

ANEQ 621
Mineral and Vitamin Metabolism
Spring 2018
Course Syllabus

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Text and Reading Assignments:

No textbook is required. A list of references will be distributed for various lecture topics. Students will be required to read certain assigned journal articles.

Course Requirements:

Introductory Biochemistry and Physiology and a Basic Nutrition Class

Class Period:

9:00 a.m. – 9:50 a.m. MWF Room: 31 Animal Science

Objectives:

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

Grading:

- Exams 150 points each (2) 55%
- Assignments and presentations (100 points total) 18%
- Final exam (written and oral; 150 points) 27%

Guaranteed grade

90+	A
80+	B
70+	C

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Academic Integrity:

You should be familiar with the University's policy on academic integrity found under the Students Rights and Responsibilities section in the University's General Catalog. The Colorado State University General Catalog can be purchased from the Colorado State University Bookstore located in the Lory Student Center. The content included in the Students Rights and Responsibilities section applies to this course. Your signature on a test or assignment means that you have neither given nor received unauthorized aid and represents your commitment to honorable and trustworthy behavior that is in the spirit of the Honor Pledge. It is permissible for you to share class notes, study in groups, and review tests from previous years.

Need Help?

CSU is a community that cares for you. If you are struggling with drugs or alcohol and/or experiencing depression, anxiety, overwhelming stress or thoughts of hurting yourself or others please know there is help available. Counseling Services has trained professionals who can help. Contact 970-491-6053 or go to <http://health.colostate.edu>. If you are concerned about a friend or peer, Tell Someone by calling 970-491-1350 to discuss your concerns with a professional who can discreetly connect the distressed individual with the proper resources (<http://safety.colostate.edu/tell-someone.aspx>).

Outline

Introduction-General Functions and Factors Affecting Mineral Requirements, Soil-Plant-Animal Interrelationships, and Determination of Mineral Bioavailability

Introduction – Mineral and lipid absorption (General)

Calcium and Phosphorous-Regulation and Metabolism

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

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Folate/B₁₂ and One Carbon Metabolism
Nickel, Fluoride, Tin, Arsenic, Lithium, and Boron
Vitamin K and Vitamin C
Essential Fatty Acids
Final Exam