



UM | Faculty of Agricultural
and Food Sciences

Syllabus

FOOD 3220: Grains and Food and Beverages
(Fall 2022)



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COURSE DETAILS

Course Title & Number:	Grains for Food and Beverage
Number of Credit Hours:	3
Class Times & Days of Week:	3 contact hours per week (Monday, Wednesday and Friday 10.30 am – 11.20 am)
Location for classes/labs/tutorials:	342 J. H. Ellis Building Guest lectures may be conducted virtually Please note: If the instructor falls sick, classes may be conducted virtually or will be conducted by an alternate instructor
Pre-Requisites:	FOOD 2500 or equivalent

Instructor Contact Information

Instructor(s) Name & Preferred Form of Address:	Dr. Maneka Malalgoda
Office Location:	Room 246, Ellis Building
Office Hours or Availability:	By appointment (please email to schedule an appointment). Available for questions after every class (exceptions may apply)
Office Phone No.	204-474-9837
Email:	Maneka.malalgoda@umanitoba.ca <i>Note:</i> All email communication must conform to the Communicating with Students university policy.
Contact:	Email or one-on-one/group meetings

Traditional Territory/Land 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.

Equity and Inclusion Commitment

The instructor is committed to create a learning environment that is respectful, equitable and inclusive, and will support students by removing barriers to their learning.

Course Description

U of M Course Calendar Description

The science and technology behind the functionality of major Canadian cereal grains and grain legumes for food and beverage. Grains covered include wheat, barley, oats, peas, beans, and lentils in the context of their processing into products such as bread, pasta and beer, and foods high in dietary fibre. Details are presented on the differing physical and chemical attributes of grains to make quality products with focus on the roles of protein, starch, and non-starch polysaccharides

General Course Description

The course will provide insight on how grains can be utilized in different food applications, and the important functional properties of grains as they align with specific applications. The course will have discussion-based learning opportunities which will allow students to identify novel, nutrient-dense applications for different grains grown in Canada.

Course Goals

Upon completion of this course, students should be able to:

- understand the definition of 'grains'
- delineate differences between cereals and legumes in terms of structure and composition
 - o visualize and explain the major anatomical features of grains
 - o understand the distribution of major nutritional components in the grains
 - o discuss the roles of starch, non-starch polysaccharides and protein as major chemical constituents of grains
- gain fundamental understanding of the grain dry milling process and typical processing steps used to obtain products suitable for consumption and/or for being incorporated in various foods
- acquire a fundamental understanding of the wet milling process and typical processing steps used to make wet milling coproducts
- gain an understanding of the principles of bakery production of bread and baked products
- understand the major snack food types and the methods of their manufacture
- achieve a general understanding of the manufacture of breakfast cereals
- understand the malting process and biochemical changes in germinating barley to transform grain into quality malt for beer brewing
- understand the basic principles involved in the production of traditional fermented grain food and beverage products

Textbook, Readings, and Course Materials

Recommended reading:

C. W. Wrigley, H. Corke, K. Seetharaman & J. Faubion (editors). Encyclopedia of Food Grains Volumes 1, 2, & 3). Kidlington, Oxford, Waltham, MA. Academic Press, Elsevier. SB188.4.E53 2016

E. K. Arendt & E. Zannini. Cereal Grains for the Food and Beverage Industries. Cambridge: Woodhead Publishing Limited. TP 434 A74 2013

J. A. Delcour & R. C. Hosney. Principles of Cereal Science and Technology. St. Paul, MN: American Association of Cereal Chemists International. TX 557.H67 2010

These books are available in the UM Library

Supplementary readings – A number of helpful references will be provided on UMLearn

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.

Course Technology

For course management, I will be using UM Learn.

You should check that technical requirements such as software and system requirements (i.e., operating system, web browser, user programs), hardware (i.e., hard disk drive, graphic card, sound card, memory) & peripherals (i.e., webcam, microphone), subscriptions or plug-ins (i.e., Adobe Flash Player, QuickTime Player, Java) that are needed for potential virtual classes with guest speakers. Please contact the department or UofM IST Service desk if you need assistance. These will be needed for the online portion of the course.

In addition, the use of other technology (i.e., tablets, cellphones, laptops, etc.) are allowed in the classroom. It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner.

Expectations: I Expect You To

- Attend classes and participate in discussions
- Submit assignments as required and present oral presentations on assigned dates
- Regularly check UMLearn for reading material

I will treat you with respect and would appreciate the same courtesy in return. See [Respectful Work and Learning Environment Policy](#).

I expect you to follow these policies around Class Communication, Academic Integrity, and Recording Class Lectures.

I expect that you will appreciate the diversity of our campus and respect the rights of each member of the class.

Attendance and participation are essential elements to the student's success in this course. Attendance

is not mandatory. However, you will not get credit for an in-class assignment if you are absent on the day it is given.

The policies and services students are expected to follow/utilize:

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 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.

Refer to specific course requirements for academic integrity for individual and group work such as:

- I. Group projects are subject to the rules of academic dishonesty;
- II. Group members must ensure that a group project adheres to the principles of academic integrity;
- III. Students should also be made aware of any specific instructions concerning study groups and individual assignments;
- IV. The limits of collaboration on assignments should be defined as explicitly as possible; and
- V. All work should be completed independently unless otherwise specified.

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. 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. [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

Expectations: You Can Expect Me To

- Develop a class schedule, organize guest lectures, and present course relevant information
- Chair in-class discussions and presentations

- Evaluate and provide feedback on assignments, exams, and presentations
- Be available to address course related questions and concerns: I will be available after class time (exceptions may apply) to discuss any questions or comments you may have. I will also be available for meetings that can be scheduled via email. I will address questions sent by email as well.

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 schedule: September 7 2022 to December 12 2022 as of August 30 2022¹

Date	Class Content & Teaching Strategies
September 7 2022	1. Introduction and general information on course
September 9 2022	2. Introduction to grains
September 12 2022	3. Wheat and other <i>Triticum</i> grains
September 14 2022	3.1. Structure and composition of the wheat kernel
September 16 2022	3.2. Wheat carbohydrates and proteins
September 19 2022	3.3. Wheat milling
September 21 2022	3.4. Wheat milling (lab demonstration)
September 23 2022	3.5. Baking
September 26 2022	3.5. Wheat-based beverages
September 28 2022	3.6. Other wheat-based products (in-class discussion)
September 30 2022	<i>National Truth and Reconciliation Day</i>
October 3 2022	Guest speaker: Wheat antioxidants
October 5 2022	4. Corn: Structure and composition
October 7 2022	4.1. Corn milling
October 10 2022	<i>Thanksgiving Day</i>
October 12 2022	4.2. Applications of corn in food and beverage applications
October 14 2022	5. Rice: Structure and composition
October 17 2022	5.2. Rice in food and beverage applications
October 19 2022	6. Barley: structure and composition
October 21 2022	6.1. Malting and brewing
October 24 2022	6.2. Barley in other food applications
October 26 2022	Guest speaker: Brewing industry
October 28 2022	Mid-term exam
October 31 2022	7. Oat: Structure and composition
November 2 2022	7.1. Oat in different food applications
November 4 2022	Food product development with grains (in-class discussion)
November 7 2022	<i>Fall term break</i>
November 9 2022	<i>Fall term break</i>
November 11 2022	<i>Remembrance Day</i>
November 14 2022	8. Other cereals and pseudocereals
November 16 2022	8. Other cereals and pseudocereals
November 18 2022	9. Pulses: Structure and function
November 21 2022	9.1. Pulse proteins and starch

November 23 2022	9.2. Pulse processing
November 25 2022	9.3. Utilization of pulses in food applications
November 28 2022	Role of pulses in the plant protein industry (in-class discussion)
November 30 2022	Student presentations (Group)
December 2 2022	Student presentations (Group)
December 5 2022	Guest speaker
December 7 2022	Review for final exam
December 9 2022	Q & A, Term paper due
December 12 2022	Make-up class
TBD	Final comprehensive exam

¹Additional classes maybe added, or classes maybe cancelled based on extenuating circumstances

Evaluation		
Type of Assessment	Due Date	Value of Final Grade
Quizzes (3 pop quizzes)	In class	10%
Mid-term	October 28 2022	25%
Student presentations (group)	In class	20%
Term paper	December 9 2022	20%
Final exam	TBD	25%
		100%

Lab Expectations

N/A

Lab Schedule

N/A

Grading

As indicated on the grading scale below.

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	67-74	2.75-3.24	3.0
C+	61-66	2.25-2.74	2.5
C	56-60	2.0-2.24	2.0
D	50-55	Less than 2.0	1.0
F	Less than 50		0

Voluntary Withdrawal

Last date to drop Fall/Winter Term spanning courses with refunds: September 20 2022

Fall term voluntary withdrawal deadline: November 22 2022

Please refer to the [Registrar's Office](#) web page for more information.

ASSIGNMENT DESCRIPTIONS

Go to UMLearn and review the folder on assignments

Referencing Style

Referencing style: APA format

Students are encouraged to use reference management software such as EndNote and Mendeley

Assignment Feedback

Formative and summative feedback will be provided electronically or in class. Feedback will be provided based on the evaluation rubrics for each assignment

Assignment Extension and Late Submission Policy

Late Assignments:

Assignment Due Dates: Unless otherwise stated, due dates are provided in the course schedule.

Points will be reduced by 10% of the value of the assignment for each business day the assignment is late.

Note: Be aware of the folders assigned for each assignment in UML; if you use a different folder by mistake that will be your responsibility to load the assignment in the right folder and it will be marked as late. Notice that I won't accept assignments through email.

Group Work Policies: You are expected to complete group work in a professional fashion.

Important note: in the case of having group activities, they are scheduled from the beginning of the semester, therefore, students missing the activities will have deducted marks (15% out of the total), unless they have major reasons justifying their absence, such as health issues or compassionate reasons. This also applies to group work, if a group member is failing to meet with their group, group members should inform the instructor. The student must also provide written evidence such as a Doctor's note if he/she is continuously missing group work. We will use the time in the classroom for group discussions. Therefore, students must be there to add their contributions at that time and to excessive and acquire team work skills, and also to discuss strategies for further discussions.

Make up exams or absence:

Attendance is essential to student success in this course. Make-up exams, assignments or absence on required days will be given only with the professor's permission.

Arrangements should be made with the professor for excused absences or in the case of missed exams or in-classroom activities.

Note: If the student misses the midterm, due to health or family tragedy reasons (compassionate reasons), in order to ensure fairness to all students, the instructor will request documentation (written) sustaining such reasons. The date to write the missed exam will be at convenience of the instructor's time, therefore the student should write the exam the date and time designated by the instructor.

In the case of final exams, be advised that only the Dean's Office, not individual instructors or Departments, are in a position to grant deferred examinations.

UNIVERSITY SUPPORT OFFICES & POLICIES

Academic support available to students:

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.

Mental health support available to students:

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 [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/welcome-about.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>

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.

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](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