

N327 - Food Systems and Sustainable Diets - Fall 2017

Time: Thursdays 1:30 PM – 4:30 PM. **Room:** J118

Instructor: Hugh Joseph - hjoseph@tufts.edu

Course summary:

This course explores food systems and diets within the context of social, economic, governance, health, and environmental dimensions of sustainability. Systems-based frameworks are the basis for understanding how to translate conceptual models into applications for programs and policy-making by government agencies, food industry sectors, NGOs, and educators.

Sustainability will be examined as both a worldview and as a set of succinct values with respect to its integration into food and nutrition frameworks. A particular emphasis is ‘sustainable diets’, defined by FAO as “those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations”. How can food consumption serve as a critical change model for producing a more sustainable food system? In turn, how do major sustainability concerns, such as climate change, biodiversity, and food security, influence the food supply chain and ultimately what we eat?

The course emphasizes active class participation, including student-led presentations and group activities designed to build skills in applying sustainability and food system concepts to real-world situations. Assignments will focus on understanding the interplay of multiple facets of sustainable food systems, and how to navigate their complexities to produce practical outcomes in domains such as public policy, agricultural and food industry practices, public health nutrition, NGO advocacy, and communications.

Course Learning Objectives:

Conceptual - Systems, systems thinking, and food:

- Learn systems thinking and modeling methods to analyze food systems and diets.
- Integrate multi-disciplinary approaches to assess contemporary sustainability-related policies and practice.
- Compare and contrast food systems classifications (e.g., local, regional, global) from diverse sustainability frameworks.
- Explain key concepts related food system terminologies, including ‘sustainable’, ‘food miles’, ‘footprints’, ‘local’, ‘green’, ‘organic’, and more effectively use of language and framing in food systems discourse.
- Incorporate and synthesize cross-disciplinary perspectives on food, agriculture, and public health nutrition program design and policies.

Applied skills:

- Use system tools to assess food systems policies and practices related to sustainability advocated within the public sector, and by food businesses, institutions, NGOs, and media.
- Connect food consumption dynamics to sustainability components, including economic, ecology, food justice, and animal welfare concerns.
- Analyze food systems in terms of their interlinked components - including agriculture, processing, distribution and consumption – with broader socio-economic, environmental

and cultural aspects of human diets.

- Compare geographic / place-based food systems frameworks (e.g.; global, regional, local, and community food systems) and how these apply to sustainable policies and practices.
- Formulate approaches to developing practical guidance for sustainable diets in varied settings and contexts – institutions, food service, education, government, and NGOs.

Readings: Weekly readings will incorporate the following:

- Articles or book chapters - typically three each week.
- Students’ selections from available lists for class discussion.
- Occasional AV-based resources will be added.
- Students may also review additional literature for weekly assignments and major paper.

Most required readings are accessible as URLs or as PDFs and posted to Canvas. Additional resources for papers and other assignments will be available via Box.

Assignments:

A. Weekly mini-assignments: On most weeks, there will be brief assignments covering the major themes to be used as part of discussions and / or exercises.

B. Major paper. Students will describe a significant food system or dietary issue or challenge and formulate a response that incorporates diverse elements of food systems and/or diets, with an emphasis on sustainability. This could be programs and/or policies that can remedy problems and promote positive changes to sectors of food systems and/or to food consumption practices. Alternatively, students could assess foods produced in different ways through the food supply chain to compare sustainability. The objective is to think through problems using systems frameworks, and to synthesize some of the complexities of food systems and sustainability.

Topics for students’ papers, exercises, and class discussions: Many applied aspects sustainable food systems – supply chains and diets - will be addressed via weekly readings and paper topics, based on student selections. These can include:

Agroecology	Biodiversity
Community / regional food systems	Energy, climate change and GHGs
Fair trade	True cost of food
Food consumption practices	Food justice / food rights
Food quality / taste	Food industry sustainability
Food security / food access	Labor across the food sector
Food waste	Livestock / meat consumption
Nutrition and personal health	Oceans and seafood
Obesity and health	Water and waterways

Grades: Grades are based on three categories:

- A. Weekly assignments and classroom exercises: 30%
- B. Class participation - includes consistent and timely class attendance, completing required readings on time, preparation for class discussions, and active in-class involvement: 20%
- C. Major paper as described above: 50%

Weekly overview: Classes are 3 hours (Thursdays, 1:30 PM 4:30 PM) and will generally include the following:

- (a) Brief lectures ('mini-presentations'); overviews of systems, systems thinking, sustainability, food systems, sustainable diets, ethics, framing, etc.
- (b) Group exercises where students apply these themes to food supply chains and sustainable diets in terms of assessments, policies, and/or practices.
- (c) In-class discussions on students' selected topics (e.g., local foods, food waste, climate change, biodiversity, agroecology).
- (d) Major paper topics will be reviewed for ongoing input.

Weekly class content is divided into three categories. We will cover:

Building blocks - the concepts and analytic methods to examine food systems and diets:

- Sustainability, food systems and sustainable diets: background, definitions, concepts
- Complex adaptive systems: the concept applied to food systems
- Systems thinking (ST): Applying ST tools to food systems analysis
- Sustainability as a worldview: values and ethics as fundamental principles of sustainability
- Sustainable diets and public health nutrition: the evolving ecological model
- Framing: terminologies for nuancing food system policies and dietary guidance
- Nutritionism: Quantitative approaches as drivers of nutrition policy and guidance
- Comparative approaches to frame food systems sustainability - sustainability, sustainable development, and resilience
- Feedback loops: a systems-based alternative to linear thinking models
- Scale – temporal, geographic, conceptual, and structural levels and interconnections
- Sustainability as an ethical framework - how we see the world and its future

Assessments – tools and models for converting concepts into practice

- Comparing geographic and place-based food systems frameworks (e.g.; global, regional, local, and community food systems)
- Using indicators to track conditions and progress of sustainability strategies
- Foodprints: concept and components, including GHGs, carbon, and energy relationships
- Sustainable agriculture: comparing organic to other agro-ecological models
- Ecological nutrition: diet models including eating environments and food consumption practices
- Local / regional food systems: which aspects are legitimate to connect to sustainability
- Assessing food industry perspectives on the sustainability of their products and practices
- Externalities: understanding the real costs of current food systems and diets
- Sustainable dietary guidelines: a global overview
- Developing sustainable food systems principles

Applications of concepts and assessment tools:

- How to navigate the multiple types / options for sustainable farming
- Composing sustainable dietary guidance: structures, content and options
- Beverages and sustainability - how to make the best choices

- The future of food systems: Examining visions and alternative strategies or 2050
- Devising more sustainability meal plans
- Food waste: the ‘low-hanging fruit’ in relation to scalar dimensions of sustainable food systems
- Food industry - the potential and constraints for food industry movement toward sustainability
- Sustainable meat consumption - tackling the ethical issues (animal welfare)
- Core competencies: What needs to drive the future of food systems and sustainability

Class exercises - each week, two or three applied group engaging activities – see below.

Weekly Syllabus Summary

9-7: Week 1 themes

Systems - 1

Systems thinking - 1

Food systems - history / terminologies

Mini-presentations:

What are ‘systems’- structural elements

Systems thinking – conceptual basics

Food systems and terms – a brief history

Key classroom activities:

Food system mapping

Sustainability concepts

Sustainable food system mapping

9-14: Week 2 themes

Systems - 2

Systems thinking - 2

Sustainability - 1

Definitions: Sustainability

Mini-presentations

What are ‘systems’- functions & tools

Systems thinking – applied tools

Systems and sustainability

Student topic - TBA

Key classroom activities:

Systems perception: Book mapping - analogies to food.

Google images – ‘food systems’, etc.

Still life video

9-21: Week 3 themes

Food systems – 1 – supply chains

Sustainability and resilience – 2

Systems structures

Mini-presentations

Systems: Feedback loops
Systems complexity / complex adaptive systems
Sustainability as a wicked problem
Defining complex concepts – sustainability and food systems
Student topic – TBA

Key classroom activities:

Mapping food – building in systems structures
Thanksgiving mapping review

9-28: Week 4 themes

Sustainability Assessments - 1
Food systems – 2 – production
Meta-system ecological dimensions

Mini-presentations

Food systems - conceptual framework
Dimensions of food systems production
Student topic – TBA

Key classroom activities:

Food systems - conceptual framework - 1
Developing ‘sustainability’ as a framing concept

10-5: Week 5 themes

Environmental dimensions of food systems
Wicked problem approaches
Foodprints / LCA assessments

Mini-presentations

Foodprints / Lifecycle analysis (LCA)
Climate change as a wicked problem
Externalities in food systems assessments
Student topic - TBA

Key classroom activities:

Mapping an environmental issue to food systems and diets
Identifying externalities for a specific food system factor

10-12: Week 6 themes

Sustainability Assessments – 2
Systems scale factors
Nutrition and diets – 1

Mini-presentations

Scale across food systems

Food systems – multi-criteria analysis (MCA)
What are ‘diets’ in relation to sustainability?
Student topic - TBA

Key classroom activities:

Dietary systems – mapping foods, eating behaviors, and environmental influences
Connecting / mapping environmental problems to diets
MCA modeling

10-19: Week 7 themes

Paradigms & Worldviews
Values / ethics for sustainable food systems
Principles for sustainable food systems

Mini-presentations

Sustainability as a paradigm
Principles to delineate values
Student topic - TBA

Key classroom activities:

Selecting core values for food systems
Examining visions and alternative strategies for 2050
Developing principles for sustainable food systems
Eating crickets – a good idea?

10-26: Week 8 themes

Ecological public health nutrition models
Dietary guidance and guidelines
Local food systems

Mini-presentations

Ecological health models
Assessing local food systems and sustainability
Background on dietary guidance
Student topic – TBA

Key classroom activities:

Making local food policies, wearing various stakeholder hats
Local food systems assessment for sustainability

11-2: Week 9 themes

Dietary guidance / guidelines - mainstream
Sustainable Dietary Guidance – 1
Food system literacy
Nutritionism

Mini-presentations

Existing sustainable dietary guidance

Food system literacy and education
What is nutritionism?
Student topic - TBA

Classroom activities

Last person standing – listing of elements in making a food choice
Should we eat beef? What are the options?
Rating and ranking the sustainability of ‘green’ food products

11-16: Week 10 themes

Sustainable Dietary Guidance (SDG) – 2
Industry
Waste across the food systems
Water & beverages

Mini-presentations

Food waste frameworks
SDG formulation and content
Beverages and sustainability - how to make the best choices
Student topic – TBA

Classroom activities

Delineating types of waste
Can Coca-Cola be a sustainable beverage? A debate
Should the Friedman School stop offering bottled water?

11-30: Week 11 themes

Framing food systems and sustainability concepts
Navigating options for sustainable agriculture
Food system change - 1

Mini-presentations

Framing concepts around food systems and diets
Sustainable agriculture ~ diet choices
Student topic – TBA

Classroom activities

Debate whether and when organic food is sustainable
Framing: Applying it to selected food system or diet themes
Sustainable Dietary Guidelines - formulation and content - 2

12-7: Week 12 themes

Food system change - 2
Food system indicators
Student topic - TBA

Mini-presentations

Food system sustainability policies – quick overview

Constructing valid indicators to measure change
Student topic - TBA

Classroom activities

Assessing sustainability indicators
Applying indicators to specific products

12-14: Week 13 themes

Students' paper presentations

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