

NUTC-262

Sustainable Food Systems and Markets

Spring 2023

Version 1.0

Class meeting: Online

Instructors: Robert Guillemin
Instructor, Sustainable Supermarket Lead, US EPA
robert.guillemin@tufts.edu or 617-918-1814

Natalie Valpiani
Instructor, Food Policy and Nutrition Research Consultant
natalie.valpiani@tufts.edu or 763-213-4604

Office Hours Phone conversations can be arranged as needed

Credit awarded: 3 credits

Prerequisites: None

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COURSE OVERVIEW

Course Description

Food businesses (the companies that process, manufacture, distribute, serve, and sell food) transform the very nature of what we eat and establish the economic, social and environmental terms that shape much of the food system. This course examines the dominant food system, exploring its undesirable outcomes and the emerging opportunities to feed a growing population in a manner that is reliable, equitable, healthy, and sustainable. Students will learn about industry-led initiatives that attempt to balance the drive for profits with their social and environmental goals. We will also explore how governments, nonprofit organizations, and communities are trying to reshape the food system. To provide context, the course reviews such topics as food system policy, environmental impacts, nutrition, public health, and food equity.

Course Objectives

Upon completion of this course students will be able to:

1. Define sustainability in the context of food processing, distribution, and retail.
2. Describe the purposes, functions, and impacts of the dominant food system (transportation, processing, and retail/institutional formats).
3. Outline the leading and emerging sustainability initiatives and strategies that apply to the “middle of the food system.”
4. Explain and critique the roles of and relationships between important stakeholders (business, advocacy groups, institutions and government agencies).
5. Evaluate the economic, social, and technical barriers and trade-offs that challenge a sustainable food system.
6. Apply important historical, theoretical, and technical insights, to analyze and evaluate the course material.
7. Evaluate the strengths and weaknesses of potential solutions for improving the way food is processed, distributed, or sold.

Course Materials

Required readings are available online through the course website on Canvas, the Tufts University course management system. We also use a required textbook throughout the course: Introduction to the U.S. Food System: Public Health, Environment, and Equity edited by Roni Neff, published by Jossey-Bass. The book is available in three ways:

1. Reserve E-copy, available with your Tufts UTLN Login:
https://tufts-primo.hosted.exlibrisgroup.com/permalink/f/14dinuo/01TUN_ALMA51206493730003851
2. Purchase hard copy or e-book:
<http://www.wiley.com/WileyCDA/WileyTitle/productCd-1118063384.miniSiteCd-JBPUBLI>

[CHEALTH.html](#)) or on Amazon.com and Barnesandnoble.com. The textbook is available as a new, used, rented, or e-book.

3. Reserve hard copy:

Students based in Boston can use the reserve room copy at the Hirsh Library on our Health Sciences campus.

Course Assignments and Grading Criteria

Assignments	Grading Weight
1) Introductory Statement	5%
2) Corporate Social Responsibility (CSR) Report Evaluation	10%
3) 5 Quiz Assignments (6% each)	30%
4) 1 Online Discussion Leader Article	10%
5) 3 Online Discussion Responses (4% each)	12%
6) 2 of 4 Zoom Discussions (4% each)	8%
7) Final Paper Outline	5%
8) Final Paper	20%
	Total: 100%

1) Introductory Statement

The course begins with a 1-2 page Introductory Statement (250 to 500 words) that allows students to introduce themselves in the Discussion Forum and share their interests, goals, aspirations, and questions about the course. The assignment is worth 5% of the course grade. Students are invited to share the following items.

- Current job and professional pursuits
- Future career aspirations
- Learning goals for the semester
- Questions regarding food systems and sustainability
- Relevant family background
- Hobbies or activities

The Introductory Statement is due on Saturday, January 21 by 11:59 pm (EST).

Grading Rubric: Introductory Statement

Components	Expected Level of Competence	Moving Towards Expected Level of Competence	Below Expected Level of Competence
Submission posted on time	Complete and post writing on time.	Post is submitted late.	Post is not submitted
Style guidelines	Adheres to word limit.	Does not adhere to word	Post is below 250 words in

	Writing is clear and succinct. Demonstrates care in writing, which may be informal, but thoughtful. The post has a smooth flow of ideas and is well organized and logical.	limit (250-500 words). Writing lacks clarity in some places. Flow of ideas could use some improvement.	length, is difficult to understand, and does not introduce the student's interests or reasons for taking the course.
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2) Corporate Social Responsibility (CSR) Report Evaluation

The 1-2 page (250-500 words) review of a company's CSR Report determines if the company's sustainability activities seem relevant, transparent, and ambitious. The paper follows a set of instructions based on the document [How to Read a Corporate Social Responsibility Report: A User Guide](#), which is featured in the reading materials for week 2. See the Canvas Assignments for more details. The assignment is worth 10% of the course grade.

The CSR Report Evaluation is due Sunday, February 5 by 11:59 pm (EST)

Grading Rubric: Corporate Social Responsibility (CSR) Report Evaluation

Components	Expected Level of Competence	Moving Towards Expected Level of Competence	Below Expected Level of Competence
Submission posted on time	Complete and submit article on time.	Assignment is submitted late.	Article is not submitted
Style guidelines	Adheres to word limit. Writing is clear and succinct. Demonstrates care in writing,	Does not adhere to word limit (250-500 words). Writing lacks clarity in some places. Flow of ideas could use some improvement.	Does not adhere to word limit (250-500 words). Writing lacks clarity throughout. Flow of ideas is rough. Post is not well organized.
Completion of relevant course material and required research	Shows strong knowledge of the course material and detailed study of the selected CSR report.	Shows average knowledge of the course material and mediocre study of the selected CSR report.	Gives little indication that readings/lectures were completed or research was completed on CSR Report.
Contemplation and Analysis	Demonstrates a robust analysis of the topic and original thought that goes beyond the obvious. Provides statements and insights with accurate and compelling explanations, reasons, or evidence.	States the obvious rather than offer insights, opinions, or questions. Provides a summation of information without a critique that integrates relevant course material, concepts and research.	Presents a confused and/or shallow understanding of the topic material and provides little explanation or evidence to support points.

3) Quiz Assignments

Students will complete 5 quiz assignments, each worth 6%, or 30% of the total course grade. These assignments will require students to apply and practice the concepts and ideas

discussed during the week's readings and lectures, primarily from the course textbook. Assignments will include short answer, multiple choice, fill in the blank, and true/false questions. **Quiz answers are due on designated Sundays at 11:59 pm (EST).**

4) Online Discussion Leader Article

Students will select one of three dates to submit a Discussion Leader Article, worth 10% of the entire course grade. The article presents an opinion or insight that initiates an online discussion among classmates. In addition to using course materials, the article must cite peer-reviewed and/or gray literature (i.e. periodicals, reports from government or non-government agencies). The instructors will provide a prompt question to help develop the discussion article and guide the following responses. The article is between 2-3 pages (500 and 750 words). **Discussion Leader articles must be posted on designated Thursday evenings by 11:59 pm (EST).**

Grading Rubric: Discussion Leader Article

Components	Expected Level of Competence	Moving Towards Expected Level of Competence	Below Expected Level of Competence
Submission posted on time	Complete and submit article on time.	Article is submitted late.	Article is not submitted
Style guidelines	Adheres to word limit. Writing is clear and succinct. Demonstrates care in writing, which may be informal, but thoughtful. The post has a smooth flow of ideas and is well organized and logical.	Does not adhere to word limit (500-750 words). Writing lacks clarity in some places. Flow of ideas could use some improvement.	Does not adhere to word limit (500-750 words). Writing lacks clarity throughout. Flow of ideas is rough. Post is not well organized.
Completion of relevant course material and required research	Demonstrates completion and understanding of the relevant readings/lectures and research on the required topic matter. 3 or more references provided.	Demonstrates that some of the relevant readings and lectures were completed and some research on the topic was conducted. 1-2 references provided.	Gives little indication that readings/lectures were completed or that research was completed on the topic. No references provided.
Contemplation and Analysis	Demonstrates a robust analysis of the topic and original thought that goes beyond the obvious. Provides statements and insights with accurate and compelling explanations, reasons, or evidence.	States the obvious rather than offer insights, opinions, or questions. Provides a summation of information without a critique that integrates relevant course material, concepts and research.	Presents a confused and/or shallow understanding of the topic material and provides little explanation or evidence to support points.

5) Online Discussion Responses

Students will submit three online discussion responses, worth 4% each, or a total of 12% of the total course grade. The responses comment on the Discussion Leader articles and/or other online responses. The responses help deepen the nature of the online class discussion by

introducing new ideas and insights, raising questions, and posing opinions. Students are not required to provide online responses the week they submit a Discussion Leader article, however, all extra responses will be applied as extra credit. **Response posts are due on designated Sunday evenings by 11:59 pm (EST).**

Grading Rubric: Online Discussion Responses

Components	Expected Level of Competence	Moving Towards Expected Level of Competence	Below Expected Level of Competence
Quantity & timeliness of contributions	Reads the messages in the discussion area. Contributes 3 or more constructive responses to discussion post over the entire course.	Reads some of the messages in the discussion area. Contributes 2-3 constructive responses to discussion posts over the entire course.	Does not read messages in discussion area and does not contribute any constructive responses to discussion posts over the course of the semester.
Quality & relevance of response	Responses are concise, clear, and thoughtful. Responses contribute something original or build upon what has been said; they are not repetitious.	Responses are related to the discussion posts, but messages only address peripheral issues. Repetition of questions or points made by others.	Responses do not relate to the discussion posts. Makes, short, irrelevant remarks or responds with minimum effort.
Interaction with others	Questions are raised to stimulate discussion. Encourages a variety of viewpoints. Responds to questions and comments from others. When disagreeing, does so respectfully.	Participation is evident, but posts do not engage in a dialog or encourage others to think critically.	Rarely raises questions to stimulate discussion and rarely responds to the questions and comments raised by others. Comments are unconstructive or non-courteous.

6) Zoom Meeting Discussion

The purpose of these online meetings is to activate our learning community by discussing course material from varied perspectives. The course always includes students from different professions, career stages, and geographies, offering fresh insights to the course topics. Students are expected to attend two of the four Zoom Meetings, totaling 8% of the course grade (4% each). See the Course Calendar and the Weekly Syllabus below for dates, as well as the Canvas Modules. Students are welcome to attend more than two meetings. The grade will be based on the following criteria.

- **Zoom Etiquette:** Share your video and add your screen name so everyone knows who you are. Mute mic if there is background noise. Students can request not to share their video.
- **Participation:** Proactively contribute to the Zoom conversation by offering comments, asking questions, and initiating discussion that explores the course topics and themes.

- **Listening Skills:** Listen without interrupting and expand on the comments of other students.
- **Preparation:** Demonstrate an understanding of the course material by referencing readings and videos, and employing covered terminology, themes, and concepts.

7) Final Paper Outline

To help prepare students for the Final Paper, students will submit a 1-2 page outline, which is worth 5% of the course grade. As described below, the Final Paper critiques a product, technology, program or company that is designed to promote a healthy, sustainable, and/or ethical food system. The paper should introduce the subject, describe its benefits, question its feasibility, and make predictions or recommendations. The Outline needs to include the following elements.

- **Introductory paragraph (2-5 sentences):** Start the first paragraph by explaining the paper's topic as well as its relevance and importance to a sustainable food system.
- **Thesis statement (1-2 sentences):** At the end of the introductory paragraph, include a thesis statement that proposes the purpose or goal of the paper. Be sure to present your opinion or assertion in relation to the topic. The thesis statement helps guide the writing process by keeping the main argument focused and on track throughout the paper.
- **Paper outline (1 page):** This list of bulleted statements constitutes the body of the paper by highlighting the main points in a logical sequence.
- **Conclusion (1 paragraph):** Briefly summarize the paper's main points and conclusion that restates and supports the thesis statement.
- **References:** Include a preliminary list of source materials, which can include course readings, peer-reviewed publications, and/or gray literature (i.e. periodicals, reports from government or non-government agencies), and must include more than a list of websites.

Examples of paper outlines can be found at:

<https://academicguides.waldenu.edu/writingcenter/writingprocess/outlining>

The Final Paper Outline is due on Friday, April 7 by 11:59 pm (EST).

Grading Rubric: Final Paper Outline

Components	Expected Level of Competence	Moving Towards Expected Level of Competence	Below Expected Level of Competence
Submission and Page Limit	Outline submitted on time and includes all the required elements within the 1-2 page limit. Four or more sources cited.	Outline is submitted late and/or does not contain required elements or adhere to the 1-2 page limit. 1-2 sources cited.	Outline is not submitted.

Format guidelines	Writing is clear, logical and well organized.	Writing lacks clarity in some places. Connection of ideas could use some improvement.	The outline lacks clarity throughout. Flow of ideas is rough.
Contemplation and Analysis	Outline demonstrates serious contemplation and analysis that includes relevant insights, concepts, and challenges derived from course materials and lectures.	Demonstrates research but there is a lack of inquiry and analysis that probes deeper into areas of complexity and nuance.	Gives little indication that research was completed or efforts were made to understand the topic.

8) Final Paper

The final paper challenges students to demonstrate their understanding of the course materials. The paper critiques a company, technology, or program that promotes a healthy, sustainable, and/or ethical food system. The paper should introduce the subject, describes its benefits, questions its feasibility, and makes predictions or recommendations. It should be 5-6 pages in length (1,250-1,500 words), not including references. ***The Final Paper is due Sunday, April 23 at by 11:59 pm (EST)***

Grading Rubric: Final Paper

Components	Expected Level of Competence	Moving Towards Expected Level of Competence	Below Expected Level of Competence
Submission and Page Limit	Paper submitted on time and adheres to page limit. 4 or more sources cited.	Article is submitted late and/or does not adhere to page limit. One or two sources cited.	Article is not submitted.
Style guidelines	Writing is clear, logical and well organized.	Writing lacks clarity in some places. Flow of ideas could use some improvement.	Writing lacks clarity throughout. Flow of ideas is rough.
Contemplation and Analysis	Paper demonstrates critical thinking and analysis that includes relevant insights, concepts, and challenges derived from course materials and lectures.	Demonstrates research by answering questions but there is a lack of inquiry and analysis that probes deeper into areas of complexity and nuance.	Gives little indication that research was fully completed. Questions are not posed or answered.

Assignments and Submission Instructions

All homework assignments should be uploaded to Canvas in your assignment dropbox by the specified deadline. Online Discussion Leader articles and responses are to be posted to the class Discussion Forum on Canvas. Assignments received after their deadline will not be accepted or graded unless an extension is approved in advance of the due date. Students who are unable to complete an assignment or exam on time for any reason should notify either Rob or Natalie by email as soon as possible, and at least 48 hours prior to the deadline, with a brief

explanation for why the extension is needed. Deadlines for each assignment are listed in the Course Calendar below.

Communication

The instructors use email as the main form of communication and are also available by Zoom during office hours to answer any questions. You will receive email replies within a day, but please do not expect instant replies. Classmates may also be contacted if there are questions about assignments and due dates.

Academic Support at the StAAR Center

The StAAR Center (formerly the Academic Resource Center and Student Accessibility Services) offers a variety of resources to all students (both undergraduate and graduate) in the Schools of Arts and Science, Engineering, the SMFA and Fletcher; services are free to all enrolled students. Students may make an appointment to work on any writing-related project or assignment, attend subject tutoring in a variety of disciplines, or meet with an academic coach to hone fundamental academic skills like time management or overcoming procrastination. Students can make an appointment for any of these services by visiting go.tufts.edu/TutorFinder, or by visiting our website (<https://students.tufts.edu/staar-center>).

Accommodations for Students with Disabilities

Tufts University values the diversity of our students, staff, and faculty; recognizing the important contribution each student makes to our unique community. Tufts is committed to providing equal access and support to all qualified students through the provision of reasonable accommodations so that each student may fully participate in the Tufts experience. If you have a disability that requires reasonable accommodations, please contact the StAAR Center (formerly Student Accessibility Services) at StaarCenter@tufts.edu or 617-627-4539 to make an appointment with an accessibility representative to determine appropriate accommodations. Please be aware that accommodations cannot be enacted retroactively, making timeliness a critical aspect for their provision.

Diversity Statement

It is our intent that students from all diverse backgrounds and perspectives be well served by this course, that students' learning needs to be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is our intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. In addition, please inform the instructors if the class assignments conflict with your religious events. Your suggestions are encouraged and appreciated because they help build a more inclusive and effective learning experience.

Academic Conduct

The Tufts University official policy holds that academic integrity, including avoiding plagiarism, is critically important. Each student is responsible for being familiar with the standards and policies

outlined in the Friedman School's Policies and Procedures manual:

<http://nutrition.tufts.edu/student/documents>. It is the responsibility of the student to be aware of, and comply with, these policies and standards. In accordance with Tufts University's policy on academic misconduct, violations of standards of academic conduct will be sanctioned by penalties ranging from grade reduction or failure on an assignment; grade reduction or failure of a course; up to dismissal from the school, depending on the nature and context of any infraction: <http://uss.tufts.edu/studentaffairs/judicialaffairs/Academic%20Integrity.pdf>.

The material you submit to show mastery of the course material must be your own work. We take proper academic conduct seriously, as it is unfair to other students when academic misconduct is not addressed. The policy followed here is quite simple: any proven plagiarism or cheating will result in a failing grade for the assignment and the entire course, and all violations will be reported to the Dean of Academic Affairs.

COURSE CALENDAR

Dates	Week	Topic	ASSIGNMENTS & ACTIVITIES	ASSIGNMENT DUE DATES	LECTURERS & GUESTS SPEAKERS
Key Concepts					
1/18 - 1/22	1	Introduction to course and overview of Food System and Markets	Readings Introduction Post	Introductions: Post in Discussion Forum by 1/21 at 11:59pm EST	Rob Guillemín
1/23 - 1/29	2	Understanding and Assessing Sustainable Business Behavior	Readings Zoom Call #1 (L.O. 1,2)	None Zoom Call: 1/23 at 7:00 PM	Rob Guillemín
1/30 - 2/5	3	Government and Corporate Policies that Shape the Food System	Readings CSR Report Eval. (L.O. 1,3,4) Quiz #1 (L.O. 2,4,5)	CSR Report Evaluation: 2/5 Quiz answers: 2/5, 11:59pm EST	Rob Guillemín Natalie Valpiani
Understanding the Dominant Food System					
2/6 - 2/12	4	Environment Crop and Food Animal Production	Readings	None	Rob Guillemín
2/13 - 2/19	5	Social Environmental and Public Health Effects	Readings Quiz #2 (L.O. 2)	Quiz answers: 2/19, 11:59pm EST	Natalie Valpiani
2/20 - 2/26	6	Economic Food Environment, Food Access, and Nutrition	Readings Discussion #1 (L.O. 2,6) Zoom Call #2 (L.O. 3-5)	Article: 2/23, 11:59pm EST Response: 2/26, 11:59pm EST Zoom Call: 2/20 at 7:00 PM	Natalie Valpiani Jen Obadia
The Middle of the Food System					
2/27 - 3/5	7	Food Distribution and Transportation	Readings Quiz #3 (L.O. 2,6)	Quiz answers: 3/5, 11:59pm EST	Rob Guillemín
3/6 - 3/12	8	Food Processing and Packaging	Readings Discussion #2 (L.O. 4, 5)	Article: 3/9, 11:59pm EST Response: 3/12 11:59pm EST	Rob Guillemín
3/13 - 3/19	9	Regional Food Hubs and Food Security	Readings Quiz #4 (L.O. 5, 7)	Quiz answers: 3/19 11:59pm EST	Natalie Valpiani
3/20 - 3/26	10	Supermarkets and Alternative Retail Formats	Readings Discussion #3 (L.O. 3,5,7) Zoom Call #3 (L.O. 3-5)	Article: 3/23, 11:59pm EST Response: 3/26, 11:59pm EST Zoom Call: 3/20 at 7:00 PM	Rob Guillemín
3/27 - 4/2	11	Direct to Consumer	Readings Quiz #5 (L.O. 5 -7)	Quiz answers: 4/2, 11:59pm EST	Natalie Valpiani
4/3 - 4/9	12	Restaurants	Readings Fin. Paper Outline (L.O.3-7)	Final Paper Outline Due Friday 4/7 at 11:59pm EST	Rob Guillemín
4/10 - 4/16	13	Farm to Institutions	Readings Zoom Call #4 (L.O. 3-5)	Zoom Call: 4/10 at 7:00 PM	Rob Guillemín
Conclusion					
4/17 - 4/23	14	Wasted Food and Course Conclusion	Final Paper (L.O. 3-7)	Final Paper Due Sunday 4/23 at 11:59pm EST	Rob Guillemín Natalie Valpiani

Note: This schedule is subject to modification at the discretion of the instructors.

WEEKLY SYLLABUS

Key Concepts

Week 1: Introduction and Overview of Food System and Markets

Welcome to NUTC-262, Sustainable Food Systems and Markets! This week's lectures, reading/viewing materials, and assignment will introduce you to the course, to the concept of a sustainable food system, and to each other. The introductory lecture will provide an overview of the syllabus, course topics, and academic expectations.

Assignment:

In 1-2 pages Introductory Statement, introduce yourself in the Discussion Forum by 11:59 p.m. EST on 1/21. See page 3 for more information about this assignment, which is worth 5% of the course grade.

Learning Objectives

- Review the requirements of the course from start to finish.
- Explore the definition of a “sustainable food system” and offer useful perspectives that clarify its meaning.
- Discuss why the industrial “middle of the food system” is relevant to sustainability.
- Provide a broad overview of the US food system, including its elements, characteristics and relationships.
- Explain a “systems” approach to understanding the food system.
- Review the “wicked problems” construct as a means of understanding the challenges that face the food system.

Lectures

- Welcome to Sustainable Food Systems and Markets - Guillemain (6:48)
- Defining Sustainable Food Systems (SFS) - Guillemain (8:12)
- Why the Middle of the Food System Matters - Guillemain (7:40)
- Wicked Problems and the Food System - Guillemain (4:53)
- System Thinking Approach - Guillemain (13:02)
- Seeing What the World Eats - Guillemain (4:01)

Required Reading and Viewing

Food System Insights

- *Introduction to the U.S. Food System*, Chapter 1: Food Systems (p. 2-22)
- Emily Brooks, [The Ultimate Confusion: Defining Sustainable Agriculture](#), New Sustainability Inc. blog, January 18, 2014 (p. 1-4). Note: This blog article provides a number of definitions for sustainable agriculture and posits that “Sustainability is a question rather than an answer.”
- Benjamin Lorr (2020). [The Secret Life of Groceries: The Dark Miracle of the American Supermarket - A Secular Revelation](#) (p.8-12). Note: Once it enters the realm of business, food becomes a commodity whose primary purpose is to generate profits. Lorr’s recent book describes this transformation, which lies at the center of the tension between financial success and sustainability.

Food System Concerns

These short videos define sustainability and describe the many challenges facing the global food system, providing a context for the sustainability goals set by food businesses.

- Video: [What is Sustainability?](#) (1:46). ACCIONA, Nov 15, 2016). Note: This video provides a quick definition of sustainability.
- Video: [Food by the Numbers: Feeding Our Hungry Planet](#) (National Geographic) (1:42). Note: This video is preceded by a short commercial.
- Video: [Why do we need to change our food system?](#) (United Nations Environment Program, 2016) (3:46):
- Video: [How will we survive when the population hits 10 billion?](#) Charles Mann’s TED Talk (2018). (12:50). Note: This Ted Talk places sustainability solutions in two camps represented by technologically-minded “Wizards” and small-scale, community-oriented, conservation-minded “Druids.”

Week 2: Understanding and Assessing Sustainable Business Behavior

For this week, we explore unethical corporate behavior, how it changes to become more socially responsible, and how to determine if companies are indeed as sustainable as their CSR reports portray. We also discuss the three major shifts that support the rise of the corporate social responsibility movement and review the Managerial Maturity Matrix, a model that shows how companies “mature” along a continuum towards greater social awareness and action. Finally, each student will review a Corporate Social Responsibility (CSR) and provide an assessment of its usefulness.

Assignment

- Zoom Call #1, Monday, 1/23 at 7:00 pm (ET). See Canvas Modules for Zoom link.
- Visit the **Discussions** tab in Canvas and get started on the Corporate Social Responsibility Report Evaluation, due at the end of Week 3. Week 3 also includes a quiz, so you will appreciate having started early on the CSR assignment.

Learning Objectives

- Learn the aspects and benefits of ethical and unethical companies and employees.
- Review the argument that the narrow drive for corporate profits undermines social and environmental objectives.
- Understand three major trends that drive the rise of sustainable business practices (consumer demand for sustainable products, industrial efficiency programs, and socially responsible investing).
- See how companies evolve into more socially conscious entities.
- Learn to read and assess a company's sustainability performance based on their Corporate Social responsibility (CSR) report.

Lectures

- What is an ethical company? - Guillemin (3:49)
- Profit Maximization and Unethical Corporate Behavior - Guillemin (5:45)
- Understanding Unethical Employee Behavior - Guillemin (3:30)
- Drivers of Corporate Sustainability - Guillemin (7:31)
- Consumer Demand for Sustainable Products - Guillemin (8:10)
- Cost Savings through Operational Efficiency - Guillemin (8:40)
- Socially Responsible Investing - Guillemin (7:24)
- Assessing Sustainability Commitment in the Food Industry - Guillemin (13:17)
- Sustainability Management Maturity Matrix - Guillemin (7:25)
- Corporate Social Responsibility Report - Guillemin (9:20)
- How to Read a CSR Report - Guillemin (7:36)

Required Reading and Viewing

Understanding Ethical and Unethical Corporate Behavior

To understand why food companies promote sustainability, we must first understand the sources of unethical business behavior and why/how companies choose to be good corporate citizens.

- Michele Simon (2006). [Appetite for Profit: How the Food Industry Undermines Our Health and How to Fight Back. Chapter 1: Anatomy of a Food Corporation: Why We Can't Trust Them](#) (p. 1-19). Note: Although this book was published in 2006, this introductory chapter provides an analysis that reflects the key concerns espoused by food activists and policymakers concerning a single minded profit motivation for corporations. (p. 1-8).
- Marion Nestle (2013). [Food Politics: How the Food Industry Influences Nutrition and Health \(Tenth Anniversary Edition\). Introduction: The Food Industry and "Eat More"](#) (p.

1-28). Note: The tenth edition of this food policy classic is a well documented, first-hand account of the food industry advancing its interests. This chapter provides an overview of the book's underlying public health concern; the food industry's drive for profit by making people eat more.

Main Drivers for Corporate Sustainability: Sales, Savings, and Stocks

When businesses pursue sustainability, there are three main areas of focus that produce tangible value: 1) New consumer demand for sustainability and health drives product innovations and sales. 2) Institutionalization of operational efficiency and pollution prevention to reduce the use of water, energy, chemicals, raw materials and other forms of “waste.” 3) Shift in shareholder attitudes drive companies to produce Corporate Social Responsibility reports and change their corporate culture.

New Consumer Demand for Sustainability

- [Capitalizing on the shifting consumer food value equation](#), Deloitte Development LLC, 2016. **Read the Executive Summary (p. 1-5).** Note: This document explains that “Traditional Drivers” for food consumption (i.e., taste, price, convenience) have been overtaken by “Evolving Drivers,” that include health, safety and social impact. Food businesses have been increasing sales based on this fundamental shift in consumer demand.

Institutionalization of Operational Efficiency and Pollution Prevention

- [Food Manufacturing Pollution Prevention Techniques](#). U.S. Environmental Protection Agency. **Skim the range of Pollution Prevention Techniques on this website.** Note: This list of Pollution Prevention (P2) techniques and methods help food manufacturing facilities save money by reducing the use of water, chemicals, raw materials, and energy.

Shift in Shareholder Attitudes Towards Sustainability

- Lynn A. Stout. “[The Shareholder Value Myth](#).” Cornell Law School, Cornell Faculty Publications. April 19, 2013 (p. 1-8). Note: The author argues that the Shareholder Primacy Theory, where company managers are evaluated based on short-term profits for shareholders, is too narrow, jeopardizing long-term profitability for a range of stakeholders. This argument has taken hold as business leaders think about their success in new ways, including sustainable business practices.
- Lucian Bebchuk and Roberto Tallarita. “Have Business Roundtable Companies Lived Up to Their Stakeholder Commitments?” ProMarket, May 18, 2022. Published by the Stigler Center for the Study of the Economy and the State at the University of Chicago’s Booth School of Business. Note: This article examines the ability of large U.S. companies that

represent the Business Roundtable to follow through on a 2019 statement that stakeholder commitments are more important than shareholder primacy.

Assessing Sustainable Businesses Practices

As companies promote their sustainable practices, how can we distinguish greenwashing from legitimate efforts to be more socially and environmentally responsible? These materials describe how companies “mature” into sustainability leaders and how stakeholders can assess the quality of their CSR claims.

- [Retail Sustainability Management Maturity Matrix](#), Retail Industry Leadership Association (RILA) 2016. **Spend 5 minutes examining this document to appreciate the many ways companies can incorporate sustainability practices into their operations and how this process is cumulative.** Note: As described in the course lecture, the Management Maturity Matrix charts how a company evolves through several stages. The “Starting” stage is when companies have no formal sustainability program and lack the related goals, measurements and programs. The most advanced stage is the “Next Practices” category, in which sustainability strategy and corporate strategy are one in the same.
- [How to Read a Corporate Social Responsibility Report: A User Guide](#): Institute for Responsible Investment, Boston College Center for Corporate Citizenship, 2010. **Read the Executive Summary section (p. 2-4) and use as a reference when completing the course assignment that evaluates a CSR Report.** Note: Despite its age, this report does an excellent job of explaining the purpose of CSR Reports and how to read them with understanding.

Supplementary Materials

- Video: [Bob Massie: Measuring Sustainability Disclosure \(Global Reporting Initiative\)](#) (3:30). Note: In this video, one of the founders of the Global Reporting Initiative (GRI) discusses the beginning of corporate efforts to disclose their environmental liabilities and assets. This effort led to the set of evolving GRI standards that allow companies to communicate to investors and other stakeholders in a clear and meaningful way.
- Video: [Sustainability reporting with the GRI Standards](#) (2:40). Note: Over time, the GRI standards have become more sophisticated and useful. This video reviews the latest version of the GRI standards.
- Video: [Introduction to ISO 14000 - Environmental management](#) (4:29). Note: This video explains the benefits of the environmental management system ISO 14001. Unlike GRI standards, which communicate sustainability activities to external audiences, the ISO 14000 process helps companies improve internal operations by establishing a system for management and employees to follow.

Week 3: Policies that Shape the US Food System

In week 3, we discuss food policy mechanisms, drivers, and stakeholders. This includes the perspectives of food activists, government agencies, and food businesses.

Assignments

- Corporate Social Responsibility (CSR) Report Evaluation, due 2/5 by 11:59 P.M. EST
- Quiz #1, due 2/5 by 11:59 P.M. EST

Learning Objectives

- Review a brief history of food and agriculture policy in the United States.
- Describe the process for policy proposals to become legislation and receive federal funding.
- Explain the role of alliances, stakeholders, and other political factors in policy change.
- Identify ways food system policies can affect price and thus shape of the food system.
- Describe how food systems policies drive public health and health disparities.
- Explore the term “Food Politics,” including the interests and tensions between key stakeholders.
- Hear the opinions of state and local stakeholders, including a state food association president and a local activist.
- Review the regulatory underpinnings of the industrial food system.

Lectures

- Overview: Policy and Agenda Formation - Valpiani (12:06)
- Policy Nuts and Bolts: Federal Legislative Process - Valpiani (6:51)
- Policy Nuts and Bolts: Federal Appropriations Process - Valpiani (7:20)
- Policy Nuts and Bolts: Federal Rulemaking Process - Valpiani (9:59)
- Food Policy Councils - Valpiani (9:53)
- Interview with Chris Flynn, President of the Massachusetts Food Association - Guillemín (7:40)
- Interview with Clint Richmond, Plastic Bag Ban Activist in Boston, MA - Guillemín (12:40)

Required Reading and Viewing

- *Introduction to the U.S. Food System*, Chapter 8: Policies that Shape the US Food System (p. 185-213)
- Robert Paarlberg ((2010). [Food Politics: What Everyone Needs to Know. Chapter 1: Overview of Food Politics](#) (p. 1-7). Note: This chapter provides a concise definition of food politics, including the tensions between rural and urban, and local and global interests, and roles played by key food system stakeholders:

- Video: Mark Bittman. “[Food Matters](#)” Presentation at the Boston Museum of Science (2011). (45:00). Note: This lecture provides a thoughtful description of the food system problems and a number of policy recommendations.
- U.S. Department of Health and Human Services and U.S. Department of Agriculture. [2020-2025 Dietary Guidelines for Americans](#). 9th Edition. December 2020.
Note: Only read the *Introduction* (pgs. 1-14)
- Kathleen Merrigan, Timothy Griffin, Parke Wilde, Kimberly Robien, Jeanne Goldberg, William Dietz. 2015. [Designing a Sustainable Diet](#). *Science*. Vol. 350, Issue 6257, pp. 165-166.
- Karen Bassarab, Raychel Santo, and Anne Palmer (July 24, 2019). Webinar: [Keeping Track of Food Policy Councils: An Overview of the 2018 FPC Census Results](#). Johns Hopkins Center for a Livable Future.

Note: Food policy councils (FPCs) can drive food policy at the state and local level. Selected portions of this webinar and the Wheel of Achievements give an overview of the variety of work that FPCs undertake across the U.S.

- Minutes 3:00 - 8:30: Overview of FPCs
- Minutes 24:15 - 48:00: Policy efforts, drivers of success/challenge. **Skim to understand the breadth of successes/challenges.**
- [2021 Wheel of Achievements](#): Johns Hopkins
- Raychel Santo, Caitlin Misiaszek, Karen Bassarab, Darriel Harris, and Anne Palmer (2021). [Pivoting Policy, Programs, and Partnerships: Food Policy Councils’ Responses to the Crises of 2020](#). Johns Hopkins Center for a Livable Future.

Food Regulations

Food regulations represent the front line in protecting society from fraud, abuse, health risks, and environmental destruction. While the topic is enormously complex, these materials offer an overview of the history of food regulations and the types of laws and regulations that control the food industry.

- Video: [The History of Food Regulations](#) (5:06): This video provides a quick review of the variety of regulations that impact food businesses.
- [Multimedia Compliance Guide for Food Processors](#) (U.S. EPA, 1999). **Read pages 1-1 to 1-2 and quickly scan the entire document to get a sense of the scope and complexity of food regulations.** Note: Although this document is dated, it is the only EPA document that explains all of the Agency’s environmental regulations for food processors in one place. It was created to help companies comply with federal environmental regulations

but it also references other regulations regarding food safety from the USDA and the FDA.

Supplementary Materials

- Clare Gupta et al. (2018). [Food policy councils and local governments: Creating effective collaboration for food systems change](#). Journal of Agriculture, Food Systems, and Community Development, 8 (Suppl. 2), 11–28.
- [How to Start a Food Business](#), U.S. Food and Drug Administration guide to launching a food business provides an overview of the many regulations regarding everything from food safety to labeling. The point of this document is that food businesses are highly regulated, and for good cause.

Understanding the Dominant Food System

Week 4: Crop and Food Animal Production

This week focuses on the foundational topic of food production, including the long history of agriculture, the transition to industrial food production, and the merits of alternative agriculture approaches.

Assignment

None.

Learning Objectives

- Provide a historical context to the modern food system by describing the rise of agriculture and the associated trends in food production and population.
- Describe the shift from traditional farming and animal production to industrial practices.
- Examine the factors that drove the industrialization of food production and the resulting environmental and social tradeoffs.
- Describe alternative farming practices that seek to establish a sustainable food system, including organic food production, agroecology, and local farming.
- Review the debates regarding the advantages and limitations of organic and local food.

Lectures

- Agriculture and the Dawn of Civilization - Guillemin (4:01)
- Cycles of Boom and Bust - Guillemin (9:08)
- Industrialization of the Food System - Guillemin (8:35)
- Alternative Farming: Agroecology and Organic Farming - Guillemin (11:29)

- Alternative Farming: Local and Regional Markets - Guillemin (6:32)

Required Reading and Viewing

- *Introduction to the U.S. Food System*, Chapter 11: Crop Production and Food Systems (p. 265-287).
- *Introduction to the U.S. Food System*, Chapter 12: Food Animal Production (290-315).
- Video: [Crash Course: The Agricultural Revolution](#) (11:10). Note: The video begins with a cheeky introduction but provides a well produced and informative lesson on the advent of agriculture.
- Jonathan Foley. [A Five-Step Plan to Feed the World: It doesn't have to be factory farms versus small, organic ones](#) (30-minute read). National Geographic, November 20, 2018. Note: National Geographic's series on the "Future of Food" explores key questions about food security and sustainable food production.

Supplementary Material

- Ken E Giller, Renske Hijbeek, Jens A Andersson, et al. “[Regenerative Agriculture: An agronomic perspective](#),” *Outlook on Agriculture*, Volume: 50, issue: 1, page(s): 13-25, March 2, 2021. Note: This peer reviewed article discusses the many definitions, results, and hopes ascribed to Regenerative Agriculture.
- Carson, Rachel (1962). [Silent Spring. Chapter 6: Earth's Green Mantle \(pp. 63-84\)](#). Houghton Mifflin Company; Anniversary edition (October 22, 2002). Note: This chapter from the iconic book, *Silent Spring*, provides an excellent example of systems thinking. Although Rachel Carson doesn't use the term, her description of the interrelationships between plants and animals popularized the concept of ecology and alerted the nation to the dangers of pesticides.

Week 5: Environmental and Public Health Effects of Predominant Diet and Production System

This week, we will examine the health and environmental effects of the average American diet and the production systems that make it accessible and affordable.

Assignment

Quiz #2: Please visit the **Quizzes** tab in Canvas and complete Quiz #2 by 11:59 EST on 2/19.

Learning Objectives

- Describe food intakes and eating patterns in the United States.
- Summarize the major diet-related conditions and their health and economic impacts.
- Explain how food production capacity depends on ecological integrity.
- Outline how food systems have impacted the status of land, oceans, freshwater, genetic diversity, energy resources and ecosystem services.

- Describe some of the occupational and environmental health risks associated with food and agricultural industries.

Lectures

- What We Eat in America - Valpiani (11:10)
- Human Health Impacts of Industrial Agriculture - Valpiani (15:33)
- Environmental Impacts of Industrial Agriculture - Valpiani (10:52)
- Measuring Environmental Impact: Life-cycle assessment - Valpiani (7:26)

Required Reading and Viewing

- *Introduction to the U.S. Food System*, Chapter 2: Food System Public Health Effects (26-50).
- U.S. Department of Health and Human Services and U.S. Department of Agriculture. [2020-2025 Dietary Guidelines for Americans](#). 9th Edition. December 2020. Available at:
 - Chapter 4: Adults (Pgs. 91-105)
 - Remaining chapters are a handy reference; skim at your interest
- Nicole Tichenor Blackstone, Naglaa H El-Abbadi, Margaret S McCabe, Timothy S Griffin, Miriam E Nelson. [Linking sustainability to the healthy eating patterns of the Dietary Guidelines for Americans: a modeling study](#). The Lancet Planetary Health. Volume 2, Issue 8, 2018. Pages e344-e352.
- IPES-Food. 2016. [From uniformity to diversity: a paradigm shift from industrial agriculture to diversified agroecological systems](#). International Panel of Experts on Sustainable Food systems.
 - **Note: Read executive summary; [other sections](#) based on interest.**
- IPES-Food & ETC Group, 2021. [A Long Food Movement: Transforming Food Systems by 2045](#). Executive Summary.

Note: Read executive summary; [other sections](#) based on interest.

Supplementary Material

- Spiker, M., Hiza, H., Siddiqi, S., and Neff, R. [Wasted Food, Wasted Nutrients: Nutrient Loss from Wasted Food in the United States and Comparison to Gaps in Dietary Intake. July 2017](#). Volume 117, Issue 7, Pages 1031–1040.e22.
 - Skim Methods; Focus on Results and Discussion sections.

Week 6: Food Environment, Food Access, and Nutrition in the U.S.

This week, we explore associations between the food environment and the dietary intake of Americans. We will consider components of the food environment such as marketing and the

built environment (i.e. store or restaurant access). We will also identify barriers to food access and their consequences.

Assignment

- Discussion Leader Article #1, due on 2/23 by 11:59 p.m. EST.
- Discussion Responses (due from all who are not leaders), due on 2/26 by 11:59 p.m. EST.
- Zoom Call #2; Monday, 2//20 at 7:00 pm (ET). See Canvas Modules for Zoom link.

Learning Objectives

- Use the social ecological model as a framework for identifying drivers of health behaviors and for planning food system interventions that promote health.
- Enumerate factors that drive food choice at each level of the social-ecological model.
- Describe associations between food marketing and Americans' dietary habits.
- Define food insecurity, identify programs aimed at addressing it.
- Explain associations between food access and diet-related disease.
- Provide examples of policies and programs that aim to improve food access.

Lectures

- The Food Environment - Valpiani (6:22)
- Food Retail Store Access - Valpiani (19:42)
- Food Insecurity in the United States - Valpiani (13:29)
- Healthy Food Access Strategies - Obadia (35:14)

Required Reading and Viewing

- *Introduction to the U.S. Food System*, Chapter 17: Healthy Food Environments (426-455).
- Coleman-Jensen, Alisha, Matthew P. Rabbitt, Christian A. Gregory, and Anita Singh. 2022. [Household Food Security in the United States in 2021](#), ERR-309, U.S. Department of Agriculture, Economic Research Service.
 - **Read Pages 1-16**
- CNBC. (2020, August 22). [Why Grocery Stores are Avoiding Black Neighborhoods](#) [Video]. YouTube.
- Chicago Booth Review. (2019, February 21). [The Hole in the Food Desert Hypothesis](#) [Video].
- Ver Ploeg, Michele, Elizabeth Larimore, and Parke Wilde. [The Influence of Foodstore Access on Grocery Shopping and Food Spending](#), EIB-180, U.S. Department of Agriculture, Economic Research Service, October 2017.
- Michael Moss (2014). *Salt, Sugar, Fat: How the Food Giants Hooked Us*.
 - [Chapter 11. No Sugar, No Fat, No Sales](#)

Supplementary Material

- U.S. Department of Agriculture. [Food Access Research Atlas](#)
- Michele Ver Ploeg and Parke Wilde. (2018). [How do food retail choices vary within and between food retail environments?](#) Food Policy 79, 300-308.
- Alana Rhone, Michele Ver Ploeg, Ryan Williams, and Vince Breneman. [Understanding Low-Income and Low-Access Census Tracts Across the Nation: Subnational and Subpopulation Estimates of Access to Healthy Food](#), EIB-209, U.S. Department of Agriculture, Economic Research Service, May 2019.

The Middle of the Food System

Week 7: Food Distribution and Transport

For this week, we study the distribution and transportation of food by exploring the history of freight transportation and food refrigeration. We also discuss the link between transportation and the emission of greenhouse gasses and ozone depleting substances. Finally, we touch upon programs designed to improve the environmental performance of freight transportation.

Assignment:

- Quiz #3: Visit the **Quizzes** tab in Canvas; complete Quiz #3 by 11:59 p.m. EST on 3/5.

Learning Objectives

- Provide a historical context to the modern food transportation and refrigeration systems.
- Describe the business categories that create, transform, and deliver food to consumers, including the prime food distribution channels.
- Explain the strengths, limitations, and misconceptions related to food distribution at the local, regional, national and international scale.
- Review the environmental impact of food transport, including climate change and ozone depletion.
- Describe leading programs and initiatives designed to address the environmental impacts of distribution, transportation and refrigeration.
- Explain the economic plight of freight drivers due to the loss of union representation.

Lectures

- Food and Transportation - Guillemain (12:08)
- Why food is transported - Guillemain (7:36)
- Food Distribution Channels - Guillemain (12:55)

- Local and Regional Food Distribution - Guillemín (10:46)
- EPA SmartWay Program - Guillemín (12:07)
- History of Refrigeration and Food (1800s) - Guillemín (5:42)
- History of Refrigeration and Food (1900s) - Guillemín (6:09)
- Refrigeration and Environmental Impacts - Guillemín (11:06)

Required Reading and Viewing

Transportation and Supply Chains

- *Introduction to the U.S. Food System*, Chapter 14: Food Distribution (346-372).
- Benjamin Lorr (2020). [The Secret Life of Groceries: The Dark Miracle of the American Supermarket - Another Hundred Dollar Work Week and Debt and Hope](#) (p.89-98). Note: These two chapters describe the dire economic circumstance of freight drivers, who have become vulnerable to ploys and unfair work practices.
- [“The Conundrum: How Scientific Innovation, Increased Efficiency, and Good Intentions Can Make Our Energy and Climate Problems Worse”](#) by David Owen. Chapter 12: Let Them Eat Kale (p. 70-79):
- Video: [U.S. Railroad History Map 1830 - 1990s](#) (2:40). Note: This video reviews the expansion of railroads across the U.S., setting the stage for a food transportation revolution.
- Video: [History of Food Distribution](#) (3:26). Note: This video takes a broad historical look at food distribution from ancient Egypt contemporary food distribution centers.
- Video: [Roadtrip Follows Strawberries Across America](#), National Geographics (1:48). Note: There is an ad that precedes this video but the trip taken by a strawberry from farm to fridge is still fascinating.

Refrigeration

- Video: [The Story of Frozen Food](#) (2:40). Note: The food system was changed forever by the advent of frozen food. This video describes the history of this technological breakthrough.
- Video: [How Chlorofluorocarbons Destroy Ozone](#) (2:10). Note: As with many technological creations, modern refrigerants pose unintended environmental consequences.

Supplementary Materials

- [The U.S. Environmental Protection Agency’s GreenChill Program](#). Note: This website introduces EPA’s voluntary program for reducing refrigerants.

- [The U.S. Environmental Protection Agency SmartWay Program](#). Note: This website introduces EPA's voluntary program for promoting fuel efficiency and reducing emissions.
- Video: [Warehouse Automation - Past, Present, and Future](#). Stephen Bruce Wong, February 23, 2020 (7:47). Note: In addition to providing a quick history of warehouse automation, the video features a variety of systems in action.

Week 8: Food Processing and Packaging

For this week, we discuss the topics of food processing and packaging, two related activities that generate significant environmental impacts. The class will provide a historical context to processed and packaged foods, review technical considerations, and address pertinent environmental concerns and solutions.

Assignment

- Discussion Leader Article #2, due 11:59 p.m. EST on 3/9.
- Discussion Responses due 11:59 p.m. EST on 3/12.

Learning Objectives

- Describe why foods are processed and how processing can change foods in positive and negative ways.
- Identify the four major methods of processing foods and their benefits and drawbacks.
- Outline the functions of food packages, materials used, and how packaging impacts the environment.
- Apply a historical, economic, and environmental critique to a discussion about food processing and packaging.

Lectures

- The History of Food Processing and Packaging - Guillemain (10:15)
- Why Foods are Processed - Guillemain (5:00)
- Food Processing Methods - Guillemain (6:30)
- Food Packaging Materials and Methods - Guillemain (7:04)
- Packaging Waste Management Strategies - Guillemain (14:47)
- Food Processing and Environmental Impacts - Guillemain (10:05)
- Environmental Strategies for Food Processing - Guillemain (11:59)

Required Readings and Viewings

- *Introduction to the U.S. Food System*: Chapter 13: Food Processing and Packaging.

Food Processing

- Evelyn Kim, [Processed Food: A 2-Million-Year History](#), Scientific American, September 1, 2013 (p. 1-11). Note: This somewhat whimsical list of foods offers a marvelous view of the long history of human gastronomical inventiveness.
- Melanie Warner (2014). [Pandora's Lunchbox: How Processed Food Took Over the American Meal](#). Why Bread Needs Strange Ingredients (p. 99-104): Note: If you ever wondered why food additives are so popular in processed foods, this story of breadmaking provides insight into the question.
- Eric Schlosser (2012). [Fast Food Nation: The Dark Side of the All-American Meal. Excerpt: "The most dangerous job"](#) (p. 169-183). Note: This description of a meat processing plant offers a picture of the industry's perilous efficiency.

Food Manufacturing, Pollution Prevention, and Energy Efficiency

- [Understand pollution: Environmental impacts from food in 6 charts](#), GreenBiz.com, by Jeff Kohn and Kelsey Kruger, November 17, 2016. Note: Note: This article (about 4-pages long), includes charts that reveal the hazardous chemical releases from food production.
- [Environmental Self-Assessment for the Food Processing Industry: A Quick and Easy Checklist of Pollution Prevention Measures for the Food Processing Industry](#) (March 2001). Note: Skim pages 1-13 to see the types of questions used to evaluate pollution prevention opportunities at food processing facilities:
- [ERS Report Summary: Energy Use in the U.S. Food System](#), Economic Research Services, U.S. Department of Agriculture, March 2010 (p. 1-2). Note: This summary provides insight into the growing energy consumption within the food system:

Food Packaging

- Video: [A Brief History of How Plastic Has Changed Our World](#) (5:37). National Geographic. Note: This video explains the rise of plastic in consumer products after World War II and concerns about environmental impacts.
- Video: ["Eat your food, and the package too"](#) by Elizabeth Royte. National Geographic Magazine (August 2019) p. 1-15. Note: This video explains the rise of plastic in consumer products after World War II and the efforts to address its environmental impacts.

Alternative Food Manufacturing Format

- Video: [Commonwealth Kitchen](#) (1:55). Note: Located in Dorchester, MA, Commonwealth Kitchen operates Greater Boston's only shared-use commercial kitchen and food manufacturing social enterprise. This video provides a quick introduction.

Supplementary Materials

- U.S. Environmental Protection Agency, [National Overview: Facts and Figures on Materials, Wastes and Recycling](#). Note: Packaging and containers account for nearly 30% of total municipal solid waste generation, 80.1 million tons in 2017. This U.S. EPA website provides an overview of solid waste, recycling and disposal trends in the United States through 2017.
- Video: [Experiment: Coca Cola and Drain Cleaner - The secret of the aluminum can](#) (1:30). Note: This is a fun video that reveals a secret about aluminum soda cans that you may not know (and beverage companies are uncomfortable sharing).
- Video: [The Guy Who Decides Packaging](#) by Jimmy Rees. November 17, 2020 (2:50). Note: This humorous video pokes fun at the seemingly arbitrary packaging choices for food and other products.

Week 9: Regional Food Hubs and Food Security

In Week 9, we explore the potential of food hubs to act as bridges from small-scale, localized producers to the large-scale, traditional grocery retail sector. We'll define food hubs, look into the services they provide, and discuss their limitations and challenges.

Assignment:

Quiz #4, due at 11:59 p.m. EST on 3/19.

Learning Objectives

- Define local and regional in the context of food systems.
- Define the terms *food hub* and *community food security*; explain food hub functions.
- Explain the challenges faced by small- and mid-sized farmers in accessing markets.
- Identify strengths and weaknesses of the food hub model, as well as enabling policies or regulations.

Lectures

- Regional Food Systems and Food Hubs: Definitions - Valpiani
- Food Hub Services - Valpiani
- Impacts of Food Hubs - Valpiani
- Constraints on and Limitations of Food Hubs - Valpiani
- Policies and Programs in Support of Food Hubs - Valpiani
- Case Study: Fair Acre Traders - Nyquist

Required Readings and Viewings

- *Introduction to the U.S. Food System*, Chapter 6: Community Food Security (p. 136-156).
- Video (2 min): [Red Tomato Intro: Local Food in Every Shopping Cart](#). (2:09)
- Bielaczyc, N., Pirog, R., Fisk, J., Fast, J. & Sanders, P. (2020). [Findings of the 2019 National Food Hub Survey](#). Michigan State University Center for Regional Food Systems & Wallace Center at Winrock International.
 - **Note: Read Executive Summary (pgs. 5-10) and Growth Opportunities, Challenges, and Barriers (pgs 37-43)**
- Rodman-Alvarez, S., Rodriguez, R., Pirog, R., Fisk, J., Carr, K., Warsaw, P., Bielaczyc, N., & Barker, T. (2020). [Delivering More Than Food: Understanding and Operationalizing Racial Equity in Food Hubs](#). Michigan State University Center for Regional Food Systems.
- Fischer, M., Pirog, R., and Hamm, M. (2015). [Predictors of Food Hub Financial Viability](#). J Hunger Environ Nutr. 10:1; 100 - 114.
 - **Note: Skim article.**
- CEDAM. (2014, September 8). [Food Hub Tour](#). (10:55) [Video]. Youtube.
- Nature's Always Right. (2019, August 29). [Improving Local Food Systems with Food Hubs](#). [Video]. YouTube. (17:41)

Supplementary Materials

- Barham, James, Debra Tropp, Kathleen Enterline, Jeff Farbman, John Fisk, and Stacia Kiraly (2012). [Regional Food Hub Resource Guide](#). U.S. Dept. of Agriculture, Agricultural Marketing Service. Washington, DC.
 - Note: Older but thorough resource guide, for use according to interest:
- David S. Conner, Katherine Sims, Richard Berkfield & Hannah Harrington (2018) [Do farmers and other suppliers benefit from sales to food hubs? Evidence from Vermont](#). Journal of Hunger & Environmental Nutrition, 13:4, 507-516.
- David Connor, Hannah Harrington, Sarah Heiss, and Linda Berlin. (2020). [How Can Food Hubs Best Serve Their Buyers? Perspectives from Vermont](#). Journal of Hunger & Environmental Nutrition, 15:5, 613-627.

Week 10 Supermarkets

In week 10, we explore food retail stores, including their history, business practices, store formats, and operational efficiency methods. We will also review sustainable sourcing strategies, including third-party product certification programs and the danger of greenwashing.

Assignment

Discussion Leader Article #3, due 11:59 p.m. EST on 3/23.

Discussion Responses, due 11:59 p.m. EST on 3/26

Zoom Call #3: Monday, 3/20 at 7:00 pm (ET). See Canvas Modules for Zoom link.

Learning Objectives

- Describe the promotional marketing practices and impacts on public health.
- Recount the history of food retailers in the US from the early 19th century to the present.
- Explain the economics of the food retail sector and its different store formats.
- Review how to improve store operational efficiency to reduce energy, waste management and refrigerant costs.
- Review alternative food retail formats, including food co-ops and zero-waste stores.
- Compare sustainable sourcing approaches and third-party certification programs that allow retailers to feature sustainable and ethical products.

Lectures

- History of U.S. Food Retail (1890s to 1940s) - Guillemín (9:03)
- History of U.S. Food Retail (1950s to Present) - Guillemín (11:25)
- Food Retail Business - Guillemín (13:18)
- Food Retail Store Formats - Guillemín (12:59)

Required Readings and Viewings

- *Introduction to the U.S. Food System*, Chapter 10: Promotional Marketing (p. 238-261)
- Benjamin Lorr (2020). [The Secret Life of Groceries: The Dark Miracle of the American Supermarket - The Crack, a Crack, Just Crack](#) (p.134-139 - ignore the last two paragraphs). Note: This chapter explains “trade spend,” one way grocery stores make money from vendors, rather than consumers. This is just one example of how retailers can squeeze profits from suppliers.

Business Efficiency and Sustainability in Food Retail Stores

- Chkanikova, O., Mont, O. (2011). [Overview of sustainability initiatives in European food retail sector](#), Working Paper, The International Institute for Industrial Environmental Economics (p. 1-36). **When reading this article, concentrate on business Trends and Drivers (pages 3-6) and Landscape of Sustainability Initiatives (pages 28-36). To understand the range of sustainable activities employed by grocery stores, skim pages 7-27.** Note: Although this report is over a decade old, it is one of the best assessments of food retail sustainability initiatives. First, it lists the drivers and barriers to sustainability (still perfectly relevant). Second, it provides an extensive list of best practices with well-considered categories that reflect a full range of activities. Third, it ranks the best practices from most “proliferated” (popular) to least proliferated, which provides a very useful insight. Finally, the conclusions and policy recommendations hold

true, even a decade later, mainly because European environmental initiatives are about a decade ahead of U.S. retail practices.

- [*Making a Business Case for Sustainability: A Guide for Sustainability Leaders*](#), Food Marketing Institute, April, 2014 (p. 1-33). **Skim this document and note how managers promote sustainability from the inside.** Note: This report, developed by the Food Marketing Institute (a food industry trade association), offers an inside look at how sustainability managers can promote their sustainability projects to upper management. Crafted for a large corporation, this guide reveals how sustainability projects must compete with other business priorities.
- [“Grocery chains make strides in sustainability”](#) by Russell Redman, Supermarket News (July 22, 2019) (p. 1-5). Note: Compared to 10 years ago, it is now common for large supermarket chains to champion their sustainability practices. This article from a trade publication provides an example of recent efforts by several large chains.

Alternative Store Formats

- Video: [New Pioneers](#) (4:50). Note: The National Co-op Grocers (NCG) represent over 200 food co-ops in the United States. This page provides a history of the co-op movement, including the “New Pioneers” video, which discusses how the co-op model began in England and now serves over 1 billion people across the world:
- Video: [Are Zero Waste shops the future? - The Zero Waste Shop](#) (3:00), June 25, 2018. Note: This video features Britain's first no-packaging supermarket, a phenomenon that has spread to many European countries, Canada and the United States. Earth Food Love is a dry goods store run by an ex-pro footballer and his wife in the trendy and progressive town of Totnes in Devon, England.
- [“Daily Table is on a mission to stop food waste and feed the hungry”](#) by Janelle Nanos, Boston Globe (May 13, 2016) (p. 1-2). Note: This story is about a Boston nonprofit organization that is experimenting with a new retail model that sells donated food in low income neighborhoods as healthy, affordable meals. In 2021, the Daily Table operated three stores in the Boston area.
- [“Dollar General to open 1,110 stores in 2022; plans international expansion”](#) by Marianne Wilson, Chain Store Age (December 2, 2021) (p. 1-3). Note: The rapid rise of dollar stores signals one of the most striking changes in the food retail sector, finding a successful niche in a food retail marketplace already overcrowded by grocery and convenience stores.

Eco-Labels, Health Claims and Sales Tactics

- Video: [“Six Sins of Greenwashing”](#) by Scot Case, January 31, 2012 (3:37). Note: While this presentation does not focus specifically on food, its greenwashing concepts apply to

food marketing labels and claims. Scott Case is a national figure in the field of eco-labeling.

- Video: [“Healthy or junk food?”](#) (22:25). Canadian Broadcasting Corporation (Feb. 13, 2017). Note: This investigative report evaluates nutritional claims for food products:
- [“Sustainable Sourcing Guide for High Impact Commodities.”](#) Food Marketing Institute, 2010 (p. 1-11). **Skim this document.** Note: This guide for food retailers lists concerns and certification labels for seven high impact commodities, sugarcane, cocoa, paper/pulp, coffee, soy, palm oil and beef. It offers an insight into what the food retail industry is telling itself about how to impact the supply chain and what eco-labels to use.

Supplementary Materials

- [“Walmart tried to make sustainability affordable. Here’s what happened”](#) by David Graham Hyatt and Andrew Spicer, Quartz.com (August 13, 2018) (p. 1-7). Note: This article provides an insight into Wal-Mart’s sustainability journey and the sad conclusion that the extra cost of environmentally preferable products may be their undoing.
- [EcoLabel Index](#). Note: This online resource is the largest global directory of ecolabels, tracking 465 ecolabels in 25 industry sectors. The following url features the eco-labels just for food (not including health claims). Take a quick look at this page to appreciate the sheer number of eco-labels.
- [Sustainability on the Shelves: A Guide for Category Managers](#), Food Marketing Institute, September 30, 2010, (p. 1-37). Note: This document provides a life-cycle perspective to evaluate the environmental impact of products.

Week 11: Direct to Consumer

In Week 11, we consider the potential of direct producer-to-consumer food sales to benefit farmer incomes, consumer health, and the environment.

Assignment:

Quiz #5, due on 4/2 by 11:59 P.M. EST .

Learning Objectives

- Summarize trends in U.S. local and regional direct-to-consumer sales.
- Assess the effect of direct-to-consumer sales on the sustainability of food production.
- Assess the economic impact of direct sales to farmer income and local economies.
- Evaluate evidence for the effect of direct-to-consumer sales on Americans’ health.
- Discuss whether or not “local food” should be scaled up; identify barriers to doing so.

Lectures

- Direct-to-Consumer Sales: An Overview - Valpiani
 - Prevalence, formats, customer motivations, policies
- Economic and Environmental Impacts of Direct-to-Consumer Sales - Valpiani
- Health Impacts of Direct-to-Consumer Food Sales - Valpiani
- Scaling up: Barriers and Potential - Valpiani

Required Readings and Viewings

- Low, S.A.; Adalja, A.; Beaulieu, E.; Key, N.; Martinez, S.; Melton, A.; Perez, A.; Ralston, K.; Stewart, H.; Suttles, S.; Vogel, S.; and Jablonski, B. (2015). [Trends in U.S. Local and Regional Food Systems](#). U.S. Department of Agriculture, Economic Research Service.
 - **Note: Read pgs. 2-19; 30-36; and 40-51**
- Stein, A.J., Santini, F. [The sustainability of “local” food: a review for policy-makers](#). *Rev Agric Food Environ Stud* 103, 77–89 (2022).
- Hayden Stewart and Diansheng Dong. [The Relationship Between Patronizing Direct-to-Consumer Outlets and a Household’s Demand for Fruits and Vegetables](#), Report Summary, U.S. Department of Agriculture, Economic Research Service, January 2018.
- Thilmany, D., Canales, E., Low, S.A. and Boys, K. (2021), Local Food Supply Chain Dynamics and Resilience during COVID-19. *Appl Econ Perspect Policy*, 43: 86-104.
- Ritchie, H. (2020). [You want to reduce the carbon footprint of your food? Focus on what you eat, not whether your food is local](#). Our World in Data. Last updated February 23, 2021.
 - Note: Quick read with striking infographic of GHG emissions from transport of various food categories.

Supplementary Materials

- Goldstein, B. P., Hauschild, M. Z., Fernandez, J., & Birkved, M. (2016). [Testing the environmental performance of urban agriculture as a food supply in northern climates](#). *Journal of Cleaner Production*, 135, 984–994.
- Angie Vasquez, A.; Sherwood, N.; Larson, N.; Story, M. (2017). [Community-Supported Agriculture as a Dietary and Health Improvement Strategy: A Narrative Review](#). *J. Acad Nutr Diet*. 117, 1: 83-94.

Week 12: Restaurants

In week 12, we discuss food service providers, beginning with the historical and contemporary development of the “restaurant” format and related economic trends. Then we focus on sustainable business practices and programs, and underlying social justice concerns.

Assignment

Final Paper Outline due on 4/7 by 11:59 P.M. EST .

Learning Objectives

- Explain the history of food service providers, from 19th century Parisian “restaurants” to the advent of fast food in America.
- Review the various restaurant formats and their target audiences.
- Describe the economic and demographic trends that have led to the increased popularity of out-of-home dining experiences.
- Compare corporate social responsibility (CSR) initiatives and “green” restaurant trends.
- Explore the topic of worker rights and the connection between food justice and the Slow Food Movement.

Lectures

- History of Restaurants - Guillemin (16:16)
- The Founder: The Birth of McDonalds and the Goals that Drive Fast Food Culture in America (22:15) - Guillemin
- Restaurants Formats - Guillemin (5:45)
- Food Service Economics - Guillemin (10:19)
- Sustainable Operations for Restaurants - Guillemin (7:47)

Required Readings and Viewings

Social Concerns

- Saru Jayaraman (2013). [*Behind the Kitchen Door. Chapter 2: Real Sustainability, Please!*](#) (p. 19-32). Note: This chapter explores the issue of workplace fairness and equity among restaurant workers, including staff at high-end establishments featuring organic, local, and “slow food” menus.
- Video: Saru Jayaraman, “[We the People: Workers Rising for Fair Wages](#),” Bioneers Conference (2017). Note: Start the video at 5:00 and watch until 24:15 (watch more if you’re interested). This impassioned speech provides many insights and facts about the economic and social plight of restaurant workers, particularly women.

Business Efficiency

- Video: [National Restaurant Association](#) (February, 2017). “How to save money, and green your restaurant, in 9 easy steps” (4:51). Note: To help sell the concept of sustainability, the NRA emphasizes the business advantages of resource conservation.

- [The National Restaurant Association's Tools and Resources for Sustainability](#). Note: This NRA website features several sustainability tools and resources for its members. It provides a sense of what this industry trade organization is prioritizing for its members.
- Josh Prigge (December 15, 2017). [“Time to Fire Up Restaurant Sustainability – Here’s How.”](#) Environmental Leader (p. 1-6). Note: Despite its age, this article presents timeless sustainability strategies for restaurants, including the underlying managerial practices that form a strong program.

Environmental Considerations

- Video: [“A Sustainable Chef”](#) by Brian McGinn (April 22, 2015), New York Times (4:55). Note: This short documentary explains why one world-class chef overhauled his menu to emphasize sustainable ingredients.
- Video: [“Food Tips From the Most Sustainable Restaurant in the World”](#) (May 10, 2019). Eater.com (3:44). Note: This video shows how creative meal preparation can address variations in seasonal food supply.
- [“What’s Hot in 2022? Health, happiness, plus a side of sustainability,”](#) National Restaurant Association (November 16, 2021).

Supplementary materials

- [The Sustainable Restaurant Association \(RSA\)](#). Note: View this site to learn about Europe’s leading sustainability certification program.
- [The Green Restaurant Association](#). Note: View this site to learn about the most established sustainability certification program for restaurants in the U.S.
<http://www.dinegreen.com/>
- National Restaurant Association (2013). [Shedding Light on Sustainability](#) (p. 1-15). Note: Read pages 3-5 of this document to learn how the largest restaurant trade association promotes sustainability. Skim pages 5-15, which focus on specific efficiency programs.

Week 13: Institutional Food Service Providers

In week 13, we examine institutional food service providers and the food service management companies that run institutional food operations, with focus on sustainable opportunities pursued by corporations and communities.

Assignment

Zoom Call #4: Monday, 4/10 at 7:00 pm (ET). See Canvas Modules for Zoom link.

Learning Objectives

- Outline the types of institutional food service providers.
- Discuss the role of food service management companies.
- Explain the challenges and opportunities for institutions to purchase more sustainable products.
- Provide examples of initiatives that improve food sustainability and social justice at institutions.
- Showcase the Corporate Social Responsibility (CSR) efforts of a major food management company.

Lectures

- Farm to institution overview - Jen Obadia, guest lecturer (20 minutes)
- Food service management companies - Jen Obadia, guest lecturer (29 minutes)

Required Readings and Viewings

Overview

- Madeleine Pullman and Wu Zhaohui (2012). [*Food Supply Chain Management: Economic, Social and Environmental Perspectives*](#); Chapter 7: Food Service (p. 160-182). Note: For this reading, concentrate on the topic of institutional food operations and food management companies (p. 165-178).

Institutions

- U.S. Department of Health and Human Services (2017). [*Food Service Guidelines for Federal Facilities*](#), 2017 (p. 1-30). Note: Skim this document to identify standards for nutrition, community development, facility efficiency, environmental support, and safety.
- [*Benefits of a Farm to School Program - Fact Sheet-1*](#). This document provides a clear description of Farm to School programs
- Tanya Denckla Cobb (2011). *Reclaiming Our Food System: How the Grassroots Food Movement Is Changing the Way We Eat*
 - [*Making Sustainability a Campus Issue*](#) (p. 161-164).
 - [*Nourishing Kids by Connecting Farms and Schools*](#) (p. 146-149)
- Video: Ann Cooper, TED Talk. [*What's Wrong with School Lunches*](#), 2007 (19:37). Note: Ann Cooper's activism helped popularize the importance of good nutrition in public schools.
- Video: [*Zagat Documentaries, Episode 38*](#) (May 12, 2017). Meet the Inmates of Fife and Drum, a Restaurant Redefining Prison Food (7:43).

Food Management Companies

- Video: [Compass Group USA 2017 CSR Video](#) (3:23) and [How Compass Group is Creating a Sustainable Future for All \(2021\)](#) (4:12). Note: Compass Group made these two promotional videos four years apart. Notice how the sustainability issues and terminology has evolved.
- [Compass Group Sustainability Report 2020](#) (p. 1-63). Note: Skim this online report to appreciate the wide range of issues championed by Compass Group, from local food and recycling to animal welfare and food waste.

Supplementary Materials

- U.S. Department of Agriculture (2011), [Farm to Institution](#), a collection of case studies.
- Look up statistics for farm to school in your own state at: <https://farmtoschoolcensus.fns.usda.gov/>
- Katherine Ralston, Elizabeth Beaulieu, Jeffrey Hyman, Matthew Benson, Michael Smith. [Daily Access to Local Foods for School Meals: Key Drivers](#), EIB-168, U.S. Department of Agriculture, Economic Research Service, March 2017.
- Boutelle, Chloe E., (2018) ["Direct Farm-to-Institution Marketing: The Common Challenges and Keys to Success of Northeast Producers"](#) (2018). Food Systems Master's Project Reports.

Week 14: Wasted Food and Course Conclusion

In Week 14, we briefly explore the topic of wasted food, an issue that has gained national and international attention at every facet of the food system. The class will explore how to define and measure it, why it matters, and strategies to address the problem.

Also, students will complete and submit their Final Paper, which focuses on a product, technology, program or company dedicated to promoting a healthy, sustainable, and/or ethical food system.

Assignment:

Final Paper due on 4/23 by 11:59 P.M. EST.

Learning Objectives

- Review how to define and measure wasted food.
- Explain the main sources of “leakage” or waste in the food system.
- Describe the environmental and social impacts of wasted food.
- Provide examples of technologies, programs and policies designed to prevent and divert waste food from landfills.

- Explore the opportunities and limits of an initiative or technology that promises to promote a sustainable, healthy, and/or just food system.
- Integrate themes and concepts from the course into a final paper.
- Critique a topic based on the insights and perspectives gleaned from the course.

Lectures

- Food loss — Jen Obadia, guest lecturer (24 minutes)
- Quantifying food waste — Megan Lenherd, guest lecturer (17 minutes)

Required Readings and Viewing

Food Waste Challenges

- Gunders, D. (2012). [*Wasted: How America is Losing 40 Percent of Its Food from Farm to Fork to Landfill*](#) (p. 1-26). IP: 12-06-B. Natural Resources Defense Council. Note: This seminal document helped highlight the issue of wasted food.
- Smil, V. (2004). [*Improving Efficiency and Reducing Waste in Our Food System. Environmental Sciences*](#). 1 (1): 17-26. Note: In this article, Smil argues that food supply can be increased by reducing food waste. This would also avoid the environmental cost of increasing food production.
- Video: John Oliver (2015). [*Food Waste*](#), Last Week Tonight with John Oliver (HBO) (17:49). Note: This comedy report does a surprising good job of summarizing the problem of wasted food.

Food Waste Solutions

- ReFed: A data-driven guide for businesses, government, funders, and nonprofits to collectively reduce food waste at scale. Visit the website www.refed.com and watch the video to learn about the latest food waste reduction efforts, as outline in the “Roadmap.”
 - Video: [*The Roadmap to Reduce U.S. Food Waste by 20%*](#) (2:57).
- Video: Fusion (2016). [*What You Need to Know About Food Labels*](#) (2:01). Note: This video explains how “Sell By” labels on food packaging contribute to food waste.
- Video: Intermarche (2014). [*Inglorious Fruits and Vegetables*](#) (2:27). Note: This video by a French grocery chain sparked interest in rescuing misshapen fruits and vegetables.
- FoodTank (September 2021). [*12 Apps Preventing Household Food Waste and Protecting the Planet*](#) (p. 1-5). Note: These apps showcase the global ingenuity being leveraged to promote food waste reduction.

Supplementary Materials

- RecyclingWorks Massachusetts (website), [*Comply with the Organics Waste Ban*](#). Note: This website was created to help Massachusetts companies comply with the first

state-wide food waste ban established in the country. Organizations that dispose of more than 1 ton of food per week are given several options to reduce their waste and comply with the state law

- RecyclingWorks Massachusetts (website), [Supermarkets](#). Note: This website features four video cases studies that demonstrate how supermarkets can divert waste food and food scraps from the landfill
- [EPA's Food Recovery Challenge](#). Note: This website introduces EPA's Food Recovery Challenge program, a voluntary program that provides recognition and technical assistance for companies that want to reduce and divert wasted food and food scraps from the landfill.

This syllabus is subject to modification at the discretion of the instructors.