Syllabus
AGR 421
Animal Nutrition

(3) Prerequisites: AGR 321 and Chemistry. Principles of nutrition basic to modern livestock feeding, symptoms of nutrient deficiencies, nutritional disorders, metabolism of nutrients, feed additives, feed laws and regulations and modern methods of feed preparation and feeding.

Instructor: Dr. Danny G. Britt, A.B. Carter 20, #2235

Purpose of Course
l. Prepare pre-vet students to enter vet school.
2. Prepare students planning to pursue further studies in graduate school in the animal science areas.
3. Provide students with a more in depth study of animal nutrition after the feeds and feeding class.

Text:
l. Animal Nutrition. Maynard, Loosli, Hintz and Warner, 7th ed., l979 McGraw Hill. Book Is Out of Print: May be checked out from Instructor.

2. Supplementary materials.
   a. Class handouts.
   b. NRC publications, J.A.S. & J.D.S.

Teaching Procedures:

l. Class meets lecture 2 l/2 hours per week (on TR)with the lecture being a lecture discussion.

2. Testing and evaluation.

a. Lecture quiz		400 points
b. Written reports and assignments		l50 points
c. Final exam (comprehensive)		l50 points
	Total	700 points

   d. A conference with students having difficulty before the March 5 drop date will be scheduled. Grades may be adjusted at end of course.

All exams are to be taken when scheduled. Regular class attendance is expected. There will be an attempt to allow make-up work on daily assignments when the absence is documented with an acceptable excuse.

Agriculture Department Attendance Policy

December 2003

Students in Agriculture/Horticulture classes are required to attend all scheduled class meetings. If students have a legitimate reason to be absent (personal illness, critical illness, death in their immediate family or participation in an approved University activity) they are expected to discuss it with the instructor prior to the anticipated absence and make arrangements for any make-up work that must be done. Completion of make-up work is the responsibility of the student. The instructor will judge the validity of the reason for an absence.

In case of an emergency of such nature that the above requirements cannot be met, the student should inform the instructor at the first opportunity after the student's return to the campus and should present adequate and documented reasons. Absences in excess of 20 percent of a class will automatically result in a failing grade unless this is waived by the instructor and department chair.

Students who have unexcused absences forfeit the right to do make-up work especially quizzes, exams and laboratories given that day.

Enforcement of this policy is the responsibility of the instructor. Unexcused absences may be used as a factor in determining a grade for the course.

DISABILITY STATEMENT

If there is any student in this class who is in need of academic accommodations and who is registered with the Office of Services for Students with Disabilities, please make an individual appointment with the course instructor to discuss accommodations. Upon individual request, this syllabus can be made available in alternative forms. If any student who is not registered with the Office of Services for Students with Disabilities has need of academic accommodations, please contact the Office directly either in person at SSB 361 or by telephone at 622-1500.

Course Outline:

l. Nutrition in general — Week l
   a. General Statements
      l. Importance of Statistics
      2. Systems
      3. Areas of Study

   b. Composition of Animal — Week 2
      l. Water
      2. Blood
      3. Muscle

   c. Plant composition — Week 3

2. Digestion
   a. Factors affecting digestion
      l. Feed processing

   b. Digestibility determination
      l. Feeding and Collection trials
      2. Markers

3. Water — Week 4
   a. General Statements
   b. Functions
   c. Sources
   d. Water loss and requirements

4. Energy — Week 5, 6
   a. Types
   b. Energy Generation
      l. Glycolysis - Gluconeogensis
      2. TCA
      3. Oxidative phosphorylation

c. Concepts
    l. Respiratory calorimetry

5. Carbohydrates — Week 7
    a. General
    b. Classification and structure
    c. Analysis
        l. Weende 2. Van Soest
    d. Digestion
        l. Monogastric 2. Ruminant

6. Lipids — Week 8, 9
    a. General
    b. Classification and structure
    c. Chemical characteristics
    d. Digestion
        l. Function 2. Absorption
    e. Lipid synthesis and B oxidation
    f. Dietary fat

7. Proteins — Week l0, ll
    a. General
    b. Classification & structure (know structure of 22 amino acids)
    c. Amino Acids
        l. Terms 2. Requirements and protein quality
    d. Digestion
        l. Ruminant
            a. NPN
            b. Bacterial protein
    e. Reaction
        l. Transamination 2. Deamination
    f. Urea Cycle
    g. Protein Synthesis
        l. DNA 2. RNA
    h. Degradation of amino acids

8. Minerals — Week l2, l3
    a. All will follow this sequence
        l. General 2. Function 5. Deficiency
        3. Absorption 4. Requirements

    b. Minerals to be discussed

l.	Ca	6.	K	ll.	Co
2.	P	7.	I	l2.	Zn
3.	Mg	8.	Fe	l3.	Mn
4.	Na	9.	Cu	l4.	F
5.	Cl	l0.	Mo	l5.	Se

9. Vitamins — Week l4, l5
    To follow same outline as mineral
    a. Fat Soluble
        l. A 2. D 3. E 4. K

    b. Water Soluble

l.	Thiamine	4.	Pyrodoxine	7.	Choline
2.	Riboflavin	5.	Pantothenic acid	8.	Folic acid
3.	Niacin	6.	Biotin	9.	Cyanocobalamin

l0. Miscellaneous - (Time permitting) Week l6
    a. Appetite control
    b. Stimulation of growth
    c. Digestion trials

NOTE: Students will have two exams and a paper evaluated before midterm, **March 5**. Students experiencing difficulty will have a meeting scheduled to discuss their progress.

Exam Schedule

Quiz #l - February 3
Quiz #2 - February 26
Quiz #3 - March 25
Quiz #4 - April 22

Final Exam (Comprehensive) - May 6 (8:00 - l0:00)

First paper will be due February 21. Final paper will be due April 18.

The first paper will consist of a common topic and should include at least 6 references with no more than three from lay publications. This paper shall be 3 double spaced typed (word processor) pages in the form of J.A.S.

The second paper will follow the format of the first except the topic will be of your choice and should be selected no later than March 6. (You must check with me on the topic).

Two discussion papers are due on February 12 and March 30. The debate will be held on March 9. The discussing papers should deal with a current agriculture topic being actively debated. Each paper should be at least l and not more than two typed pages, exclusive of references. Papers will be graded on both content and grammar and should not include the use of 'its'. The debate will be explained in class. All assignments are due at the beginning of class and the grade will be lowered one letter grade for each class period late. Plagiarism is basis for failure and expulsion from the university.