



Faculty of Land & Food Systems: Food, Nutrition & Health
FNH 351: VITAMINS, MINERALS, AND HEALTH
January – April 2016

Instructor: Dr. Elizabeth Novak, enovak@mail.ubc.ca, MCML 225

Office Hours: By appointment

Course Teaching Assistants: Alejandra Wiedeman, Angelina Lam

Class Time & Location: Tuesdays & Thursdays, 11:00 am - 12:30 pm; West Mall Swing Space Room 222

Course Objectives: To develop an understanding of the basic principles of vitamin and mineral nutrition, and to gain an appreciation for the importance of vitamin and mineral nutrition in maintaining human health.

Course Overview: This course addresses the vitamins and minerals required by humans. A broad range of topics will be discussed, which serve as the foundation for understanding other courses in nutrition. These include: sources of vitamins and minerals, absorption, transport, metabolism, physiological functions, the gross and metabolic effects of deficiency, toxic effects of excessive intake, methods of assessment, genetic defects that interfere with the metabolism of vitamins and minerals, nutrient-nutrient interactions, and other related topics.

Learning Outcomes:

At the end of the term, you should be able to:

1. Explain how vitamins and minerals exert their physiological functions
2. Explain how vitamins and minerals are digested, absorbed, and metabolized in the body
3. Critically evaluate and discuss various factors, including both genetic and dietary factors, affecting vitamin and mineral digestion, absorption, and metabolism
4. Describe how vitamins and minerals are transported, stored, and excreted by the body
5. Describe and, wherever applicable, explain how inadequate or excessive intake of vitamins and minerals cause adverse effects to health
6. Critically discuss the concept of nutrient-nutrient interactions
7. Name a few food items that are good or poor sources of specific vitamins and minerals
8. Discuss the pros and cons of different approaches and strategies used for assessing the nutritional status of vitamins and minerals in humans

Information for Students in the Dietetics Major:

This course, like all required courses in the Dietetics Major, contributes to coverage of the Integrated Competencies for Dietetic Education and Practice (ICDEP). All students in the Dietetics Major should refer to the Mapping of Curriculum to ICDEP page on the dietetics website to familiarize themselves with the requirements.

Connect and Course Notes: The FNH 351 Connect site will be used as an important learning and communication resource. Lectures and course announcements will be posted on Connect. You are strongly encouraged to check Connect on a regular basis.

Required Textbook: Advanced Nutrition and Human Metabolism (Chapter 9 - 14) 6th ed. by S.S. Gropper and J.L. Smith, Wadsworth, Belmont, CA.

Recommended Additional Readings: (Reference Section for Nutrition, Woodward Library.)

Dietary reference intakes for calcium, phosphorus, magnesium, vitamin D, and fluoride. Institute of Medicine, 1997.

Dietary reference intakes for calcium and vitamin D. Institute of Medicine, 2011.

Dietary reference intakes for thiamin, riboflavin, niacin, vitamin B6, folate, vitamin B12, pantothenic acid, biotin, and choline. Institute of Medicine, 1998.

Dietary reference intakes for vitamin C, vitamin E, selenium, and carotenoids. Institute of Medicine, 2000.

Dietary reference intakes for vitamin A, vitamin K, arsenic, boron, chromium, copper, iodine, iron, manganese, molybdenum, nickel, silicon, vanadium and zinc. Institute of Medicine, 2001.



Course Evaluation

1. In-class quizzes (4 @ 3% each)	12%
2. Case studies (4 @ 2% each)	8%
3. Midterm exam	20%
4. Final exam (cumulative)	60%

In-class quizzes: Quizzes will be completed in class on the dates provided below. Quizzes will be 15 minutes long, contain multiple choice questions, and will be based on the lecture material. You are not permitted to use any notes when completing the quizzes. There will be no make up quizzes. In the event where students must miss a quiz with a valid excuse, the corresponding mark will be allocated to the final.

Case studies: Case studies will be posted on Connect and must be submitted **on Connect before class (11 am)** on the dates listed below. Case studies will be reviewed in class, and, therefore, late case studies will not be accepted.

Examinations: The examinations will cover lecture material as discussed in class. Both the midterm and final examinations include multiple choice, fill in the blanks, matching, and short answer questions. You are permitted to bring ONE HAND-WRITTEN information sheet (single side for the midterm and double sided for the final). The information sheet must be a single sheet, not two pieces of paper glued or stapled together. It must NOT contain flaps or tabs, require the use of a magnifying device, be prepared on a computer or scanned/copied. You must include your name and student number on your sheet and submit it with your examination paper. Violation of any of these rules will be treated as academic misconduct and will be subject to disciplinary action, which may include deduction of marks or receiving a mark of zero. In the event where students must miss the midterm due to illness, you are required to inform the instructor at the earliest possible time and submit a valid doctor's note within 72 h from the time that the midterm is held. There will be no makeup midterms, missed midterms will be allocated to the final.

Expectations of Students:

1. Be present and prepared for all classes. In the event that you are unable to attend a scheduled class meeting because of illness or emergency you are responsible for any material presented in class.
2. Actively participate in class and ask if you have questions concerning the material
3. Use the readings to reinforce the material covered in class
4. Try to learn and understand the material, do not rely on your information sheets

Assistance Available to Students: You are strongly encouraged to meet with the instructor if you have questions, comments, or suggestions for the course. You may also post questions about course material on the Connect discussion board for your fellow students; note that the instructor will not be available on the discussion board to answer your questions.

Additional Policies:

The final exam will be governed by the relevant university policies.

Exams will be re-marked upon receiving a written request. The outcome of the re-marking can go either way.

Use of recording devices (cellphones/cameras/recorders) are not permitted while the class is in session.

Statement on Academic Integrity

Please be aware that plagiarism or cheating of any kind will be cause for “no credit” on the assignments and possible failure in the course.

UBC's policy on academic integrity is available at: <http://vpacademic.ubc.ca/academic-integrity/>

When academic integrity is breached (most commonly by *plagiarism* or *cheating*), this constitutes academic misconduct. If you have not already done so, you should familiarize yourself with UBC's policies and the steps you can take to avoid plagiarism. The UBC Library has an excellent site on plagiarism, with links to some good online tutorials: <http://www.library.ubc.ca/home/plagiarism/>.

Studying with others or discussing issues with them is completely legitimate and is encouraged; however, collaborating with others while completing case studies or quizzes is not, nor is informing others of what the questions were. Both providing this information to someone else, or using that information, are considered cheating and would constitute academic misconduct.



Course Topics and Tentative Schedule

DATE	TOPICS COVERED	ASSESSMENT
Jan 5	Introduction: Vitamins & Minerals.	
Jan 7-19	Vitamins and Energy Metabolism – Thiamin, Riboflavin, Niacin, Pantothenic acid and Biotin	Quiz 1: January 19 Case Study 1: Due Jan 21, 11 am
Jan 21	Vitamin B6 and Amino Acid Metabolism	
Jan 26	Vitamin K and Blood Clotting	
Jan 28	Vitamin A and Vision	
Feb 2-9	Megaloblastic Anemia and the Genesis of Red Blood Cells - Folate, Vitamin B12, and Choline	Quiz 2: Feb 2
Feb 11	MIDTERM EXAM – in class	
Feb 16 & 18	Midterm Break – NO CLASS	
Feb 23- Mar 3	Bone Development and Health - Vitamin D, Calcium, Phosphorous, and Magnesium	Case Study 2: Due Feb 23, 11 am
Mar 8-24	Oxidative Damage & Antioxidant Defense – Vitamin C, Vitamin E, Iron, Zinc, Copper, and Selenium	Case Study 3: Due Mar 3, 11 am Quiz 3: Mar 8 Case Study 4: Due Mar 24, 11 am
Mar 29	Other Trace Minerals - Manganese, Chromium and Iodine	Quiz 4: Mar 29
Mar 31 –April 7	Assessment, Requirements & Recommendations, Toxicity, Supplements & Current Research on Micronutrients	