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 (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 underrepresented 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:

Full texts available in electronic format through University of Manitoba 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](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).

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

- Research Project Proposal: 25%
- Extrusion Runs: 25%
- Extrudate Quality Analyses: 25%
- Final Report: 25%

**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.

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

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/3aMl7nE) 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) 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

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.

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).