

# Mineral and Vitamin Metabolism

**ANS 597**

**Spring 2017**

**MWF 1000 – 1050**

**Location: AGIT 253**

Instructor:

Dr. Gregory Eckerle

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**Course Description:** This course is designed to review the nutrients utilized by domestic farm animals. Further investigation of nutrient chemistry and functions within domestic animals will also be discussed.

**Required Materials:** There will be no required text for this course. All materials will be posted online or in class as it becomes available.

## **Student Learning Objectives:**

- ❖ Develop an understanding of the function, metabolism, and gene interactions of minerals and vitamins in humans and domestic animals
- ❖ Gain knowledge of mineral and vitamin deficiencies, toxicities, and interactions
- ❖ Develop ability to design and conduct experiments to study functions, availability, requirements, and interactions of minerals and vitamins

## **Course Outline:**

- ❖ Introduction to general functions and factors affecting mineral requirements, soil-plant-animal interrelationships, and determination of mineral bioavailability
- ❖ General mineral and lipid absorption
- ❖ Vitamin D
- ❖ Magnesium and Sodium
- ❖ Potassium, Chloride, and acid base balance
- ❖ Sulfur
- ❖ Thiamin
- ❖ **Exam I**
- ❖ Metal elements and gene expression
- ❖ Vitamin A
- ❖ Iron
- ❖ Zinc

- ❖ Copper
- ❖ Molybdenum and Cu-Mo-S interactions
- ❖ Iodine and Chromium
- ❖ Selenium and Manganese
- ❖ Vitamin E
- ❖ **Exam II**
- ❖ Cobalt
- ❖ Folate/B<sub>12</sub> and one Carbon metabolism
- ❖ Nickel, Fluoride, Tin, Arsenic, Lithium, and Boron
- ❖ Vitamin K and C
- ❖ Essential fatty acids
- ❖ Final

**Grading:**

1. Exams
  - a. Three exams will be administered throughout the semester. Exams may include sections containing True/False, multiple choice, short answer, mathematical, or essay questions. The fourth exam will consist of comprehensive final.
  
2. Attendance points will be awarded randomly throughout the semester
  
3. Late or missing work
  - a. All late work will be automatically discounted 30% of its worth after the time it is due. Then an additional 10% will be deducted every day after the date the assignment was due.
  
  - b. Students are expected to turn their work in on time, unless prior arrangements are made with the professor, or any unforeseen catastrophic circumstance arises.

**Grading Policy:**

Exams	300 pts
Assignments and presentations	100 pts
<u>Final exam (written and oral)</u>	<u>150 pts</u>

A	≥ 90%
B	80 – 89 %
C	70 – 79%
D	60 – 69%
F	≤ 59%

# Course and University Procedures and Policies:

## Course Specific Procedures:

Academic Honesty – Students who violate University rules regarding scholastic dishonesty are subject to disciplinary penalties, including (but not limited to) receiving a failing grade on the assignment, the possibility of failure in the course, and dismissal from the University. Since dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty are strictly enforced. **IN ALL INSTANCES, INCIDENTS WILL BE REPORTED TO THE DEPARTMENT HEAD. PLEASE BE ADVISED THAT DISHONESTY INCLUDES (BUT IS NOT LIMITED TO) CHEATING, PLAGERISM, AND COLLUSION.**

If you have any questions regarding this policy, ask.

## University Specific Procedures:

**Students with Disabilities** - The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

**Office of Student Disability Resources and Services  
Texas A&M University-Commerce  
Gee Library  
Room 132**

**Phone (903) 886-5150 or (903) 886-5835**

**Fax (903) 468-8148**

[StudentDisabilityServices@tamuc.edu](mailto:StudentDisabilityServices@tamuc.edu)

### Campus Concealed Carry

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to (<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>) and/or consult your event organizer). Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.