<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisite</th>
<th>Description</th>
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<tbody>
<tr>
<td>ANS 5446</td>
<td>Animal Nutrition 3 Credits</td>
<td>3</td>
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<td>The anatomy and physiology of the ruminant digestive system as well as the digestion and metabolism of dietary nutrients for the purposes of growth, pregnancy, and lactation. Ration formulations using computer software.</td>
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<tr>
<td>ANS 5447</td>
<td>Ruminant Nutrition 4 Credits</td>
<td>4</td>
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<td>Carbohydrates, fats, proteins, minerals, and vitamins and their functions in the animal body. Offered fall term.</td>
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<tr>
<td>ANS 6288</td>
<td>Experimental Techniques and Analytical Procedures in Meat Science Research 3 Credits</td>
<td>3</td>
<td></td>
<td>Introduces concepts and methods used to conduct research in the field of applied ethology. Course content includes an overview of mechanisms of animal behavior and approaches to measuring and modeling animal behavior.</td>
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</tbody>
</table>
ANS 6711 Current Topics in Equine Nutrition and Exercise Physiology 2 Credits
Grading Scheme: Letter Grade
Equine science with emphasis on current topics of interest. Offered fall term in odd-numbered years.

ANS 6714 Current Topics in Microbial Physiology in Animals 1 Credit
Grading Scheme: Letter Grade
Insights into microbial pathogenesis, microbial genetics, and molecular microbiology with particular reference to livestock species.

ANS 6715 Gastrointestinal and Feed Microbiology 3 Credits
Grading Scheme: Letter Grade
Microbiology of the rumen, hindgut, and feed; relation to livestock production and food safety.
Prerequisite: ANS 5446.

ANS 6716 Physiology in Farm Animals 1 Credit
Grading Scheme: Letter Grade
Physiology and function of the gastrointestinal system in monogastrics and ruminants.
Prerequisite: ANS 6704

ANS 6718 Nutritional Physiology of Domestic Animals 2 Credits
Grading Scheme: Letter Grade
Physiological, biochemical and molecular control of nutritional processes in monogastrics and ruminants.
Prerequisite: ANS 5446; introductory biochemistry course.

ANS 6723 Mineral Nutrition and Metabolism 3 Credits
Grading Scheme: Letter Grade
Physiological effect of macro- and micro-elements, and mineral interrelationships.

ANS 6750 Reproductive Physiology in Farm Animals 1 Credit
Grading Scheme: Letter Grade
Physiology and function of the reproductive system in farm animals.
Prerequisite: ANS 6704 and ANS 3319C or equivalent.

ANS 6751 Physiology of Reproduction 3 Credits
Grading Scheme: Letter Grade
Conceptual relationship of the hypothalamus, pituitary, and reproductive organs during the estrous cycle and pregnancy. Influence of exteroceptive factors and seasonal reproduction. Offered fall term in even-numbered years.
Prerequisite: BCH 5045 or equivalent.

ANS 6767 Advanced Endocrinology 4 Credits
Grading Scheme: Letter Grade
Overview of mammalian endocrine systems and molecular basis of hormone action; Current topics on endocrine control of growth, development, reproduction and nutrition.
Prerequisite: BCH4024 or BCH 5045; ANS 6704 ; or equivalent, or consent of instructor.

ANS 6775 Essentials of Livestock Immunology 1 Credit
Grading Scheme: Letter Grade
Basic immunological concepts and their relation to immunity for livestock and other species.

ANS 6932 Special Topics in Animal Science 1-3 Credits, Max 9 Credits
Grading Scheme: Letter Grade
New developments in animal nutrition and livestock feeding, animal genetics, animal physiology, and livestock management.

ANS 6933 Graduate Seminar in Animal Science 1 Credit, Max 8 Credits
Grading Scheme: Letter Grade
Graduate Seminar in Animal Science

ANS 6936 Graduate Seminar in Animal Molecular and Cell Biology 1-2 Credits
Grading Scheme: Letter Grade
S/U
Seminar attendance and 1-hour presentation on graduate research project.

ANS 6939 Animal Molecular and Cellular Biology Journal Colloquy 1 Credit, Max 5 Credits
Grading Scheme: Letter Grade
Critical evaluation, presentation and discussion of recent scientific journal articles on a specified topic in cellular and/or molecular biology.

ANS 6940 Supervised Teaching 1-5 Credits, Max 5 Credits
Grading Scheme: Letter Grade
Helping students develop teaching skills in the animal sciences under the guidance of faculty member.

ANS 6942 Supervised Extension in the Animal Sciences 1-3 Credits
Grading Scheme: Letter Grade
Develops extension skills in the Animal Sciences under the guidance of faculty member.

ANS 6971 Research for Master's Thesis 1-15 Credits
Grading Scheme: S/U
Research for Master's Thesis

ANS 7979 Advanced Research 1-12 Credits
Grading Scheme: S/U
Research for doctoral students before admission to candidacy. Designed for students with a master's degree in the field of study or for students who have been accepted for a doctoral program. Not appropriate for students who have been admitted to candidacy.

ANS 7980 Research for Doctoral Dissertation 1-15 Credits
Grading Scheme: S/U
Research for Doctoral Dissertation

PCB 6816 Thermal Physiology 1 Credit
Grading Scheme: Letter Grade
Exploring the processes by which homeotherms produce heat and regulate its exchange with the environment, and the consequences of thermal biology for animal production.