

ANSC 454 Ruminant Nutrition

3 credit hours

Course Objectives:

- To understand basic nutrition and metabolism in ruminants and how they differ from monogastric animals
 - To understand the importance of microbial metabolism to the ruminant animal
 - To understand basic reasons for applied nutritional management decisions
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Course Policy

Prerequisites for this class include ANSC 101, 111 and 251. This class does not have an official lab but there will be 3 to 4 mini labs in place of several lectures. These labs require a moderate amount of “out of class” time to complete. The mini labs are important because they will give students “hands on” experiences to supplement the lectures. The dairy cow will be the primary model used in class.

Lecture Topics

- Ruminant ecology and evolution
- Management of young stock
- Physical/metabolic development
- Silage fermentation/modification
- Ruminal fermentation/modification
- Rumen microbes
- Starch digestion (ruminal)
- Fiber digestion (ruminal)
- Forage quality
- Nitrogen metabolism (ruminal)
- Absorption and utilization of VFA
- Ruminal metabolism of toxins
- Effective fiber
- Calf and heifer nutrition
- Lipid metabolism (rumen and tissue)
- Nutritional management of lactation
- Metabolic diseases
- Vitamins and minerals

Lab Topics

- The effect of air on microbial populations and fermentation of silage
- The effect of heat and sugar on ruminal degradation of protein
- The effect of ruminal pH on fiber digestion

