



The Alt Protein Project

The Waterloo Alt Protein Project

Alternative Proteins 101

Winter 2024



Purpose

The Waterloo Alt Protein Project (APP) is a student-run design team operating from the University of Waterloo. One of APP's long-term goals is to build an alternative protein course. This pilot course, titled "Alternative Proteins 101", will be used to build a case to the University regarding the interest and value of alternative protein education. This course will cover broad areas within the alternative protein landscape, touching on science, nutrition, sustainability, and business.

Target student audience

Undergraduate students at UW and UoG who are interested in gaining a general and well-rounded understanding of alternative proteins.

Delivery format

To improve and encourage accessibility, the lectures will be run in a hybrid fashion. The lectures will be delivered on UWaterloo campus. The in-person attendance will be capped at 100 registrations to plan for food and refreshments, as well as lecture hall bookings. Lectures, with consent from each lecturer, may be recorded and made available publicly.

Certificate of completion

Following the attendance of all five lectures and completion of all surveys, students will receive a certificate of course completion from the Waterloo Alt Protein Project.

Lecturers

- Dr. Dalia El Khoury, University of Guelph, Family Relations & Applied Nutrition
- Dr. Christian Euler, University of Waterloo, Chemical Engineering
- Dr. Sharon Kirkpatrick, University of Waterloo, Public Health Sciences
 - Supported by Lisa Blank, BPH candidate
- Dr. Vivian Dayeh, University of Waterloo, Biology
- Dr. Andreas Boecker, University of Guelph, Food, Agricultural & Resource Economics

Schedules

Course calendar

Lecture	Date
1	Monday, January 22nd
2	Thursday, February 1st
3	Monday, February 12th
4	Thursday, March 7th
5	Monday, March 18th

Lecture schedule

Time	Key activities
5:30-5:50	Set-up (food, technology)
5:50-6:05	Open doors, start livestream, allow people to grab food & drinks, introduction from APP
6:05-6:55	Lecture, which may include Q&A session
6:55-7:00	Closing remarks from APP, exit survey

Lectures

Lecture 1: Alternative proteins in global nutrition and health

Dr. Dalia El Houry

- Historical and nutritional context of plant-based diets
- Introduction to alternative protein sources
- The necessity and relevance of alternative proteins to global food systems
- The health implications of alternative proteins
- Focus on beans as an alternative protein (health benefits, intake, knowledge and attitudes)



Lecture 2: Precision fermentation for alternative proteins

Dr. Christian Euler

- Principles of precision fermentation
- Scaling up
- Examples of companies using this technology
- Applications beyond protein production (e.g., enzymes, flavours)



Lecture 3: Eating for planetary health - considerations and trade-offs

Dr. Sharon Kirkpatrick and Lisa Blank

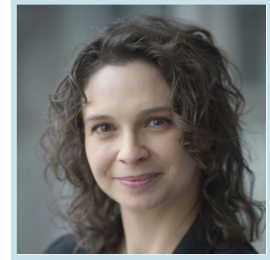
- Guidance related to environmentally friendly eating patterns
- Environmental impacts of the food system and food production
- Considerations and trade-offs in identifying sustainable foods and beverages and following planet-friendly eating patterns



Lecture 4: Future foods - the rapid growth of cellular agriculture

Dr. Vivian Dayeh

- History and requirements of animal cell culture
- What is cellular agriculture and its significance in alternative protein production
- Techniques and process involved (bioreactors, feed, etc)
- Case studies around the world (first cultivated burger, Singapore, U.S.)



Lecture 5: Economics and business of alternative proteins

Dr. Andreas Boecker

- Historical and global perspective of the animal agriculture industry
- Specialization, economies of scale, and supply chains
- Alternative proteins: vehicles and drivers of change
- Regulatory landscape and challenges
- Consumer insights on alternative proteins

