



Twin Cities Campus

Animal Sciences Ph.D.

Animal Science

College of Food, Agricultural and Natural Resource Sciences

Link to a [list of faculty](#) for this program.

Contact Information:

Department of Animal Science, 305 Haecker Hall, 1364 Eckles Avenue, Saint Paul, MN 55108 (612-624-3491; fax: 612-625-5789)

Email: ansci@umn.edu

Website: <http://www.ansci.umn.edu/GraduateProgram/index.htm>

- Program Type: Doctorate
- Requirements for this program are current for Fall 2016
- Length of program in credits: 48
- This program does not require summer semesters for timely completion.
- Degree: Doctor of Philosophy

Along with the program-specific requirements listed below, please read the [General Information](#) section of the catalog website for requirements that apply to all major fields.

Students in the PhD program concentrate on one of the animal sciences emphasis areas: genetics, nutrition, physiology, or production systems. Students have the option of tailoring their program to include study in more than one emphasis area and to emphasize basic or applied science.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

The preferred undergraduate GPA for admittance to the program is 3.00.

A bachelor's degree in agriculture or a biological field with training in biology, chemistry, physics, and mathematics is required.

Applicants must submit their test score(s) from the following:

- GRE

International applicants must submit score(s) from one of the following tests:

- TOEFL
 - Internet Based - Total Score: 79
 - Internet Based - Writing Score: 21
 - Internet Based - Reading Score: 19
 - Paper Based - Total Score: 550
- IELTS
 - Total Score: 6.5
- MELAB
 - Final score: 80

The preferred English language test is Test of English as Foreign Language

Key to [test abbreviations](#) (GRE, TOEFL, IELTS, MELAB).

For an online application or for more information about graduate education admissions, see the [General Information](#) section of the catalog website.

Program Requirements

24 credits are required in the major.

24 thesis credits are required.

This program may not be completed with a minor.



Use of 4xxx courses toward program requirements is permitted under certain conditions with adviser approval.

A minimum GPA of 3.00 is required for students to remain in good standing.

At least 1 semesters must be completed before filing a Degree Program Form.

Ethics Requirement

All students are required to be trained in ethical issues in science. Please select one course from the list below to meet this requirement.

[ANSC 5091](#) - Research Proposals: From Ideas to Strategic Plans (3.0 cr)

or [ANSC 8134](#) - Ethical Conduct of Animal Research (3.0 cr)

or [APSC 8123](#) - Research Ethics in the Plant and Environmental Sciences (0.5 cr)

or ENT 8061 (*Inactive*)(1.0 cr)

or [PLPA 8123](#) - Research Ethics in Plant and Environmental Sciences (0.5 cr)

or [SOIL 8123](#) - Research Ethics in the Plant and Environmental Sciences (0.5 cr)

or [WRS 8581](#) - Research and Professional Ethics in Water Resources and Environmental Science (0.5 cr)

Seminar Requirement

All doctoral students are required to take 6 credits of AnSc 8510 Graduate Seminar

[ANSC 8510](#) - Graduate Seminar (1.0 cr)

Thesis Requirement

All doctoral students are required to take 24 thesis credits of AnSc 8888 Graduate Seminar

[ANSC 8888](#) - Thesis Credit: Doctoral (1.0 - 24.0 cr)

Major Coursework

Students are required to take 17.5 credits in consultation with adviser.

Animal Science Subdisciplines

Animal science graduate students pursuing the PhD degree emphasize one of the animal science subdisciplines: genetics, growth biology, nutrition, physiology and reproductive biology, or production systems. Students have the option of tailoring their program and to conduct basic or applied research.

Genetics

Focused on avian, bovine, or porcine molecular genetics; applied dairy cattle genetics; and quantitative genetics. Must take 14 - 17 credits in consultation with advisor.

-OR-

Physiology

Focused on the biological processes which are critical for the functioning of all animal species. Research conducted by this graduate faculty explores the basic processes of cells, tissues and organ systems in animals and humans and the application of this knowledge for efficient animal production and the enhanced understanding and treatment of animal and human diseases. Must take 14 - 17 credits in consultation with advisor.

-OR-

Nutrition

Focused on different areas including determination of nutrient requirements; influence of nutrition and feeding management on reproduction and milk production; evaluation of feeding value of alternative feeds; relationships between host and rumen microbes; and evaluation of feed additives and growth promotants and their effects on growth, feed conversion, meat quality, and economics. Must take 14-17 credits in consultation with their advisor.

-OR-

Production Systems

Focused on unique and exciting opportunities to gain multidisciplinary tools essential for a career in the livestock industry that will include identifying and solving problems in management systems, animal welfare, environmental impacts, and food quality/safety issues. Must take 14 - 17 credits in consultation with advisor.