The Department of Animal Sciences offers graduate study leading to Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees. Advanced work may involve specialized training in the following areas: animal breeding, animal nutrition, animal genetics, animal health and stewardship, physiology of reproduction, meat and muscle science, and nutritional physiology.

Student research and academic programs are tailored to individual student needs and interests. Interdisciplinary approaches to Animal Sciences programs are fostered.

The Department of Animal Sciences graduate program is open to all qualified graduates of universities and colleges of recognized standing. In addition to the Graduate College's requirements, to be admitted with full status to the program, an applicant must have adequate preparation in animal sciences or in a complementary area of life sciences and have a background or interest in agriculture.

## Financial Assistance

Research assistantships are available. Applicants are considered on the basis of scholarship and potential to undertake advanced study and research.

The Animal Sciences program has two options for the M.S. degree: the Plan A thesis option and the Plan B master’s paper option. The M.S. program requires completion of 30 semester credits of approved graduate and letter-graded course work with an overall GPA of 3.0 or better. Candidates for the M.S. normally complete their degree requirements in two years. The M.S. candidates are required to take an oral examination which covers both the research and academic subject matter covered in their program.

The Ph.D. program requires the completion of 90 semester credits (or the equivalent) of graduate approved and letter graded course work with an overall GPA of 3.0 or more. Candidates for the Ph.D. generally complete their degree requirements in three to four years. Candidates for the Ph.D. are required to take a preliminary written and oral examination directed toward the academic subject matter of their chosen discipline and a final defense of a research-based thesis.

Each student must choose an advisor when starting the program, usually based upon area of academic and research interest. By the end of the first year of residence, the student must have selected an advisory/ supervisory committee and have an approved graduate plan of study, including a research proposal. The advisory/ supervisory committee advises the student and administers the graduate exams to the student. Students are referred to the Animal Sciences Graduate Student Handbook for information regarding additional requirements.

### Code Title Credits

<table>
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<tr>
<th>Required Courses</th>
<th>Didactic coursework (601-689, 691; 700-789, 791; 800-889, 891)</th>
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<tr>
<td>Statistical Courses*</td>
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<td>STAT 661</td>
<td>Applied Regression Models</td>
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<td>PLSC 724</td>
<td>Field Design I</td>
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<td>ANSC 790</td>
<td>Graduate Seminar</td>
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<td>ANSC 792</td>
<td>Graduate Teaching Experience **</td>
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</table>
ANSC 798 Master’s Thesis (6-10 credits)  

**Total Credits**  

*Other NDSU statistical courses or equivalents (transfer credit)*  

**Required for students receiving assistantships.**  

Marc L. Bauer, Ph.D.  
University of Kentucky, 1996  
Research Interests: Nutritional Physiology with emphasis on Nutrient Metabolism and Utilization in Ruminants  

Eric P. Berg, Ph.D.  
Purdue University, 1996  
Research Interests: Influence of Environment, Nutrition, and Genetic Factors as They Impact Meat-Animal Production Efficiency, Health, Carcass Composition, and Meat Quality  

Erika Berg, Ph.D.  
University of Missouri, 2006  
Research Interests: The Impact of Therapeutic Horsemanship on Human and Equine Participants. Maternal and Environmental Influence on Equine Neonatal Physiology  

David Buchanan, Ph.D.  
University of Nebraska  
Research Interests: Animal Breeding and Genetics  

Chris Byrd, Ph.D.  
Purdue University, 2018  
Research Interests: Applied Ethology and Stress Physiology  

Kasey Maddock Carlín, Ph.D.  
Iowa State University, 2005  
Research Interests: Meat Science with emphasis on Physiological and Biochemical Changes in Muscle Postmortem on Meat Quality  

Zachary Carlson, Ph.D.  
University of Nebraska-Lincoln, 2021  
Research Interests: Beef Cattle Nutrition, Alternative Options for Producers, Production Efficiencies  

Joel S. Caton, Ph.D.  
New Mexico State University, 1987  
Research Interests: Ruminant Nutrition with emphasis on Nutrition and Reproduction interactions, Forage Utilization, Digestive Physiology and Selenium Metabolism  

Carl Dahlen, Ph.D.  
University of Minnesota, 2009  
Research Interests: Beef Cattle Production  

Carolyn Hammer, DVM, Ph.D.  
Iowa State University, 2003  
Research Interests: Equine Preventative Medicine, Growth and Development, Immunology  

Lauren Hanna, Ph.D.  
Texas A & M University, 2013  
Research Interests: Animal Genetics; Genomics  

Travis Hoffman, Ph.D.  
Colorado State University, 2015  
Research Interest: Sheep Production, Lamb Quality, Sheep and Goat Value, Direct Meat Marketing  

Greg Lardy, Ph.D.  
University of Nebraska, 1997  
Research Interests: Cow-Calf Nutrition, By-Product Utilization, Range Nutrition  

Miranda Meehan, Ph.D.  
North Dakota State University, 2012
Research Interests: Riparian Ecology and Management, Livestock and Wildlife Interactions, Impacts of Energy Development on Livestock Production

Lawrence P. Reynolds, Ph.D.
Iowa State University, 1983
Research Interests: Maternal and Placental Physiology During Pregnancy in Livestock Including Cellular and Molecular Aspects

Guillermo Scaglia, Ph.D.
Texas A&M University, 2002
Research Interests: Ruminant Nutrition, Forage Systems, Grazing Management and Forage Utilization, Plant-Animal Interface, Grazing Behavior

Gerald Stokka, DVM, M.S.
Iowa State University, 1982
Research Interest: Immunology; Preventive Medicine; Animal Stewardship-well-being

Kendall Swanson, Ph.D.
University of Kentucky, 2001
Research Interests: Ruminant Nutrition

Alison Ward, Ph.D.
University of Saskatchewan, 2011
Research Interests: Nutritional and Genetic Interactions; Epigenetics, Especially In Regards to Maternal Nutrition and Fetal Programming

In addition to the above listed faculty, there are numerous adjunct faculty members who participate in the graduate program.