

FDNS 4100/6100 Micronutrient Nutrition - Fall Semester 2009

Instructor:

Dr. Arthur Grider

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Rm. 171

Time:

3:35-4:25 MW and 3:35-5:30 Friday Room: 116 Dawson Hall

Office Hours:

Tues/Thurs 2:30pm to 4:30pm

Course Description:

Human needs for vitamins, minerals, electrolytes with emphasis on biochemistry, physiology, epidemiology, food sources, and their role in performance under varying conditions of age and health.

Course Objectives:

The student will:

1. Understand the manner in which vitamins and minerals are involved in the biochemical reactions of metabolism, and physiological events in which they participate.
2. Be able to identify the mechanisms involved in nutrient uptake and metabolism, including the reactions necessary for the absorption, transport, and distribution of nutrients within humans.
3. Be able to describe the mechanism by which vitamins and minerals function to regulate acid/base balance, and fluid and electrolyte homeostasis.
4. Develop knowledge of micronutrient requirements for various age groups.
5. Understand the interactions among micronutrients and between micronutrients and selected drugs.
6. Interpret current research studies as related to vitamin and mineral status assessment.
7. Demonstrate the ability to identify and interpret laboratory parameters used to determine vitamin and mineral status.
8. Be able to correctly answer examination questions concerning the role of selected vitamins and minerals in chronic disease prevention.

Late adds for this course will not be approved except on exceptional circumstances

Exams will be given throughout the semester according to the schedule provided by the instructor.

There will be 4 undergraduate exams scheduled. One of the exams may be dropped. There are no make-up exams. However, you may take an exam early if necessary by making arrangements with the instructor. If you miss an exam due to unforeseen circumstances, that exam will be counted as you dropped exam. The final will be comprehensive and include questions from the intrasemester exams.

Grading:

A > 94%	B+ 88 to 89%	C+ 78 to 79%	D 60 to 67%	F <60%
A- 90 to 93%	B 84 to 87%	C 70 to 77%		
	B- 80 to 83%	C- 67 to 69%		

The entire grading scale is used (A-F). If you do not receive a "C" or better in this course, you will not receive a Statement of Verification to be eligible to apply for a Dietetics Internship (needed to become a Registered Dietitian).

Required Text and Readings - you will be tested on these:

1. Stipanuk, M.H., Biochemical, Physiological, Molecular Aspects of Human Nutrition, 2nd edition, 2006. W.B. Saunders Co., Philadelphia, PA. ISBN 13: 978-1-4160-0209-3; ISBN-10: 1-4160-0209-X.
2. Class notes, instructor lectures.

Additional Reading:

Published articles as suggested by the instructor.

Online: Food and Nutrition Board, Institute of Medicine. Dietary Reference Intakes.

- Dietary Reference Intakes: Applications in Dietary Assessment
<http://www.nap.edu/books/0309071836/html/>
- Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride
<http://www.nap.edu/books/0309063507/html/index.html>
- Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline
<http://www.nap.edu/books/0309065542/html/index.html>
- Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids
<http://www.nap.edu/books/0309069351/html/>
- Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc
<http://www.nap.edu/books/0309072794/html/>

Tentative Class Schedule		
Dates	Topic	Chapter
Aug. 17 to Sept. 2	Introduction; Discovery of Vitamins; Dietary Reference Intakes, Niacin, Riboflavin, Thiamin	Chapters 3, 24 Dietary Reference Intakes (nap book online)
Sept. 7	LABOR DAY	
Sept. 4	exam 1	
Sept. 9 to Sept. 30	Folate, Vitamin B, Vitamin B12, Pantothenic Acid, Biotin	Chapters 25, 26 Dietary Reference Intakes (nap book online)
Oct. 2	exam 2	
Oct. 5 to Oct. 28	Vitamin C, Vitamin E, Vitamin K, Vitamin A, Vitamin D, Free Radicals	Chapters 27-31 Dietary Reference Intakes (nap book online)
Oct. 30	FALL BREAK	
Nov. 6	exam 3	
Nov. 2 to Dec. 2	Body Fluids, Macrominerals, Trace Minerals	Chapters 30-39 Dietary Reference Intakes (nap book online)
Dec. 4	exam 4	
Dec. 14	FINAL EXAM 3:30pm to 6:30pm	

STUDY GUIDE

For each nutrient, be able to discuss in detail:

1. Function (enzymes, physiological, structural, etc.).
2. Mechanism of absorption (from the mouth, gi tract, to sites of storage and metabolic activity).
3. Factors that affect bioavailability and nutrient absorption (other dietary factors, medications).
4. Various chemical forms (metabolic action, bioavailability, food sources vs. supplement sources).
5. Food sources (rich sources, as well as the most common sources).
6. Food and supplement recommendations when a person is deficient or needs to increase their intake.
7. Recommended intakes throughout the lifecycle.
8. Know reasons for changes in recommendations from the 1989 RDAs to the current DRIs (1997-present).
9. Benefits and risks of using supplements of the nutrient.
10. Time of life cycle when people are most likely to be deficient in the nutrient.
11. Signs and symptoms of deficiency.
12. Prevalence of deficiency in various "at risk" subgroups of the population.
13. Assessing nutritional status through blood indices.
14. Toxicity: what amount causes toxicity, clinical signs of toxicity, blood changes during toxicity, and treatment of toxicity.

GRADUATE STUDENTS

Graduate students will take different exams than the undergraduate students.

HONORS OPTION

FDNS 4100 Micronutrient Nutrition. Honors students will be asked to write a 10-12 page research paper based on the scientific literature that critically analyzes and evaluates the nutritional, metabolic, physiological, biochemical, nutrient gene interactions, disease processes, clinical, pediatric and/or geriatric aspects of an essential vitamin or mineral that relates to human nutrition.

Honesty Policy

All academic work must meet the standards contained in, "A Culture of Honesty." Each student is responsible to inform him- or herself about these standards before performing any academic work. More detailed information is found here:

<http://www.uga.edu/ovpi/honesty/acadhon.htm>.

Use of Your Name

If you prefer not to have your name called in class, or your name posted, please let the instructor know by email (agrider@fcs.uga.edu).

Cell phones and Pagers

Turn off cell phones and pagers BEFORE coming to class. During exams, cell phones should be turned off, put away, and not used for talking, taking pictures, playing games, using a calculator, or text messaging. If your phone is found on during an exam, your phone may be confiscated and you may be charged with academic dishonesty.

Attendance

Students are required to attend all class periods. In some cases, absences can be excused. Excuses for anticipated absences must be cleared with the instructor before the absence (send an email explaining the situation). Excused absences include, but are not limited to, absence for court appearances, university business, verifiable illness, and certain family emergencies. Written, dated documentation must be presented for each excused absence from an Officer of the Court, college official, or physician. Students with 3 or more unexcused absences will be penalized 2 percentage points from their final semester score. Students with no unexcused absences will be awarded 2 percentage points to their final semester score.