FD SC&TE 4510 Sustainability in the Food Industry
SP14 Syllabus

Instructor: Dr. Kirsten Dangaran (dangaran.3@osu.edu)
Credit Hours: 3
Office Hours: Fridays – 12:30 – 1:30 (264C Howlett Hall), or by appointment
Prerequisites: None

Description: Critical topics and solutions for sustainability in the food processing industry including environmental, economic and technical issues throughout the food processing supply chain. Sustainability will be considered at the local, national and global level. The course will use a systems-thinking approach to food sustainability.

Specific Objectives: Upon completion of this course, the student will be able to:

1. Outline the food processing supply chain from farm-to-fork with critical points for improved sustainability identified.
2. Understand some of the trade-offs of organic, conventional and sustainable agricultural production practices
3. Describe key technologies that will improve the water, energy and food nexus and issues with waste along the food supply chain.
4. Discuss the challenges for incenting sustainable practices downstream at the consumer and retail level of the supply chain.

Reading Assignments: There is no required text. Individual articles and/or readings will be assigned to support class discussions.

Grading: There will be 5 assignments worth 10 points each. There will be an in-class midterm exam worth 100 points. There will be a 50-point assignment for hosting and leading discussions with guest speakers. There will be a final class project presentation worth 100 points. Your grade will be determined based on the following percentages of 300 possible points.

92-100 = A
88-89 = A-
85-87 = B+
80-84 = B
78-79 = B-
75-77 = C+
70-74 = C
68-69 = C-
65-67 = D+
60-64 = D
<60 = E
FD SC&TE 4510 Sustainability in the Food Industry  
SP14 Syllabus

**Late Assignment Policy:** Assignments must be turned in by 5:00 PM on due dates to receive full credit unless other arrangements have been made prior. Late assignments will be docked 25% every day thereafter.

**Lecture Outline:**

The course will be divided into two sections: 1) lecture and 2) speakers and discussions

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is the Definition of Sustainability in the Food Industry?</td>
</tr>
<tr>
<td>2</td>
<td>Organic vs Conventional Farm Practices</td>
</tr>
<tr>
<td>3</td>
<td>Sourcing Ingredient: Is Local Really the Answer?</td>
</tr>
<tr>
<td>4</td>
<td>Energy Efficiency in the Processing Plant and Emerging Technologies</td>
</tr>
<tr>
<td>5</td>
<td>Food Waste Management: Recovering Lost Value</td>
</tr>
<tr>
<td>6</td>
<td>Water Crisis and Food Security</td>
</tr>
<tr>
<td>7</td>
<td>Whole System Thinking for Sustainable Solutions - Food System Simulation</td>
</tr>
<tr>
<td>8</td>
<td>Exam</td>
</tr>
<tr>
<td>9</td>
<td>Speaker – Valuing Sustainability and the Externalities of Food Production and Processing</td>
</tr>
<tr>
<td>10</td>
<td>Speaker – Case Studies in Recapturing and Reducing Food Waste</td>
</tr>
<tr>
<td>11</td>
<td>Speaker – Standardizing Sustainability and Metrics for the Food Industry</td>
</tr>
<tr>
<td>12</td>
<td>Speaker – Making Each Calorie Count: Nutritional Considerations for Sustainable Foods</td>
</tr>
<tr>
<td>13</td>
<td>Speaker – Small Regional Food Systems</td>
</tr>
<tr>
<td>14</td>
<td>Speaker – Policy to Drive Sustainable Foods</td>
</tr>
<tr>
<td>15</td>
<td>Final Presentations</td>
</tr>
</tbody>
</table>

**Academic Misconduct:** Academic misconduct is defined in the Code of Student Conduct (3335-23-04, [http://studentaffairs.osu.edu/info_for_students/csc.asp](http://studentaffairs.osu.edu/info_for_students/csc.asp)) and the Rules of the University Faculty (3335-31-02, [http://www.acs.ohio-state.edu/offices/oaa/procedures/1.0html](http://www.acs.ohio-state.edu/offices/oaa/procedures/1.0html)). Some examples of misconduct are:

1. Using some else’s work without proper citation of the source – plagiarism
2. Using an assignment from a previous course to meet an assignment in this course
3. Copying another student’s homework, exam or quiz.

Academic misconduct will not be tolerated. Suspected academic misconduct will be referred automatically to the Committee on Academic Misconduct as required by Faculty Rules

**Disability Services:** Any student who may need an accommodation based on the impact of a disability should contact me to discuss your specific needs as soon as possible. The Office for Disability Services assists faculty in verifying the need.
FD SC&TE 4510 Sustainability in the Food Industry
SP14 Syllabus

for accommodations and developing accommodation strategies. If you have not
done so, you are encouraged to contact the Office for Disability Services at 614-
292-3307 in 150 Pomerene Hall to register your disability

Reading Assignments:

These articles or videos are to be reviewed prior class to prepare for class
discussion. Articles and videos will be available on Carmen or through links posted
on Carmen.

Lecture 1: What is the Definition of Sustainability in the Food Industry?
• “Food Security: The Challenge of Feeding 9 Billion People” by Charles
  Godfray and others, 2010
• “US Food System Fact Sheet”, Greg Keoleian, 2012

Lecture 2: Organic vs Conventional Farm Practices
• “Organic Agriculture May Be Outgrowing Its Ideals”, Elisabeth Rosenthal,
  2011
• Video: “Mark Lynas’ Speech to 2013 Oxford Farming Conference” from GMO
  Critic to GMO Proponent

Lecture 3: Sourcing Ingredient - Is Local Really the Answer?
• “Checking the food odometer: Comparing food miles for local versus
  conventional produce sales to Iowa institutions”, Rich Pirog, 2003
• “Regional Food Hub Resource Guide- USDA”, James Barham and others, 2012
  (pg. 1-22)
• “Local Food Systems: Concepts, Impacts, and Issues”, Steve Martinez and
  others, 2010 (pg 3-23).

Lecture 4: Energy Efficiency in the Processing Plant and Emerging Technologies
• Video: “Food Scraps to Green Energy – EPA”
• “Energy Use in the Food Sector” – energy to make a cheeseburger, Annika
  Carlsson-Kanyama

Lecture 5: Food Waste Management: Recovering Lost Value
• Video: “Tristram Stuart: The global food waste scandal”- TedTALK
• “Wasted: How America Is Losing Up to 40 Percent of Its Food from Farm to
  Fork to Landfill”, Dana Gunthers, 2012

Lecture 6: Water Crisis and Food Security
• “The water footprint of food”, Arjen Y. Hoekstra
• “Case Study: Coca-Cola and Water in India: Episode 2”, Margaret Burnett and
  Richard Welford, 2007
Lectures 9-14
Reading assignments will be provided by student hosts for that week’s guest speaker topic (See “Guest Speaker Assignment” below).

Guest Speaker Assignment:
The purpose of the invited guest speakers is to give us an opportunity to dive deeper into some of the topics or ideas related to sustainability that we were not able to cover fully in the lecture portion of class. The guest speakers have specific knowledge and experiences that can provide context and perspective to some of the complex issues of sustainability. The speaker assignments will be conducted in teams of 2-3 students. Each team is responsible for finding preparatory materials related to that week’s speaker topic, lead the class in a critical discussion of the topic, host the speaker, and the Q&A session on Day 2 of the assignment.

Assignment Deliverables:
Preparation Prior to Day 1
- Provide the class with an article, news item, video or report that could spark a discussion focusing on the topic and guest speaker of the week.

Day 1
- Present the topic and provide background information. Lead the class in a critical discussion that develops a short list of questions that will be used during Day 2 Q&A session with the guest speaker.
- Send an email to the guest speaker introducing yourself and providing the list questions developed in class.

Day 2:
- Welcome the guest speaker and provide an introduction
- Introduce the topic of discussion to the audience
- Ask the 7-8 questions of the guest speaker
- Ask follow-up question

Final Project Presentation
The purpose is to analyze a current situation impacting sustainability of the food supply chain and develop a set of your recommendations for the food industry for moving towards improved sustainability.

Possible Project Topics:
1. Water Crisis in the US: Are our crops at risk?
2. Has the Dairy Industry Improved It’s Environmental Footprint?
3. Greenhouses for local production: Are these a good thing?
4. Landuse: Food vs Fuels (Case of High Oleic Soybeans)
5. Future processing technologies for reducing energy and water demands
6. A standardized label for sustainability and the failure of Walmart’s Sustainability Index.
FD SC&TE 4510 Sustainability in the Food Industry
SP14 Syllabus

Requirements:

1. A 20-minute Powerpoint presentation with Q&A
   a. Background on the topic
   b. Current issues and challenges
   c. Pros and cons impacting sustainability of the food supply chain
   d. Recommendations for the food industry based on your analysis

2. Turn-in to Dr. Dangaran
   a. Copy of Powerpoint slides
   b. List of references used for presentation

Grading of Assignment:

1. Clarity of Presentation (30 pts)
2. Analysis of topic (50 pts)
3. How well you answer questions (10 pts)
4. Quality of references used for report (Unbiased, reliable sources providing enough background and perspective for effective analysis) (10 pts)