# Interdisciplinary Concentration in Reproductive Biotechnology (MS)

Reproductive biology is of importance to both human health and well-being and to efficient production of animal-based foods. A key feature of graduate education in reproductive biology is interdisciplinary education, with students being exposed to faculty, concepts and research topics encompassing a broad range of topics in reproductive physiology, endocrinology, and developmental biology. The MS concentration allows students to pursue such an interdisciplinary education within the context of existing discipline-based graduate programs. Moreover, participation in the reproductive biotechnology concentration will allow students to have their transcript reflect the nature of their graduate education.

*Requirements for entry*

Enrollment in an MS program in any of the graduate programs offering the concentration. These programs are Animal Molecular and Cellular Biology, Animal Sciences, Biomedical Sciences, and Veterinary Medical Sciences.

*Requirements for completion*

Requirements for the MS concentration will include 9 credits, including 6 credits of core courses and 3 other credits from the group of elective courses. In addition to the required credits in the core and elective courses, it is expected that students will also successfully complete courses chosen in consultation with the supervisory committee in topics such as statistics, biochemistry, cell biology, nutrition, and research ethics. Note that, upon permission from the supervisory committee, other courses may be chosen as electives in lieu of the courses listed as electives here.

**Core courses (6 credits)**

| Course Number | Title | Department | Credit Hours | Term Offered | Description |
|---|---|---|---|---|---|
| ANS 6313 | Current Concepts in Reproductive Biology | Animal Sciences | 2 | Fall | Emerging research topics in reproductive biology |
| ANS 6751 | Physiology of Reproduction | Animal Sciences | 3 | Spring | Fundamental principles of reproduction |
| ANS 5935 | Reproductive Biology Seminar and Research Studies | Animal Sciences | 1 | Fall/ Spring | Reproductive Biology Topics and Student-Faculty participation in research |

**Elective courses**

ANS 6312C Applied Ruminant Reproductive Management, 4 credits

ANS 6379L Molecular Techniques in Animal Genetics, 2 credits

ANS 6387 Genetic Analyses of Complex Traits in Livestock, 3 credits

ANS 6702 Physiology of the Mammary Gland and Lactation, 2 credits

ANS 6704, Mammalian Endocrinology, 2 credits

ANS 6905 Problems in Animal Science (or equivalent course in other programs), 2 max*

ANS 6932 Dairy Cattle Reproduction, 2 credits

GMS 6400C Principles of Physiology, 6 credits

GMS 6405 Fundamentals of Endocrine Physiology, 1 credit

GMS 6419 Medical Endocrinology and Reproduction, 3 credits

GMS 6531 Medical Pharmacology and Therapeutics III: Endocrine, Musculoskeletal and Reproductive Systems, 2 credits

VME 5224 Physiology: Organ Systems, 4 credits

* Up to 2 credits can be earned through a special problems course (ANS 6905) in which students undergo an 8 week internship at a participating reproductive biotechnology company or university. Other courses taught under the ANS 6905 rubric are also available.