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.
- 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-presentation’); 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 ‘sustabilism’ 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-presentation**
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-presentation**
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-presentation**
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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