Exploring Our Foods
FNH 200 942 July/August 2021
Faculty of Land and Food Systems, University of BC

Dr. Judy C. K. Chan (she/her)

Welcome to Exploring Our Foods, FNH 200 942 July/August 2021!

We all eat, possibly multiple times a day! Have you ever wondered how egg white turns white when heated, why canned foods last years, who ensures all Canadians have access to a safe and healthy food system? In FNH 200, through lots of teamwork, we will explore the science behind foods we eat and enjoy. I hope that by the end of the summer, with my guidance, you will become educated consumers with the ability to make informed decision about controversial issues around foods you enjoy in your everyday life.

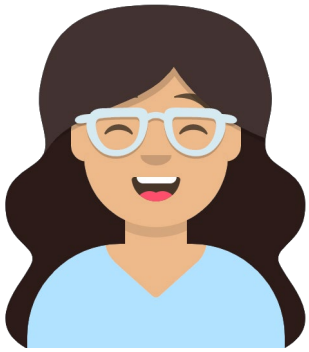
Have an idea? Question? Drop me a line!

Exploring Time:

Tues and Thurs:
9:30 am to 12:20 pm PDT

Details on page 3

Meetings on Zoom



judy.chan@ubc.ca
Please add 'FNH 200' in the subject heading

I aim to respond to all email within 24 hours, except on the weekend (when I'm a 100% mom, daughter, auntie, sister, and wife). I'm most active with email early in the morning and late at night on the weekdays.

Textbook:

No textbook needed; all examinable information can be accessed via Canvas

Open version of course content is also available on:
Wiki.ubc.ca/Course:FNH200

Learning Objectives:

By the end of this course, as an engaged learner, you will be able to:

- ✓ Describe colloidal dispersions important to food quality and sensory perception
- ✓ Describe the role of chemical reactions, enzymes and microorganisms in food spoilage, food preservation and food borne disease
- ✓ Describe food processing/ preservation methods and packaging systems, including their application in the conversion of raw materials into food products
- ✓ Develop personal food selection and food handling habits that will minimize risk of contracting foodborne or water borne disease
- ✓ Articulate a personal set of values related to your decisions pertaining to selection of food products for both your personal and your family's consumption
- ✓ Demonstrate an ability to critically evaluate the validity of information that commonly appears in media

Your local grocery contains a wealth of information relevant to FNH 200. Do visit often as your local health authority allows you to (due to Covid-19).

Please set aside CDN $ 20 to 50 to purchase and sample foods relevant to course materials to enhance your learning. Sorry. Food sampling had been a big highlight in Judy's lecture ☹

Course Overview:

In FNH 200, there are 13 lessons, in varying lengths.

Foundation

- **Lesson 01** — Food Science and Canadian Food System
- **Lesson 02** — Chemical and Physical Properties of Foods
- **Lesson 03** — Fat and Sugar Substitutes
- **Lesson 04** — Food Standards, Regulations, and Guides

Preservation

Lesson 05

- **Lesson 06** — Thermal
- **Lesson 07** — Low Temperature
- **Lesson 08** — Dehydration
- **Lesson 09** — Biotechnology
- **Lesson 10** — Irradiation

Healthy & Safe Future

- **Lesson 11** — Affects on Nutrient Retention
- **Lesson 12** — Toxicants in Foods and Foodborne Diseases
- **Lesson 13** — Trends in Food for Nutrition and Health

TEAMWORK

- Team Contract
- Teamwork Time
- Peer Evaluation

Working in teams is a major component of this course. I am a strong believer that people learn better in a collaborative environment where we **can bring out the best of our diverse knowledge and skills.**

I strive to create teams with students from different disciplines. Once the teams are formed, you will work as a team on a couple of assignments, a final project, as well as in the 2-stage midterms and final exam.

In the summer section, you may choose your own teammates to form teams of four to six. Pairs and triads of students are welcome; I will add a couple members to your preferred pairs or triads to create a full team, aiming for diverse academic background. Due to our current remote learning situation, I will set up a discussion thread for students who may want to **form teams based on your geographical locations.**

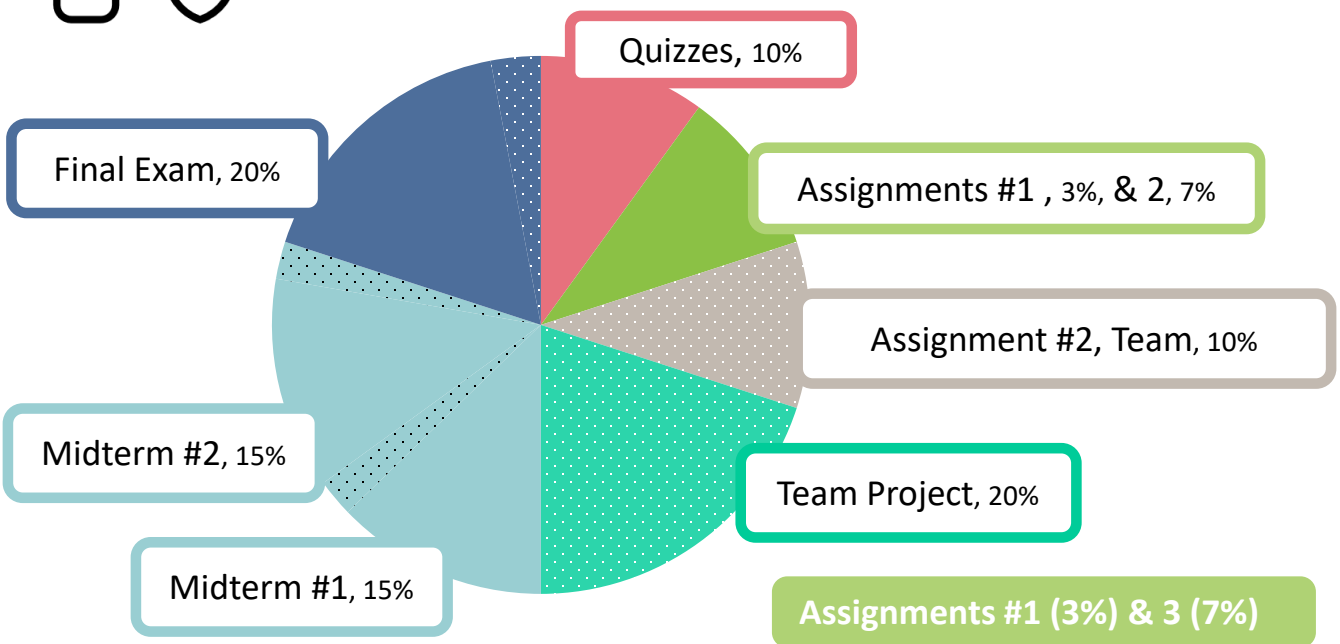
Please let me know your team formation by Monday noon, July 12, by email (with all members properly carbon copied.) I will then start creating teams for the class.

	TUESDAY, July 6	THURSDAY, July 8	
8:30 to 9:20 am	International Student Hour	International Student Hour	
9:30 to 10:20 am	LIVE (recorded)! Intro and Syllabus	LIVE (recorded)! Lesson 2	
10:30 to 11:20 am	LIVE (recorded)! Lesson 1	LIVE (recorded)! Lesson 2	
11:30 am to 12:20 pm	Assignment 1 – Group Activity	Assignment 1 – Group Activity	
12:30 to 1:20 pm	Student Hour	Student Hour	
	TUESDAY, July 13	**THURSDAY, July 15**	
8:30 to 9:20 am	International TEAM Meeting Hour	International TEAM Meeting Hour	
9:30 to 10:20 am	LIVE (recorded)! Lesson 2	LIVE (recorded)! Lesson 4	
10:30 to 11:20 am	LIVE (recorded)! Lesson 3	LIVE (recorded)! Lesson 4	
11:30 am to 12:20 pm	TEAM MEETING – Contract, Assignment 2	TEAM Meeting – Assignment 2, Project topic	
12:30 to 1:20 pm	Student Hour	Student Hour	
	TUESDAY, July 20	**THURSDAY, July 22**	
6:00 to 9:40 am	Midterm 1, Stage 1, Individual	8:30 to 9:20 am	TEAM Meeting
Finish by 11:00 am	Midterm 1, Stage 2, Team, Start with team	9:30 to 10:20 am	LIVE (recorded)! L 6
11:00 to 11:20 am	TEAM Meeting – Assignment 2, Project topic	10:30 to 11:20 am	LIVE (recorded)! L 7
11:30 to 12:20 pm	LIVE (recorded)! Lesson 5	11:30 to 12:20 pm	TEAM Meeting
12:30 to 1:20 pm	Student Hour	12:30 to 1:20 pm	Student Hour
	TUESDAY, July 27	**THURSDAY, July 29**	
8:30 to 9:20 am	International TEAM Meeting Hour	International TEAM Meeting Hour	
9:30 to 10:20 am	LIVE (recorded)! Lesson 7	LIVE (recorded)! Lesson 9	
10:30 to 11:20 am	LIVE (recorded)! Lesson 8	LIVE (recorded)! Lesson 9	
11:30 am to 12:20 pm	TEAM MEETING – Clear Project Outline	TEAM Meeting – Task Sharing, Peer Eval	
12:30 to 1:20 pm	Student Hour	Student Hour	
	TUESDAY, August 3	**THURSDAY, August 5**	
6:00 to 9:40 am	Midterm 2, Stage 1, Individual	8:30 to 9:20 am	TEAM Meeting
Finish by 11:00 am	Midterm 2, Stage 2, Team, Start with team	9:30 to 10:20 am	LIVE (recorded)! L 10
11:00 to 11:20 am	TEAM Meeting – Project	10:30 to 11:20 am	LIVE (recorded)! L 11
11:30 to 12:20 pm	LIVE (recorded)! Lesson 10	11:30 to 12:20 pm	TEAM Meeting
12:30 to 1:20 pm	Student Hour	12:30 to 1:20 pm	Student Hour
	TUESDAY, August 10	**THURSDAY, August 12**	
8:30 to 9:20 am	International TEAM Meeting Hour	International TEAM Meeting Hour	
9:30 to 10:20 am	LIVE (recorded)! Lesson 12	LIVE (recorded)! Lesson 13	
10:30 to 11:20 am	LIVE (recorded)! Lesson 12	LIVE (recorded)! Review	
11:30 am to 12:20 pm	TEAM MEETING – Completing, Reflection	TEAM Meeting – Completing, Peer Eval	
12:30 to 1:20 pm	Student Hour	Student Hour	

Assessments

To help you learn and let you showcase what you learned

Solid colour: individual effort Dotted colour: team effort



Quizzes, 10%

For each lesson from Lessons 01 to 13, there will be an associated quiz on Canvas. You will have unlimited attempts.

I like to encourage you to make your first attempt prior to the beginning of each lesson. Quiz questions and distractors are designed to guide you through important concepts in each lesson.

Team Project, 20%

Option A: A research project on a food you like
Option B: An interview with a professional working in the food industry

Aside from the final report, grades will also be rewarded based on your proposal, reflection, contribution to the learning of the class, etc.

All members in the team should contribute their unique talents towards the project. Unfortunately, if your team members feel that you contribute less than average (<70% on peer evaluation), your project grade may be affected. In extreme case, a mark of zero may be given.

Assignments #1 (3%) & 3 (7%)

Assignment #1 (3%), due on July 13 at 5:30 pm, helps you set some informal learning goals for your own explorations.

Assignment #3 (7%), due 48 hours before the final exam, helps you measure how much food science you have gained.

Assignment #2, Team, 10%

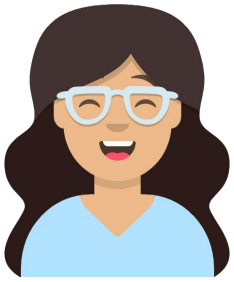
Team Component: Due on July 20 at 5:30 pm, 7%: With you team, you will examine food labels together of food of your choice.

Individual Component: Due on July 21 at 5:30 pm, 3%: Justify your choice based on evidence gathered by your team and your personal experience.

Midterms, 15%, 15%; Final, 20%

Midterm #1, July 20; #2, Aug 3; Final, TBD

Midterms are all multiple choice questions (mcq). The final is mostly mcq with some longer answer questions. These will be conducted as two-stage exams, where your individual effort will count towards to 85% of the assessment while the rest will be based on your team effort. You will have about 5 hours to complete the midterm/final together with your teammates.



A Letter to FNH 200 Students

Dear Students in FNH 200 942 2021,

Thank you very much again for the many of you who filled out a survey in June and shared with me your learning preferences online. I have carefully reviewed your comments and those from students in 2020. I have also chatted with many teaching colleagues at UBC, and imagined and re-imagined the challenges and stresses each of you continue to face with remote learning. I recognize that my teaching plan may not work with everyone in all situations, but I sincerely hope that you feel comfortable reaching out to me whenever needed.

I'm here for you and your learning!

Now, I would like to get into some 'business' of learning in FNH 200 942 ☺

I hope that by now, you are aware that I value peer-to-peer learning. I strive to build support structure to help you work with a group of strangers for six weeks. I hope that you can view and treat your teammates as **your study buddies**, whom you can trust and seek clarifications of course content and process when needed. Like wise, I hope you can also support each other, both academically and emotionally (basically, let me know if you notice a teammate is falling behind in an unhealthy way so that I can intervene with help from Early Alert professionals). Let's all learn together!

Attendance of our synchronous class time is optional. Our synchronous meetings (see page 3) will be recorded and available on Canvas. I have very limited (close to zero) video editing skills, but will do my best to keep our lectures and synchronous discussions as linear as possible to your viewing and reviewing more targeted.

Contributions to your team is valued. I would strongly encourage you to make use of the team meeting time, 8:30 to 9:20 am PDT, **or** 11:30 am to 12:20 pm PDT, during the first week to connect with your classmates, and during the second week to connect with teammates. Once you establish trust and mutual agreement with your team, you (as a team) may choose to collaborate at different times with different online platforms.

Late assignments (and projects ((my TAs will hate me!))) **will be accepted** until 48 hours before the final exam. All assignments and projects are designed to guide you through the course content and help you prepare for your midterms and final; therefore, completing them by the published due dates is definitely beneficial. These published due dates also help our TAs and me manage our busy schedule. If you choose to submit your work late (or if you simply forget about the work), a mark of ZERO (don't panic!) will be noted on Canvas as a reminder to you. We would like to ask you to let us know after you submit your assignment after the due date, so that we can manage our grading schedule accordingly (may take a bit longer than usual.)

All contributing team members will earn the same mark on the team project. You will have an opportunity to assess each other based on work ethics, listening skills, organization skills, and share of workload. All contributing team member (> 70% on peer evaluation) will earn the same mark. Members who choose not to contribute or contribute in a negative way (<70%) will receive a project mark adjusted based on the average peer evaluation. In some cases, a mark of ZERO will be assigned.

Please respect your sources of information and acknowledge them by mentioning them in your reference sections of your reports. Your resources should be reliable and official, such as government websites and professional associations. You may want to make references to your favourite Youtubers, vloggers, TikTokers, etc, but you should critically consider the validity of your sources first.

Prepare a memory aide for your midterms and final. I had allowed the use of memory aides (aka cheat sheets) in in-person, paper-based exams in the past. Many students commended on the process of creating a memory aide really helped them understand, digest and synthesize course content. While our midterms and final will be open book and open 'internet', having a self-prepared outline will save you time instead of relying on the 'Ctrl' + 'F' feature on your devices during tightly timed exams.

I'm a part-time, contract instructor who only teaches once a year. Last summer, I taught my first fully online FNH 200 with 120 students from many different time zones for my first time (I taught face-to-face for many years before). I feel that many of you should have more experience learning online than me teaching online. If you notice areas of improvement, please kindly let me know using the QR code on p. 1.

I look forward to exploring food sciences with you all and seeing and learning about foods you have in different parts of the globe! Despite the challenges we face during the pandemic, I hope you will find some joy exploring the very magical sciences behind foods, something we all eat everyday!

By the way, learning is important, but please look after yourself both physically and mentally. If you need to walk away during our synchronous meeting for a cup of tea, just go ahead! If your internet becomes unstable in the middle of a midterm, let's make it up a couple of hours later. (I actually don't know what to do yet, but there must be a way. Let's figure it out together. 😆)

Let's keeping learning with many amazing resources and tips on keeplearning.ubc.ca!

I look forward to meeting you all on July 6, as early as 8:30 am PDT for students in different time zones, or simply prefer meeting earlier. Official 'class' will start and be recorded from 9:30 to 11:20 am PDT.

Regards,
Judy, she/her

- A professional during the day, a mom, daughter, wife, sister, and auntie in the evening and on the weekend
- Love foods, love sciences of foods, love eating foods, but can't cook
- Born in Hong Kong, came to Vancouver as an ESL student in high school, studied at UBC
- All icons on this syllabus are from: https://thenounproject.com/; avatar created with https://getavataaars.com/
- Teaching from my home in South Vancouver, tradition homeland of people from səl̓ilwətaʔɬ təməxʷ (Tsleil-Waututh), xʷməθkʷəy̓əm, Stz'uminus, and S'ólh Téméxw (Stó:lō) first nations; as a first generation settler in Vancouver in the 90s, I didn't know much about our indigenous history in Canada until around 2010. At that time, my daughter was starting 'daycare'. Imagining that she may be taken away from me to attend school ached m heart. I continue to learn about indigenous history in Canada and wish no other children will be taken away from their families ever.

Institute of Food Technologists (IFT)

UBC's Food Science Program is one of few in Canada that are approved by the Institute of Food Technologists (IFT), an internationally recognized leader in undergraduate education standards for degrees in Food Science. Programs with this approval badge are recognized as delivering a comprehensive Food Science education that covers 55 essential learning outcomes (ELOs) established by the IFT organization. In FNH 200, we begin to introduce some of these learning outcomes, as highlighted, for students interested in further exploration of food sciences.

Institute of Food Technologists Essential Learning Objectives (IFT ELOs)

Food chemistry (FC)

- FC.1. Discuss the major chemical reactions that limit shelf life of foods.
- FC.2. Explain the chemistry underlying the properties and reactions of various food components.
- FC.3. Apply food chemistry principles used to control reactions in foods.
- FC.4. Demonstrate laboratory techniques common to basic and applied food chemistry.
- FC.5. Demonstrate practical proficiency in a food analysis laboratory.
- FC.6. Explain the principles behind analytical techniques associated with food.
- FC.7. Evaluate the appropriate analytical technique when presented with a practical problem.
- FC.8. Design an appropriate analytical approach to solve a practical problem.

Food microbiology (FM)

- FM.1. Identify relevant beneficial, pathogenic, and spoilage microorganisms in foods and the conditions under which they grow.
- FM.2. Describe the conditions under which relevant pathogens are destroyed or controlled in foods.
- FM.3. Apply laboratory techniques to identify microorganisms in foods.
- FM.4. Explain the principles involved in food preservation via fermentation processes.
- FM.5. Discuss the role and significance of adaptation and environmental factors (e.g., water activity, pH, temperature) on growth response and inactivation of microorganisms in various environments.
- FM.6. Choose relevant laboratory techniques to identify microorganisms in foods.

Food safety (FS)

- FS.1. Identify potential hazards and food safety issues in specific foods.
- FS.2. Describe routes of physical, chemical, and biological contamination of foods.
- FS.3. Discuss methods for controlling physical, chemical and biological hazards.
- FS.4. Evaluate the conditions, including sanitation practices, under which relevant pathogenic microorganisms are commonly controlled in foods.
- FS.5. Select appropriate environmental sampling techniques.
- FS.6. Design a food safety plan for the manufacture of a specific food.

Food engineering and processing (FE)

- FE.1. Define principles of food engineering (mass and heat transfer, fluid flow, thermodynamics).
- FE.2. Formulate mass and energy balances for a given food manufacturing process.
- FE.3. Explain the source and variability of raw food materials and their impact on food processing operations.
- FE.4. Design processing methods that make safe, high-quality foods.
- FE.5. Use unit operations to produce a given food product in a laboratory or pilot plant.
- FE.6. Explain the effects of preservation and processing methods on product quality.
- FE.7. List properties and uses of various packaging materials and methods.
- FE.8. Describe principles and practices of cleaning and sanitation in food processing facilities.
- FE.9. Define principles and methods of water and waste management.

Sensory science (SS)

- SS.1. Discuss the physiological and psychological basis for sensory evaluation.
- SS.2. Apply experimental designs and statistical methods to sensory studies.
- SS.3. Select sensory methodologies to solve specific problems in food.

Quality assurance (QA)

- QA.1. Define food quality and food safety terms.
- QA.2. Apply principles of quality assurance and control.
- QA.3. Develop standards and specifications for a given food product.
- QA.4. Evaluate food quality assessment systems (e.g. statistical process control).

Food laws and regulations (FL)

- FL.1. Recall government regulatory frameworks required for the manufacture and sale of food products.
- FL.2. Describe the processes involved in formulating food policy.
- FL.3. Locate sources of food laws and regulations.
- FL.4. Examine issues related to food laws and regulations.

Data and Statistical Analysis (DS)

- DS.1. Use statistical principles in food science applications.
- DS.2. Employ appropriate data collection and analysis technologies.
- DS.3. Construct visual representation of data.

Critical thinking and problem solving (CT)

- CT.1. Locate evidence-based scientific information resources.
- CT.2. Apply critical thinking skills to solve problems.
- CT.3. Apply principles of food science in practical, real-world situations and problems.
- CT.4. Select appropriate analytical techniques when presented with a practical problem.
- CT.5. Evaluate scientific information.

Food Science Communication (CM)

- CM.1. Write relevant technical documents.
- CM.2. Create oral presentations.
- CM.3. Assemble food science information for a variety of audiences.

Professionalism and leadership (PL)

- PL.1. Demonstrate the ability to work independently and in teams.
- PL.2. Discriminate tasks to achieve a given outcome.
- PL.3. Describe social and cultural competence relative to diversity and inclusion.
- PL.4. Discuss examples of ethical issues in food science