair, use and general management of agricultural equipment. (Fall, Winter)
AGTEC 335 Electronic Systems Diagnostic Repair (4:3:3)
Basic electricity in farm power electrical circuits, with emphasis in starting systems, charging systems, lighting systems and accessory systems. Advanced electronics used in farm power; fuel injection systems, monitors and controllers. (Fall, odd; Winter, even)
AGTEC 360 Agricultural Hydraulics (4:0:0)
A study of fundamental and advanced principles governing and regulating the transmission and control of fluid power hydraulics. Trouble shooting and system repairs. (Fall, even; Winter, odd)
AGTEC 465 Machinery Management (3:0:0)
A study of machinery efficiency, matching machines, and horsepower. Analysing and estimating costs associated with keeping machines running. (Fall, odd; Spring, even)
AGTEC 474 Mechanical Systems Analysis (3:0:0)
Prerequisites: AGTEC 220, AGTEC 335
Testing and diagnosis for various pieces of equipment related to agriculture systems pertaining to the production of food. (Fall, even; Winter, odd)
AGTEC 486 Advanced Geographical Information Systems in Agriculture and Natural Resources (3:2:2)
Prerequisites: AGTEC 296
This course is designed to apply geographical information systems (GIS) to agriculture and natural resource disciplines. The course will focus on collecting, analysing, interpolating, and decision making using GIS software and GPS equipment. (Fall, Winter odd years)
AS 145 Trailriding (1:0:0)
Fee: $100.00
Prerequisite: AS 140 or an equivalent amount of riding experience/consent of instructor
This course is designed to help those who have had some experience riding horses expand on those experiences by learning first hand appropriate trail etiquette, proper trailer techniques, appropriate tack, and how to enjoy many of the beautiful sights and sounds of Southeastern Idaho from the back of your favorite horse. (As needed)
AS 150 Introduction to Livestock Production (3:3:0)
Overview of various livestock enterprises, including beef, dairy, sheep, swine and horse industries. Basic principles used in the various industries are presented. Emphasis given to current and future trends in animal science. (Fall, Winter, Spring)
AS 215 Anatomy and Physiology (4:3:2)
Total Course Fees: $20.00
A systems approach to the study of animal anatomy and physiology. Includes structure and function of the cell, skeletal, muscular, nervous, digestive and reproductive systems. Practical applications of anatomy and physiology and their relation to diseases and disorders. (Fall, Winter)
AS 220 Feeds and Nutrition (3:3:0)
Prerequisites: CHEM 105
The study of the principles of animal nutrition as applied to nutrient digestion and metabolism, feedstuff characteristics, and principles for formulating nutritionally balanced diets. (Fall, Spring)
AS 355 Principles of Meat Science  
(4:3:3)  
Prerequisites: AS 215  
Meat science incorporates everything from growth and development of beef, swine and sheep, to case ready beef products. This class is designed to expose students to every aspect of meat science. Emphasis will be placed on carcass merits and value and will include grading, evaluation and appraisal of meat. This course includes techniques of slaughter, fabrication, labeling, food safety and finished retail product.  
(Fall, Winter)

AS 360 Beef Production  
(4:3:2)  
Prerequisites: AS 150; AS 220; AS 336  
Applied techniques and principles of beef production and management. Lectures will be designed to help students better understand the demands, trends and management tools of the beef industry and they will receive hands on training concerning health care, reproduction, nutrition, cattle selection, breeds, best management practices and economical tools used in management decisions.  
(Fall, Winter)

AS 370 Dairy Production  
(3:0:0)  
Prerequisites: AS 336  
The study of dairy cattle husbandry practices, lactation, health, milk production, and marketing. (As needed)

AS 425 Advanced Nutrition  
(4:3:2)  
Prerequisites: AS 220; AS 315; AS 336  
Total Course Fees: $10.00  
Provides instruction in the area of advanced animal nutrition with an emphasis on nutrient digestion mechanics, absorption, and cellular metabolism.  
(Fall, Winter)

AS 430 Advanced Reproduction  
(4:3:3)  
Prerequisites: AS 336; AS 330  
Total Course Fees: $20.00  
Development of skills involved in livestock reproduction technologies such as estrus synchronization, pregnancy detection, ultrasonography, and embryo transfer. Cattle are the focus species.  
(Spring)

AS 465 Processed Meats  
(3:2:3)  
Prerequisites: AS 355  
Total Course Fees: $25.00  
Includes techniques of the modern meat processing industry and its use of science and technology. The course includes fabrication, processing, preservation, sanitation, hazard analysis and critical control point (HACCP), and utilization of manufactured and processed meat. Course will provide actual laboratory preparation of processed meats and by-products produced in today's meat packing industry. Students will be familiarized with several key and general concepts relating to the safe production and marketing of processed meats.  
(Winter, Spring)

AS 490 Individual Studies  
(1-3:0:0)  
Prerequisites: AS 355  
Independent study, special assignment and/or advanced inquiry in an area of special interest; approved after consultation with instructor in charge (upon request).  
(Fall, Winter, Spring- for on- and off-track students)

ASV 131 Animal Care and Management 2  
(3:0:0)  
Prerequisites: ASV 130  
This class goes into management and care of critically ill patients and how to maintain things like IV catheters and urinary catheters, chest tubes and oxygen cages.  
(Fall, Spring)

ASV 140 Zoonoses  
(1:0:0)  
Prerequisites: BIO 221; BIO 222  
The study of diseases that spread from animals to people and their treatment and prevention, and epidemiology.  
(Fall, Spring)

ASV 150 Veterinary Clinical Pathology 1  
(3:0:0)  
Prerequisites: ASV 150  
Continues Veterinary Clinical Pathology 1 with emphasis on coagulation studies and clinical chemistry panel and interpretation. Selected serological tests will also be covered.  
(Winter, Spring)

ASV 251 Veterinary Clinical Pathology 2  
(2:0:0)  
Prerequisites: ASV 251  
Continues Veterinary Clinical Pathology 1 with emphasis on coagulation studies and clinical chemistry panel and interpretation. Selected serological tests will also be covered.  
(Winter, Spring)

ASV 252 Veterinary Clinical Pathology 3  
(3:0:0)  
Prerequisites: ASV 251  
Continues Veterinary Clinical Pathology 1 with emphasis on coagulation studies and clinical chemistry panel and interpretation. Selected serological tests will also be covered.  
(Winter, Spring)

ASV 270 Veterinary Surgical Nursing 1  
(3:0:0)  
Prerequisites: AS 215  
Continues Veterinary Clinical Pathology 1 with emphasis on coagulation studies and clinical chemistry panel and interpretation. Selected serological tests will also be covered.  
(Winter, Spring)

ASV 271 Veterinary Surgical Nursing 2  
(2:0:0)  
Prerequisites: ASV 270  
Continues Veterinary Clinical Pathology 1 with emphasis on coagulation studies and clinical chemistry panel and interpretation. Selected serological tests will also be covered.  
(Winter, Spring)

ASV 280 Large Animal Nursing  
(1:0:0)  
Prerequisites: AS 215  
Large animal restraint and handling techniques. How to prepare and administer medications and vaccinations. Assisting in different procedures, ranging from dystocia to continence of meat science. Emphasis will be placed on carcass merits and value and will include grading, evaluation and appraisal of meat. This course includes techniques of slaughter, fabrication, labeling, food safety and finished retail product.  
(Fall, Winter, Spring)

ASV 290 Veterinary Medical Nursing  
(2:0:0)  
Prerequisites: ASV 120  
This will be a procedural based class learning how to calculate medicine doses and the different routes of administration. How to give injections, SC, IM, or IV; how to place different types of intravenous catheters and urinary catheters. How to perform ultrasonography and its indications. Record keeping will be an essential part of this class.  
(Winter, Spring)

ASV 295 Veterinary Office Management  
(3:0:0)  
Prerequisites: FDENG101; FDMAT108  
This course will be involved with the operation of a small business, like a veterinary clinic. Veterinary software programs will be taught, billing, accounts receivable, stocking and ordering of drugs and hospital supplies, and scheduling practices.  
(Winter, Spring)

ASV 298R Occupational Internship  
(2:0:0)  
Prerequisites: AS 355  
A required internship at a pre-approved Veterinary Facility or Clinic. It should last from two to three months.  
(Fall, Winter, Spring)