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Syllabus

HNSC 3300 A01: Vitamins and Minerals in Human Health
(Winter 2021)

Faculty of Agricultural and Food Sciences



UNIVERSITY
OF MANITOBA

COURSE DETAILS

| | |
|---|--|
| Course Title & Number: | Vitamins and Minerals in Human Health – HNSC 3300 A01 |
| Number of Credit Hours: | 3 |
| Class Times & Days of Week: | Tuesday and Thursday 10:00am-11:15 pm. |
| Location for classes/labs/tutorials: | Remote Learning delivered via webex. |
| Required: | This course is to be delivered remotely. It uses a synchronous course design. Students are expected to be online during the scheduled class times. Your computer or device, and Internet connection must meet the UM minimum requirements found here https://centre.cc.umanitoba.ca/wp-content/uploads/2020/04/Student-Connectivity-Recommendations.pdf . These are required for all Winter 2021 classes. Students must have Webex installed. |
| Pre-Requisites: | CHEM 2780 or MBIO 2780 (002.278 or 060.278) or CHEM 2370 or MBIO 2370 (002.237 or 060.237)] and HNSC 2140 (030.214) and [BIOL 1412 or 2420 (ZOOL 1330 or 2540, 022.133 or 022.254)]. Not to be held with the former 030.426. |

Instructor Contact Information

| | |
|--|---|
| Instructor(s) Name & Preferred Form of Address: | Dr. Peter Eck |
| Office Location: | W569 Duff Roblin |
| Office Hours or Availability: | By appointment <i>Note:</i> The Responsibilities of Academic Staff in Regards to Students - ROASS requires that instructors must be available to students for consultation out of class or laboratory hours. |
| Phone No. | 204-291-2917 |
| Email: | Peter.Eck@umanitoba.ca <i>Note:</i> All email communication must conform to the Communicating with Students university policy. |
| Contact: | Email Peter.Eck@umanitoba.ca |

General Course Description

Interactive discussion on the the physiological importance of vitamins and minerals in the human body, including factors affecting dietary requirements, metabolism and roles in disease progression and prevention.

Course Learning Objectives

Upon completion of this course, for each nutrient covered, students will apply and enhance their knowledge in regard to

- Know the different forms of the discussed nutrient and their relationships to each other.
- Know what foods or food groups the nutrients are found in.
- Be able to explain how the nutrient is digested, absorbed and transported in the body.
- Explain what factors can affect the bioavailability of the nutrient.
- Understand and explain the functions of the nutrient.
- Know the physiologic processes this nutrient affects and the enzymatic and/or nonenzymatic reactions involved.
- Know the active form(s) of the nutrient.
- Be able to explain the signs of deficiency and toxicity for the nutrient.
- Be able to explain the influence of other nutrients and health conditions on individual nutrient deficiencies and toxicities.
- Explain how nutrient status is assessed for each nutrient and what the potential confounding factors are in these assessment techniques.
- Know unique characteristics of the nutrient.

Additional Learning Outcomes: The course will provide students the opportunity to acquire:

- Skills in critical thinking through the evaluation and application of current research.

FOUNDATIONAL KNOWLEDGE CONTENT AREAS FOR DIETETICS EDUCATION

The Undergraduate Dietetics program is accredited by the Partnership for Dietetic Education and Practice (PDEP) and prepares students for eligibility for registration with a provincial dietetics regulatory body. The program is designed to meet the Integrated Competencies for Dietetic Education and Practice (ICDEP). Following are the foundational knowledge areas that this course is designed to meet towards the ICDEP.

Highest level achieved: 1= demonstrate broad knowledge; 2= demonstrate comprehension; 3 = analyze, interpret and apply knowledge

| Content Area | Foundational Knowledge | Cognitive Complexity Level |
|--|---|----------------------------|
| Biochemistry | Foundations of chemistry and biochemistry | 2 |
| | Major metabolic pathways | 2 |
| | Mechanisms of metabolic regulation | 2 |
| Human Nutrition across the Lifespan | Ingestion, digestion, absorption, metabolism and excretion of nutrients | 3 |
| | Biochemical utilization of nutrients and energy | 3 |
| | Nutrient and energy requirements | 3 |
| | Nutrition recommendations and guidelines | 3 |
| | Effect of deficiencies and toxicities of nutrients | 3 |
| | Food sources of nutrients and dietary supplements | 3 |
| | Role of nutrients and other food components in health | 3 |

Textbook, Readings, and Course Materials

Textbook:

Advanced Nutrition and Human Metabolism, 7th Edition. S.S. Gropper, J.L Smith, T.P. Carr. Wadsworth/Cengage Learning, 2018. ISBN: 9781305627857. Available at U of M Bookstore.

Reference Materials:

Note that the following are available (**free!**) online – to read or as downloadable PDF:

- **Dietary Reference Intakes: The Essential Guide to Nutrient Requirements.** National Academy Press, 2006. http://www.nap.edu/catalog.php?record_id=11537 (**This is a great resource**)
- **Dietary Reference Intakes for Calcium and Vitamin D.** National Academy Press, 2011 http://www.nap.edu/catalog.php?record_id=13050
- **Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride.** National Academy Press, 1997 http://books.nap.edu/catalog.php?record_id=5776
- **Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline.** National Academy Press, 2000 http://books.nap.edu/catalog.php?record_id=6015
- **Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium, and Carotenoids.** National Academy Press, 2000 http://www.nap.edu/catalog.php?record_id=9810
- **Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc.** National

- Academy Press, 2001 http://www.nap.edu/catalog.php?record_id=10026
- **Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate.** National Academy Press, 2004 http://www.nap.edu/catalog.php?record_id=10925

Using Copyrighted Material

Please respect copyright. We will use copyrighted content in this course. I have ensured that the content I use is appropriately acknowledged and is copied in accordance with copyright laws and university guidelines. Copyrighted works, including those created by me, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the *Copyright Act* applies or written permission has been confirmed. For more information, see the University's Copyright Office website at <http://umanitoba.ca/copyright/> or contact um_copyright@umanitoba.ca.

Communications and academic integrity

Communication with Coordinator

1. Use your University of Manitoba email to communicate with coordinator.
2. Include course number (HNSC 3300) as part of the subject heading.
3. Propose suggested meeting times when you are available, but remember to be flexible!

Class Communication:

You are required to obtain and use your University of Manitoba email account for all communication between yourself and the university. All communication must comply with the Electronic

Communication with Student Policy:

http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html.

Academic Integrity:

Each student in this course is expected to abide by the University of Manitoba [Academic Integrity principles](#). Always remember to reference the work of others that you have used. Also be advised that you are required to complete your exams independently unless otherwise specified. Inappropriate collaborative behavior and violation of other Academic Integrity principles, will lead to [disciplinary action](#). Visit the [Academic Calendar](#), [Student Advocacy](#), and [Academic Integrity](#) web pages for more information and support.

Recording Class Lectures:

Class will be recorded in Webex and can be reviewed (streamed) any time. Downloading and distribution of the audio or video recording of lectures or presentations is not allowed in any format, openly or surreptitiously, in whole or in part without permission. Course materials (both documents and digital recordings) are for the participant's private study and research.

Student Accessibility Services:

The University of Manitoba is committed to providing an accessible academic community. [Students Accessibility Services \(SAS\)](#) offers academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

Student Accessibility Services

520 University Centre

Phone: (204) 474-7423

Email: Student_accessibility@umanitoba.ca

Concept

Regular, weekly meetings will aid the progress in the class. We will have classes designed for interactions with the instructor and the classmates.

CLASS FORMAT

This class will follow a blended format. Class notes will be available on UM Learn and students are expected to read, study and understand the notes before coming to class. The textbooks and reference materials should be used as supporting material. There will be no lectures on these notes, but class time will be used to discuss related information and to clarify any questions students may have on the notes. See Class Schedule below for the dates of discussions and tests.

EXPECTATIONS: I EXPECT YOU TO

- Read through the syllabus so that you understand all expectations, rights and responsibilities.
- Read through and study the notes on the PowerPoint slides before coming to class to ensure that you understand everything on the slides. If anything is unclear, read through the appropriate sections in the textbooks for clarification.
- If anything in the notes is unclear, ask for clarification in class.
- Participate in class discussions and activities.
- Read through the syllabus so that you understand all expectations, rights and responsibilities.
- Follow the [Respectful Work and Learning Environment Policy](#).
- Follow the policies around Class Communication, Academic Integrity, and Recording Class Lectures ([Section 2.5 ROASS](#)).
- Log in on time.
- Turn off cellular phones/pagers/etc.
- Mute your microphone when others present.
- Participate in class discussions in a respectful manner. Talking out of turn will not be tolerated, as this is disrespectful to the presenter.

EXPECTATIONS: YOU CAN EXPECT ME TO

- To follow the [Respectful Work and Learning Environment Policy](#).

- Post the PowerPoint slides on UMLearn before class.
- Not to lecture very much, but ask questions to initiate discussion and gauge understanding of the material.
- Go through the slides and cover in class anything that is not clear.

CLASS SCHEDULE AND COURSE EVALUATION

This schedule is subject to change at the discretion of the instructor and/or based on the learning needs of the students but such changes are subject to [Section 2.8 of ROASS](#).

Class Schedule¹, January 18th to April 16th 2021, as of 01-18-2021.

| Date | Lecture Topics |
|--|---|
| January 19 th 2021 | Class introduction |
| January 26 th and 28 th 2021 | Vitamin C, Antioxidants |
| February 2 nd and 4 th | Vitamin A, Carotenoids, Vitamin E |
| February 9 th | Test 1 |
| February 11 th | Vitamin K, |
| February 23 rd and 25 th | pantothenic acid, biotin |
| March 2 nd and 4 th | Thiamin, riboflavin, niacin |
| March 9 th and 11 th | Vitamin B6, folate, vitamin B12, choline |
| March 16 th | Test 2 |
| March 18 th | Vitamin B6, |
| March 23 rd and 25 th | folate, vitamin B12, choline |
| March 30 th and April 1 st | Electrolytes and other minerals |
| April 6 th | Test 3 |
| April 8 th and 13 th | Vitamin D, calcium, phosphorus, magnesium, fluoride |
| April 15 th | Test 4 |

Evaluation and Grading

Tests will consist of multiple choice, fill-in-the-blanks and written short and long answer questions.

Any student that misses a test must notify the instructor before or within 24 hours of the test and make arrangements as soon as possible to write the missed test. A grade of 0 will be given for any missed tests, unless a medical certificate or other appropriate documentation is given to the instructor.

Please see Class Schedule above for topics covered for each test.

¹ Additional classes may be added, or classes cancelled based on extenuating circumstances.

| | Value of Final Grade |
|---------------|----------------------|
| Test 1 | 25% |
| Test 2 | 30% |
| Test 3 | 25% |
| Test 4 | 20% |

| Letter Grade | Percentage out of 100 | Grade Point Range | Final Grade Point |
|--------------|-----------------------|-------------------|-------------------|
| A+ | 90-100 | 4.25-4.5 | 4.5 |
| A | 80-89 | 3.75-4.24 | 4.0 |
| B+ | 75-79 | 3.25-3.74 | 3.5 |
| B | 70-74 | 2.75-3.24 | 3.0 |
| C+ | 65-69 | 2.25-2.74 | 2.5 |
| C | 60-64 | 2.0-2.24 | 2.0 |
| D | 50-59 | Less than 2.0 | 1.0 |
| F | Less than 50 | | 0 |

Voluntary Withdrawal

Winter Term Voluntary Withdrawal (VW) deadline is Mar. 31, 2021
Please refer to the [Registrar's Office](#) web page for more information.

UNIVERSITY SUPPORT OFFICES & POLICIES

Instructors shall provide to every student the information on university support offices and policies in [Schedule "A"](#) within the first week of classes, either through a paper copy and/or via the university's student information system (i.e., Aurora, UM Learn, or such other university information system as may be approved by the university from time to time).

Schedule "A"

Section (a) sample re: A list of academic supports available to Students, such as the Academic Learning Centre, Libraries, and other supports as may be appropriate:

Writing and Learning Support

The Academic Learning Centre (ALC) offers services that may be helpful to you throughout your academic program. Through the ALC, you can meet with a learning specialist to discuss concerns

such as time management, learning strategies, and test-taking strategies. The ALC also offers peer supported study groups called Supplemental Instruction (SI) for certain courses that students have typically found difficult. In these study groups, students have opportunities to ask questions, compare notes, discuss content, solve practice problems, and develop new study strategies in a group-learning format.

You can also meet one-to-one with a writing tutor who can give you feedback at any stage of the writing process, whether you are just beginning to work on a written assignment or already have a draft. If you are interested in meeting with a writing tutor, reserve your appointment two to three days in advance of the time you would like to meet. Also, plan to meet with a writing tutor a few days before your paper is due so that you have time to work with the tutor's feedback.

These Academic Learning Centre services are free for U of M students. For more information, please visit the Academic Learning Centre website at: <http://umanitoba.ca/student/academiclearning/>

You can also contact the Academic Learning Centre by calling 204-480-1481 or by visiting 205 Tier Building.

University of Manitoba Libraries (UML)

As the primary contact for all research needs, your liaison librarian can play a vital role when completing academic papers and assignments. Liaisons can answer questions about managing citations, or locating appropriate resources, and will address any other concerns you may have, regarding the research process. Liaisons can be contacted by email or phone, and are also available to meet with you in-person. A complete list of liaison librarians can be found by subject: <http://bit.ly/WcEbA1> or name: <http://bit.ly/1tJ0bB4>. In addition, general library assistance is provided in person at 19 University Libraries, located on both the Fort Garry and Bannatyne campuses, as well as in many Winnipeg hospitals. For a listing of all libraries, please consult the following: <http://bit.ly/1sXe6RA>. When working remotely, students can also receive help online, via the Ask-a-Librarian chat found on the Libraries' homepage: www.umanitoba.ca/libraries.

Section (b) sample: re: A statement regarding mental health that includes referral information:

For 24/7 mental health support, contact the Mobile Crisis Service at 204-940-1781.

Student Counselling Centre

Contact SCC if you are concerned about any aspect of your mental health, including anxiety, stress, or depression, or for help with relationships or other life concerns. SCC offers crisis services as well as individual, couple, and group counselling. *Student Counselling Centre:*

<http://umanitoba.ca/student/counselling/index.html>

474 University Centre or S207 Medical Services

(204) 474-8592

Student Support Case Management

Contact the Student Support Case Management team if you are concerned about yourself or another student and don't know where to turn. SSCM helps connect students with on and off

campus resources, provides safety planning, and offers other supports, including consultation, educational workshops, and referral to the STATIS threat assessment team.

Student Support Intake Assistant <http://umanitoba.ca/student/case-manager/index.html>

520 University Centre

(204) 474-7423

University Health Service

Contact UHS for any medical concerns, including mental health problems. UHS offers a full range of medical services to students, including psychiatric consultation.

University Health Service <http://umanitoba.ca/student/health/>

104 University Centre, Fort Garry Campus

(204) 474-8411 (Business hours or after hours/urgent calls)

Health and Wellness

Contact our Health and Wellness Educator if you are interested in information on a broad range of health topics, including physical and mental health concerns, alcohol and substance use harms, and sexual assault.

Health and Wellness Educator <http://umanitoba.ca/student/health-wellness/welcome.html>

Katie.Kutryk@umanitoba.ca

469 University Centre

(204) 295-9032

Live Well @ UofM

For comprehensive information about the full range of health and wellness resources available on campus, visit the Live Well @ UofM site:

<http://umanitoba.ca/student/livewell/index.html>

Section (c) sample: re: A notice with respect to copyright:

All students are required to respect copyright as per Canada's *Copyright Act*. Staff and students play a key role in the University's copyright compliance as we balance user rights for educational purposes with the rights of content creators from around the world. The Copyright Office provides copyright resources and support for all members of the University of Manitoba community. Visit <http://umanitoba.ca/copyright> for more information.

Section (d) sample: re: A statement directing the student to University and Unit policies, procedures, and supplemental information available on-line:

Your rights and responsibilities

As a student of the University of Manitoba you have rights and responsibilities. It is important for you to know what you can expect from the University as a student and to understand what the University expects from you. Become familiar with the policies and procedures of the University and the regulations that are specific to your faculty, college or school.

The [Academic Calendar](http://umanitoba.ca/student/records/academiccalendar.html) <http://umanitoba.ca/student/records/academiccalendar.html> is one important source of information. View the sections *University Policies and Procedures* and *General Academic Regulations*.

While all of the information contained in these two sections is important, the following information is highlighted.

- If you have questions about your grades, talk to your instructor. There is a process for term work and final **grade appeals**. Note that you have the right to access your final examination scripts. See the Registrar's Office website for more information including appeal deadline dates and the appeal form <http://umanitoba.ca/registrar/>
- You are expected to view the General Academic Regulation section within the Academic Calendar and specifically read the **Academic Integrity** regulation. Consult the course syllabus or ask your instructor for additional information about demonstrating academic integrity in your academic work. Visit the Academic Integrity Site for tools and support <http://umanitoba.ca/academicintegrity/> View the **Student Academic Misconduct** procedure for more information.
- The University is committed to a respectful work and learning environment. You have the right to be treated with respect and you are expected conduct yourself in an appropriate respectful manner. Policies governing behavior include the:

Respectful Work and Learning Environment

http://umanitoba.ca/admin/governance/governing_documents/community/230.html

Student Discipline

http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html and,

Violent or Threatening Behaviour

http://umanitoba.ca/admin/governance/governing_documents/community/669.html

- If you experience **Sexual Assault** or know a member of the University community who has, it is important to know there is a policy that provides information about the supports available to those who disclose and outlines a process for reporting. The **Sexual Assault** policy may be found at:
http://umanitoba.ca/admin/governance/governing_documents/community/230.html
More information and resources can be found by reviewing the Sexual Assault site <http://umanitoba.ca/student/sexual-assault/>
- For information about rights and responsibilities regarding **Intellectual Property** view the policy http://umanitoba.ca/admin/governance/media/Intellectual_Property_Policy_-_2013_10_01.pdf

For information on regulations that are specific to your academic program, read the section in the Academic Calendar and on the respective faculty/college/school web site

<http://umanitoba.ca/faculties/>

Contact an **Academic Advisor** within our faculty/college or school for questions about your academic program and regulations <http://umanitoba.ca/academic-advisors/>

Student Advocacy

Contact Student Advocacy if you want to know more about your rights and responsibilities as a student, have questions about policies and procedures, and/or want support in dealing with academic or discipline concerns.

<http://umanitoba.ca/student/advocacy/>

520 University Centre

204 474 7423

student_advocacy@umanitoba.ca