Course outline: FDSC 200 Introduction to Food Science

General information

Term and year: Fall 2023
Course pre-requisite(s): None
Course co-requisite(s): None
Course schedule (class day(s) and time): 13:00-14:30 Monday and Wednesday
Number of credits: 3

Instructor information

Name and title: Prof. Xiaonan Lu
E-mail: xiaonan.lu@mcgill.ca
Office location / office hours: MS1-036, 14:00-15:00 Friday
Communication plan: In person communication after class, email, and office hours

Course overview

Introduction to Food Science: This course enables one to gain an appreciation of the scope of food science as a discipline and to appreciate how it is part of a greater environmental, economic and social system. Topics include introductions to food chemistry, food processing, food packaging, food analysis, food microbiology, food product development, sensory evaluation, and quality control as they relate to food science.

Learning outcomes

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

- Comprehend the foundational themes of food science as a discipline
- Critically identify aspects of how the course integrates into the wider food system
  - Experience the current advances of sustainable food production in the industry
  - Discover the basics of sustainable food supply in the urban environment
- Design novel strategies for sustainable food manufacturing and preservation

Instructional methods

In-person lectures will present the fundamental principles of food science with the aid of PowerPoint presentations and polling technology. Topics include introductions to the food supply chain, food sustainability, chemistry, processing, packaging, analysis, microbiology, product development, sensory evaluation and quality control as they relate to food science. In-person laboratory demonstrations and subsequent reports on food 3D printing and novel packaging will be used to better illustrate and critically evaluate the topics studied.

Expectations for student participation

Participation is included in the grading scheme for this class to enable in-person discussion among peers and it is mandatory for laboratory demonstrations.

Class recordings

You are encouraged to record your classes when possible for review and accommodation purposes. Class recordings do not replace a student's or instructor's presence in a class; rather, they provide complementary pedagogical support for student learning. myCourses is the McGill-supported platform for hosting recorded content. It provides access only to those students registered in the course.

Recording is possible both in classrooms with the Lecture Recording System (LRS) and in classrooms without the LRS. Indicate to students whether you will record any course components. Depending on the recording method, you may be able to pause the recording during student discussions if you are concerned recording will inhibit participation. Students who are uncomfortable being recorded can choose not to engage aloud during the recording. You may wish to include a copyright statement and/or an intellectual property statement.

Required course materials

There are no required course materials for this course but it is recommended to read "Introduction to Food Science" (by Rick Parker, Delmar Publishers Inc. 2001, ISBN-10: 0766813142)"

Course content

1. Introduction- What is Food Science?
2. The Food Supply Chain:
   a. Guest speaker: Urban vertical agriculture
   b. Onsite visit: The Food Industry
3. Chemical Components of Food
   a. Fats
   b. Proteins
   c. Carbohydrates
   d. Water and Minor Constituents
4. Food sustainability
   a. Guest speaker: Global Food Security
   b. Lab: Food 3D Printing
5. Nutritive aspects
6. Quality Factors
7. Food Deterioration and its Control
   a. Chemical aspects
   b. Microbiological aspects
8. Processing/ Preservation Principles
   a. Packaging
   b. Lab: Novel Packaging
   c. Heat processing
   d. Cold Processing
   e. Dehydration/concentration
9. Overview of additives and legislation

Week	Date	Description	Assignments due
1 Introduction to Food Science a.Course outline review	Classes start: August 30th September W1		
2 The Food Supply Chain: a.Guest speaker: Urban vertical agriculture b. Onsite visit: the Food industry	Add drop deadline: September 12th September W2		
3 Chemical Components of Food: a.Fats b. Proteins	September W3		
4 Chemical Components of Food: a. Carbohydrates b.Water and minor components	September W4		
5 Food sustainability: a.Lab Demonstration: Food 3D Printing b.Guest speaker: Global Food Security	October W1	Attendance mandatory for lab	Midterm
6	October: Thanksgiving and fall break: Oct 6-11 October W2		
7 a.Nutritive aspects b.Quality factors	October W3		
8 Food Deterioration and its control: a. Chemical b.Microbiological aspects	October W4		
9 Processing/ preservation principles: a.Packaging b.Lab demonstration on novel packaging	November W1	Attendance mandatory for lab	Lab report 1 due
10 Processing and preservation principles: Heat processing and cold processing	November W2		
11 Processing and preservation principles: dehydration/ concentration Overview of additives and legislation	November W3		
12	November W4		Lab report 2 due
13	Free week- presentations?		

Evaluation

Name of assignment or exam	Due date	% of final grade
Midterm		35
Lab report 1		10
Lab report 2		10
Final		35
Participation		10

McGill policy statements

[Required course outline statements (in keeping with Senate resolutions)
The following two statements must appear in English. Providing the statements in both English and French is more inclusive.]

- Language of submission
  "In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French written work that is to be graded. This does not apply to courses in which acquiring proficiency in a language is one of the objectives." (Approved by Senate on 21 January 2009)

  [The French translation about this right may also be used on your course outline:]

  « Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté, sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue. » (Énoncé approuvé par le Sénat le 21 janvier 2009)

- Academic integrity
  "McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures" (Approved by Senate on 29 January 2003) (See McGill's guide to academic honesty for more information).

  [The French translation of the Academic Integrity statement may also be used on your course outline:]

  « L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et procédures disciplinaires » (Énoncé approuvé par le Sénat le 29 janvier 2003) (pour de plus amples renseignements, veuillez consulter le guide pour l'honnêteté académique de McGill.)

Additional statements

[The following statements (listed in alphabetical order) are optional; you are encouraged to include them in your course outline as you feel appropriate. You may adapt the phrasing. Click on the topic to "jump to" the statement.]

Assessment | Basic needs | Charter of Students' Rights | Content warning | Copyright | EDI statement | Extraordinary circumstances | Inclusive learning environment | Intellectual property | Land acknowledgement | Mercury course evaluations | Mobile devices | Preferred pronouns | Recording privacy | Respect | Sustainability | Text-matching | Wellness | Workload management skills

- Assessment: The University Student Assessment Policy exists to ensure fair and equitable academic assessment for all students and to protect students from excessive workloads.

- Basic needs: If you have difficulty affording food or if you lack a safe and stable place to live, and believe that these circumstances may affect your performance in this course, I encourage you to contact the Dean of Students, who can connect you with support services. If you feel comfortable doing so, please let me know as well so we can discuss how I can best support your learning.
[adapted from Goldrick-Rab, 2017]

- Charter of Students' Rights: Additional policies governing academic issues that affect students can be found in the McGill Charter of Students' Rights.

- Content warning: [Students come from a variety of backgrounds with a variety of life experiences. Therefore, in some courses, a content warning may be appropriate to inform students of content that could cause a strong emotional or physiological response. Such a warning can be communicated in the course outline. In addition, it can be provided via myCourses, lecture notes/slides (if applicable), or verbally.]

  Content warning: Please be aware that some of the content in this course contains language or images that may be difficult for some students. It is included in this course because it directly relates to [list relevant learning outcome].

- Copyright: © Instructor-generated course materials (e.g., handouts, notes, summaries, exam questions) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that copyright infringements can be subject to follow-up by the University under the Code of Student Conduct and Disciplinary Procedures.

- EDI statement: [An equity, diversity, and inclusion (EDI) statement in your course outline can welcome all students and set the tone for the course. This statement is an opportunity to share with students your values, understandings, commitments, and pedagogical actions relating to equity, diversity, and inclusion. The statement can also describe how students might engage with one another and with the course material. If you wish to include an EDI statement, we encourage you to consult the EDI Statement TL KB article. It offers reflection questions, sample statements, and a template so that you can customize a statement in your voice that is

appropriate to your course context.]

- Extraordinary circumstances: [In keeping with McGill's preparedness planning strategies with respect to potential pandemic or other concerns, the Administration suggests that all course outlines contain the statement:]

  In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

- Inclusive learning environment: As the instructor of this course, I endeavor to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me and/or Student Accessibility and Achievement.

- Intellectual property: [To protect intellectual property (e.g., lecture recordings and course materials) and the use of your and other individuals' images in the recordings in myCourses, you can include a statement in your myCourses site or your course outline. You can also remind students of the importance of protecting intellectual property at the beginning of class:]

  I ask for everyone's cooperation in ensuring that this [video] and associated material are not reproduced or placed in the public domain. This means that each of you can use it for your own purposes, but you cannot allow others to use it by posting it online or giving it or selling it to others who may copy it and make it available. Thank you for your help with this.

- Land acknowledgement: [If you wish to include a land acknowledgement, we encourage you to consult the Indigenous Initiatives The Land and Peoples web page for guidance.]

- Mercury course evaluations: Mercury course evaluations are one of the ways that McGill works towards maintaining and improving the quality of courses and the student's learning experience. You will be notified by e-mail when the evaluations are available. Please note that a minimum number of responses must be received for results to be available to students.

- Mobile devices: Guidelines for the use of mobile computing and communications (MC2) devices in classes at McGill have been approved by the APC. Consult the Guidelines for a range of sample wording that you may use or adapt for your course outline.]

- Preferred pronouns: [Learn about gender identity and pronouns. Consult Equity at McGill's 2SLGBTQIA+ Initiatives and Gender and Sexuality websites, Queer McGill, and the Union for Gender Empowerment for information and resources specific to the McGill context.]

  Please [choose among: email/call/meet during office hours/schedule an appointment/indicate on the start-of-course survey] if you would like me to refer to you by a different name than the name indicated in your student record or to inform me of your preferred pronouns.

- Recording privacy [if you record course components with students:]

  I will notify you if part of a class is being recorded. By remaining in classes that are recorded, you agree to the recording, and you understand that your image, voice, and name may be disclosed

to classmates. You also understand that recordings will be made available in myCourses to students registered in the course. Please consult me if you have concerns about privacy and we can discuss possible measures that can be taken.

- Respect: The University is committed to maintaining teaching and learning spaces that are respectful and inclusive for all. To this end, offensive, violent, or harmful language arising in course contexts may be cause for disciplinary action.

- Sustainability: McGill has policies on sustainability, paper use, and other initiatives to promote a culture of sustainability at McGill. See the Office of Sustainability.

- Text-matching: [You may avail yourself of software integrated within myCourses that can be used for text-matching (also applies to formula-, equation-, and graph-matching). Consult the Tools to Support Teaching and Learning web page for approved tools. If you intend to use text-matching software, inform students in writing before the end of the add/drop period:]

  Work submitted for evaluation as part of this course may be checked with text-matching software within myCourses.

- Wellness: Many students may face mental health challenges that can impact not only their academic success but also their ability to thrive in our campus community. Please reach out for support when you need it; wellness resources are available on campus, off campus, and online.

- Workload management skills: If you are feeling overwhelmed by your academic work and/or would like to further develop your time and workload management skills, don't hesitate to seek support from Student Services.