
COURSE TITLE

FRE 521E: Supply Chains in Food and Agriculture: Economic Analysis and Technological Transformations

COURSE INFORMATION

Session and term: 2023S1

Class location: MCML 154

Class times: Tuesday/Thursday, 12:30–2:00 pm

Lab times: N/A

Course duration: January 10 – February 16, 2023

Credits: 1.5

COURSE DESCRIPTION

Over the last 40 years, agri-food supply chains have become increasingly complex and integrated. Traditional spot markets have been replaced with contractual relationships, supermarkets have emerged as key players in food retailing worldwide, food products have become increasingly differentiated, the various stages of the supply chain have become more and more concentrated, and certain strategically important countries (e.g., China, Brazil, Ukraine) have become major buyers and sellers. Using a set of conceptual tools and empirical examples, this course examines the economics of agri-food supply chains and the significant transformations they have undergone.

INSTRUCTOR INFORMATION

Instructor: Murray Fulton, PhD, Professor Emeritus, University of Saskatchewan

Phone: (306) 229-9897

Office location: MCML 335

Email: Murray.Fulton@usask.ca

Office hours: Tues. 2:00–4:00 pm or by request

LEARNING OBJECTIVES

By the end of this course, students will be able to:

1. Understand the reasons for and estimate the extent of market power in agri-food supply chains;
2. Explain the pricing strategies used in agri-food supply chains;
3. Explain the increased vertical integration in agri-food supply chains and analyze its impact;
4. Explain the rise of private labels and standards in agri-food supply chains and analyze its impact; and
5. Describe and analyze the technological changes that have transformed and are transforming agri-food supply chains.

LEARNING MATERIALS

Required: The course will rely on journal articles and reports that are available online. See below for details.

ASSESSMENTS

Market Power Assignment (50% Individual; 50% Team)	View MFRE online schedule	30
Food Price Project & Presentation (Team)	View MFRE online schedule	30
Participation (Individual)	See Participation Rubric	10
Final Exam (Individual)	View MFRE online schedule	30
TOTAL		100

DETAILS OF COURSE-SPECIFIC ASSESSMENTS and POLICIES

Exam Policies

Students must complete the final exam. If you are unable to make the final exam, please contact the instructor to make alternative arrangements.

Late and/or Substandard Format Assignments:

Students must complete all assignments. If you are unable to complete an assignment, please contact the instructor to make alternative arrangements.

Group Work and Peer Review

Students will choose their own groups for the two assignments, with a maximum of three students per group. The groups for the two assignments may differ.

COURSE SCHEDULE

Background Reading for the Course:

Barrett, C. B., Reardon, T., Swinnen, J., & Zilberman, D. (2022). Agri-food Value Chain Revolutions in Low- and Middle-Income Countries. *Journal of Economic Literature*, 60(4), 1316–1377.
<https://doi.org/10.1257/jel.20201539>

Week 1: Determinants of Market Power in Agri-Food Supply Chains

Date: January 10 & 12

Conceptualization:

White, L.J. (2013). Market Power: How Does It Arise? How Is It Measured? In C. R. Thomas & W. F. Shughart (Eds.), *The Oxford Handbook in Managerial Economics*. Oxford University Press.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2056708

Swinnen, J.F.M., & Vandeplas, A. (2010). Market power and rents in global supply chains. *Agricultural Economics*, 41(s1), 109–120. <https://doi.org/10.1111/j.1574-0862.2010.00493.x>

Empirical:

Elshiewy, O., Guhl, D., & Boztug, Y. (2017). Multinomial Logit Models in Marketing—From Fundamentals to State-of-the-Art. *Marketing ZFP*, 39(3), 32–49. <https://doi.org/10.15358/0344-1369-2017-3-32>

Class Assignment (JV has the data): Estimating demand elasticities with discrete choice analysis—cracker case study

Web Appendix: Multinomial Logit Models in Marketing
https://rsw.beck.de/docs/librariesprovider54/default-document-library/web-appendix-elshiewy-et-al_02.pdf?sfvrsn=8d26f25c_0

Week 2: Supply Chain Transformation: Contracting and Vertical Integration

Date: January 17 & 19

Conceptualization:

Sexton, R.J. (2013). Market Power, Misconceptions, and Modern Agricultural Markets. *American Journal of Agricultural Economics*, 95(2), 209–219. <https://doi.org/10.1093/ajae/aas102>

Pindyck, R.S. (2022). Lecture Notes on Vertical Structure. Sloan School of Management. Massachusetts Institute of Technology. Cambridge MA. http://web.mit.edu/rpindyck/www/Courses/VS_22.pdf

Kwoka, J.E., & Slade, M. (2020). Second Thoughts on Double Marginalization. *Antitrust*, 34(2), 51–56.
<https://heinonline.org/HOL/LandingPage?handle=hein.journals/antitruma34&div=31&id=&page>

Empirical:

- Villas-Boas, S. (2007). Vertical Relationships between Manufacturers and Retailers: Inference with Limited Data. *The Review of Economic Studies*, 74(2), 625–652. <https://doi.org/10.1111/j.1467-937X.2007.00433.x> or <https://escholarship.org/content/qt6gz1t778/qt6gz1t778.pdf>
- MacDonald, J. M., & Key, N. (2012). Market Power in Poultry Production Contracting? Evidence from a Farm Survey. *Journal of Agricultural and Applied Economics*, 44(4), 477–490. <https://doi.org/10.1017/S1074070800024056> or <https://pubag.nal.usda.gov/download/57041/pdf>.

Supplemental Reading:

- Hamilton, S. F., Liaukonyte, J., & Richards, T. J. (2020). Pricing Strategies of Food Retailers. *Annual Review of Resource Economics*, 12(1), 87-110. <https://doi.org/10.1146/annurev-resource-101619-094219>

Week 3: Supply Chain Transformation: Supermarkets and Product Differentiation

Date: January 24 & 26

Conceptualization:

- Saitone, T. L., & Sexton, R. J. (2010). Product Differentiation and Quality in Food Markets: Industrial Organization Implications. *Annual Review of Resource Economics*, 2(1), 341–368. <https://doi.org/10.1146/annurev.resource.050708.144154>
- Fulton, M. E., & Giannakas, K. (2004). Inserting GM Products into the Food Chain: The Market and Welfare Impacts of Different Labelling and Regulatory Regimes. *American Journal of Agricultural Economics*, 86(1), 42–60.

Empirical:

- Reardon, T., & Gulati, A. (2008). The Supermarket Revolution in Developing Countries: Policies for Competitiveness with Inclusiveness (IFPRI Policy Brief 2; p. 2). International Food Policy Research Institute.
- Boselie, D., Henson, S., & Weatherspoon, D. (2003). Supermarket Procurement Practices in Developing Countries: Redefining the Roles of the Public and Private Sectors. *American Journal of Agricultural Economics*, 85(5), 1155–1161. <https://doi.org/10.1111/j.0092-5853.2003.00522.x>
- Ma, M., & Siebert, R. (2021). The Impact of Private Label Introductions on Assortment, Prices, and Profits of Retailers. 57.

Supplemental Reading:

- Wu, L., Yang, W., & Wu, J. (2021). Private label management: A literature review. *Journal of Business Research*, 125, 368–384. <https://doi.org/10.1016/j.jbusres.2020.12.032>

Week 4: Review and Consolidation of First Three Weeks

Date: January 31 & February 2

Conceptualization:

Allen, D. W., & Lueck, D. (1998). The Nature of the Farm. *The Journal of Law and Economics*, 41(2), 343–386.
<https://doi.org/10.1086/467393>

Week 5: Supply Chain Transformation: Traceability and Private Standards

Date: February 7 & 9

Conceptualization:

Verbeke, W. (2005). Agriculture and the food industry in the information age. *European Review of Agricultural Economics*, 32(3), 347–368. <https://doi.org/10.1093/eurrag/jbi017>

Skilton, P. F., & Robinson, J. L. (2009). Traceability and Normal Accident Theory: How Does Supply Network Complexity Influence the Traceability of Adverse Events? *Journal of Supply Chain Management*, 45(3), 40–53. <https://doi.org/10.1111/j.1745-493X.2009.03170.x>

Empirical:

Banterle, A., & Stranieri, S. (2008). The consequences of voluntary traceability system for supply chain relationships. An application of transaction cost economics. *Food Policy*, 33(6), 560–569.
<https://doi.org/10.1016/j.foodpol.2008.06.002>

Alvarez, G., & von Hagen, O. (2011). The Impacts of Private Standards on Producers in Developing Countries: Literature Review Series on the Impacts of Private Standards, Part II. *SSRN Electronic Journal*.
<https://doi.org/10.2139/ssrn.2184273>

Supplemental Reading:

Golan, E., Krissoff, B., Kuchler, F., Calvin, L., Nelson, K., & Price, G. (2004). Traceability in the U.S. Food Supply: Economic Theory and Industry Studies (Agricultural Economic Report No. 830). Economic Research Service, United States Department of Agriculture.
https://www.ers.usda.gov/webdocs/publications/41623/28673_aer830_1_.pdf?v=0

Pouliot, S., & Sumner, D. A. (2008). Traceability, Liability, and Incentives for Food Safety and Quality. *American Journal of Agricultural Economics*, 90(1), 15–27. <https://doi.org/10.1111/j.1467-8276.2007.01061.x>

Souza-Monteiro, D. M., & Caswell, J. A. (2010). The Economics of Voluntary Traceability in Multi-Ingredient Food Chains. *Agribusiness*, 26(1), 122–142. <https://doi.org/10.1002/agr.20233>

Week 6: Supply Chain Transformation: AgTech, Risk Diversification, and More

Date: February 14 & 16

Readings:

Dolfsma, W., Isakhanyan, G., & Wolfert, S. (2021). Information Exchange in Supply Chains: The Case of AgriTech. *Journal of Economic Issues*, 55(2), 389–396. <https://doi.org/10.1080/00213624.2021.1908800>

Waltz, E. (2017). Digital farming attracts cash to agtech startups. *Nature Biotechnology*, 35(5), 397–398.
<https://doi.org/10.1038/nbt0517-397>

Fulton, M. E., Pigeon, M-A., Oemichen, B., & Yang, Y. (2021). Digital Technologies and the Big Data Revolution in the Canadian Agricultural Sector: Opportunities, Challenges, and Alternatives. Canadian Centre for the Study of Co-operatives. <https://usaskstudies.coop/documents/big-data-in-canadian-agriculture-report-fultonetal.pdf>

Savoy, C. M., & Ramanujam, S. R. (2022). Diversifying Supply Chains. Centre for Strategic and International Studies. https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/220610_Savoy_Diversifying_SupplyChains.pdf?amuNJudMyT6DQd27i.9YafkUvcsSNoIp

Freeland, C. (2022, October 11). How democracies can shape a changed global economy. Policy program, Brookings Institution, Washington D.C. <https://www.brookings.edu/events/how-democracies-can-shape-a-changed-global-economy/>

Participation Rubric

Category	Exceptional 4	Proficient 3	Satisfactory/Fair 2	Unacceptable 1
Frequency of participation (as listed above)	Student initiates contributions regularly during class /online platforms.	Student initiates contribution semi-regularly during class /online platforms.	Student makes occasional contribution.	Student does not attend many lectures or does not initiate any contributions.
Quality of comments	Contributions are always insightful & constructive; uses appropriate terminology. Contributions balanced between general impressions, opinions and specific, thoughtful criticisms or questions.	Contributions mostly insightful & constructive; mostly uses appropriate terminology. Occasionally comments are too general or not relevant to the discussion.	Contributions are sometimes. constructive, with occasional signs of insight. Student does not use appropriate terminology; comments not always relevant to the discussion.	Contributions are uninformative, lacking in appropriate terminology. Heavy reliance on opinion & personal taste versus critical use of course content.

POLICIES APPLICABLE TO UBC MFRE COURSES

Respectfulness in the Classroom

Students are expected to be respectful of their colleagues at all times, including faculty, staff and peers. This means being attentive and conscious of words and actions and their impact on others, listening to people with an open mind, treating all MFRE community members equally and understanding diversity. Students who act disrespectfully toward others will be asked to leave the class and be marked as absent for the day. They may also be removed from a team, lose credit for in-class assessments and activities, or be asked to complete a group assignment individually.

Respect for Equity, Diversity, and Inclusion

The MFRE Program strives to promote an intellectual community that is enhanced by diversity along various dimensions including status as a First Nation, Métis, Inuit, or Indigenous person, race, ethnicity, gender identity, sexual orientation, religion, political beliefs, social class, and/or disability. It is critical that students from diverse backgrounds and perspectives be valued in and well-served by their courses. Furthermore, the diversity that students bring to the classroom should be viewed as a resource, benefit, and source of strength for your learning experience. It is expected that all students and members of our community conduct themselves with empathy and respect for others.

COVID-19 Considerations

All students must assess themselves daily for COVID-19 symptoms prior to coming to class. Please stay home if you exhibit symptoms or have tested positive for COVID-19. A list of COVID-19 symptoms can be found [here](#). Use the BC Ministry of Health's [self-assessment tool](#), to help determine whether further assessment or testing for COVID-19 is recommended. Full UBC COVID-19 Campus Rules can be found [here](#). **Note: Please stay home if you exhibit symptoms or have tested positive for COVID-19 and immediately contact Olivier Ntwali, Academic Program Coordinator, your Course Instructor, and your Course Assistant.**

Recordings and In-Class Attendance

There is no required distribution of recordings of class. Recording will be provided based upon on the decision of the course instructor. Classes are designed as and are intended to be in-person. Your attendance is expected. If you are unable to attend, the policy regarding missed classes described in the MFRE code of conduct and syllabus applies. It is your responsibility to ensure that you have the materials you need for missed classes.

Writing Exams

All exams will be in-person and will follow MFRE exam protocol (See Student Portal). Exams may be online, e.g., in Canvas, but students must be physically present and invigilated. If a student is unable to write an exam, they must have a verifiable doctor's note and must contact the Course Instructor, Course Assistant, and MFRE Program Coordinator before the scheduled exam date/time. Documentation must be provided to explain your absence. If the documentation is considered legitimate, the Course Instructor will let you know how to proceed.

Plagiarism Penalties

Academic dishonesty and plagiarism are taken very seriously in the MFRE program. All incidences of plagiarism will be escalated to the MFRE Academic Director. Incidences of academic misconduct may result in a reduction of grade, a mark of zero on the assignment/exams of concern, failing the course or program, escalation/referral to the Dean's office and/or President's Advisory Committee on Student Discipline, and/or expulsion from UBC. **Note: If a MFRE student is required to extend his/her program due to failed course or unsatisfactory progress, they will need to pay the full MFRE tuition fees for that term(s) regardless of the number of courses that need to be retaken.** It is each student's responsibility to review and understand what constitutes academic dishonesty and plagiarism and how to avoid them. Review MFRE Code of Conduct, UBC academic dishonesty policies/penalties and course-specific policies.

Turn it In Access for MFRE Courses: Internet-based plagiarism detection service

Turn it in has been set up for MFRE courses. Submit all assignments/papers to this service and review similarity index reports. [Turn it in Login \(website\)](#). For instructions: **See the Student Guide to MFRE Student Guide To Setting Up And Using Turn It In on the Student Portal** ([website](#)). Use provided Class ID and Enrollment Key to access MFRE course folder, submit assignments/papers, and review similarity index reports.

Working with Others on an Assignment

You are encouraged to work with other students, but you must turn in your own individual assignment. If you have an answer that is too close to another student's answer, this will be considered academic dishonesty and this will be handled according to the MFRE and UBC policies.

Missing Classes/Labs

Students are expected to attend all classes, labs, or workshops. If you cannot make it to a class, lab, or workshop due to a medical or personal emergency, please **email your instructor, your course assistant, and Olivier Ntwali, MFRE Program Coordinator** ahead of time to let them know. Students who miss classes regularly without a reasonable excuse may be subject to MFRE-imposed penalties at the discretion of the Academic Director.

Centre for Accessibility

The [Centre for Accessibility](#) (CfA) facilitates disability-related accommodations and programming initiatives designed to remove barriers for students with disabilities and ongoing medical conditions. If you are registered with the CfA and are eligible for exam accommodations, it is your responsibility to let Olivier Ntwali, Academic Program Coordinator, and each of your Course Instructors know. You should book your exam writing with the CFA using its [exam reservation system](#): for midterm exams or quizzes, at least 7 days in advance; and final exams, 7 days before the start of the formal exam period.

Copyright

All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) are the intellectual property of the instructor or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline and could be subject to legal action. Any lecture recordings are for the sole use of the instructor and students enrolled in the class. In no case may the lecture recording or part of the recording be used by students for any other purpose, either personal or commercial. Further, audio or video recording of classes are not permitted without the prior consent of the instructor.

ACADEMIC HONESTY

Academic misconduct that is subject to disciplinary measures includes, but is not limited, to the following:

- **Plagiarism**, which is intellectual theft, occurs where an individual submits or presents the oral or written work of another person as his or her own. Correct citations must be provided where applicable for all reports/assignments. In many UBC courses including MFRE/FRE courses, you will be required to submit material in electronic form. The electronic material will be submitted to a service which UBC subscribes, called TurnItIn. This service checks textual material for originality. For more information, review the [TurnItIn website](#).
- **Cheating**, which may include, but is not limited to falsification of any material subject to academic evaluation, unauthorized collaborative work; or use of unauthorized means to complete an examination.
- **Submitting others work as your own**, may include but not limited to i. using, or attempting to use, another student's answers; ii. providing answers to other students; iii. failing to take reasonable measures to protect answers from use by other students; or iv. in the case of students who study together, submitting identical or virtually identical assignments for evaluation unless permitted by the course instructor.
- **Working with Others on an Assignment** You are encouraged to work with other students, but you must turn in your own individual assignment. If you have an answer that is too close to another student's answer, this will be considered academic dishonesty and this will be handled according to the MFRE and UBC policies.
- **Resubmission of Material**, submitting the same, or substantially the same, essay, presentation, or assignment more than once (whether the earlier submission was at this or another institution) unless prior approval has been obtained from the instructor(s) to whom the assignment is to be submitted.
- **Use of academic ghostwriting services**, including hiring of writing or research services and submitting papers or assignments as his or her own.

Student Responsibility: Students are responsible for informing themselves of the guidelines of acceptable and non-acceptable conduct for examinations and graded assignments as presented via MFRE Code of Conduct; MFRE Turn it in, Course Syllabus, MFRE Instructors; Canvas and UBC academic misconduct policies.

Penalties for Academic Dishonesty: The integrity of academic work depends on the honesty of all those who work in this environment and the observance of accepted conventions. Academic misconduct is treated as a serious offence at UBC and within the MFRE program. Penalties for academic dishonesty are applied at the discretion of the course instructor. Incidences of academic misconduct may result in a reduction of grade or a mark of zero on the assignment, examination, or course and/or the matter is referred to the Dean's office and/or President's Advisory Committee on Student Discipline. **Note: If a student needs to extend his/her program due to a failed course or unsatisfactory progress, they will have to pay the full MFRE tuition fees for that term/s.**

Resources: Review the following:

UBC Policies of Academic Honesty:

- UBC Academic Misconduct and Discipline ([website](#).)
- UBC Learning Commons web-based Academic Integrity ([website](#))

Turn it In Access for MFRE Courses:

- [Turn it in Login](#) ([website](#)) and [Student Guide to MFRE Student Guide To Setting Up And Using Turn It In on the Student Portal](#) ([website](#))

Citing Sources:

- UBC Learning Commons Citation Resource ([website](#))
- Purdue Lab How to Cite Sources ([website](#))

Plagiarism

- Purdue University Plagiarism Overview ([website](#))
- SFU Avoiding plagiarism ([website](#))