

# Course Details

**Course Title:** Advanced Food Extrusion

**Course Number:** FOOD 7240

**Term:** Fall 2022

**Credit Hours:** 3

**Pre-requisites:** Instructor approval and written consent of the Department Head required.

**Class times & days:** Thursdays: 3:00 – 4:30 pm

**Class location:** Ellis building, room 344

# Instructor Contact Information

**Name:** Dr. Filiz Koksel (she/her)

**How you can address me:** Dr. Koksel, Dr. Filiz or Filiz

**Email:** [Filiz.Koksel@umanitoba.ca](mailto:Filiz.Koksel@umanitoba.ca) (preferred method of communication).

I will respond to your emails within 48 hours, excluding holidays and weekends.

For email etiquette, please see the file: [E-mail etiquette - FOOD-4010-K01 - Food Process 2 \(desire2learn.com\)](#).



**Office location:** (1) Ellis Building, room 205. (2) Richardson Centre for Food Technology and Research (RCFTR), room 112.

**Office Phone:** 204 474 6486

**Office hours:** Arrangement of a mutually convenient time. To book an appointment, please send me an 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 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

There are multiple ways to engage in this course to accommodate your personal circumstances and preferences. Where possible, you will be given the opportunity to make decisions about what and how you learn.

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.

## Course Description

### U of M Course Calendar Description

An in-depth study of selected topics of current relevance in Food Science. Available to students in the M.Sc. programs and in the Interdepartmental Ph.D. in Food and Nutritional Sciences.

### General Course Description and Course Goals

The course focuses on extrusion cooking of puffed snack foods, breakfast cereals, meat extenders and meat analogues. Students who are pursuing a graduate program related to food processing and food engineering benefit the most from taking this course, however the course fits into the broader program of studies such as Nutritional Sciences, Biosystems Engineering, Agriculture Engineering, Animal Science, Plant Science, Agronomy and most of agricultural disciplines, in particular agri-food programs.

Throughout the term, you will have hands-on and experiential learning opportunities to practice extrusion cooking of specific food groups, familiarize yourself with the literature on extrusion cooking of foods, work independently or in small groups to address current research gaps in the field. You will pursue an area of interest in food extrusion, and communicate the information obtained through a combination of oral and written presentations/papers.

The goal of this course is to facilitate an understanding of food chemistry principles in order to assess how the quality of various extruded foods are tailored during processing, to analyze various physical quality attributes of extruded foods (e.g., texture, color), and to explore strategies to improve the nutritional quality of extruded foods. This course will also facilitate the development of critical thinking, analysis, communication and scholarly writing skills in the area of extrusion processing of foods.

# Course Learning Outcomes

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

1. Define components of a food extruder
2. Explain the different steps of extrusion cooking for different extruded foods
3. Discuss the relationship between raw materials and end-products for extruded foods
4. Evaluate the required extrusion cooking conditions for specific end-products
5. Critically evaluate the literature and effectively communicate scientific information in written and spoken form
6. Incorporate research findings from a variety of sources into a comprehensive document
7. Investigate both basic and applied aspects of a research topic

## Course Materials

### *Required Materials*

There is no required textbook for this course.

### *Readings*

I will follow the textbooks below throughout the term:

- Extrusion Cooking, Cereal Grains Processing (2020). Editor: Girish M. Ganjal. 2<sup>nd</sup> edition. Cereals and Grains Association. Woodhead Publishing.
- Extrusion Problems Solved, Food Pet Food and Feed (2012). Editors: Mian N. Riaz and Galen J. Rokey. Woodhead Publishing.
- Extrusion Processing Technology, Food and Non-Food Biomaterials (2014). Editors: Jean-Marie Bouvier and Osvaldo H. Campanella. Wiley Blackwell.

Full texts available in electronic format through [University of Manitoba Libraries](https://umanitoba.ca/libraries/) (<https://umanitoba.ca/libraries/>)

### *UM Learn*

All course related materials (including, syllabus, notes and assignment rubrics) are available in UM Learn.

## Course Schedule

### Important Dates:

- September 20 is the last date to DROP Fall term and Fall/Winter term spanning courses with refunds
- November 22 is the Voluntary Withdrawal Deadline
- The Fall Term break is November 7-10

- All important dates and deadlines are listed here:  
<https://umanitoba.ca/registrar/important-dates-deadlines#fall-term-2022>

This schedule is subject to change at the discretion of Dr. Koksel and/or based on the learning needs of the students but such changes are subject to [Section 2.8 of ROASS](#) (<https://umanitoba.ca/governance/governing-documents-academic#responsibilities-of-academic-staff-with-regard-to-students>).

Week	Date	Class Content & Teaching Strategies	Required Readings or any Pre-Class Preparation	Evaluation
Week 1	Sep 8 (Thu)	Introduction	Syllabus	Assigning groups
Week 2	Sep 15 (Thu)	Independent work on literature review	Extrusion capacity overview	Research project title submission
Week 3	Sep 22 (Thu)	Independent work on literature review	Raw material selection	Research project outline submission
Week 4	Sep 29 (Thu)	Presentation of the project proposal in-class.	Rubric for research project proposal	Peer evaluation Research project full proposal submission
Week 5	Oct 6 (Thu)	Hands-on extrusion	Extruder SOP and sign-up sheet	Raw material proximate composition
Week 6	Oct 13 (Thu)	Hands-on extrusion	Extruder SOP and sign-up sheet	Preliminary extrusion mapping
Week 7	Oct 20 (Thu)	Hands-on extrusion	Extruder SOP and sign-up sheet	Decision on the optimal extrusion conditions
Week 8	Oct 27 (Thu)	Hands-on extrusion	Extruder SOP and sign-up sheet	Extrudate collection
Week 9	Nov 3 (Thu)	Extrudate quality analyses	Quality tests SOPs	Data collection and recording Repeatability of quality analysis
Week 10	Nov 10 (Thu)	FALL TERM BREAK		
Week 11	Nov 17 (Thu)	Extrudate quality analyses	Quality tests SOPs	Data collection and recording Repeatability of quality analysis

Week 12	Nov 24 (Thu)	Report writing	Data organization	Final report outline
Week 13	Dec 1 (Thu)	Report writing	Data organization	Materials and methodology section submission
Week 14	Dec 8 (Thu)	Report writing	Report rubric	Final report submission

## Course Evaluation/Assessments

### Assessment Descriptions

#### Research Project Proposal: 25% of your overall grade

- **Procedure:** Group work (groups will be assigned during the first week). All group members will be involved in preparation of a 2-page long research project proposal.
- **Submission Guidelines:** Submission on September 29 (Thursday, 5 pm deadline) through email. Rubric is available on UM Learn.
- **Evaluation Criteria:** You will be graded by your peers and by your Instructor. Feedback and grades will be available in UM Learn within 2 weeks of submission. Your proposal needs to be approved before you can proceed to Extrusion Runs.

#### Extrusion Runs: 25% of your overall grade

- **Procedure:** Hands-on extrusion processing of the food group proposed in the Research Project Proposal. Involves a step of mapping of a wide range of extrusion conditions.
- **Submission Guidelines:** Collection of extrudates and recording (e.g., video, pictures) of the extrusion process. Decision of the optimal extrusion conditions.
- **Evaluation Criteria:** Extrudates and extrusion conditions reviewed with the Instructor. Grades will be available in UM Learn within 2 weeks of the submission of the optimal extrusion conditions. Your extrusion condition needs to be approved before you can proceed to Extrudate Quality Analysis.

#### Extrudate Quality Analysis: 25% of your overall grade

- **Procedure:** Will include physical or nutritional quality analyses of the raw materials and extrudates, as agreed upon mutually in the Research Project Proposal.
- **Submission Guidelines:** Submission of the original data in an organized format (rubric available on UM Learn). Submission of the summarized data in the form of Tables and/or Figures.
- **Evaluation Criteria:** Grades will be available in UM Learn within 2 weeks of the submission of the data.

#### Final Report: 25% of your overall grade

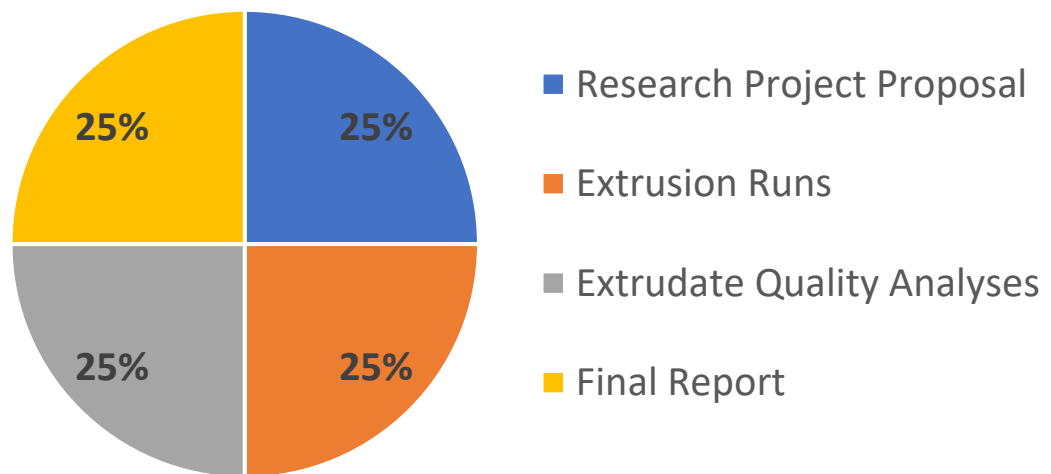
- **Procedure:** Will include a 12-15 page report on the proposed project results. Will include the following sections: Title, Abstract, Keywords, Introduction, Materials and Methods,

Results and Discussion, Conclusion, References. The references is not included in the 12-15 pages.

- **Submission Guidelines:** Submission of the report in Word format (rubric available on UM Learn) via email.
- **Evaluation Criteria:** Grades will be available in UM Learn within 2 weeks of the submission of the final report.

## Summary

Breakdown of course assessments:



## Assignment Feedback

I will provide you feedback in formative form (i.e., feedback while learning is still in progress; not typically graded) quarterly during the term. I will also provide you summative feedback (i.e., feedback when something is complete; typically graded) after each assessment (i.e., Research Project Proposal, Extrusion Runs, Extrudate Quality Analyses and Final Report) are complete (through UM Learn). My summative assessment feedback will be in-person, followed by posting of the marks on UM Learn

# Grading

Extra credit opportunities will not be available. The grading scale table is given below.

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	94-100	4.25-4.5	4.5
A	87-93	3.75-4.24	4.0
B+	80-86	3.25-3.74	3.5
B	73-79	2.75-3.24	3.0
C+	65-72	2.25-2.74	2.5
C	58-64	2.0-2.24	2.0
D	50-57	Less than 2.0	1.0
F	Less than 50		0

## Expectations

To be successful in this class, you need to review the course materials, be ready work independently and in groups, complete the pre-class work and ask for help when you need it.

Please refer to the [Respectful Work and Learning Environment Policy \(https://bit.ly/3aMI7nE\)](https://bit.ly/3aMI7nE) for activities in class and in the labs.

## Course Policies

### Academic Integrity

Each student in this course is expected to complete 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.

In this course, academic integrity looks like referencing the work of others that you have used and completing your assignments independently unless otherwise specified. For assignments/projects where you are encouraged to work in a group or team, ensure that your assignment/project is completed with integrity. You must also do your own work during exams.

Do not share course materials (e.g., notes, exam questions, assignment instructions, article) that have been created by the instructor or were authored by another person. Unpermitted sharing of such materials with your peers or with note-sharing companies, such as One Class, Course Hero, or Chegg (or other similar websites), is a violation of Copyright Law

Plagiarism, duplicate submission, cheating on quizzes, tests, and exams, inappropriate collaboration, academic fraud, and personation are violations of the Student Discipline Bylaw

and will lead to the serious disciplinary action. Visit the Academic Calendar, Student Advocacy, and Academic Integrity web pages for more information and support.

#### Accessibility

The University of Manitoba is committed to providing an accessible academic community. [Students Accessibility Services \(SAS\)](https://umanitoba.ca/student-supports/accessibility) (<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.

520 University Centre

(204) 474-7423

[Student\\_accessibility@umanitoba.ca](mailto:Student_accessibility@umanitoba.ca)

#### Attendance

Your class attendance is not mandatory for passing this course. If your participation is impacted by observing religious holidays, any disabilities, facing food and housing insecurity, parenting, etc. please contact Dr. Koksel as soon as possible at the beginning of the term.

#### Assignment Extension and Late Submission Policy

Late assignments will lose 10% of credit for submission after the due date, and 10% for each additional day late.

#### 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](http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html).

For email etiquette, please see the file: [E-mail etiquette - FOOD-4010-K01 - Food Process 2 \(desire2learn.com\)](#).

#### Recording Class Lectures

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

#### Referencing Style

In all assignments, use the referencing style of the journal [Food Research International](#).



## Technology Use

[Respectful Work and Learning Environment policy \(RWLE\)](https://bit.ly/3OxGtnd) (<https://bit.ly/3OxGtnd>) is applicable in all University-related activities, even ones happening in online environments such as social media platforms. It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical, and legal manner.

## 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 (e.g., Course Hero, Chegg, etc.), unless an exception to the Copyright Act applies or written permission has been confirmed. For more information, see the [University's Copyright Office website](http://umanitoba.ca/copyright/) (<http://umanitoba.ca/copyright/>) or contact [um\\_copyright@umanitoba.ca](mailto:um_copyright@umanitoba.ca).