# Animal Science: Animal Biotechnology, BSAG

Requirements for Students Matriculating in or before Academic Year 2019-2020. Learn more about University Academic Regulation 3.1 (http://catalog.okstate.edu/university-academic-regulations/#matriculation).

Minimum Overall Grade Point Average: 2.00
Total Hours: 120

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 1113</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 1313</td>
<td>Critical Analysis and Writing I</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:
- ENGL 1213 | Composition II                                    | 3     |
- ENGL 1413 | Critical Analysis and Writing II                  |       |
- ENGL 3233 | Technical Writing                                 |       |

### American History & Government

Select one of the following:
- HIST 1103 | Survey of American History                        | 3     |
- HIST 1483 | American History to 1865 (H)                      |       |
- HIST 1493 | American History Since 1865 (DH)                 |       |
- POLS 1113 | American Government                               | 3     |

### Analytical & Quantitative Thought (A)

Select one of the following:
- MATH 1513 | College Algebra (A)                               | 3     |

Select one of the following:
- MATH 1613 | Trigonometry (A)                                  | 3     |
- STAT 2013 | Elementary Statistics (A)                         |       |
- STAT 2023 | Elementary Statistics for Business and Economics (A) |       |

### Humanities (H)

Courses designated (H)                                                      | 6     |

Natural Sciences (N)

Must include one Laboratory Science (L) course

- BIOL 1114 | Introductory Biology (LN)                         | 4     |

Any course designated (N)                                                   | 3     |

Social & Behavioral Sciences (S)

- AGEC 1113 | Introduction to Agricultural Economics (S)         | 3     |
- or ECON 2103 | Introduction to Microeconomics (S)              |       |

### Additional General Education

Courses designated (A), (H), (N), or (S)                                      | 6     |

Hours Subtotal                                                              | 40    |

### Diversity (D) & International Dimension (I)

May be completed in any part of the degree plan

Select at least one Diversity (D) course

Select at least one International Dimension (I) course

### College/Departmental Requirements

Agricultural Sciences and Natural Resources

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>AG 1011</td>
<td>First Year Seminar</td>
<td>1</td>
</tr>
<tr>
<td>ANSI 1124</td>
<td>Introduction to the Animal Sciences</td>
<td>1</td>
</tr>
<tr>
<td>ANSI 2111</td>
<td>Animal and Food Science Professional Development</td>
<td>1</td>
</tr>
<tr>
<td>ANSI 2233</td>
<td>The Meat We Eat</td>
<td>3</td>
</tr>
<tr>
<td>or ANSI 2253</td>
<td>Meat Animal and Carcass Evaluation</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:
- HORT 1013 | Principles of Horticultural Science (LN)          | 3     |
- PLNT 1213 | Introduction to Plant and Soil Systems            |       |
- SOIL 1113 | Land, Life and the Environment (N)                |       |
- SOIL 2124 | Fundamentals of Soil Science (N)                  |       |
- CHEM 1314 | Chemistry I (LN)                                  | 4     |
| or CHEM 1215 | Chemical Principles I (LN)                        |       |

### Written and Oral Communications

AGCM 3103 | Written Communications in Agricultural Sciences and Natural Resources | 3     |
| or ENGL 3323 | Technical Writing                                |       |

Select one of the following:
- AGCM 3203 | Oral Communications in Agricultural Sciences & Natural Resources (S) | 3     |
- SPCH 2713 | Introduction to Speech Communication (S)          |       |
- SPCH 3733 | Elements of Persuasion (S)                        |       |

Hours Subtotal                                                              | 22    |

### Major Requirements

#### Core Courses

- ANSI 3423 | Animal Genetics                                    | 3     |
- ANSI 3443 | Animal Reproduction                                | 3     |
- ANSI 3543 | Principles of Animal Nutrition                     | 3     |
- ANSI 4843 | Applications of Biotechnology in Animal Science    | 3     |
- ANSI 4863 | Capstone for Animal Agriculture                    | 3     |

Choose Option 1 or 2 from below: (p. 2)

Additional Core Courses

- CHEM 1225 | Chemical Principles II (LN)                        | 5     |
- or CHEM 1515 | Chemistry II (LN)                                 |       |
- MICR 2123 | Introduction to Microbiology                       | 3     |
- MICR 2132 | Introduction to Microbiology Laboratory            | 2     |
- PHYS 1014 | Descriptive Physics (N)                            | 4     |
- or PHYS 1114 | College Physics I (LN)                            |       |
- MICR 3033 | Cell and Molecular Biology                         | 3     |
- or BIOL 4215 | Mammalian Physiology                               |       |

Select one of the following:
- ANSI 3414 | Form and Function of Livestock and Poultry         | 4     |
- BIOL 1604 | Animal Biology                                    |       |
- BIOL 3204 | Physiology                                        |       |

Select 5 hours of upper division organic chemistry | 5     |

### Additional General Education

Courses designated (A), (H), (N), or (S)                                      | 6     |

Hours Subtotal                                                              | 40    |
### Related Courses
Select 5 hours of the following:  
**Minimum of 3 upper division hours required**  
ANSI, BIOC, BIOL, CHEM, ENTO, FDSC, MICR, PHYS, STAT  
**No more than 3 hours from ANSI 4900**

<table>
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<tr>
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<th>Hours</th>
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<tr>
<td>CHEM 3053 &amp; CHEM 3153 &amp; CHEM 3112</td>
<td>Organic Chemistry I and Organic Chemistry II and Organic Chemistry Laboratory</td>
<td>(3)</td>
</tr>
<tr>
<td>BIOC 3653</td>
<td>Survey of Biochemistry</td>
<td>(3)</td>
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### Electives
Select 0 hours or hours to complete required total for degree  
**Total Hours**  
120

1. College & Departmental requirements that may be used to meet GE requirements.
2. If used for [N] requirement, hours in this block reduced by CHEM course hours and related courses increased.
3. If ENGL 3323 Technical Writing is substituted for ENGL 1213 Composition II above; hours in this block are reduced by 3.
4. If used as (S) course above, hours in this block reduced by 3.
5. No more than 3 hours from ANSI 4900 Special Problems.

### Options

#### Option 1

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<tbody>
<tr>
<td>ANSI 3433</td>
<td>Animal Breeding</td>
<td>(6)</td>
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<tr>
<td>ANSI 3623</td>
<td>Livestock Behavior Handling</td>
<td></td>
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<tr>
<td>ANSI 3653</td>
<td>Applied Animal Nutrition</td>
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Select 3 hours of the following:

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<tbody>
<tr>
<td>ANSI 4023</td>
<td>Poultry Science</td>
<td>(3)</td>
</tr>
<tr>
<td>ANSI 4423</td>
<td>Horse Science</td>
<td></td>
</tr>
<tr>
<td>ANSI 4543</td>
<td>Dairy Cattle Science</td>
<td></td>
</tr>
<tr>
<td>ANSI 4553</td>
<td>Sheep Science</td>
<td></td>
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<tr>
<td>ANSI 4613</td>
<td>Beef Cow-Calf Management</td>
<td></td>
</tr>
<tr>
<td>ANSI 4633</td>
<td>Stocker and Feedlot Cattle Management</td>
<td></td>
</tr>
<tr>
<td>ANSI 4643</td>
<td>Swine Science</td>
<td></td>
</tr>
<tr>
<td>ANSI 4703</td>
<td>Equine Enterprise Management</td>
<td></td>
</tr>
<tr>
<td>ANSI 4713</td>
<td>Beef Seedstock Management and Sales</td>
<td></td>
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#### Option 2

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<th>Hours</th>
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<tbody>
<tr>
<td>ANSI 4803</td>
<td>Animal Growth and Performance</td>
<td>(9)</td>
</tr>
<tr>
<td>MICR 3253</td>
<td>Immunology</td>
<td></td>
</tr>
<tr>
<td>MICR 4123</td>
<td>Virology</td>
<td></td>
</tr>
<tr>
<td>MICR 4233</td>
<td>Advanced Cell and Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 4134</td>
<td>Embryology</td>
<td></td>
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<tr>
<td>BIOL 4283</td>
<td>Endocrinology</td>
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### Other Requirements

- A minimum of 40 semester credit hours and 100 grade points must be earned in courses numbered 3000 or above.
- A 2.00 GPA or higher in upper-division hours.

### Additional State/OSU Requirements

- At least: 60 hours at a four-year institution; 30 hours completed at OSU; 15 of the final 30 or 50% of the upper-division hours in the major field completed at OSU.
- Limit of: one-half of major course requirements as transfer work; one-fourth of hours earned by correspondence; 8 transfer correspondence hours.
- Students will be held responsible for degree requirements in effect at the time of matriculation and any changes that are made, so long as these changes do not result in semester credit hours being added or do not delay graduation.
- Degrees that follow this plan must be completed by the end of Summer 2025.