

# ANIMAL SCIENCE (ANSC)

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## ANSC 500: Current Issues in the Animal Sciences

2 Credits/Maximum of 2

Exploration of current controversial issues and impactful innovations in animal agriculture with a focus on their discovery and future applications. Students will develop an understanding of the contribution of seminal research papers that changed paradigms in the Animal Sciences and develop a deeper understanding of the scientific method and its potential impact on the world.

## ANSC 501: The Ethics of Scientific Scholarship

2 Credits

Consideration of the scientific method relative to scholarship and the ethical issues faced by scientists. Fulfills the students' Discussion-based Education SARI requirement.

## ANSC 502: Grantsmanship

2 Credits

Consideration of the scientific method relative to grantsmanship, including formulation of hypotheses, objectives, experimental design, development of a complete grant proposal, and the peer review process.

## ANSC 503: Professional Skills for Graduate Students

2 Credits

This course will be focused on four main areas: project management, reproducible science, soft skills, and preparation for the job market. Students will be given an overview of strategies and tools that can be used to improve the execution of their scientific projects. Those concepts will then be put into practice through the development of management, data analysis, and publication materials using students' current or proposed projects. Hands-on sessions will include the financial reality of carrying out a scientific project, and the application of tools designed to improve science reproducibility, transparency, and data sharing. Finally, students will prepare materials that will be useful for future job applications. The course will provide students with important skills needed for a successful graduate school experience that are fundamental, but often not formally taught. Students will receive training in aspects of project management, reproducible science, communication, networking, and career preparation.

## ANSC 504: Communication of Scientific Information

2 Credits

Development of skills in scientific writing and speaking, including preparation of manuscripts, scientific posters and technical documents, and design and delivery of oral presentations (e.g., platform talks, webinars, seminars).

## ANSC 506: Ruminology

3 Credits

Physiological, biochemical, and microbiological activities occurring within the rumen and the relation of rumen function to animal response.

**Prerequisite:** at least one course in each of the following areas: animal nutrition, physiology, microbiology, and biochemistry

Cross-listed with: NUTR 506

## ANSC 515: Advanced Physiology of Reproduction in Farm Animals

1-6 Credits

Advanced physiology of reproduction in farm animals.

**Prerequisite:** 3 credits each of reproductive physiology, systemic physiology, and endocrinology

## ANSC 543: Animal Genomics

3 Credits

Foundations in genomics, proteomics, epigenomics, and basic bioinformatics, and their applications in animal breeding, health, production, reproduction, nutrition, and medicine. AN SC 543 Animal Genomics (3) Genomics is a branch of genetics concerned with the study of genome sequence, assembly, and analysis of the structure and function of genomes. It is an interdisciplinary field involving the marriage of molecular biology, robotics, and computing. The course is designed to foster an appreciation for the importance of genomics as applied to animal agriculture and medicine and to provide a knowledge base that enables students to successfully move on and master advanced topics in genomics. Additionally, the course will introduce students to approaches and techniques used to sequence and analyze animal genomes and provide a hands-on learning environment to familiarize students with genome databases and basic bioinformatics tools. The course will combine lecture discussion of current literature with hands-on genomic analysis with focus on genome structure & organization, genome sequencing & annotation, animal genome projects & comparative mapping, single nucleotide polymorphism (SNP) discovery & genome-wide association study (GWAS), genomic selection, non-coding RNA, microarray analysis, proteomics, epigenomics, phylogenomics, and systems biology. Each topic will have one or more computer-based lab sections that are designed to provide students with further information related to the topic, with a particular focus on how to navigate genome databases and how to carry out basic bioinformatics analysis for their research projects. This course is suitable for graduate students, professional research scientists, and any student who has a BS in life science and wants to learn more about animal genomics and its sub-disciplines.

## ANSC 590: Colloquium

1-9 Credits/Maximum of 9

Continuing seminars which consist of a series of individual lectures by faculty, students, or outside speakers.

## ANSC 596: Individual Studies

1-9 Credits/Maximum of 9

Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

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ANSC 597: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or term.

ANSC 598: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or semester.

ANSC 600: Thesis Research

1-15 Credits/Maximum of 999

No description.

ANSC 601: Ph.D. Dissertation Full-Time

0 Credits/Maximum of 999

No description.

ANSC 602: Supervised Experience in College Teaching

1-3 Credits/Maximum of 6

Experience in developing, organizing, and conducting lectures/ laboratories; evaluation and counseling students and related resident education activities.

ANSC 610: Thesis Research Off Campus

1-15 Credits/Maximum of 999

No description.

ANSC 611: Ph.D. Dissertation Part-Time

0 Credits/Maximum of 999

No description.