

# SAMPLE SYLLABUS

Food Systems I

FOOD-GE 2033.001

*Course objective:* This course covers the U.S. food system from an applied economic perspective, with a goal of developing an understanding of the positive and negative aspects of the U.S. food system. We examine costs and benefits of food production, distribution, and consumption.

## *Course requirements/grading*

Data analysis assignment	10%
Food access assignment	35%
Questions/thoughts	10%
Value chain assignment	35%
Presentation	10%

## *Required readings*

Most readings are posted on blackboard. Those not posted are easily accessible, and have the links specified in the syllabus.

## *Course Policies*

Please come to each class prepared and ready to discuss the topic of the day. Being prepared means having read the assigned articles. Further, turn in 3 questions/thoughts (typed please, no more than 1 page) on some aspect of the readings. These questions will form the basis of our class discussion. Each class will be a combination of lecture and discussion.

Attendance/lateness/participation policy – Please do your best to be on time. Attendance is not explicitly required, but since the class is a seminar/lecture, you will miss many subtleties if you don't regularly attend class. Also, please turn in your assignments on time. Grades on late assignments will be reduced according to the following rule: an A will be A-, etc.

## *Academic Integrity*

Collaboration is encouraged, but each student is expected to hand in his or her own work (unless otherwise specified).

## *Statement on Disability Services*

Any student who needs an accommodation should register with the Disability Support Service.

## Course schedule and readings

9/4 *What is a food system? Where are the problems? What about policy?*

- a) Batie, Sandra. "Wicked problems and applied economics." *American Journal of Agricultural Economics*. No. 5, 2008, pp 1176-1191.
- b) Fruedenberg, N., J. McDonough, and E. Tsui. 2011. "Can a food justice movement improve nutrition and health? A case study of the emerging food movement in NYC." *Journal of Urban Health*.
- c) Kirschenmann, F.L. 2008. "Food as relationship." *Journal of Hunger and Environmental Nutrition*.
- d) Nestle, Marion. 2007. "Eating made simple." *Scientific American*. Vol. 297. Issue 3.

### Topic 1: Basics of data analysis

9/11 Introduction to working with data

- a) Tufte, E. 1974. *Data analysis for politics and policy*. Chapter 1. Introduction to Data Analysis.

Hand in topic for your basic data analysis assignment (data source and data set)

### Topic 2: Consumers, health, and nutrition

9/18 *How do people make food choices?* The role of the food environment, prices, time constraints, and social factors

- a) Just, David. 2011. "Behavioral economics and the food consumer." In *The Oxford Handbook of the Economics of Food Consumption and Policy*.
- b) Drewnowski, A. 2005. "Food choices and diet costs," *Journal of Nutrition*
- c) Jabs, J. and C.M. Devine. 2006. "Time scarcity and food choices: An overview." *Appetite*. Vol. 47. No. 2.
- d) Pachuki, M.A., P.F. Jacques, N.A. Christakis. 2011. "Social network concordance in food choices among spouses, friends and siblings." *American Journal of Public Health*
- e) Chandon, P. and B. Wansink. 2011. "Is food marketing making us fat? A multidisciplinary review." Faculty & Research Working Paper. INSEAD.

Assignment 1 (basic data analysis) is due

9/25 *Food access and possible policy solutions: problems facing low income consumers*

- a) National Academies Press. 2009. Chapter 5 "Ameliorating food desert conditions." *The Public Health Effects of Food Deserts: Workshop Summary*

- b) Bader, M. 2010. "Disparities in neighborhood food environments: implications of measurement strategies." *Economic Geography*.
- c) Guthrie, J.F. and E. Frazao. 2007. "Improving Food Choices. Can Food Stamps do more?" *Amber Waves*.
- d) Morton, L.W. and T.C. Blanchard. 2007. "Starved for access," *Rural Realities*
- e) Beaulac J, Kristjansson E, Cummins S. 2009. "A systematic review of food deserts, 1966-2007." *Prev Chronic Dis* 2009; 6(3).  
[http://www.cdc.gov/pcd/issues/2009/jul/08\\_0163.htm](http://www.cdc.gov/pcd/issues/2009/jul/08_0163.htm).
- f) Shenot, C. and E. Solomon. 2006. *Community Health and Food Access: The Local Government Role*. ICMA Press.
- g) Tiehan, L. and M. Ver Ploeg. 2012. "SNAP benefits alleviate the intensity and incidence of poverty." *Amber Waves*.

10/2 *The economics of food labels*

- a) FDA. 2009. *Guidance for Industry: Food Labeling Guide*
- b) Golan, E. et al. 2000. *Economics of Food Labels*. Economic Research Service, USDA.

Topic 3: Distribution, processing, and handling

10/9 *Supply chain dynamics – the flow of products to consumers*

- a) Dimitri, C. and L. Oberholtzer. 2009. "Marketing U.S. Organic Foods: Recent Trends from Farms to Consumers" <http://ers.usda.gov/Publications/EIB58/>
- b) Olson, K. and M. Boehjle. 2010. "Theme overview: Fundamental forces affecting agribusiness industries." *Choices*.  
<http://www.choicesmagazine.org/magazine/article.php?article=150>
- c) Porter, M. and M.E. Kramer. 2011. "Creating shared value." *Harvard Business Review*.
- d) Flaccavento, A. 2009. *Healthy Food Systems. A Toolkit for Building Value Chains*.
- e) Tropp, D., E. Ragland, and J. Barham. 2008. *The Dynamics of Change in the U.S. Food Marketing Environment*. Agricultural Marketing Service, USDA.

10/16 *no class – fall recess*

10/23 *Intermediaries and their role in the market: First principles of firm behavior*

- a) Krugman, P. and R. Wells. 2010. Chapter 8. "Monopoly, Oligopoly, and Monopolistic Competition." In *Essentials of Economics*.
- b) Olson, K., M. Rahm, and M. Swanson. 2010. "Market forces and changes in the plant input supply industry." *Choices*.  
<http://www.choicesmagazine.org/magazine/article.php?article=151>

- c) Krause, M. 2010. "Impacts of product differentiation on the crop input supply industry." *Choices*.  
<http://www.choicesmagazine.org/magazine/article.php?article=167>
- d) Buhr, B.L. and B. Ginn. 2010. "U.S. Meatpacking: Dynamic forces of change in a mature industry."  
<http://www.choicesmagazine.org/magazine/article.php?article=166>
- e) Cook, R. 2011. "Fundamental forces affecting U.S. fresh produce growers and marketers."

Due: Please turn in the type of product you'll be using for your value chain analysis; if you are working in a pair, turn in one sheet with both names (working in a team of two is strongly recommended).

#### 10/30 *Antitrust law in action: Case studies*

- a) CRS "Merger and Antitrust in Agriculture"
- b) Ward, C. 2010. "Assessing competition in the U.S. beef packing industry."  
<http://www.choicesmagazine.org/magazine/article.php?article=121>
- c) MacDonald, J. 1999. "Cargill's Acquisition of Continental Grain: Anatomy of a merger." *Agricultural Outlook*.
- d) Conner, J. 1997. "The Global Lysine Price-Fixing Conspiracy of 1992-1995." *Review of Agricultural Economics*.
- e) Rowley, W. and M. Beshore. 1979. "Chicken Integrator's Price Fixing: A Fox in the Capper-Volstead Coop." *South Dakota Law Review*.
- f) *Whole Foods/Wild Oats Merger: Sowing the Seeds for Market Growth*

#### 11/6 *Food manufacturing, labeling, branding and product differentiation. Intro to strategic behavior.*

- a) Rao, A.R., M.E. Bergen, and S. Davis. 2000. "How to fight a price war." *Harvard Business Review*.
- b) Lee, C.H. and G. Schluter. 2002. "Why do food manufacturers introduce new products?" *Journal of Food Distribution Research*.

Assignment 2 is due.

#### Topic 4: Back at the farm

#### 11/13 *Farming risks, risk mitigation, and unintended consequences*

- a) Harwood et al. 1999. *Managing Risk in Farming: Concepts, Research and Analysis*. Economic Research Service, USDA.
- b) MacDonald et al. 2004. *Contracts, Markets, and Prices: Organizing the Production and Use of Agricultural Commodities*. Chapters 2, 3, 5, and 6.  
[www.ers.usda.gov/publications/aer837/aer837.pdf](http://www.ers.usda.gov/publications/aer837/aer837.pdf)
- c) Boehlje "Industrialization of Agriculture," *Choices*

- d) Hamilton, N. 1993. "Agriculture without Farmers?" *N. Ill. UL Rev.*
- e) Pollan, M. 2002. "Power Steer." *New York Times*.  
<http://michaelpollan.com/articles-archive/power-steer/>

11/20 *A longer run view of innovation's influence on the farm*

- a) Dimitri, C., A. Effland, and N. Conklin. 2005. *The Twentieth Century Transformation of Agriculture and Farm Policy*;  
<http://www.ers.usda.gov/publications/eib3/eib3.htm>
- b) Olmstead, A. and P. Rhode. 2002. "Reshaping the landscape: the impact and diffusion of the tractor in American agriculture, 1910-1960." *Journal of Economic History*.
- c) Olmstead, A. and P. Rhode. 2002. "The red queen and the hard reds: Productivity growth in American wheat, 1800-1940." *Journal of Economic History*.
- d) Dimitri, C. 2003. "Agricultural marketing institutions: A response to quality disputes." *Journal of Agricultural and Food Industrial Organization*. Vol. 1: Iss. 1, Article 17.

11/27 *Farm policy: A broad overview*

- a) Gardner, B. "The Economics of Agricultural Policies." Chapter 1
- b) Starmer, E. and T. Wise. 2007. *Feeding at the trough*. Policy Brief 07-03. Tufts University.
- c) Whitener, L. and T. Parker. 2007. "Policy options for a changing rural America." *Amber Waves*.
- d) Kemp, L. 2011. Draft of farm policy.

12/4 *A grab bag of local policies: what do they accomplish?*

- a) Patterson, P. 2006. "State grown promotion programs: fresher, better?" *Choices*. <http://www.choicesmagazine.org/2006-1/grabbag/2006-1-08.htm>
- b) Irwin, E. and J. Clark. 2006. "Wall Street vs. Main Street: What are the benefits and costs of Wal-Mart to local communities?" *Choices*.  
<http://www.choicesmagazine.org/2006-2/grabbag/2006-2-14.htm>
- c) Kroger, R. and Y. Zeltser. 2010. "Developing a vibrant local food economy in New York communities." *CARDI reports*, pp 17-21.
- d) Morrison, R., L. Mancino, and J. Variyam. 2011. "Will calorie labeling in a restaurant make a difference?" *Amber Waves*.  
<http://www.ers.usda.gov/amber-waves/2011-march/will-calorie-labeling.aspx>

12/11 *Presentations of value chain assignment*

Assignment 3 (value chain assignment) is due.

## Assignment schedule

### Assignment 1: Basic data analysis

Find a small and simple data set. You can either select a cross section data set, which has data from one year but covers a wider range (such as states or product), or a time series, which has data over time (such as prices of milk from 1900 to 2011). I will hold special office hours for this assignment.

There are many possible datasets available for your use. Feel free to select any dataset that contains economic indicators (prices, quantities, consumption, payments). If you prefer to use data related to overweight or activity, feel free to do so (just check with me first – cdc.gov should have some of these datasets).

This might be a new area of work for many students, but I think the rewards of this assignment can be quite high. In my opinion, these skills are important to have, especially if you are interested in pursuing a career in policy or with a nonprofit.

Some suggestions for datasets and data are:

1. Organic Production Survey: production of organic products in 2007 in terms of value or quantity across the country and by state; labor use; marketing data; input use; some costs of production, etc.
2. Use of direct markets by farmers – Census of Agriculture
3. Acres of organic farmland over time or around the country (Economic Research Service: [www.ers.usda.gov/briefing/organic](http://www.ers.usda.gov/briefing/organic))
4. Use of contracts by organic handlers (2004, 2007): (Economic Research Service: [www.ers.usda.gov/briefing/organic](http://www.ers.usda.gov/briefing/organic))
5. Prices of a farm product over time (agricultural statistics)
6. Farm subsidies paid to wheat or cotton or other farmers over time.
7. Hired labor used on farms.
8. Conservation payments over time, either total or by program (CRP, CSP, EQUIP).
9. Production of an agricultural product over time (Agricultural Statistics).

Do the following (PLEASE talk to me as you work on this assignment, especially if you are new to data analysis).

1. Graph your data. This is harder than you think! Decide what type of graph would best display variation in your dataset: a line, a bar, a pie chart. Write a short paragraph about what this chart says.
2. Calculate the mean (or average) of your data. Next calculate the standard deviation. Please do this in two ways: first using (1) the formula for the mean and standard deviation, and (2) using the built in function of either your calculator or excel.

3. If you are using a time series, check to see if there is a natural break in your data and divide dataset accordingly (period 1 and period 2). If this type of break does not exist, pick a year that is midway between the beginning and end of your study period, and divide your dataset into period 1 and period 2. Let your testable hypothesis be: The mean of period 1 differs from the mean of period 2 (what is the alternative hypothesis?). Write out this hypothesis in words for your dataset. (Eg, if you are examining production of milk per cow over time, and you break your period into 1960-1980 and 1981 – 2000, your hypothesis would be: the average amount of milk produced by a cow in 1981-2000 is not the same as the average amount as the average amount produced in 1960-1980. Using a difference between means test, examine your hypothesis. What does your test suggest? What does this mean? How certain are you about your results?)
4. In one single spaced page, write up an analysis of your dataset and hypothesis. Include a short discussion of the following: the data; the high, low, mean and standard deviation of your data series; your hypothesis; the results; and what they mean. Keeping it short means you can only include essential information. Note that you will have little space to spare for the use of adjectives.

## Assignment 2: Food access

The assignment consists of a series of questions, data collection, and analysis, all related to food access. Note that, in order to complete this assignment, you will need to do some advance planning. This assignment is time consuming; however, it can be completed in blocks. Leave two weeks for analyzing your data, once it is collected. Allow enough time to collect the data in store. Make sure you plan before you collect your data.

Q1. Record everything you eat and drink for three consecutive days (that is, keep a food diary). To the best of your ability, develop a cost estimate of the food and drink you consumed. What is the average daily cost of your food and beverage purchases? Multiply this amount by seven, so you have an estimated weekly cost of food.

Q2. Using the guidelines for official USDA food plans, determine the weekly cost of food at home (<http://www.cnpp.usda.gov/USDAFoodCost-Home.htm>) for the thrifty food plan for your age/gender/family status. Use the cost data for the most recent month. Note these are U.S. averages, and not NYC costs; the thrifty food plan costs form the basis of federal nutrition benefits.

Q3. Using the thrifty food plan guidelines (in terms of food and quantity, your age and gender), create a menu that spans one week ([www.cnpp.usda.gov/Publications/FoodPlans/MiscPubs/TFP2006Report.pdf](http://www.cnpp.usda.gov/Publications/FoodPlans/MiscPubs/TFP2006Report.pdf)). For this part, create menus for meals that you want to eat (ie don't think about how much each item costs; instead think about seasonality and what you like to eat). Select three food stores within a 10 minute walk of your apartment (or NYU), and collect prices for each item on your weekly menu. You can use farmers markets if you would like. What is the weekly cost for each of the food stores? How do they differ? What is the average weekly cost over the three stores? What conclusions can you draw?

Q4. Now, instead of working from your menu, work from the weekly cost of food at home you found in Q2. If you were receiving federal nutrition benefits, this is the amount of money you would have to spend each week on food. Go to the three stores you visited for Q3, and using the thrifty food plan guidelines and the federal nutrition benefit dollar allotment, select foods that you can both afford and then create a menu from those foods. What is the cost at each of the three stores? How appealing is your menu? Calculate the average cost for these three stores and then test for statistical significance from the average from Q3 (this is a difference between means test, and is a t-statistic; we'll go over this in class).

Q5. Please work in pairs for this question (actually, go to the stores in this part with someone else; each person will have different data to collect.) We will establish pairs in class, and match up long time NYC residents with newcomers.

Go to one of the many “food deserts,” which in Manhattan are mostly north of Central Park (neighborhoods in Harlem or Inwood are good choices; there are neighborhoods in Brooklyn that are food deserts, such as Bedford-Stuyvesant and East New York). Pick a central point (write down the cross streets), and then walk to the three closest stores that sell food. Write down the names of the stores and their addresses, and record how long it takes to get to each of the stores. Try to use your federal benefit allotment amount and the thrifty food plan guidelines, and record what you can buy in each of the three stores and how much it costs. What is missing from your menu? Now, locate the closest supermarket (as an aside – find out if there a farmers market near this location). Walk there – how long does it take? Notice the locations of the subway stops (ie is it possible to travel to the store via public transportation; think about how it would be to carry several bags of groceries.)

Once you are at the store:

Collect prices for Q3 (your menu based on the thrifty food plan amounts and your choices), and identify what is missing;

See how you can spend your allotment (ie, repeat Q4 in this store).

Go back to your original food diary from Q1; are all of the foods you like to eat available in this store? Are there quality or brand differences? Observe.

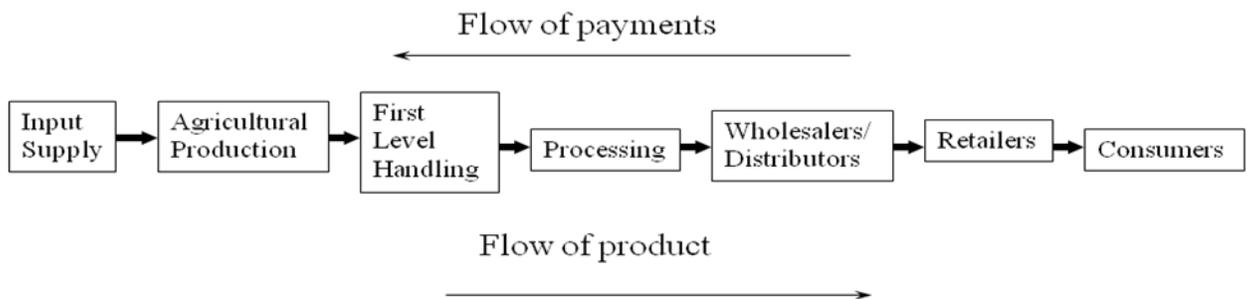
Q6. What conclusions can you draw from this exercise? Incorporate elements from Q1-Q5 in this answer. Address (but please don’t limit your discussion to my list): physical ease of shopping, taste and enjoyment from food, costs, thrifty plan guidelines, food availability, and so on. How does the thrifty plan line up with a healthy diet?

### Assignment 3: Value chain analysis

Choose a food product to study; some examples are below. The first part of this assignment is to trace the conventional supply chain (so please don't select locally marketed milk in this part!). In the second part, you will study a values based supply chain. The values based chain can be that for organic products, sustainable products, fair trade products, local products, cooperative marketing, or some form of corporate social responsibility. Be sure to discuss any certifications needed.

1. Cow milk
2. Canned tomatoes
3. Pasta (dried)
4. Tofu
5. Soy milk
6. Cheese
7. Lettuce

For the food product you have chosen describe the seven (7) levels of its supply chain by answering 1 through 7 below. Make sure you respond to all of the instructions for each of the seven levels.



1. Input supply
  - a) Describe all of the inputs that are needed for agricultural production of the raw material for your product.
  - b) Where does the farmer obtain these inputs?
  - c) Are there a large number of input suppliers? Why or why not?
  - d) Are there any dominant companies at the input supply level of this supply chain?
  - e) Explain any key technological advances related to your product at this level of your supply chain.
2. On farm production
  - a) Describe the production process for the main agricultural commodity that goes into your product (e.g, apples are the primary ingredient for applesauce.)

- b) How long does it take to produce this raw material? How do you know when it is ready to be harvested? How is it harvested?
- c) What production risks could affect the production of your raw material?
- d) How perishable is your raw material? How does perishability impact the logistics and handling of your raw material at this level of your supply chain?
- e) Explain any key technologies that are used in producing your product.
- f) Where are the farms located (ie, in which states)? Is production concentrated in a specific area?
- g) How many U.S. farms produce the raw material for your product? What percentage is this of the total number of farms in the U.S.? What is the total value of production of the raw material? You can find the numbers from the Agricultural Census.

### 3. First level handling

- a) Describe the first place the raw material goes after it leaves the farm (ie, the first handler). How is the product transported? Is this transaction typically conducted under contract?
- b) Do farmers have many choices about where to sell their product at this level? What are the implications of the amount of choice?
- c) Are there any dominant companies at the first handling level of the supply chain?

### 4. Processing, manufacturing, or packing/shipping

- a) Describe the process that turns the agricultural commodity into a food product.
- b) What other ingredients become parts of the final consumer product?
- c) What type of packaging is used for this product? Discuss how packaging might vary by target market.
- d) What production risks could impact processing of this food product?
- e) Discuss the perishability of your product after it is processed. How does perishability impact the logistics and handling of your product at this level of your supply chain?
- f) Explain any key technological advances related to your product at this level of your supply chain.
- g) Are there a large number of processors of this product?
- h) Which major companies produce/market this product in the U.S.?
- i) Are there any dominant companies at the processing level of the supply chain?

### 5. Wholesalers and/or distributors

- a) How is this product distributed once it leaves the processing/manufacturing facility? Discuss the possibilities for all of the following distribution options:

The product could be distributed by the processor.

The product could go to an independent wholesaler who then sells the product to retailers.

The product could go to a distribution system run by the retailer.

## 6. Retailers

- a) Which retail venues sell this product? Describe all of the possibilities (including foodservice).
- b) Are there a large number of retail and/or foodservice outlets?
- c) Are there any dominant companies at this retail level of the supply chain?
- d) Explain any key technologies related to your marketing your product at the retail level.
- e) Is the product marketed via brands? Private labels?
- f) At the retail level, how could you differentiate your product from that of your competitors to win consumers for your brand?

## 7. Consumers

- a) Describe how consumers use this product.
- b) Do a large number of consumers purchase this product? Explain.
- c) Are there groups of consumers who would not eat this product and why?
- d) If you were a producer of this product, who would be your target market and why? Describe the demographic, geographic and psychographic characteristics of your target market.
- e) What important consumer trends are related to your product?
- f) Is this a product that is growing in popularity? Why or why not?
- g) Are the types of consumers buying your product changing? How might changing demographics or psychographics affect demand for your product?
- h) Is there a large amount of advertising for this product?

## 8. Values-based food supply chains

- a) Which values-based chains are used for the product you have studied? Describe the rationale for the values-based supply chain models. Select one form as the basis of the analysis in the following section.
- b) What certifications or accreditations are used for this values-based chain?
- c) How does agricultural production differ in the values-based food supply chain as compared to a mainstream food supply chain?
- d) How is the product differentiated in a values-based food supply chain compared to a mainstream food supply chain?
- e) What kinds of consumers buy the output of the values-based chain?
- f) Do farmers, handlers, retailers, make higher profits in this business model?
- g) Describe the characteristics of the business relationships among participants in the various levels of a values-based food supply chain compared to a mainstream food supply chain.

h) Would you buy the conventional or values-based product? Why or why not?