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Syllabus

FOOD 4010: Food Process 2

(Fall 2023)

**TABLE OF CONTENTS**

[COURSE DETAILS 3](#_Toc144899579)

[Instructor Contact Information 3](#_Toc144899580)

[Teaching Assistant & Grader/Marker Contact Information 3](#_Toc144899581)

[Traditional Territory/Land Acknowledgment 4](#_Toc144899582)

[Course Description 4](#_Toc144899583)

[Course Goals 4](#_Toc144899584)

[Course Learning Objectives 4](#_Toc144899585)

[Textbook, Readings, and Course Materials 5](#_Toc144899586)

[Using Copyrighted Material 5](#_Toc144899587)

[Course Technology 5](#_Toc144899588)

[Expectations: I Expect You To 6](#_Toc144899589)

[Expectations: You Can Expect Me To 6](#_Toc144899590)

[CLASS SCHEDULE AND COURSE EVALUATION 7](#_Toc144899591)

[Course Evaluation/Assessments 8](#_Toc144899592)

[Lab expectations and Lab Schedule 11](#_Toc144899593)

[Grading 12](#_Toc144899594)

# COURSE DETAILS

|  |  |
| --- | --- |
| **Course Title & Number:** | FOOD 4010: Food Process 2 |
| **Number of Credit Hours:** | 3 |
| **Class Times & Days of Week:** | 1:00 – 2:15 pm, Tuesdays and Thursdays |
| **Location for classes:** | Ellis building, room 344 |
| **Pre-Requisites:** | FOOD 3010: Food Process 1 or Equivalent |

# Instructor Contact Information

|  |  |
| --- | --- |
| **Instructor Name &**  **Preferred Form of Address:** | Dr. Filiz Koksel (she/her)  Dr. Filiz or Dr. Koksel |
| **Office Location:** | A person smiling at camera  Description automatically generated  (1) Ellis Building, room 205  (2) Richardson Centre for Food  Technology & Research (RCFTR)  room 112 |
| **Availability:** | Arrangement of a mutually convenient time. To book an appointment, please send me an email: [Filiz.Koksel@umanitoba.ca](mailto:Filiz.Koksel@umanitoba.ca). |
| **Office Phone No.** | (204) 474 6486 |
| **Email:** | [Filiz.Koksel@umanitoba.ca](mailto:Filiz.Koksel@umanitoba.ca)  I will respond to your emails within 48 hours, excluding holidays and weekends. *Note*: All email communication must conform to the [Communicating with Students](https://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2013_09_01_RF.pdf) university policy. |
| **Contact:** | Preferred method of communication is through email.  You can also book an in-person or virtual meeting with me, at a mutually convenient time (please book through email). |
|  |  |

# Teaching Assistant & Grader/Marker Contact Information

|  |  |
| --- | --- |
| **Name & Preferred Form of Address:** | Amanjeet Singh (he/his)  Aman |
| **Office Location:** | A person standing in front of a body of water  Description automatically generated  Richardson Centre for Food  Technology & Research (RCFTR),  room 211 |
| **Office Hours or Availability:** | Arrangement of a mutually convenient time. To book an appointment, please send me an email: [amanjeet.singh@umanitoba.ca](mailto:amanjeet.singh@umanitoba.ca) |
| **Email:** | [amanjeet.singh@umanitoba.ca](mailto:amanjeet.singh@umanitoba.ca)  I will respond to your emails within 48 hours, excluding holidays and weekends. *Note*: All email communication must conform to the [Communicating with Students](https://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2013_09_01_RF.pdf) university policy. |
| **Contact:** | Preferred method of communication is through email.  You can also book an in-person or virtual meeting with me, at a mutually convenient time (please book through email). |
|  |  |

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

# Course Description

**U of M Course Calendar Description**

The processing of specific food groups is covered. The functions and changes in the primary chemical components (carbohydrates, proteins and lipids) of the commodities receive special consideration. New technologies including thermal/nonthermal processing, radiation, extrusion, minimal processing and other advanced processing methods are studied.

**General Course Description**

This course is a foundational course for the Food Science discipline. However, it fits into the broader program of studies such as Nutritional Sciences, Biosystems Engineering, Agriculture Engineering, Animal Science, Plant Science, Agronomy and most agricultural disciplines, particularly agri-food programs.

Throughout the term, you will have several hands-on and experiential learning opportunities (on and off-site) to practice the processing of specific food groups. In addition, you will get to interact with several food processing experts from the industry, provincial and/or federal government, and guest lecturers

# Course Goals

The goal of this course is to facilitate an understanding of food chemistry principles in order to assess how the properties of various food components limit the shelf life of foods, analyze the mechanisms by which a range of physical processes are employed in various advanced food processing operations to optimize food quality and extend shelf life of foods and apply basic physical and chemical principles to food science issues.

# Course Learning Objectives

By the end of this course, you should be able to:

1. Assess how processing tools can be employed to limit the dynamics of food deterioration.
2. Explain the effect of various physical processes employed in food processing on the chemistry of various food components.
3. Distinguish the source and variability of raw food material and how it affects various food processing operations.
4. Compare the role of transport processes and unit operations in food processing and show how various unit operations are linked to produce a given food product.
5. Construct process flow diagrams from visits to food processing facilities, and critique the flow for critical control points related to product safety and quality.
6. Quantify the extent to which certain process operations in the food industry affect the survival of pathogenic and spoilage microorganisms.

# Textbook, Readings, and Course Materials

**Required textbook** - There is no required textbook for this course.

**Supplementary readings -** Throughout the term, I follow the textbook below:

Food Processing Technology – Principles and Practice (2016). P. J. Fellows. Third edition. CRC Press, Woodhead Publishing Limited. Any edition of the book is okay. Full text is available in electronic format through [University of Manitoba Libraries](http://umanitoba.ca/libraries/)

**Required readings -** Before coming to labs and tours, you need to read the lab and tour handouts and watch the respective videos posted on UM Learn.

**Recommended or required materials -** You need to bring your own lab coat to the lab sessions. You will not be allowed to perform the lab sessions without a lab coat (safety concern). The FHNS Department does not rent lab coats. You can purchase one from the [UM Bookstore](http://bookstore.umanitoba.ca/MerchDetail?MerchID=1604998&CategoryName=Lab%20Coats/Masks,%20etc.&CatID=30780&Name=Lab%20Coats/Masks,%20etc.). You need to wear closed-toe shoes during the lab sessions.

# 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](mailto:um_copyright@umanitoba.ca).

# Course Technology

Course related materials including syllabus, notes, tour and lab handouts and rubrics are available in UM Learn. It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner

You need a smartphone (or a tablet, or a laptop) onto which you need to install iClicker Student. Using your smartphone (or tablet, or laptop), visit the appropriate app store and search for iClicker Student (formerly iClicker Reef). Follow the prompts to install the application.

# Expectations: I Expect You To

To be successful in this class, you need to review the course materials, complete the pre-class (pre-lab and pre-tour) work and ask for help when you need it.

I will treat you with respect and would appreciate the same courtesy in return. See [Respectful Work and Learning Environment Policy.](http://umanitoba.ca/admin/governance/governing_documents/community/230.html) I expect you to follow these policies around Class Communication, Academic Integrity, and Recording Class Lectures.

**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](http://crscalprod1.cc.umanitoba.ca/Catalog/ViewCatalog.aspx?pageid=viewcatalog&catalogid=300&chapterid=3762&topicgroupid=20190&loaduseredits=False). Always remember to reference the work of others that you have used. Also be advised that you are required to complete your assignments (lab and tour reports) 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](https://umanitoba.ca/sites/default/files/2020-02/um-ai-minimum-penalties-definitions.pdf). Visit the [Academic Calendar](http://crscalprod1.cc.umanitoba.ca/Catalog/ViewCatalog.aspx?pageid=viewcatalog&catalogid=300&chapterid=3755&topicgroupid=20145&loaduseredits=False), [Student Advocacy](http://umanitoba.ca/student/resource/student_advocacy/cheating_plagiarism_fraud.html), and [Academic Integrity](http://umanitoba.ca/academicintegrity/) 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 Dr. Filiz Koksel.  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)](https://umanitoba.ca/student-supports/accessibility) 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](mailto:Student_accessibility@umanitoba.ca)

# Expectations: You Can Expect Me To

I honor 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 will be in class for 10 minutes prior to and after the class time to discuss any questions or comments you may have.

# 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](http://umanitoba.ca/admin/governance/governing_documents/students/278.html).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Week** | **Date** | **Class Content** | **Required Readings or any Pre-Class Preparation** | **Assessment** |
| Week 1 | Sep 7 (Thu) | Introduction & history of food processing | Syllabus & installation of iClicker Student | iClicker |
| Week 2 | Sep 12 (Tue)  Sep 14 (Thu) | Mixing, forming, size reduction of solid foods  **Guest Lecturer:**  **Dr. Kun Wang**  Milling | Lecture notes on UM Learn  Lecture notes on UM Learn | iClicker  Muddiest point |
| Week 3 | Sep 19 (Tue)  Sep 21 (Thu) | Separation and concentration of food components | Lecture notes on UM Learn | iClicker |
| Week 4 | Sep 26 (Tue)  Sep 28 (Thu) | Fermentation, baking  High pressure processing | Lecture notes on UM Learn  Lecture notes on UM Learn | Think-pair-share  Quiz |
| Week 5 | Oct 3 (Tue)  Oct 5 (Thu) | **Guest Lecturer:**  **Dr. Amanda G. A. Sá**  Minimal processing methods under development | Lecture notes on UM Learn | Muddiest point |
| Week 6 | Oct 10 (Tue) | Dehydration | Lecture notes on UM Learn | iClicker |
| Oct 12 (Thu) | MIDTERM | | |
| Week 7 | Oct 17 (Tue)  Oct 19 (Thu) | **Guest lecturer:**  **Dr. Arnie Hydamaka**  Water sustainability and wastewater management | Lecture notes on UM Learn | Muddiest point |
| Week 8 | Oct 24 (Tue)  Oct 26 (Thu) | Extrusion | Lecture notes on UM Learn | iClicker  Muddiest point |
| Week 9 | Oct 31 (Tue)  Nov 2 (Thu) | Blanching, pasteurization  Heat sterilization | Lecture notes on UM Learn  Lecture notes on UM Learn | iClicker  iClicker |
| Week 10 | Nov 7 (Tue)  Nov 9 (Thu) | Evaporation  Distillation | Lecture notes on UM Learn  Lecture notes on UM Learn | iClicker  Quiz |
| Week 11 | Nov 14 (Tue)  Nov 16 (Thu) | FALL TERM BREAK | | |
| Week 12 | Nov 21 (Tue)  Nov 23 (Thu) | **Guest lecturer:**  **Elena Gomez Haro Aceves**  Food product development  Infrared heating | Lecture notes on UM Learn  Lecture notes on UM Learn | Muddiest point  iClicker |
| Week 13 | Nov 28 (Tue)  Nov 30 (Thu) | Dielectric heating  **Guest lecturer:**  **Bruce Hardy**  Indigenous food systems | Lecture notes on UM Learn  Lecture notes on UM Learn | iClicker  Muddiest point |
| Week 14 | Dec 5 (Tue)  Dec 7 (Thu) | Freezing, freeze concentration  Practice for final exam | Lecture notes on UM Learn  Example questions on UM Learn | iClicker  Think-pair-share |

Important Dates:

* Sep 19 is the last date to DROP Fall term and Fall/Winter term spanning courses with refunds.
* Oct 2 is National Day for Truth and Reconciliation - University is closed.
* Oct 9 is Thanksgiving Day - University is closed.
* Nov 13 is Remembrance Day - University is closed.
* The Fall Term break is Nov 13-17.
* Nov 21 is the Voluntary Withdrawal Deadline. Students who do not drop the course by the deadline will be assigned a final grade. The withdrawed courses will be recorded on official transcript. Please refer to the [Registrar’s Office](http://umanitoba.ca/student/records/leave_return/695.html) web page for more information.
* For all important dates and deadlines: [Important dates and deadlines | University of Manitoba (umanitoba.ca)](https://umanitoba.ca/registrar/important-dates-deadlines)

# Course Evaluation/Assessments

**Class participation: 10% of your overall grade**

* **Procedure:** Class participation is recorded through answering questions (multiple choice, short answer, etc.) using iClicker, and other in-class activities, including activities such as the muddiest point and think-pair-share. Class participation is not class attendance.
* **Submission Guidelines:** Submission/discussion during class time and through your iClicker Student account for iClicker marks.
* **Evaluation Criteria:** Answers reviewed in class. Grades available in UM Learn (or in your iClicker Student account for iClicker marks) at the end of the class.

**Lab attendance and reports: 20% of your overall grade**

* **Procedure:** Attendance will be taken at the beginning of each lab session by your teaching assistant (TA). You will lose 1% of your mark for each minute you are late. Any communication related to the labs should first be directed to your TA.
* **Submission Guidelines:** Lab reports need to be typed (not hand written) and uploaded to UM Learn. Reports are due 2 weeks after a lab, not later than 5 pm on day 14. You are not allowed to hand over lab reports without attending the lab sessions. You will submit your own report and be marked individually, despite performing the labs in groups. Any evidence of plagiarism in reports (e.g., from another lab partner, group, or lab reports from previous courses or years) will result in “0” mark, and the matter will be subject to disciplinary action per university policy on academic misconduct.
* **Evaluation Criteria:** Lab report guidelines are specific to individual lab sessions, and more information (and rubric) is provided on UM Learn. Late reports will lose 10% of the credit for submission after the due date (does not matter if it is 1 minute or 23 hours late) and 10% for each additional day late. UM Learn automatically date stamps submissions.

**Tour attendance and reports: 10% of your overall grade**

* **Procedure:** Attendance will be taken at the beginning of each tour session by your TA. You will lose 3% of your mark for each minute you are late. Any communication related to the tours should first be directed to your TA.
* **Submission Guidelines:** Tour reports need to be uploaded to UM Learn. Reports are due 2 weeks after a tour, not later than 5 pm on day 14. You are not allowed to hand over tour reports without attending the tour sessions. You will submit your own report and be marked individually, despite performing the tours in groups. Any evidence of plagiarism in reports (e.g., whether from another group or tour reports from previous courses or years) will result in a “0” mark, and the matter will be subject to disciplinary action in accordance with university policy on academic misconduct.
* **Evaluation Criteria:** Tour report guidelines are specific to individual tour sessions, and more information (and rubric) is provided on UM Learn. Late reports will lose 10% of credit for submission after the due date (does not matter if it is 1 minute or 23 hours late) and 10% for each additional day late. UM Learn automatically date stamps submissions.

**Quizzes: 5 + 5 = 10% of your overall grade**

* **Procedure:** Written in class and include multiple choice, short answer, etc. type questions.
* **Submission Guidelines:** Submission during class time to Dr. Koksel.
* **Evaluation Criteria:** Answers reviewed in class. Grades will be available in UM Learn within 2 weeks of a quiz.

**Midterm exam: 20% of your overall grade**

* **Procedure:** Written in class and include multiple choice, short answer, long answer (i.e., essays), etc. type questions. The topics will cover all materials covered in class including videos and guest speakers.
* **Submission Guidelines:** Submission, during class time, at the end of the exam to Dr. Koksel (or the exam invigilator).
* **Evaluation Criteria:** Answers reviewed in class. Grades will be available in UM Learn within 2 weeks of the midterm.

**Final exam: 30% of your overall grade**

* **Procedure:** Will include multiple choice, short answer, etc. type questions. Date will be set later by the UM. The topics will cover all materials covered in class including videos and guest speakers.
* **Submission Guidelines:** Submission at the end of the exam time to Dr. Koksel (or the exam invigilator).
* **Evaluation Criteria:** Grades will be available in UM Learn within 2 weeks of the final exam.

**Summary:**

**Assignment Feedback**

I will provide you feedback in formative form (i.e., feedback while learning is still in progress; not typically graded) during the term. I will also provide you summative feedback (i.e., feedback when something is complete; typically graded) after each quiz (written or through UM Learn) and after the midterm. My feedback on the midterm will be in-person. In addition, you will receive summative feedback on your tour and lab reports (through UM Learn) as well as your in-class participation activities (i.e., through your iClicker student account).

You can expect to receive your feedback within two weeks of the tour and lab report submission and also within two weeks for quizzes and the midterm.

# Lab expectations and Lab Schedule

You will be trained by Dr. Koksel and/or your TA on how to handle equipment during the lab sessions. Lab/tour handouts, videos and instructions for certain labs/tours, as well as the rubrics for the lab/tour reports are available on UM Learn.

Please book an appointment directly with your TA for questions or concerns about the labs/tours and reports. If you need further clarifications on the labs/tours or reports, you can reach Dr. Koksel via email. The preferred method of communication with your TA is email.

Lab groups A and B are posted on UM Learn. Please note that lab groups A and B have different start times (i.e., 2:30 or 4:00 pm) depending on the week. Please check which lab group you are assigned to.

Lab location information is posted on UM Learn. Please note that different labs take place in different buildings (e.g., Ellis Building, Dairy Science Building or RCFTR building).

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Lab/Tour Content & Teaching Strategies** | **Required Readings or any Pre-Class Preparation** | **Evaluation** |
| Sep 20 (Wed) | Tour to Cereals Canada | Arrive 15 min early for bus transportation to Cereals Canada.  Read the report rubric. | Tour report, due Oct 4.  5% of your overall grade. |
| Oct 4 (Wed) | Baking lab - *This is a take home lab!* | Read the lab handout and instructions.  Watch the recipe video. Read the report rubric. | Lab report, due Oct 18.  5% of your overall grade. |
| Oct 11 (Wed) | Tour to Trans Canada Brewery | Arrive 15 min early for bus transportation to Trans Canada Brewery.  Read the report rubric. | Tour report, due Oct 25.  5% of your overall grade. |
| Oct 25 (Wed) & Nov 1 (Wed) | Water sustainability and wastewater management lab | Read the lab handout. Read the report rubric. | Lab report, due Nov 15.  5% of your overall grade. |
| Nov 8 (Wed) | Extrusion lab | Read the lab handout. Read the report rubric. | Lab report, due Nov 22.  5% of your overall grade. |
| Nov 22 (Wed) | Infrared heating lab | Read the lab handout. Read the report rubric. | Lab report, due Dec 6.  5% of your overall grade. |

All lab and tour reports should use the referencing style of the journal [Food Research International](https://www.elsevier.com/journals/food-research-international/0963-9969/guide-for-authors).

# Grading

|  |  |  |  |
| --- | --- | --- | --- |
| 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 |