



UM | Faculty of Agricultural
and Food Sciences

Syllabus

FOOD 3160 - Frozen Dairy Products

Winter 2021



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COURSE DETAILS

Course Title & Number:	FOOD 3160 - Frozen Dairy Products
Number of Credit Hours:	(3-L:0-0)3
Class Times & Days of Week:	Monday, Wednesday, Friday – 11:30 AM to 12:20 PM
Location for classes/labs/tutorials:	<p>Location for Classes: This course is delivered remotely. Students are expected to be on line and logged in during the scheduled class times. The course will be delivered using UM Learn and Cisco Web Ex. Students must have Web Ex installed. Tests and exams will be given using UM Learn. Your computer or device, and Internet connection must meet the UM minimum requirements found here https://centre.cc.umanitoba.ca/wp-content/uploads/2020/04/Student-Connectivity-Recommendations.pdf. These are required for all Winter 2021 classes.</p> <p>Location for Labs: Dairy Science Building Room 101 and Pilot Plant Areas. Labs will be carried out in person following COVID-19 protocols.</p>
Pre-Requisites:	No prerequisite

Instructor Contact Information

Instructor(s) Name & Preferred Form of Address:	John Thoroski, Dept. of Food and Human Nutritional Sciences
Office Location:	Room 006A – Dairy Science Building
Office Hours or Availability:	Available during normal working hours; Monday to Friday
Office Phone No.	204 474 9332
Email:	<p>John.Thoroski@umanitoba.ca Will return E mails within one day (or sooner) during normal working hours. <i>Note:</i> All email communication must conform to the Communicating with Students university policy.</p>
Contact:	Preferred contact is through E mail or phone. Meetings can be set up any time during the term as required.

Course Description

U of M Course Calendar Description

Technology of frozen dairy products, including selection and processing of materials and handling of products. Standards and quality control programs for major dairy products will be covered. Offered in 2006-07 and alternate years thereafter.

General Course Description

This course covers the basic sciences and technologies utilized throughout the frozen dairy product industry. A summary of the subjects covered can be reviewed in the class schedule on page 7 of this document. This course is beneficial for anyone entering the dairy industry or any related field. Offered in alternate years.

Course Goals

The purpose of the course is to impart the basic knowledge required for the production of a variety of frozen dairy products. Selection and evaluation of raw materials are covered. Processing, packaging and distribution of ice cream, frozen yogurt, and other frozen dairy products are studied. Regulatory and industrial standards and quality assurance tests for major frozen dairy products will be covered.

Course Learning Objectives

Upon completion of this course students should be able to:

- 1) Explain the principles of Frozen Dairy Products technology
- 2) Identify and explain the unit operations involved in Frozen Dairy Products technology
- 3) Demonstrate knowledge in ingredient technology
- 4) Select and explain practical techniques in product manufacture, and analytical techniques including chemical, microbiological and sensory.
- 5) Summarize current research and development in the field
- 6) Give advice with respect to government regulations and industrial specifications required for the manufacture and sale of dairy products.

Textbook, Readings, and Course Materials

There is no required text. The following are recommended:

Ice Cream, 2003, 6th ed. Robert T. Marshall, H. Douglas Goff and Richard W. Hartel. Kluwer Academic/Plenum Publishers, New York, Boston, Dordrecht, London, Moscow

[Http://www.foodsci.uoguelph.ca/dairyedu/home.html](http://www.foodsci.uoguelph.ca/dairyedu/home.html).

Trade Journals and Publications:

Dairy Foods

Journal of Dairy Science

Using Copyrighted Material

Please respect copyright. We will use copyrighted content in this course. The content should be appropriately acknowledged and is copied in accordance with copyright laws and university guidelines.

Copyrighted works, including those created by the instructor, are made available for private study and research and must not be distributed in any format without permission. For more information, see the University's Copyright Office website at <http://umanitoba.ca/copyright/> or contact um_copyright@umanitoba.ca.

Course Technology

Normally, electronic equipment (iPhone, laptop, notebook, etc.) is permitted during regular class time providing it does not disrupt other students. This equipment is not permitted during quizzes, tests, or exams.

For the winter 2021 term this course is delivered remotely. Students are expected to be on line and logged in during the scheduled class times. The course will be delivered using UM Learn and Cisco Web Ex. Students must have Web Ex installed. Tests and exams will be given using UM Learn. Your computer or device, and Internet connection must meet the UM minimum requirements found here <https://centre.cc.umanitoba.ca/wp-content/uploads/2020/04/Student-Connectivity-Recommendations.pdf>. These are required for all Winter 2021 classes.

Expectations: I Expect You To

The instructor will review personal and group expectations in the first week of classes.

Class Communication:

Course material will be presented thoroughly during class time and all of the digital materials presented in class will be posted on UM Learn. Discussion and questions during class time are encouraged.

The University requires all students to activate an official University email account. Please note that all communication between me and you as a student must comply with the electronic communication within the student policy. You are required to obtain and use your U of M 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.

Policy on Plagiarism and Cheating:

“Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university). Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones). Exam cheating can also include exam impersonation. (Please see Section 4.2.8 on Exam Personation). A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

To plagiarize is to take ideas or words of another person and pass them off as one's own. In short, it is stealing something intangible rather than an object. Plagiarism applies to any written work, in traditional or electronic format, as well as orally or verbally presented work. Obviously it is not necessary to state the source of well known or easily verifiable facts, but students are expected to appropriately acknowledge the sources of ideas and expressions they use in their written work, whether quoted directly or paraphrased. This applies to diagrams, statistical tables and the like, as well as to written material, and materials or information from Internet sources.

To provide adequate and correct documentation is not only an indication of academic honesty but is also a courtesy which enables the reader to consult these sources with ease. Failure to provide appropriate citations constitutes plagiarism. It will also be considered plagiarism and/or cheating if a student submits a term paper written in whole or in part by someone other than him/herself, or copies the answer or answers of another student in any test, examination, or take-home assignment.

Working with other students on assignments, laboratory work, take-home tests, or on-line tests, when this is not permitted by the instructor, can constitute Inappropriate Collaboration and may be subject to penalty under the Student Discipline By-Law.

An assignment which is prepared and submitted for one course should not be used for a different course. This is called "duplicate submission" and represents a form of cheating because course requirements are expected to be fulfilled through original work for each course.

When in doubt about any practice, ask your professor or instructor."

Plagiarized material will receive a grade of ZERO (0) in this course.

Recording Class Lectures:

The instructor 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, in whole or in part without permission of the instructor. 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

The instructor will review expectations in the first week of classes.

CLASS SCHEDULE AND COURSE EVALUATION

The order of subjects covered in this course may change at the discretion of the instructor and/or based on the learning needs of the students.

Subject Outline :

1. Industry facts and statistics
2. Milk composition and microbiology
3. Chemical and microbiological analysis of frozen dairy products
4. Development and growth of the industry
5. Classification of frozen dairy products
6. Composition of various frozen dairy products
7. Ingredients used in the manufacturing process
 - The role of fat, milk solids non fat, sweeteners, egg yolks, stabilizers and emulsifiers, total solids, air and water in frozen dairy products.
 - The sources of ingredients for frozen dairy products. The advantages and limitations of each type of ingredients.
8. The physical chemical properties of an ice cream mix
9. Calculation of simple and complex mixes
10. Mix processing unit operations: Separation, mixing, homogenization, pasteurization, aging.
11. The freezing process: batch and continuous freezing, the addition of colouring, flavouring and fruits to frozen dairy products. Overrun and methods to achieve overrun.
12. Packaging, hardening and shipping
13. Frozen dairy products including sherbets, gelato, ices, frozen yogurt and low fat products
14. Defects, scoring and grading ice cream and sherbets
15. Nutritional properties of frozen dairy products
16. Functional foods and nutraceutical aspects
17. Sanitation and quality control / government regulations
18. New technologies

Schedule for Tests and Laboratories: March 12th – Mid Term Exam

March 24th - Assignment of Term Project

Lab Dates – Fridays beginning January 29th

Lab Reports – Due two weeks after lab date

Final Exam Date - To Be Determined

Lab Expectations

The lab schedule has been compressed from 8 to 5 sessions for the 2021 term in order to accommodate COVID-19 protocols. The topics remain consistent with previous offerings. Students are expected to report to labs on time with clean lab coats. Lab protocols will be reviewed prior to the first sessions.

Lab Schedule

The 2021 Laboratory Schedule Under Covid-19 Safety Protocols *(Tentative: Subject to Change):*

Topic	Date
1. Microbiological and Chemical analysis of frozen dairy products.	Friday Jan 29 th
1. Microbiological and Chemical analysis of frozen dairy products.	Friday Feb 5 th
2. The processing of other frozen dairy products i.e., frozen yogurt and The freezing of ice cream mixes by the continuous process	Friday Feb 12 th
2. The processing of other frozen dairy products i.e., frozen yogurt The freezing of ice cream mixes by the continuous process	Friday Feb 26 th
3. Pasteurization Practical Demonstration and Sanitation	Friday Mar 5 th
3. Pasteurization Practical Demonstration and Sanitation	Friday Mar 12 th
4. The calculation and freezing of ice cream mixes by the batch process	Friday Mar 19 th
4. The calculation and freezing of ice cream mixes by the batch process	Friday Mar 26 th
5. Sensory analysis and judging of various types of ice cream, frozen yogurt and sherbets for colour, packaging, melting quality, body, texture and flavour attributes.	Friday Apr 9 th
5. Sensory analysis and judging of various types of ice cream, frozen yogurt and sherbets for colour, packaging, melting quality, body, texture and flavour attributes.	Friday Apr 16 th

Lab Sessions are held on Fridays

Session 1 9:00-11:00 am
 Session 2 12:30-2:30 pm
 Session 3 2:30 -4:30 pm

Students Registered = 21 (Maximum 38)

6 Student limit per lab sessions during COVID-19 restrictions

Grading

Marks Awarded

Laboratory reports	20%
Project	10%
Mid-term test	20%
Final examination	40%
Attendance	10%

Grades:

A+	90-100	C+	65-69.9
A	80-89.9	C	60-64.9
B+	75-79.9	D	50-59.9
B	70-74.9	F	under 50

Class Attendance: Attendance will be monitored and graded proportionally as listed above.

Voluntary Withdrawal

Voluntary Withdrawal Date: March 31st

ASSIGNMENT DESCRIPTIONS

Formats and grading rules for the lab reports and term project for FOOD 3160 will be posted on UM Learn.

Referencing Style

Referencing style for the lab reports and term project for FOOD 3160 will be posted on UM Learn.

Assignment Feedback

This will be both formative and summative. Each test will be reviewed and discussed during class. Laboratory report feedback and suggestions will be ongoing during the time required for completion. The evaluation of lab reports will be completed within 7 working days after submission. Feedback and evaluation detail will be available upon request.

Assignment Extension and Late Submission Policy

Late lab reports and term assignment **will be downgraded**. Missed tests **must be** completed and may be rescheduled with the consent of the Instructor. This is a strict policy. The lab reports and assignment must be submitted on or before the designated date otherwise they will be downgraded.

UNIVERSITY SUPPORT OFFICES & POLICIES

Schedule "A"

Section (a):

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):

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>

Section (c):

Using Copyrighted Material: Please respect copyright. We will use copyrighted content in this course. The content should be appropriately acknowledged and is copied in accordance with copyright laws and university guidelines. Copyrighted works, including those created by the instructor, are made available for private study and research and must not be distributed in any format without permission. For more information, see the University's Copyright Office website at <http://umanitoba.ca/copyright> or contact um_copyright@umanitoba.ca.

Section (d):**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