

FN 770 Sustainable Food Systems

Course Description: Examination of food systems from production through consumption with consideration of sustainability practices. Local to global food systems will be considered. Current issues of social, economic, agricultural and ecological natures within the food system will be discussed. 3 credits.

Introduction: Systems thinking, which considers a large complex system and many subsystems, is gaining prominence in professional work, business and industries as well as communities. The human body is an excellent example of a system with seven different dimensions or subsystems of wellness. The complexity of systems increases with size and number of components, for example ecosystems such as Earth has different life forms, climate, geography, land and water mass, etc. making any problem a multi-faceted, subsystem puzzle to solve. When problems arise in complex system (aka “big, hairy, audacious problems”), critical thinking skills rely on systems thinking that integrates interdisciplinary fields to see the inter-relatedness of the problem (assessment) and solutions (problem-solving, solution seeking). The food and water system that we depend upon for our existence and we enjoy daily, is a useful and familiar lens to explore the big, hairy issue of sustainability. The skills and knowledge gained in this course may be applied to other problems and solutions, both professional and personal.

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Stage 1 – Desired Results

HPHD Graduate Program Competencies addressed in this course:

Area 1: Analyze community development process and practices

- 1. Describes community development as part of the larger interrelated system that influences populations at local, national and global levels**
 - 1.1. Examines factors that enhance or impede community development
 - 1.2. Analyzes relationships among behavior, environmental, social, and economic factors that influence policies, programs and services that affect the community
 - 1.3. Suggests collaborative relationships that may be needed to improve community development
 - 1.4. Incorporates diverse perspectives in developing, implementing, and evaluating policies, programs and services that affect the community

Area 2: Considers human relationships in fostering positive behavior change within communities

- 2. Addresses the diversity of individuals and populations when developing, implementing, and evaluating policies, programs and services that affect the community**
 - 2.1. Communicates in writing and orally with linguistic and cultural proficiency using a variety of mediums
 - 2.2. Facilitates communication among diverse individuals, groups or organizations
 - 2.3. Describes the ways the dimensions of wellness supports individuals and communities
 - 2.4. Improves personal leadership and/or management skills to foster positive community change

Area 3: Demonstrates critical thinking and problem-solving to support community programs, policies and services for diverse populations

- 3. Develops community-based programming to meet goals and objectives**
 - 3.1. Utilizing critical thinking skills that will apply in professional practice.
 - 3.2. Identifies qualitative and quantitative data and information that can be used for assessing a status of populations within a community
 - 3.3. Describes application of quantitative and qualitative data to improve community assets (programs, services, public health).
 - 3.4. Describes how evidence is used in decision making (policies, population or program change)
 - 3.5. Incorporates ethical principles that will apply in professional practice

This is a “Backwards Designed” course, which considers the understandings that we will be pondering in the next five years and the skills, knowledge and dispositions that build toward consideration of sustainable and resilient futures.

Enduring Understandings: (5 years from now, I hope that you will be contemplating these.) Enduring Understandings are similar to Zen Koans-at first glance, simple but upon continued reflection become complex and shifting.

Students will understand that...

- Food reflects our values.
- The food system is dynamic.
- The food system, which is dependent on the Earth’s resources and people, must be sustainable.

Essential Questions: (These questions will enrich your enduring understandings)

- How do we reconcile different values about food?
- What influences the food system to change?
- How would we know when we had a sustainable food system?

Knowledge (Know):

Students will/can...

- Identify the food system and variables which shape the system.
- Apply systems thinking (key players, areas of impact and world view) to issues in the food system.
- Integrate the 7 dimensions of wellness into systems thinking framework
- Determine geography (topography, climate, and natural resources), technology and cultural interfaces in the food system issues discussed in the course.

Skills (Able to do):

Students will/can...

- Discuss current research in sustainable food system
- Apply research to food system issues on multiple levels: personal, community, global.
- Develop assessment tools for measuring sustainability in the food system
- Participate in activities that build community

Dispositions (Value/Appreciate):

Students will/can...

- Appreciate the differences of cultural values in a food system.
- Value key players’ perspective in sustainable food discussions and problem solving.

Stage 2 – Assessment Evidence

Core Performance Task: Case study analysis of a Community Supported Agriculture (CSA) producer which demonstrates understanding sustainability and interactions of key players.

Audience: professional peers

Evidence: PowerPoint presentation and 10-15 page paper

Relationship to Enduring Understandings: Sustainability in the food system takes place within the context of community. The values and resources of a place interchange with food and the living beings in an ecosystem residing in a specific geography and climate. Your case study will consider the dynamic change of the food system with consideration of the people and place. Sustainability involves environmental sustainability as well as social, economic, agricultural and cultural sustainability. Exploring sustainability in many dimensions will help you integrate the course material and see how interwoven different areas of sustainability are interwoven that may be unique to a producer, consumer and community.

Application of a sustainability assessment will demonstrate your understanding of the food system, community and sustainability.

Other Assessment Evidence:

- Ability to lead and participate in electronic discussions
- Application of assessment measures in sustainable food systems
- Apply research to a personal view of sustainable food system change
- Development of a resource list for community food system (food/nutrition) education

Stage 3 – Learning Activities

Learning Activities (Describe/list the class activities in which instructor/students will engage to explore the enduring understandings/essential questions and achieve the course learning outcomes):

1. Participate in to understand the process of community building within our course through discussions and online activities
2. Participate in a variety of activities related to community building, organization and management
3. Develop your own definition for sustainable food system and share with peers
4. Assess changes within the food system to determine strengths and limitations

Required reading:

- Required text: Nourished Planet: Sustainability in the Global Food System, Danielle Nierenberg, ed., Barilla Center for Food and Nutrition. Island Press, 2018. ISBN: 9781610918947. The book is available from Island Press <https://islandpress.org/books/nourished-planet> Idiebound, Barnes & Noble, Amazon Kindle, Google Play. Please consider supporting local book dealers and independent publishers when purchasing books. Here is a promotional code from the publisher: Use the discount code FOOD with your order or this link, which includes the code: <https://cdcshoppingcart.uchicago.edu/Cart2/Cart?ISBN=9781610918947&Q=1&PRESS=island&PROMO=food>).

Please click on the “Resources” tab on the book page for materials to aid you in your learning about these topics in the book: <https://islandpress.org/books/nourished-planet>

- Additional readings on CANVAS. We will also rely on professional journals and documents and electronic resources to enhance the course. Please look on the content page of CANVAS for a guide to each week’s assigned readings. Be prepared to discuss all material.

The current information flow of scientific knowledge: Research is conducted and reported at conferences → research articles are published in peer reviewed journals → accumulated knowledge is analyzed and published as position papers, review articles in journals and textbooks, and government guidelines. Thus, conferences present the most current research findings and reflect current trends. Journal publications reflect research that is at least one year old, depending on the speed of the review and publication process. Accumulated knowledge is often updated in 5 or 10 year cycles. Undergraduate education focuses on the basic structure of knowledge and often uses text books. Graduate education focuses on current and developing knowledge. Therefore, education is more often based on dynamic sources-journals, current practices, conference reports, etc.

Please remember all inquiry is biased, both by the researcher and the reader. Bias cannot be eliminated but can be acknowledged and considered. Application of our current state of health knowledge is experimental and dynamic. Scientific knowledge is influenced by the culture in which it exists and by our state of inquiry (conceptual abilities, measurement capabilities, etc.).

As a graduate student, you refine your ability to use the published research to Zoom with communities, whether these communities are distinct populations with a common interest/trait or geographic areas. The dual role of research is to learn the shared experience and history that places the published research within the context of lived/living research. Knowledge within the community is as valued as the published research, with community citizens as experts.

Course assessment:

Your performance and grade is based upon the following:

1. *Class discussions (40%)*: Each week, we will discuss the topic with the intention of integrating the course materials and our experiences so that we have a common understanding of the topic. Discussions will take place through two pathways: asynchronous discussions will be via the discussion page of CANVAS; synchronous discussions will be “live” via Zoom. See the schedule at the end of the syllabus for the assigned asynchronous and synchronous discussions weeks and the calendar. Discussion questions will be posted by Friday prior to the discussion week.

Asynchronous discussions A student will lead the online discussion for their assigned week that integrates the resources for the topic. Please see the schedule for the dates.

- Leaders will pose 2 discussion questions based on the week’s readings and topic. Questions should encourage analysis, synthesis, and/or application. Please post on the previous Friday so we have several days to think through your questions. The questions should include material from the readings to encourage integration and system thinking.
- On Monday from 6:00 pm to Wednesday 8 pm, participants must post their response to the questions posed. After posting your response, begin to read and respond to your peers.
- Discussion leaders moderate and encourage a deeper discussion and all students participate in the discussion until Thursday (no later than 8 pm). Leaders will prepare a brief summary (6-8 sentences) of the discussion by 8 pm the following Monday.
- Each member must post to the leader’s discussion point and each other’s responses. Your online posts must further the discussion and relate directly to the readings (see ‘discussion tips’ at the end of this document. The online participation will be graded on the frequency and quality of your postings. Applying system thinking is helpful in approaching these topics. Postings which agree/disagree with someone’s post but do not further the discussion are not considered for grading. This is not to discourage supporting statements but further reasoning is required in online discussions. You should allow approximately one hour for reading the discussion posts and crafting your responses and 30 minutes for the follow-up prompts on Wednesday-Thursday.

Synchronous discussions will be 1.5 hours (6:30-8:00) to discuss that week’s topic and any questions that you have about the course progression. We will meet approximately every 3 weeks. Please see the schedule for the dates. We will use Zoom for our synchronous discussion platform.

2. *Research review (10%)* Identify one of a topic of personal interest that can be narrowed within the research literature regarding a sustainable food system. This may be a specific concept (women as farmers), practice (school gardens) or product (grass-finished meat). Support your personal view incorporating the relevant research from six reliable references. Write a 1-2 page paper describing your personal view and the relevant research. Research articles must be reliable (reliable resources are those that are peer-reviewed such as professional journal articles, or government reports) and published within the past **5 years. Due no later than October 8th.**

3. *Global sustainability and technology resource list (10%)* you will develop a list of resources available on the internet which would be useful for community nutrition education in sustainable food systems. Resources can include reliable websites, YouTube, Facebook, videos, etc. List the complete link, the title of the organization, video, etc. and a brief description of the resource. All links must be working, if you have doubts have another colleague test your link. Minimum of 20 resources required. These will be shared with the class via Google Docs and the CANVAS Discussion page. **Due no later than October 29th.**

4. *Final Project-Case Study of new Food Movement (40%)* You will demonstrate your understanding of sustainable food systems by identifying **Community Supported Agriculture (CSA) producer** that is moving toward increased sustainability. You will analyze this gem using an accepted sustainability assessment tool and explore one or more areas of sustainability. The case study includes the following: literature review related to the CSA model including perspectives from various key players, brief description of the business, research question and methods, analysis of sustainability using your assessment tool, strengths and weaknesses of the assessment tool, suggestions for the gem to move forward in sustainability (presentation, paper and power point). A minimum of 30 reliable references required; required references are published within the past 5 years. **Presentations will be on the last two meetings of the semester. Papers are due in the dropbox on December 18th.**

Total: 100%

If you have any concerns about meeting the requirements of the course, please contact me.

The following grading scale will be used:

Grade	Percentage				
A	95-100%	B-	80-82	D+	67-69
A-	90-94	C+	77-79	D	60-66
B+	87-89	C	73-76%	F	< 60
B	83-86	C-	70-72		

Tentative Schedule:

Week of:	Topic
Sept. 3-11 Week ½ Discussion (aka asynchronous): Jasia Steinmetz (Sept 7)	Introduction Systems thinking, personal food systems
Week 3 Sept. 21 Live (aka synchronous) discussion	Food production plant systems: soil ecology and biodiversity.
Week 4 Sept. 28 Discussion leader:	Food production animal systems.
Week 5 Oct. 5 Discussion leader:	Water crisis: water quality and quantity
Week 6 Oct. 12 Live Discussion	Water crisis: national issues and local concerns. A case for water policies
Week 7 Oct. 19 Discussion leader:	Food justice across the food system
Week 8 Oct. 26 Discussion leader:	Influence of markets and marketing
Week 9 Nov. 2 Live	The next generation: children and food
Week 10 Nov. 9 Discussion leader:	Overview of food system distribution, consumption and waste
Week 11 Nov. 16 Discussion leader:	Food distribution systems.
Week 12 Nov. 23 No discussion	Thanksgiving reflections
Week 13 Nov. 30 Live	Consumers and the food system.
Week 14 Dec. 7 Live	Solutions in the food system. Case Study Presentations:
Dec. 14 Live	Case Study Presentations

Discussion Tips: In our profession, we first educate ourselves and research the question and then we educate the public. We are at the point in classes where we are educating ourselves. I would like to talk about how to "corral" online discussion so that all the horses do not leave the field and travel in different directions, avoiding the trail or "how to take a discussion every which way but the way of the readings". It is apparent that sustainable food systems is a very rich area to research and discuss, so how can we use research literature in both courses and our larger graduate program to best educate ourselves and be confident that our knowledge has been exposed to enough scrutiny and doubt before educating community members. The distinction between undergraduate and graduate education is the use of primary research that guides our conversations about a topic, your writing or a next research project or program.

Research is the shorthand term for organized inquiry, represented in a body of knowledge, not a single investigation. Published research is the most efficient way that we further knowledge about a subject, representing one of the communication tools amongst professionals within the field. It is an effective

communication tool because published research meets standards of practice and is widely disseminated. Conferences also meet standards of practice and indicate immediate topics of inquiry but have a limited audience and distribution. Community knowledge is less formally organized and valuable in understanding the topic within the communities and places we live. We develop a “body of knowledge” within the profession that has questioned and refined through years of practice and research.

In practice, we integrate our observations (community research) with knowledge gained from research done in more formal settings such as universities or research labs. For example, if a farmer is talking to me about the changes in food production that she sees as a result of following organic practices, I may ask about the other benefits of organic production that this farmer (or others), who are intimately involved and doing observational research, are reporting. However, this is a sample size of one or a few. I use this information to go back into the literature to see if there are any other reports of this, i.e. primary research studies. In this case, I would look for both observational research and field research with controlled studies that would verify what the farmer said. It is not that the farmer is incorrect, but that she is observing only her fields and plants. Thus, it may be that the changes are only in her field and may be contributed to something she is doing outside of the organic methods. If this same observation is happening in many organic fields, then we increased confidence that this may be attributable to the organic methods.

Likewise, when you observe something or talk to someone about sustainable food systems, this is your cue to go back into the primary research to verify if this is a single event or part of a larger trend or occurrence. In research, there are many types of studies that are used to come to the point of theories or commonly held knowledge. Studies begin with observational studies in various areas and large populations (people, crops, animals, etc.). Then, smaller more controlled studies are conducted. These trials are usually intervention trials that are randomly selected. For instance, there could be many fields of crop production and the type of plant may be randomly assigned to a field. There may be a new farm to school program that is randomly assigned to schools in a school district. After these controlled studies, then the intervention is introduced back into larger studies that have some of the variables controlled. The point is that there is an accumulated body of knowledge that refines our initial ideas and results from many different types of studies.

In community food and nutrition studies, we use triangulation to address the weaknesses of research design. Since we work with populations that have many uncontrolled variables, we use research from combinations of qualitative and quantitative studies. When we have results from semi-structured interview studies, we use survey and intervention studies to see if these results support each other. That is, we use 3 different types of studies to verify our ideas. This is the triangle in triangulation. The 3 different methods of research will overcome the limitations of each type of study design.

What does this mean for us in our classes and for you as graduate students? First, when we assign readings, you should realize that the study we choose is a reflection of many more studies. We try to choose the study that represents the past research. There is not a single study that can be taken as the “truth” of an issue. Each study is built upon the research before it, as evidenced in the discussion section of research articles. However, since the professors are teaching in the field of expertise, they have read so much of the background research that they are able to choose studies that reflect the current body of knowledge or studies which are classic (new thought, changed the direction of thinking and knowing, etc.). Secondly, literature review articles, theory articles, and position papers are all examples of articles that are summaries of research and are valuable as background for a topic. These types of articles would be valuable for you in researching your case studies since the authors would have combed the literature and summarized the current state of knowledge. Lastly, you will use the literature as the basis of your discussions. The faculty wants you to read and reread the articles that we give you. We want you to think about the studies, their design and the results so that you can begin to see the research in our field.

Active reading is essential for being effective and efficient. You don’t need to read every line of a study. Here is the anatomy of a research paper: introduction (like the trailer of a movie-provides the importance of the topic, some of the variables that are important and the gap in knowledge that this paper will address) → methods (describes

the population to be studied and the way this research will be conducted, including the specific factors or variables to be addressed) → results (answers the research question first and then gives the other relevant results) → discussion (puts this new knowledge in the context of previous knowledge-how is this similar to other studies, how is this different and why were these results different) → recommendations (how might this change our thinking).

We want you to carefully read the discussion sections in published papers so that you see how the current study is similar and different than the previous work. What accounts for the differences in results? What details does one study design provide that another does not? How does the current paper change what we know about a topic? What is the next logical step in researching this topic? Each article that we post should be reviewed several times and contemplated and digested before being discussed.

The transition in graduate school is the shift that recognizes our opinions and moves experiential knowledge into informed inquiry. More importantly, it is challenging the accuracy of your opinions and beliefs, applying the same methods of doubt and investigation to our own thinking as we would to any researcher. This is not to undermine our knowledge but to constantly challenge our knowledge and refine it. The benefit of having life experiences is to know that life is constantly changing and we are constantly trying to understand it. Our role in higher learning is to put you at the crux of that process. We want you to be in the communities, families, committees, etc. where this challenge to our knowledge is taking place, so you can add your critical thinking. It is through questioning “What is?” “What do we know?” “Why is this true?” that we find new ways of thinking, knowing and doing which opens the possibility for innovation and invention.

Based on this, I would like our discussions to concentrate on the literature that we are reading. I would like you to practice putting together the readings from previous weeks and notice how we are building a body of knowledge in understanding sustainability. Please use your life experiences to extend or illuminate the research. That is, read the literature sufficiently which may take more than once, so that you are using the readings as your base and talking about the literature and furthering the discussion question. We will practice delving into the research literature as the focal point of discussion.

For example, although some community members may be confused about organic food production, we are not, since this is clearly defined through the USDA organic standards. The production methods are clearly stated and farmers have to adhere to these practices which are inspected every year. Organic certification has the most record keeping and monitoring of any food production system in the US. Our question, as food and nutrition professionals, is not about the definition of the organic food production or the labeling, since both are clearly defined, but about the limitations of organic food production in a sustainable food system. We would also explore the initial changes that the early organic agriculture movement fostered and which the USDA does not address, mainly, the social and economic sustainability which was included under the organic agriculture movement. To know the limitations we must investigate the strengths and weaknesses of the practices, as they are being applied within the food system. We look at studies which show the benefits of organics food, such as nutritional benefit, ecological benefit, ecosystem changes, etc. And we look at limitations. Can we produce enough food using organic agriculture? Are there other practices that should be included such as GMO seeds? Should fields be pesticide/insecticide free longer than 3 years before certification? If so, what indicators do we use? We then add our experiences to this research. Is there a taste difference in organic food and does this motivate consumers? Do we have access to local organic farmers? Do we have know organic farmers to learn more about their farming experiences? Then, we address other impacts such as the social, cultural and economic impacts of farming organic-how do we keep the economic sustainability for both farmers and consumers? How can we support organic practices if farmers are susceptible to contamination from neighboring farms? What organic practices are practiced in other countries, as the primary form of agriculture? Should we support US polices to promote conventional agriculture in these countries? You can see from this one topic, food and water systems are big, multifaceted and interwoven. Our goal is to see how we can further the conversation for mutual understanding and changes to support sustainability improvement.