Syllabus Food & Human Nutritional Sciences /Food Sciences 4540 Functional Foods and Nutraceuticals Fall 2023





TABLE OF CONTENTS

COURSE DETAILS	3
INSTRUCTOR CONTACT INFORMATION	3
COURSE DESCRIPTION	4
COURSE GOALS	
COURSE LEARNING OBJECTIVES	
TEXTBOOK, READINGS, AND COURSE MATERIALS	
USING COPYRIGHTED MATERIAL	
COURSE TECHNOLOGY	-
EXPECTATIONS: I EXPECT YOU TO	
EXPECTATIONS: YOU CAN EXPECT ME TO	
CLASS SCHEDULE AND COURSE EVALUATION	
LAB EXPECTATIONSERROR! BOOKMARK NOT DEFINED	
LAB SCHEDULE	
GRADING	-
VOLUNTARY WITHDRAWAL	
ASSIGNMENT DESCRIPTIONS	0
REFERENCING STYLE	
ASSIGNMENT FEEDBACK1	
ASSIGNMENT EXTENSION AND LATE SUBMISSION POLICY1	
UNIVERSITY SUPPORT OFFICES & POLICIES	0

COURSE DETAILS

Course Title & Number:	FOOD/HNSC 4540: Functional Foods and Nutraceuticals	
Number of Credit Hours:	3.0	
Class Times & Days of Week:	Tuesdays 5:30-7:45PM. Sept 12 to Dec 5, 2023	
Location for classes:	Room 304 Human Ecology Building	
Pre-Requisites:	[CHEM 2770 or MBIO 2770 (002.277 or 060.277) or CHEM 2360 or MBIO 2360 (002.236 or 060.236)].	
I	nstructor Contact Information	
Instructor(s) Name & Preferred Form of Address:	Dylan MacKay PhD (he/him), you can call me Dylan	
Office Location:	110 RCFTR, 196 Innovation Dr, Winnipeg, MB R3T 2N2	
Office Hours or Availability:	Virtual and in-person meetings can be booked	
Office Phone No.	204-272-3119	
Email:	Dylan.mackay@umanitoba.ca Please include FHNS4540 or FOOD4540 at the start of the subject line in emails related to this course. All email communication must conform to the <u>Communicating with Students</u> university policy.	
Contact:	Please contact the instruction via university email. You are required to obtain and use your University of Manitoba email account for all communication between yourself and the university.	

Traditional Territory/Land Acknowledgment

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 those which are ongoing, and we dedicate ourselves to moving forward in partnership with Indigenous communities in a spirit of reconciliation and collaboration.

I would personally like to acknowledge that the places where I work and my home residence in Winnipeg are located within the traditional territories of other Indigenous peoples and within the heartland of the Métis Nation. The water I drink comes from Treaty #3 territory and the power from Manitoba hydro that I use at home and at the University comes from Treaty #1, 2, 3 4 and 5 territories. In my own engagement with reconciliation, I am aware that there are still ongoing harms and continuing mistakes which harm Indigenous peoples and members of the Métis Nation. I am committed to minimizing those harms within the capacity of my work at the University of Manitoba and by continuing to learn of the unique richness and diversity of Indigenous cultures and their resilience, as well as the socio/economic and cultural traumas experienced by Indigenous peoples.

In Anishinaabe traditional belief, everything in the environment is interconnected and has important relationships with the things around it. I think this belief is very applicable to the university environment.

I encourage you to further educate yourself on this topic with the following links:

- 1. <u>Reserves in Manitoba</u>
- 2. Forced Relocation of Indigenous People in Canada
- 3. Land Acknowledgements A Reflection 5-years After the TRC Report
- 4. Treaty Relations Commission of Manitoba

Course Description

U of M Course Calendar Description

This course will examine the bioactive components of functional foods and nutraceuticals, their sources, chemistry, process technology, efficacy, safety and regulation. Also offered as FOOD 4540. May not be held with FOOD 4540.

General Course Description

Based on the U of M course calendar description, write a simplified course description for students and describe the value of the course from your perspective as the instructor. For example, how does the course fit into the broader program of studies (i.e., particularly relevant for professional programs)? Which students would benefit most from taking the course (i.e., someone with interest in the field vs. someone who needs a foundational course for a particular discipline)?

Course Goals

The course will provide adequate information for learners to promote their learning and intellectual development in the area of functional foods and nutraceuticals.

Course Learning Objectives

The learners who successfully complete this course should be able to:

- 1. Have a general knowledge on development of functional foods and nutraceuticals
- 2. Be able to distinguish differences between conventional foods vs. functional foods
- 3. Be able to distinguish differences between nutraceuticals (dietary supplements) vs. pharmaceuticals
- 4. Be able to list potential health benefits of common functional foods and nutraceuticals
- 5. Know basic physicochemical properties of dietary agents with health promoting properties
- 6. Understand how to search and report on a topic of relevance to functional foods and nutraceuticals

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
	Ingestion, digestion, absorption, metabolism and excretion of nutrients	3
	Biochemical utilization of nutrients and energy	3
	Nutrient and energy requirements	3
Human Nutrition across	Physical activity and energy balance	3
the Lifespan	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
	Dietary practices	3
Nutrition Assessment	Food and nutrient intake of individuals and populations	3

Textbook, Readings, and Course Materials

UM Learn:

This course will use the UM Learn platform which can be accessed:

https://universityofmanitoba.desire2learn.com/

The Centre for the Advancement of Teaching and Learning offers training on UM Learn platform at

https://umanitoba.ca/centre-advancement-teaching-learning/technologies/umlearn

Referencing Style

Assignments should use the Vancouver reference style as outlined in the text: Citing Medicine: The NLM Style Guide for Authors, Editors, and Publishers [Internet]. 2nd edition https://search.lib.umanitoba.ca/permalink/01UMB_INST/1p55dqn/alma99149165510201651

Optional Reading Materials:

Nutraceuticals, Nutrition Supplement and Human Health. Rafat Siddiqui and Mohammed Moghadasian (2020) <u>https://doi.org/10.3390/books978-3-03936-556-2</u>

Functional Foods and Nutraceuticals. R.E. Aluko (2012) Available via UM Libraries <u>https://search.lib.umanitoba.ca/view/action/uresolver.do?operation=resolveService&package_service_i</u> <u>d=896753677750001651&institutionId=1651&customerId=1650&VE=true</u>

Cereal Grain-Based Functional Foods. Trust Beta (2019) Available via UM Libraries <u>https://pubs-rsc-org.uml.idm.oclc.org/en/content/ebook/978-1-78801-148-8</u>

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, 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 <a href="http://umanitoba.ca/copyright@umanito

Course Technology

Students may use laptops, cellphones or tablets in the classroom provided they are muted (unless part of a medical device) and that their use does not distract or block the view of other people in the class. Additionally students must be aware that policies such as the <u>Respectful Work and Learning</u> <u>Environment policy (RWLE) (https://bit.ly/30xGtnd)</u> are applicable in all University-related activities, even ones happening in online environments such as social media platforms. Also the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical, and legal manner are applicable.

Expectations: I Expect You To

To respect and follow all University of Manitoba policies. Follow my course instructions. Contribute to class discussion as much as you can. Checking your UofM email and UofM Learn regularly for potential class updates. See Respectful Work and Learning Environment Policy.

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.

Please note that all communication between me and you as a student must comply with the electronic communication with student policy. Please include FHNS4540 or FOOD4540 at the start of the subject line in emails related to this course.

Academic Integrity:

Each student in this course is expected to abide by the University of Manitoba <u>Academic Integrity</u> <u>principles</u>. Each student in this course is expected to compete their coursework and programs of study with integrity by making a commitment to the six fundamental values of honesty, trust, fairness, respect, responsibility, and courage. 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. 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.

Recording Class Lectures:

No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission from Dylan MacKay. Course materials (both paper and digital) are for the participant's private study and research.

Student Accessibility Services:

The University of Manitoba is committed to providing an accessible academic community. <u>Students</u> <u>Accessibility Services (SAS)</u> 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

Expectations: You Can Expect Me To

Make the learning environment in this class inclusive, enjoyable, and informative. To accommodate all of your reasonable requests within the University of Manitoba policies. Be available to help your educational needs within. Do my best to teach you updated topics in the area of functional foods and nutraceuticals. <u>See Respectful Work and Learning Environment Policy</u>. I will be in class for 10 minutes after the class time to discuss any questions or comments you may have.

Equity And Inclusion Commitment

I will respect your identities (e.g., race, gender, sexual orientation, class, size, ability, etc.) and commit to interrupting any form of oppression based on these categories and amplifying under-represented voices. I am a white cis man and I am still working on challenging all my assumptions and recognizing all of the unearned privileges that I have, please, if you can, bring to my attention anything I say, do, or allow that conflicts with this commitment by submitting anonymous feedback to me https://forms.gle/uMvhvPz43CkfewgRA

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 <u>Section 2.8 of ROASS</u>.

The schedule should include dates and times of classes, including missed classes due to holidays or other commitments of the instructor. It also includes dates of assignments/quizzes/exams and alternate forms of assessments, date for voluntary withdrawal, and dates when students can expect to receive their assignment or test grades.

Date	Class Content & Teaching Strategies	Evaluation		
		Type of Assessment	Due Date	Value of Final Grade
Sep 12	Introduction to course schedule and materials. A historical overview to functional foods and functional ingredients (Dr. MacKay)	n/a	n/a	n/a
Sep 19	Experimental and Clinical evidence on efficacy of functional foods and nutraceuticals (Dr. MacKay)	n/a	n/a	n/a
Sep 26	An introduction to the UM Libraries and an introduction to reference management software (Ryan Schultz, Reference Librarian	Term paper topic selection	October 3 rd	5%
	and Liaison Librarian for the Faculty of Agricultural and Food Sciences) and Assignment of the term paper and topic selection (Dr. MacKay)	Term paper outline and search strategy	October 24 th	5%
		Term Paper	November 30th	20%
Oct 3	Dietary antioxidants (Dr. Arnold Hydamaka, guest lecturer)	n/a	n/a	n/a
Oct 10	Functional Drinks (Dr. Arnold Hydamaka, guest lecturer)	Practice midterm questions will be posted on UMlearn	n/a	n/a
Oct 17	Functional Carbohydrates and Human Health (Dr. Lovemore Malunga, guest lecturer) Term paper outline is due on UMlearn.	n/a	n/a	n/a
Oct 24	Nutrigenetics and Nutragenomics (Dr. MacKay)	n/a	n/a	n/a
Oct 31	Midterm exam Including materials up to the end of the October 17 th Functional Carbohydrates lecture.	Multiple-choice questions on UMLearn	Timed	35%

				100%
ТВА	FINAL exam by the Registrar's Office Including materials from the Nutrigenetics lecture on Oct 24 th until the end of the course.	Multiple-choice questions on UMLearn in person	Timed	35%
Dec 5	Prebiotics, Probiotics and Postbiotics and Human Health (Dr. MacKay)	n/a	n/a	n/a
Nov 28	Functional Lipids and Human Health (Dr. MacKay)	n/a	n/a	n/a
Nov 21	Bioactive Peptides (Dr. Rotimi Aluko, guest lecturer)	n/a	n/a	n/a
Nov 13 to 17	Fall Term Break	n/a	n/a	n/a
Nov 7	Cereal Grain Phytochemicals and Potential Health Benefits (Dr. Trust Beta guest lecturer)	n/a	n/a	n/a

Grading

There are no extra credit opportunities available in this class. Final grades will be rounded up to the nearest 5%.

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	95-100	4.25-4.5	4.5
Α	86-94	3.75-4.24	4.0
B+	80-85	3.25-3.74	3.5
В	72-29	2.75-3.24	3.0
C+	65-71	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 last date to drop courses for the Fall 2023 term is September 19th, the Voluntary withdrawal (VW) date: November 21

ASSIGNMENT DESCRIPTIONS

This course is assessed via a multi-component term paper, a midterm, and a final exam. The term paper will consist of a maximum of five pages of text (single spaced, times new roman 12 pt font) plus references. The grading will be 5% on topic selection, 5% on outline, 20% on the overall final paper, which contributed to 30% of the final grade. More detail on the paper will be introduced in week 3 when it is assigned, this will include a suggested template/rubric. The exams will consist of multiple-choice questions and will be conducted on the UM Learn platform. The mid-term exam will cover the content of the first half of the course, from weeks 1 to 6. The final exam will cover the content of weeks 6 to 12. The paper will contribute 30%, and each exam will count toward 35% of the course's final grade.

Referencing Style

Assignments should use the Vancouver reference style as outlined in the text: Citing Medicine: The NLM Style Guide for Authors, Editors, and Publishers [Internet]. 2nd edition

https://search.lib.umanitoba.ca/permalink/01UMB_INST/1p55dqn/alma99149165510201651

Example: 1. Wilkinson IB, Raine T, Wiles K, Goodhart A, Hall C, O'Neill H. Oxford handbook of clinical medicine. 10th ed. Oxford: Oxford University Press; 2017

Assignment Feedback

Feedback on term paper topic and outline sections will be provided to students within 1 week on UMLearn. Feedback on final term paper will be provided on UMLearn within 2 weeks. Exam grades will be available on UM Learn within 5 days of completion of the exam.

You will have received 45% of you grade by the Voluntary withdrawal (VW) date of November 21 2023.

Assignment Extension and Late Submission Policy

There will be a reduction of 5% of total potential marks for each day that an assignment is late beyond the deadline, unless the instructor is contacted in advance of the deadline and an extension is agreed upon.

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: <u>http://umanitoba.ca/student/academiclearning/</u>

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: <u>http://bit.ly/WcEbA1</u> or name: <u>http://bit.ly/1tJ0bB4</u>. 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: <u>http://bit.ly/lsXe6RA</u>. When working remotely, students can also receive help online, via the Ask-a-Librarian chat found on the Libraries' homepage:<u>www.umanitoba.ca/libraries</u>.

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:* <u>http://umanitoba.ca/student/counselling/index.html</u> 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* <u>http://umanitoba.ca/student/case-manager/index.html</u> 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* <u>http://umanitoba.ca/student/health/</u> 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 peer support from *Healthy U* or 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 https://umanitoba.ca/student/health-wellness/welcomeabout.html

britt.harvey@umanitoba.ca

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 <u>http://umanitoba.ca/copyright</u> 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:
 <u>http://umanitoba.ca/admin/governance/governing_documents/community/230.html</u>
 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 <u>https://umanitoba.ca/governance/sites/governance/files/2021-06/Intellectual</u> <u>Property Policy - 2013_10_01 RF.pdf</u>

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 <u>http://umanitoba.ca/academic-advisors/</u>

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

Basic Needs

It can be difficult to learn and succeed in courses when you are struggling to meet your or your family's basic needs. Several UM and community resources are listed below if you would benefit from support with regards to housing, food, finances, and/or childcare:

- Housing
 - <u>UM Housing</u> (https://umanitoba.ca/housing)
 - <u>Winnipeg Rental Network</u> (https://www.winnipegrentnet.ca/)
 - o Manitoba Residential Tenancies Branch (https://www.gov.mb.ca/cca/rtb/)
 - o HOPE End Homelessness Winnipeg Services & Supports (https://umanitoba.ca/housing)
- Food
 - o <u>U of M Food Bank</u> (https://umanitoba.ca/financial-aid-and-awards/u-m-food-bank)
 - <u>Food Matters Manitoba</u> (https://foodmattersmanitoba.ca/find-emergency-food-inwinnipeg/)
- Finances
 - o <u>UM Financial Aid and Awards</u> (https://umanitoba.ca/financial-aid-and-awards)
 - <u>Manitoba Student Aid</u> (https://www.edu.gov.mb.ca/msa/)
- Child Care
 - <u>UM Child Care</u> (https://umanitoba.ca/about-um/child-care)
 - <u>Manitoba Child Care Subsidy</u> (https://bit.ly/3yG3ijy)
 - Manitoba Child Care Association (https://mccahouse.org/looking-for-child-care/)

Indigenous Students

Staff, faculty and Elders are well-equipped to ensure your university experience is as beneficial, accessible, and successful as possible. Visit the Indigenous <u>Student Experience</u> (https://umanitoba.ca/indigenous/student-experience) website for more information on the supports and services available.

International Students

The transition to a new country and a new academic system can be both exciting and overwhelming. The International Centre (IC) is here to help you settle into life at University of Manitoba. Visit the <u>International Students</u> website (https://umanitoba.ca/current-students/international) for more information.

English Language Centre

The English Language Centre (ELC) (https://umanitoba.ca/english-language-centre) provides courses, tests, accommodations and individual support to students whose first language is not English in order to support academic success and participation in the University of Manitoba community.