

# ANIMAL SCIENCES (ANSC)

Graduate Degree Program  
College: Agriculture and Natural Resources

## Abstract

The Graduate Program in the Animal Sciences offers graduate study leading to the Master of Science and Doctor of Philosophy degrees. The master's degree program requires a research-based thesis. A non-thesis M.S. option is not available. Faculty research interests include:

1. Cell, molecular and developmental biology studies, gene expression of the neuroendocrine system during growth and development, developmental potency and cell fate decisions during mammary gland development, maintenance of pluripotency and cell lineage determination in early embryos and stem cells, regulation of gene expression during embryonic patterning, neuro- and reproductive endocrinology in avian species, and virology, immunology and microbial pathogenesis of significance to animal agriculture;
2. Nutrition and intermediary metabolism of ruminants and non-ruminants, modeling for nutrient management, nutrient management in avian and other monogastric species, including forage utilization in horses; nutritional immunology, nutrient sensing, and metabolic homeostasis.
3. Aquaculture related fish physiology and genetics, and;
4. Application of computational and systems biology to quantitative genetics, genomics, epigenetics, selection theory and breeding for the improvement of domestic animals and conservation genetics.

## Financial Assistance

A number of graduate combined research/teaching assistantships are available and awarded to students who present strong academic records and a capability and motivation to perform well in teaching or in research assignments. These assistantships are awarded on a competitive basis. Appointments are on an annual basis, with reappointment contingent on demonstration of successful progress towards the degree. Assistantships are available for up to two years for the M.S. degree and four years for the Ph.D. degree. As assistantships are generally awarded for Fall admittance, applications should be completed by the **January 8th** deadline for best consideration.

## Contact

For specific information on the program, admission procedures, or financial aid, see the ANSC website (<https://ansc.umd.edu/graduate/>) or contact the ANSC graduate program office as listed below.

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**Department of Animal and Avian Sciences**  
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**Tabitha Koelzer**  
**ANSC Graduate Office**  
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**Website:** <http://www.ansc.umd.edu>

**Relationships:** Biological Sciences Graduate Program (BISI) (<https://www.bisi.umd.edu/>), Neurosciences and Cognitive Science (NACS) (<https://academiccatalog.umd.edu/graduate/programs/neurosciences-cognitive-science-nacs/>), Veterinary Medical Sciences (VMSC) (<https://academiccatalog.umd.edu/graduate/programs/veterinary-medical-sciences-vmsc/>)

**Courses:** ANSC (<https://academiccatalog.umd.edu/graduate/courses/ansc/>)

## ADMISSIONS

### GENERAL REQUIREMENTS

- Statement of Purpose
- Transcript(s)
- TOEFL/IELTS/PTE (international graduate students (<https://gradschool.umd.edu/admissions/english-language-proficiency-requirements/>))

## PROGRAM-SPECIFIC REQUIREMENTS

- Letters of Recommendation (3)
- Graduate Record Examination (GRE) (**optional**)
- CV/Resume
- Description of Research/Work Experience (optional)

The Program requires applicants to submit an application online, and to submit official academic transcripts, statement of goals and research interests, at least three letters of recommendation, and official Graduate Record Examination scores (optional) to the Enrollment Services Operations Office. Applicants with degrees from non-English speaking countries and who have not received a degree from the list of approved English-speaking universities must also submit results of the Test of English as a Foreign Language (TOEFL). **To be considered for an assistantship, submit your application for Fall 2025 by the best consideration deadline (January 8, 2025).**

## APPLICATION DEADLINES

Type of Applicant	Fall Deadline	Spring Deadline
<b>Domestic Applicants</b>		
US Citizens and Permanent Residents	May 7, 2025 (for Fall 2025)	December 11, 2024 (for Spring 2025)
<b>International Applicants</b>		
F (student) or J (exchange visitor) visas; A,E,G,H,I and L visas and immigrants	February 19, 2025 (for Fall 2025)	September 11, 2024 (for Spring 2025)

## RESOURCES AND LINKS:

**Program Website:** [ansc.umd.edu](http://www.ansc.umd.edu) (<http://www.ansc.umd.edu>)

**Application Process:** <https://gradschool.umd.edu/admissions> (<https://gradschool.umd.edu/admissions/>)

## REQUIREMENTS

- Animal Sciences, Doctor of Philosophy (Ph.D.) (<https://academiccatalog.umd.edu/graduate/programs/animal-sciences-ansc/animal-sciences-phd/>)
- Animal Sciences, Master of Science (M.S.) (<https://academiccatalog.umd.edu/graduate/programs/animal-sciences-ansc/animal-sciences-ms/>)

## FACILITIES AND SPECIAL RESOURCES

The Department of Animal and Avian Sciences and the nearby Gudelsky Veterinary Center housing the Virginia-Maryland Regional College of Veterinary Medicine, have extensive facilities consisting of faculty research laboratories, animal holding areas, a campus farm, aquaculture facility and outlying research farms. Additionally, the department maintains a teaching computer laboratory with 30 computers.

The research laboratories comprise nearly 28,000 square feet for bench work, averaging over 1000 square feet per faculty member. The laboratories are fully equipped with state-of-the-art modern instrumentation and equipment for the entire range of research carried out by the faculty, e.g. research in biochemistry, cell-molecular biology, physiology, nutrition, behavior, virology, immunology, microbial pathogenesis, etc. Individual laboratories are fully self-standing units, yet there is free exchange between laboratories having shared and collaborative interests. All the laboratories and offices are networked to the campus server for direct Internet access.

Nearly 15,000 square feet of space is dedicated for animal holding in the Animal Wing of the Animal Sciences Center. This facility is capable of handling all kinds of animals such as rodents, birds, fish and large animals for research in separate rooms. An aquaculture facility, adjoining the Gudelsky Center, is also available. The Animal Wing is under the care of trained staff and is supervised by a professional veterinarian.

On campus the Central Core Facilities (<https://research.umd.edu/capabilities/core-facilities/>) offer advanced technological services to the faculty and students.

Off Campus Research Facilities include:

1. Central Maryland Research and Education Center, Clarksville, MD  
This 925-acre dairy research center, located ~25 miles from the campus, houses 200 head of Holstein dairy cattle including 110 milking cows and 90 head of young stock. ANSC faculty engaged in nutrition, reproduction, physiology, herd health, behavior and management research, conduct their experiments at this facility.
2. Applied Poultry Research Laboratory, Upper Marlboro, MD  
This 202-acre facility is located approximately 20 miles from the campus. It is used for conducting research in nutrition, physiology and behavior.
3. Wye Beef Cattle Research Center  
This 450-acre facility is located on Maryland's Eastern Shore near Queenstown. It has 250 registered Angus beef cows plus young stock and bulls which are direct descendants of the Wye Angus herd. The facility is used to support research associated with beef cow-calf management, pasture management and growth physiology.