Syllabus

HNSC 2140: Basic Principles of Nutrition

Winter 2024



University of Manitoba Faculty of Agricultural and Food Sciences Department of Food and Human Nutritional Sciences

HNSC 2140: Basic Principles of Human Nutrition (3-0)

Course Syllabus - Winter 2024

COURSE DETAILS

Course Title & Number: Basic Principles of Human Nutrition (HNSC 2140)

Number of Credit Hours: 3

Class Times & Days of Week: 1:00 – 2:15 pm, Tuesdays and Thursdays

Location for Animal Science 219

classes/labs/tutorials:

Pre- or Co-Requisites: Prerequisites: (CHEM/MBIO 2700 (CHEM/MBIO 2701) or

CHEM/MBIO 2730, or the former CHEM/MBIO 2770 or the former CHEM/MBIO 2360 the former CHEM/MBIO 2361)) and

[(HNSC 1200 and HNSC 1210) or FOOD 2500]. Pre- or

corequisites: CHEM 2720 (CHEM 2721) or CHEM 2740 or the former CHEM/MBIO 2770 or the former CHEM/MBIO 2360 (the

former CHEM/MBIO 2361)

INSTRUCTOR CONTACT INFORMATION

Instructor(s) Name: Dr. Harold Aukema (he/him)

Office Location: W573 Duff Roblin

Office Hours or Availability: Immediately after class (for quick questions, no appointment

necessary)

Office hours Thursdays 2:30-4:30 pm, by appointment

(arrange by email)

Office Phone No. 474-8076 (email is preferred and will get a quicker response)

Email: Aukema@UManitoba.CA

TERRITORY ACKNOWLEDGEMENT

The University of Manitoba campuses are located on original lands of Anishinaabeg, Cree, Oji-Cree, Dakota, and Dene peoples, and on the homeland of the Métis Nation.

We respect the Treaties that were made on these territories, we acknowledge the harms and mistakes of the past, and we dedicate ourselves to move forward in partnership with Indigenous communities in a spirit of reconciliation and collaboration.

COURSE DESCRIPTION

The scientific principles underlying nutrient function and dietary requirements.

LEARNING OUTCOMES

Detailed learning objectives for each section will be provided at the beginning of each topic in the PowerPoint slides for that topic.

FOUNDATIONAL KNOWLEDGE CONTENT AREAS FOR DIETETICS EDUCATION

This dietetic education program is an accredited program recognized by the Partnership for Dietetic Education and Practice (PDEP) and prepares students for eligibility for registration with a provincial dietetics regulatory body.

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

Content Area	Foundational Knowledge	Cognitive Complexity Level
Anatomy and Physiology	Role, function and regulation of the integumentary, musculo- skeletal, nervous, endocrine, cardio-respiratory, urinary, lymphatic and digestive systems in health and disease	2
Biochemistry	Foundations of chemistry and biochemistry Major metabolic pathways	2 2
	Foundations of cellular and molecular biology Mechanisms of metabolic regulation	2 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 Physical activity and energy balance	3 2
	Nutrition recommendations and guidelines	3

TEXTBOOK, READINGS, MATERIALS

Textbook: Advanced Nutrition and Human Metabolism, 8th Edition. S.S. Gropper, J.L.

Smith, T.P. Carr. Wadsworth/Cengage Learning, 2022. ISBN: 9780357449813.

Available at U of M Bookstore.

Reference: Your Biochemistry Textbook

Note: Other selected readings may be assigned in class.

Class

Format: Class notes will be available on UM Learn on the HNSC 2140 class site.

Students will need to review the notes for each class before coming to class. Some of the notes will be self-explanatory – these slides will be identified and there will be no formal lectures on these slides. However, there will be opportunity for discussion and questions pertaining to these slides in class. Reviewing previous coursework in biochemistry and foods and nutrition also is recommended.

Students also are encouraged to go over the lecture and class notes following each class. Each class will start with the opportunity to ask questions relating to the previous class material. Students also are encouraged to ask questions and seek clarification of material during class.

Classes will be a combination of traditional lecture format, directed learning and inquiry based education. There will be iClicker questions in most classes (so **HAVE YOUR iCLICKER technology ready for each class**).

Students are expected to attend lectures. Lectures provide elaboration and explanation of the notes provided on UM LEARN. The textbook should be used to help clarify the notes and the lectures. In addition, iClicker questions count for a (limited) part of the grade, and this part cannot be obtained without attendance. However, attendance is not recorded.

COURSE TECHNOLOGY

It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. The student can use all technology in classroom setting only for educational purposes approved by instructor and/or the University of Manitoba Disability Services.

Classroom Response System ("iClicker Cloud")

You are required to bring a device to participate in the iClicker sessions during class. You can participate with the iClicker student app on a smartphone, tablet or laptop. If you have an iClicker account for other classes, you will need to register this class in your account (see below).

It is your responsibility to set up your iClicker account by **January 12, 2024** and follow the steps below to properly register in this course. It is also your responsibility to regularly check your iClicker records for any discrepancies and bring them to my attention within 48 hours.

Credit for using the iClicker will start on Jan 16, 2024.

To participate in iClicker Cloud sessions and ensure that your grades are properly reflected in the gradebook, follow the steps below:

- 1. Go to https://join.iclicker.com/BWCH to join the course
- 2. Sign in if you already have an iClicker account, or create one.
 - You can get a <u>free</u> app and use it for free by following the instructions <u>here</u>.
 - If you already have an account, DO NOT create a new one. You can only receive credit from one account.

3. You should be dropped directly into this course, Basic Principles of Nutrition.

- If you don't see this course in your account, use the + sign to search for my course:
 - In the "Find Your Institution" field, enter University of Manitoba
 - In the "Find Your Course" field, enter Basic Principles of Nutrition.
 - Select "Add This Course" and it will be added to the main Courses screen of your iClicker account.
 - Double-check the details you see to make sure you select this course:
 - Basic Principles of Nutrition
 - Harold Aukema
 - o HNSC 2140, Winter 2024
 - Tuesdays and Thursdays at 1 pm

4. Participate in sessions during each class.

- I have turned on a GPS location requirement for iClicker in our class. If you are
 not physically in class when you try to join with the iClicker app, you will not be
 able to respond to my polling/quizzing questions.
 - You will need to allow the device you are using to reveal your location to successfully check in.
 - o If you have any issues with your device's location settings, refer to the <u>Attendance Geolocation Troubleshooting Guide.</u>

- Each time class meets, make sure you have selected this course from the main screen of your iClicker account.
 - O When I start a session, click the **Join** button that appears on your screen, then answer each question I ask in iClicker.

Academic Integrity Information

iClicker activities fall under the provisions of our campus academic honesty policy. Students must not engage in academic dishonesty while participating in iClicker activities. This includes but is not limited to:

- Checking in while not physically in class
- Having another student check you into class
- Answering polling questions while not physically in class
- Looking at other students' devices while answering live questions
- Using more than one iClicker remote or account at a time

Any student found to be in violation of these rules will lose their iClicker points for the entire term and will be reported.

Need help with iClicker?

- If you are having trouble with your iClicker access code, check out this guide to access code errors.
- If you are having issues connecting to iClicker, check out these iClicker connectivity tips.
- If you are having trouble with iClicker establishing your location, review these <u>iClicker</u> Geolocation Tips.
- Find answers to many of your questions and contact the iClicker Tech Support Team by visiting iclicker.com/support at any time.

You are responsible for bringing your iClicker device to class and ensuring that it is working correctly. There will be no special consideration given for unrecorded clicks. Please inform your instructor if you change or get a new iClicker account midway through the term.

EXPECTATIONS: YOU CAN EXPECT ME TO

- Follow the <u>Respectful Work and Learning Environment Policy</u>. Simply stated, to create a class environment that values respect, honesty, humility, bravery and truth.
- Post the PowerPoint slides on UM Learn before class
- Allow for time at the beginning of each class to go over anything that was not clear in the previous class.
- Go through the slides during class and expand on the material on the slides when necessary.
- Provide active learning activities in class.
- Post sample test questions on UM Learn.
- Be available for office hours as posted unless I inform you otherwise during class.

As the instructor for this course, I am committed to equity, diversity, inclusion, and anti-oppression. I am committed to these concepts and will support students and endeavour to remove barriers to their learning and connecting them with needed supports. As I am still working on challenging my own assumptions, I invite you to bring to my attention anything I say, do, or allow that conflicts with this aim by speaking to me or emailing me with any concerns that you have.

EXPECTATIONS: I EXPECT YOU TO:

- Review or read the notes on the PowerPoint slides before coming to class to familiarize yourself with the topic to be covered. Especially for those slides which will not be covered in class, ensure that you ask any questions you have on these slides.
- Ask questions during class to clarify anything that is unclear.
- Participate in class discussions and activities.
- Review class material after class and ask for clarification at the next class for anything that is not clear.
- Read through the syllabus so that you understand all expectations, rights and responsibilities.
- Follow the <u>Respectful Work and Learning Environment Policy</u>. Simply stated, to follow values such as respect, honesty, humility, bravery and truth.
- Follow the policies around Class Communication, Academic Integrity, and Recording Class Lectures (<u>Section 2.5 ROASS</u>).

POLICY ON 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.

You are required to obtain and use your U of M email account for all communication between yourself and the university.

RECORDING CLASS LECTURES

Dr. Harold Aukema and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without my permission. Course materials (both paper and digital) are for the participant's private study and research.

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. Note that all figures from the textbook that are include in the class notes are copyrighted works by Cengage Learning. All 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, uncles 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.

ACADEMIC INTEGRITY

Each student in this course is expected to abide by the University of Manitoba <u>Academic Integrity principles</u>. Always remember to reference the work of others that you have used. Also be advised that you are required to complete your assignments independently unless otherwise specified. If you are encouraged to work in a team, ensure that your project complies with the academic integrity regulations. You must do your own work during exams. Inappropriate collaborative behavior and violation of other Academic Integrity principles, will lead to the serious <u>disciplinary action</u>. Visit the <u>Academic Calendar</u>, <u>Student Advocacy</u>, and <u>Academic Integrity</u> web pages for more information and support.

STUDENTS 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

CLASS SCHEDULE

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 the ROASS-Procedure).

The course will cover the topics in the order listed below.

- Test 1 will cover topics 1-4
- Test 2 will cover topics 5-6
- The final exam will be comprehensive, but weighted more heavily on sections 7-9
- 1. Dietary Reference Intakes (classes 1 and 2)
 - Nutrition Research
 - Dietary requirements and recommendations
 - Concepts of nutrient classes
 - Dietary requirements and rationale
- 2. Cell Physiology (chapter 1 in the text book) (class 3)
 - Cell components and structure
 - Gene expression and protein synthesis
 - Nutrient effects on transcription, translation, epigenetic regulation
 - Enzymes in metabolism
- 3. Digestion and Absorption (chapter 2) (classes 4, 5 and 6)
 - Structure of digestive tract
 - Physical mechanisms of digestion
 - Enzymes, secretions, regulation of digestion
 - Regulation of food intake
 - Absorption of nutrients
 - Regulation of water balance
- 4. Energy transformations (chapter 1, 8) (class 7)
 - Energy change in chemical reactions
 - ATP/ADP
 - Electron transport chain
 - Role of micronutrients
 - Food as source of energy
 - Energy expenditure and measurement

DRI Test (class 8 – Feb 1)

Review class (class 10)

Test 1 (class 11 – Feb 13)

- 5. Carbohydrates (chapter 3) (classes 9, 12 and 13)
 - Nomenclature
 - Digestion and absorption of carbohydrates
 - Regulation of carbohydrate metabolism
 - Role of micronutrients in carbohydrate metabolism
- 6. Fibre (chapter 4) (class 14)
 - Nomenclature
 - Fibre in the gastrointestinal tract
 - Fibre and disease
 - Fibre recommendations

Review class (class 16)

Test 2 (class 17 - March 12)

- 7. Lipids, Alcohol (chapter 5) (classes 15, 18, 19)
 - Nomenclature and structure
 - Digestion and absorption of lipids
 - Lipid transport, storage and metabolism
 - Micronutrients in lipid metabolism
 - Health effects of lipids and recommendations
 - Antioxidant nutrients
 - Alcohol metabolism
- 8. Protein (chapter 6) (classes 20, 21, 22)
 - Nomenclature
 - Digestion and absorption of proteins
 - Protein metabolism and the role of micronutrients
 - Protein quality
 - Nutrient effects on protein synthesis
- 9. Metabolic Integration (chapter 7) (class 23)
 - Metabolic pathways involving nutrients
 - Feeding and fasting
 - Exercise and energy expenditure

Review classes (classes 24 & 25)

COURSE EVALUATION METHODS

Term tests and the final exam are open book will consist of written short and long answer questions, as well as some fill-in-the-blanks or multiple-choice questions. Open book means that you can take paper copies of your class notes to the exam, including any summaries or notations that you have made. No electronic resources or calculators are allowed. The DRI test format will be short answer. Results from the DRI test and Term test I, and possibly Term test 2, will be available before the Voluntary Withdrawal date (March 20, 2024). The final exam will be cumulative. Students must remain available during the exam period set by the university.

Date:	Assessment Tool	Value of
		Final Grade
Feb 1	DRI Test (1 hour)	15%
Feb 13	Term test 1 (75 min)	20%
March 12	Term test 2 (75 min)	25%
In most classes	iClicker Participation	5%
After each section	iClicker quizzes	5%
Set by Student Records	Final exam (2 hours)	30%

DRI Test:

The DRI chapter on vitamin B₁₂ is needed for the DRI test. The chapter (vitamin B₁₂) is available online for free as a PDF. It can be found at: http://www.nap.edu/catalog.php?record_id=6015. It is essential that you use the PDF format for the test so that the page numbers are consistent with the marking scheme. The page numbers for this chapter are pages 306-356. If your page numbers are different, you have the wrong download.

This is an open book test in which you are expected to use this chapter to answer test questions. Therefore, you must <u>print out the **PDF format**</u> of this chapter and <u>bring it to the test</u>. Note that electronic forms of the chapter are <u>not</u> allowed in the test.

Any student that misses a test must notify the instructor before or within 24 hours of the test to avoid getting a grade of 0. If one of the Term tests is missed and the appropriate notification is given, the test will not be written and the weighting of the other term test and final exam will be increased proportionately. If two Term tests are missed (with appropriate notification), another test will be administered and the weighting of this test and the final exam will be increased proportionately. If the DRI test is missed, a makeup test will be administered. Appropriate documentation (Self-declaration form) must be provided in the case of a missed test.

If a student is unable to write the final exam, the student must make arrangements with the Faculty to write the final exam at an alternate date.

iClicker quizzes will be given after each section, except for section 4 (Energy Transformations), for a total of 7 quizzes. Each quiz will be composed of 5 multiple choice or true/false questions which will be answered using the iClicker, so be sure to have your iClicker technology ready. The results of the top 5 quizzes will be used to calculate the overall Quiz mark, so each quiz used will be worth 1% of the final grade. If a student misses a quiz there will not be a makeup quiz, unless more than 2 quizzes are missed. In this case, appropriate notification and documentation must be given within 24 hours of the quizz in order to be allowed to make up quizzes.

iClicker participation marks will be earned by participating in class questions throughout the semester. In order to earn the full 5% of these marks, the student must participate in >90% of the classes in which the iClicker is used by responding to at least 75% of the questions posed that day. If participation is 80-89% of classes, 4% will be earned; for 70-79% participation, 3%; for 60-69% participation, 2%; for 50-59% participation, 1%; <50% participation, 0%.

GRADING

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

VOLUNTARY WITHDRAWAL

The voluntary withdrawal deadline is March 20, 2024. Students who do not drop the course by the deadline will be assigned a final grade. Withdrawal courses will be recorded on official transcripts. Refer to the <u>Registrar's Office</u> web page for more information. Note that I am willing to discuss your progress and strategies for improvement at any time.

UNIVERSITY SUPPORT OFFICES & POLICIES

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: http://bit.ly/1sXe6RA. When

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

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

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

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.

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 <u>Academic Calendar http://umanitoba.ca/student/records/academiccalendar.html</u> 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