



UM | Faculty of Agricultural
and Food Sciences

Syllabus

HNSC7460/ANSC 7460 (CRN: 22105)

Lipid Nutrition and Metabolism

Fall 2023

**DEPARTMENTS OF HUMAN NUTRITIONAL SCIENCES
AND ANIMAL SCIENCES**



**University
of Manitoba**

****We acknowledge with great respect that 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 Metis Nation.****

**HNSC/ANSC 7460 LIPID NUTRITION AND METABOLISM (1.5 Cr)
FALL 2023**

Instructors and Office:

Office: Dr. Miyoung Suh, RD, PhD
Room: R4036 St. Boniface Research Centre
Phone: 204-235-3106
Email: miyoung.suh@umanitoba.ca

Office Hours: By appointment (by phone or email)

Course

Description: Lectures and discussions will be used to discuss recent/significant research advances in the field of lipid nutrition and metabolism, pertinent primarily to human health to mammalian physiology.

Overall Course Objective

The course will stimulate the learners to promote their intellectual development in the area of Lipid Nutrition and Metabolism, with a particular interest in critically reviewing available literature, fostering scientific judgment, and understanding/discussing current opinions on dietary fat requirements and their role in human health and disease.

Classes: Thursday 8:30 – 11:15am (in person), Ellis 344

Start date: Sept 7-Oct 12th
The last date to drop this course without penalty: September 13, 2023.
The Voluntary Withdrawal deadline for this course: October 11, 2023.

Course Format: Lecture, invited speakers, student presentations and discussion

Evaluation:

Weekly reflection (WK2-WK5)	10%
Presentations and Discussions (WK6)	30%
Presentation moderation	5%
Participation (class discussion evaluated by entire class mates)	15%
Critical paper (Due: Oct 19, 4pm) plus Table (WK3, 5%) and outlines submissions (WK5, 5%)	40%

Evaluation: Final grades will be assigned as follows:

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	95-100	4.25-4.5	4.5
A	86-94	3.75-4.24	4.0
B+	80-85	3.25-3.74	3.5
B	72-79	2.75-3.24	3.0
C+	65-71	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

Voluntary withdrawal (VW) is a way for students to leave a class without academic penalty once the Registration Revision Period has ended. If you opt to voluntarily withdraw from a course, you will not be eligible for a refund and, if applicable, will still be required to pay any outstanding tuition fees for the course. On your transcript, the course you have withdrawn from will be listed; however, “VW” will appear in lieu of a grade. If you do not drop a course before the VW deadline, you will receive a final grade in the course on your transcript.

Please note that there are separate deadlines for dropping a course early in a term during the Registration Revision Period. Dropping a course means you are removing that course from your schedule, will not be charged tuition fees for that course, and the course will not appear on your transcript.

The Registrar’s Office website, [Withdraw from a Course](https://umanitoba.ca/registrar/withdraw-course) (<https://umanitoba.ca/registrar/withdraw-course>), includes more information on the different ways in which you can withdraw from a course and important dates and deadlines to do so

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 UMLearn), 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.

Course Technology:

UM Learn will be used for posting all lectures, assignment, and other content.

Expectations:

- Regular attendance to lectures is essential for success in this course.
- You are responsible for reviewing materials provided and participating the discussion.
- Do respect your fellow students and foster a cooperative learning environment where other’s questions and comments are heard and discussed.
- I will be available for communication for any questions and comments you have via e-mail communication and meetings.
- I will make efforts to reply to your questions/concerns within 72 hours-maximum 1 week, depending on the questions and time allowed.
- I value the diverse learning environment. Any lectures and discussions will be based in respect of diversity (culture, ethnicity, religion, gender identity, sexuality, disability, age, socioeconomic status and etc).
- I also expect you to follow some policies around Class Communication, Academic Integrity, and Recording Class Lectures as below.

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 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 [disciplinary action](#). Visit the [Academic Calendar](#), [Student Advocacy](#), and [Academic Integrity](#) web pages for more information and support.

Recording Class Lectures:

As an UM Faculty Association member, Dr. Miyoung Suh holds copyright to all of the course materials and lectures including lab manual and materials. Thus, no audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without her permission. Course materials (both paper and digital) are only for your private study and research, but not to share with others via posting in any media and online.

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

Presentations, Discussions and Critical Paper

The purpose of this presentation and paper is to develop students' ability to effectively research, discuss and demonstrate understanding of current issues in lipid nutrition. This exercise is also to develop students' oral and written communication skills in the scientific community. Students will choose a controversial/debatable topic in lipid metabolism and function (**See below**). Each student will be given the opportunity to work on a topic and is responsible for researching literature on at least 2 clear sides (pros/cons) of the topics chosen in order to provide appropriate debating.

Potential topics for oral presentations:

1. Does dietary fat cause obesity?
2. Is phytosterol a good solution to decrease cholesterol?
3. Is phosphatidylserine good for brain development?
4. Is phosphatidylcholine good for brain development?
5. Should high monounsaturated fatty acid diet be used in the management of type 2 diabetes?
6. Is a long-term fat-free diet an effective approach to battle obesity and related diseases?
7. Is long-term consumption of pork from *fat-1* transgenic pigs safe to human health?
8. Are high fat diet-induced animal models better than transgenic animal models in studying obesity associated diseases?
9. Is sphingolipid a marker for lipotoxicity in chronic diseases?
10. Are all saturated fatty acids bad for health?

11. Is coconut oil healthy option for chronic diseases?
12. Is alcohol a lipid modulator?
13. Are natural trans fatty acids (eg. vaccenic acid) good for cardiovascular disease?
14. Other topics: discuss with instructors

Late submission:

Papers handed in late that do not qualify for exemption (health issues with Physicians note; compassionate reasons for family loss) will be graded without bias, but for EACH 24-hour delay (including weekends), your grade will be reduced by 10%.

Appendix:

- Appendix A: Topic Assignment Form
Please choose a topic at the first class and a moderator
 - Appendix B: Weekly Self-Reflection Form
 - Appendix C: Presentation and Discussion Evaluation Form
Moderator evaluation Form
 - Appendix D: Paper Evaluation Form
- *Evaluation form C and D will be provided later.

TENTATIVE COURSE TIMETABLE

Each lecture is designed to provide the overview of lipid biochemistry and biology in the context of food, food industry and nutrition and health.

WK	Date	Lectures Topics/Presentation	Due date
1	Sept 7	Introduction to course	
		Overview of lipids Metabolism, function and related diseases	
2	Sept 14	Understanding of polyunsaturated fatty acids (PUFA) - n-6 enriched tissue metabolism - n-3 enriched tissue metabolism	
3	Sept 21	Novel very long chain fatty acids metabolism, function and related diseases. Phytosterol metabolism, function and related disorders (Dr. Dylan MacKay)	<i>Submit a Summary Table(s) for the final paper (in class)</i>
4	Sept 28	Sphingolipid metabolism and function Oxylipin metabolism and function (<i>Dr. Harold Aukema</i>)	
5	Oct 5	Lipidomics Workflow for Food and Biological Samples (Dr. Michel Aliani)	<i>Submit a title and an outline of the final paper (in class)</i> <i>Submit PPT by 8pm on Oct 11</i>
6	Oct 12	Student presentations and discussions	
7	Oct 19	Term paper	<i>Term paper due: 4pm</i>

Component	Weight	Description
Weekly reflections : Start from WK2-5	10% (2% per lecture)	<p>Submit weekly reflections on lecture content and readings. It will be marked as 2 points: missing (0), poor- (0.5), basic- (1.0), adequate- (1.5), and in-depth (2.0) of understanding.</p> <p>Reflections should be 500 words for each topic, including lecture topic, date, and instructor; single spaced, informal but clearly written, and should describe your critical reflection of the content. (POST on UMLearn by every Friday 4pm).</p> <p>Possible questions (<i>*this is not to evaluate the quality of lecturer</i>):</p> <ul style="list-style-type: none"> • How would you apply the lecture content to your own area of research interest? • What gaps would this lecture fill in your discipline’s typical approach to this research area? • What limitations do you see for this topic in terms of understanding your research area? • What questions do you have for the speaker (which is not raised in the class)?
Student presentation and Discussions	30% 5%	<p><i>Each presentation requires 2 students: a presenter and a moderator</i></p> <p><i>i) Presentation on the topic:</i> each student will give an oral PPT presentation followed by discussion (25 min presentation and 10 min discussion). The presentation should identify important components of the background of the issue, the metabolic basis for the claims, and hypotheses or conclusions. The format for the presentation and discussion is flexible, so can be creative and entertaining!</p> <p>The presenter should provide 1 or 2 key references for each side (at least 72 hours before the class time; thus, send to class by <u>Monday 12pm</u> via e-mail.</p> <p>The presenter should submit their PPT presentation to the instructor by 8pm the day before (Oct 11)</p> <p><i>ii) Moderator leading discussions:</i> each class will evolve around presentation and discussions related to a topic of interest. It is a moderator’s job to ensure that all audiences contribute to discussion; thus, they should prepare some questions to stimulate discussion.</p> <p><i>Marking:</i> both instructor (60%) and entire class (40%) will mark for presentation and moderation activities in every class. Instructor’s mark will be considered for inclusion of the course assessment. For the student marks, the highest and/or the lowest mark will be removed only if the marks are not within mean \pm 1 standard deviation.</p>
Participation	15%	<i>This is to evaluate student’s ability to participate and discuss topics/problems covered in the lectures and presentations.</i>

		<p><i>Participation:</i> as a participant, each student will be expected to contribute to all class discussions. Each class you should prepare by reading the references provided by the instructors and other students. You can find more information on your own for each topic.</p> <p><i>Marking:</i> at the discretion of the Instructor</p>
Critical paper	40%	<p>Each student will write their scientific judgment on a topic presented, including:</p> <ul style="list-style-type: none"> Background Metabolism and metabolic claim Pros and cones A conclusion <p>The paper should not exceed 3000 words, except reference page(s) and appendix (if included). The paper must follow Advances in Nutrition (IF, 7.265) format. It must be professionally written, use font of 12, Times New Roman, and 1-inch margins and 1.5 space. Include a title page, a table of contents, abstract, page numbers, references, and if necessary, appendices.</p> <p>Submit to instructor in word (not PDF):</p> <ol style="list-style-type: none"> 1. Summary table(s) (by WK 3 in class) 2. Title and outlines (by WK5 in class) 3. Final term paper (October 19, 2023 (4pm) via UMLearn <p><i>Marking: Instructor</i> (100%) will mark the paper.</p>

Please review as below:

UNIVERSITY SUPPORT OFFICES & POLICIES

Schedule “A”:

Section (a) academic supports and resources:

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) mental health support and resources:

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) 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) university and unit policies, procedures, and supplemental 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 [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 to 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

APPENDIX A. TOPIC ASSIGNMENT
HNSC 7460 LIPID NUTRITION AND METABOLISM

Student Name	Moderator	Topic