

ANIMAL SCIENCE

Graduate Program Head	Terry D. Etherton
Program Code	ANSC
Campus(es)	University Park (Ph.D., M.S., M.P.S.)
Degrees Conferred	Doctor of Philosophy (Ph.D.) Master of Science (M.S.) Master of Professional Studies (M.P.S.) Dual-Title Ph.D. and M.S. in Animal Science and Operations Research
The Graduate Faculty	View (https://secure.gradsch.psu.edu/gpms/index.cfm?searchType=fac&prog=ANSC)

Students may specialize in animal care and management, breeding and genetics, growth and development, lactational biology, nutrition, or reproductive biology. Well-equipped research laboratories and various agricultural animals, as well as small-animal models and wildlife species, are available.

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (<http://gradschool.psu.edu/prospective-students/how-to-apply>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions (<http://gradschool.psu.edu/graduate-education-policies>).

Prerequisite to graduate work is the completion of an undergraduate major in animal science, dairy science, poultry science, or a related biological science.

Scores from the Graduate Record Examinations (GRE) are required for admission (average percentile at least 50 percent in verbal, quantitative, and analytical components). The quantitative reasoning component is recommended, but the program will accept scores from the mathematical reasoning component. Students with a 3.00 junior/senior grade-point average (on a 4.00 scale) and with appropriate course backgrounds will be considered for admission on a competitive basis.

Exceptions to admission requirements may be made for students with special backgrounds, abilities, and interests.

Degree Requirements

Master of Professional Studies (M.P.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-700 Professional Degree Requirements (<http://gradschool.psu.edu/graduate-education-policies>).

The M.P.S. is a professional program designed to prepare individuals for specialist and management positions in county agricultural extension, government, or industry and does not require a thesis.

Master of Science (M.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Requirements. (<http://gradschool.psu.edu/graduate-education-policies>)

The academic M.S. program requires a thesis and is designed for those primarily interested in education and research.

Doctor of Philosophy (Ph.D.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Requirements. (<http://gradschool.psu.edu/graduate-education-policies>)

The academic Ph.D. program requires a thesis and is designed for those primarily interested in education and research. The communication or foreign language requirement for the Ph.D. degree may be satisfied by competence in either one foreign language or communication skills.

Dual-Titles

Dual title M.S. and Ph.D. in Animal Science and Operations research

Requirements listed here are in addition to requirements listed in GCAC-208 Dual-Title Graduate Degree Programs (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-208-dual-title-graduate-degree-programs>).

Admission Requirements

Students must apply and be admitted to the graduate program in Animal Science and The Graduate School before they can apply for admission to the dual-title degree program. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the OR dual-title program. Refer to the Admission Requirements section of the OR Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/operations-research>). Doctoral students must be admitted into the dual-title degree program in OR prior to taking the qualifying examination in their primary graduate program.

Degree Requirements for the Dual-Title M.S.

To qualify for the dual-title degree, students must satisfy the degree requirements for the M.S. degree, listed on the Degree Requirements tab. In addition, students must complete the degree requirements for the dual-title M.S. in OR, listed on the OR Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/operations-research>). Final course selection must be approved by the student's advisory committee.

Degree Requirements for the Dual-Title Ph.D.

To qualify for the dual-title degree, students must satisfy the degree requirements for the Ph.D. degree, listed on the Degree Requirements tab. In addition, students must complete the degree requirements for the dual-title Ph.D. in OR, listed on the OR Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/operations-research>). Some courses may satisfy both Animal Science program requirements and those of the OR program. Final course selection must be approved by the student's dissertation committee.

The qualifying examination committee for the dual-title Ph.D. degree will be composed of Graduate Faculty from Animal Science and must include at least one Graduate Faculty member from the OR program. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. There will be a single qualifying examination, containing elements of both Animal Science and OR. Dual-title graduate degree students may require an additional semester to fulfill requirements for both areas of study and, therefore, the candidacy examination may be delayed on semester beyond the normal period allowable.

In addition to the general Graduate Council requirements for dissertation committees (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/phd-dissertation-committee-formation>), the dissertation committee of an Animal Science and OR dual-title Ph.D. student must include at least one member of the OR Graduate Faculty. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. If the chair of the dissertation committee is not also a member of the Graduate Faculty in OR, the member of the committee representing OR must be appointed as co-chair. The OR representative on the student's dissertation committee will develop questions for and participate in the evaluation of the comprehensive examination.

Students in the dual-title program are required to write and orally defend a dissertation on a topic that is approved in advance by their dissertation committee and reflects their original research and education in Animal Science and OR. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The dissertation must be accepted by the dissertation committee, the head of the graduate program, and the Graduate School.

Student Aid

Graduate assistantships available to students in this program and other forms of student aid are described in the Tuition & Funding (<http://gradschool.psu.edu/graduate-funding>) section of The Graduate School's website. Students on graduate assistantships must adhere to the course load limits (<http://gradschool.psu.edu/graduate-education-policies/gsad/gsad-500/gsad-501-credit-loads-graduate-assistants>) set by The Graduate School.

Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Animal Science (ANSC) Course List (<https://bulletins.psu.edu/university-course-descriptions/graduate/ansc>)

Learning outcomes

Master of Science (M.S.)

1. KNOW. Students will demonstrate appropriate breadth and depth of disciplinary knowledge (e.g., nutrition, physiology, statistics, etc.), a command of the current literature relating to their thesis project, and a thorough understanding of the problems that their research addresses.
2. APPLY/CREATE. Students will apply current knowledge in their field to design animal studies and/or perform laboratory methods or other techniques to address their research problems, while generating and testing new ideas or hypotheses that provide solutions to those problems.
3. COMMUNICATE. Students will effectively communicate their research findings, both in writing, via abstracts and manuscripts, and orally, via seminars and oral or poster presentations, to peers, advisors/mentors, and other scholars and/or stakeholders in their specialty field or beyond their discipline.

4. THINK. Students will be able to conceptualize and critically evaluate the work of others in their field.
5. PROFESSIONAL PRACTICE. Students will be able to identify ethical issues in research, will become familiar with University policies involving the use of animals and human subjects in research, will act ethically and exhibit collegiality with other professionals within or outside of their field, and will engage in service to the profession and to society.

Doctor of Philosophy (Ph.D.)

1. KNOW. Students will demonstrate appropriate breadth and depth of disciplinary knowledge (e.g., nutrition, physiology, statistics, etc.), a command of the current literature relating to their thesis project, and a thorough understanding of the problems that their research addresses.
2. APPLY/CREATE. Students will apply current knowledge in their field to design animal studies and/or perform laboratory methods or other techniques to address their research problems, while generating and testing new ideas or hypotheses that provide solutions to those problems.
3. COMMUNICATE. Students will effectively communicate their research findings, both in writing, via abstracts and manuscripts, and orally, via seminars and oral or poster presentations, to peers, advisors/mentors, and other scholars and/or stakeholders in their specialty field or beyond their discipline.
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Contact

Campus	University Park
Graduate Program Head	Terry D Etherton
Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)	Robert Glenn Elkin
Program Contact	Molly Martin 312 Henning Building University Park PA 16802 mjf217@psu.edu (814) 863-3664
Program Website	View (http://animalscience.psu.edu/graduateprograms)