Student Learning Outcomes for the Animal Sciences Graduate Program

Process for Developing Learning Goals

Learning goals, experiences and assessments for the Animal Sciences Graduate Program were developed by the Director of Graduate Studies. The Animal Sciences Graduate Studies Committee revised the document and distributed it to all Graduate Faculty and Students in the program. Feedback received from Graduate Faculty was incorporated into the document, followed by an open meeting with Graduate Students. Based on the discussion, this statement was written and sent out for a vote by Graduate Faculty and Students which voted unanimously to approve this document along with the attachment. These documents will be reviewed and updated as necessary every three years.

Goals of the Animal Sciences Graduate Program

1. *Competency in the Animal Sciences discipline, research and scholarly methods*
   a. Advanced knowledge of the animal science disciplinary core in the main priority areas: nutrition, physiology and growth biology; genetics, behavior and wellness, and production systems
   b. Creation of knowledge and development of research skills in a specific research area

2. *Professional responsibility*
   a. Ability to conduct research and scholarship in an ethical and responsible manner
   b. Awareness of societal implications and practical application of research
   c. International and global awareness of science, agricultural technology and agribusiness

3. *Personal and professional management skills*
   a. Management skills
   b. Being self-motivated and autonomous
   c. Ability to manage research projects and scholarship

4. *Communication*
   a. Advanced written and oral communication skills
   b. Ability to communicate to broad audiences including experts, educators, media and the public, educationally and culturally
   c. Instructional competency/teaching/presentation skills

5. *Leadership and collaborative skills*
   a. Integrative skills and experience in cross-disciplinary team collaboration and problem-solving
   b. Leadership experience
Instruction/Learning Experiences to Achieve Outcomes

The Animal Sciences Graduate Program is highly diverse because of the combinations of areas of study in the discipline and animal species. The instruction/learning experiences in this document are generalizations/suggestions that may not apply to all Animal Sciences Graduate Students and adequate experiences should be determined for each student.

1 a. • Core activities in coursework designed for the individual student (lecture/discussion) and assignments (research papers, oral presentations, literature reviews, research proposal, research article critique)
   • Courses in other departments that complement core activities (e.g. STAT 5012: Statistical Analysis)

b. • ANSC 5091 - Research Proposals: From Ideas to Strategic Plans (Elective.)
   • Plan B M.S. project/paper; Plan A M.S. research project(s)/thesis; Ph.D. research project(s)/dissertation

2 a. • ANSC 8134 - Ethical Conduct of Animal Research required by all Animal Science graduate students
   • IACUC Animal Care and Use training modules
   • ANSC 8510 - Graduate Seminar

b. • Thesis/dissertation research project.
   • Presentations at professional meetings, interaction with users (scientists, producers, feed companies, etc.)
   • CFANS mentor program
   • Participation in seminars and workshops organized by other departments, colleges and/or industry
   • Internships (first year students)

c. • Travel and international collaborative research
   • Participation in international research and professional meetings

3 a. • Participation in recruitment of graduate students
   • Member on search committee for new faculty positions
   • Participation in meetings of graduate students with prospective faculty members
   • Participation in student and professional associations and clubs

b. • Thesis/dissertation research and responsibilities as a Teaching Assistant

c. • Thesis/dissertation research
   • Drafting research reports (papers and project reports)

4 a. • ANSC 5091 - Research Proposals: From Ideas to Strategic Plans (Elective)
   • ANSC 8330 - Concepts and Developments in Animal Nutrition (Elective)
   • ANSC 8510 - Graduate Seminar (Required)
• Writing thesis/dissertation and research articles
• Society Meetings abstracts, poster or oral presentation

b. • Conference proceedings and presentations (local, regional or national)
• Society Meetings abstracts, poster and oral presentations
• Extension articles and presentations
• Lab group presentations
• ANSC 8510 - Graduate Seminar
• Providing tours of on-campus (dairy facilities, meat lab, forage tours, etc.) for industry members, elementary and middle school students from within the Twin Cities
• Participation in public meetings/hearings

c. • ANSC 8330 - Concepts and Developments in Animal Nutrition (Elective)
• ANSC 8510 - Graduate Seminar (Required)
• Teaching Assistant Experience
• Guest lectures in departmental courses
• Attendance and participation in courses and workshops organized by external (i.e. innovation in teaching workshop) and University (i.e. the Center for Teaching and Learning) organizations

5 a. • ANSC 8510 - Graduate Seminar
• Research project management
• Laboratory management
• Participation in student associations and clubs
• External departmental collaboration

b. • Leadership and participation in journal clubs
• Participation in recruitment of new faculty
• Leadership and participation in Animal Sciences Graduate Club
• Formal opportunities as representatives to faculty and student groups in the Department or CFANS
• Informal opportunities within a research laboratory group, or with other Graduate Students, such as mentoring of new graduate students or undergraduate students
• Participation in student and professional associations and clubs

Assessment Methods

There are various metrics that will be utilized to assess achievement of student learning goals and outcomes (see attached). The Animal Sciences Graduate Program has an annual review process where students and advisers individually meet to discuss progress, complete an annual report, and then develop a plan towards making progress in the upcoming year. After this discussion, students will also meet with the Director of Graduate Studies to assess progress and concerns.