

NUTB 238 -- Economics for Food and Nutrition Policy
Fall 2020

Instructor: Will Masters **Zoom:** zoom.us/my/wmasters
Email: William.Masters@tufts.edu **Phone:** 617.575.9050 (cell)

Scheduling: Drop-in review sessions are 12:00-1:00 ET, Fridays starting Sep. 11
Synchronous residency is 8:00-12:15 ET, Tues, Weds & Thu Oct. 6-8
For other meetings, choose from open times at calendly.com/willmasters
(Calendly will create a calendar entry for us, no need for separate emails)

Teaching Asst.: Leah Costlow
Email: Leah.Costlow@tufts.edu

Tufts Credit: 3 semester-hours (3 hours/week, over 13 weeks)
Prerequisites: Graduate standing, or permission of the instructor.

Course Description

This course equips students with the principles used in economics for food policy analysis. We use the graphical methods taught in standard, one-semester courses on the principles of economics, but our motivation, examples and applications are focused on food and nutrition problems in the United States and around the world.

Course Delivery

NUTB 238 is taught online through video lectures, conversations, presentations and exercises, with one week of on-campus work. The private, password-protected content of the class is on Canvas, and some course-related content is also be posted for public use at sites.tufts.edu/foodecon. Regular weekly office hours for individual and group conversation will be held online to share screens, and online meetings or phone calls can also be scheduled at other times.

Course Objectives

NUTB 238 helps students explain, predict and evaluate the social outcomes of individual choices using economics principles. Students gain familiarity with the data sources and analytical methods needed to: (1) explain and predict consumption, production and trade in agriculture and food markets; (2) evaluate the social welfare consequences of market failure, collective action and government policies including regulation, taxation and enforcement of property rights in agriculture and food markets; (3) measure poverty and inequality in income, wealth, nutrition and health, as influenced by changes in markets and policies; and (4) describe macroeconomic relationships, fluctuations and trends in incomes, employment, economic growth and development.

Texts and Materials

All day-to-day materials for this class will be distributed via canvas.tufts.edu.

The Canvas site for NUTB 238 contains everything needed to complete the course successfully, but some students may want additional materials, such as:

- An optional [online primer](#) to practice economic principles;
- Additional [video explanations](#) from the Khan Academy; concepts used in this course are under *microeconomics*, plus the first two topics of *macroeconomics* (GDP and inflation);
- Examples of **published research** by me and other Friedman School faculty using the concepts in this course, listed on pages 11 and 12 of this syllabus;
- Traditional **textbook chapters** for student with links for low-cost purchase of a used book for students who like seeing concepts explained that way.

Assignments and Grading

For most students, this will be your first course in economics. Recorded lectures are designed to be watched once for the big picture, and then reviewed again as the semester proceeds. A series of 11 weekly assignments are designed to help you practice the skills needed for successful economic analysis of food and nutrition problems, while the course project applies those skills in depth to a particular question of interest to you. The first four assignments ask you write, use graphical methods and compute the nutritional consequences of real-life food choices. The next four assignments ask you to practice applying economic principles to news articles you find on the internet, and the last three ask you to collect and interpret real-life data to illustrate the issues discussed in class. Each of these assignments is graded out of 5 points, of which the lowest will be dropped for a total of 50 points. In addition, the course project has 40 points, and your comments on other students' assignments are worth 10 points for a total of 100.

<i>Summary of Assignments</i>	<i>Grading Weight</i>
Eleven weekly assignments (5 points each, one dropped)	50%
Course project (40 pts total)	40%
Comments on other students' assignments	10%

Penalties for late or incomplete assignments

The deadline for each assignment is shown on the syllabus. Students who are unable to complete an assignment on time for any reason should notify the instructor by email, text message or phone at any time prior to the deadline, with a brief explanation for why the extension is needed. Late work for which an extension has not been granted will not be graded. Of the 11 weekly assignments the one with the lowest score will be dropped, so you can miss one without penalty.

Academic Conduct

Education invites you to learn from the ideas of other people. Our school environment is built on diversity and inclusion, so that all students feel empowered to share their insights and learn from each other as well as from the scientific literature. Every student is responsible for upholding the highest standards of academic life, as specified in the Friedman School's *Policies and Procedures* manual (<http://nutrition.tufts.edu/documents-and-forms/policies-and-procedures-handbook-students>). The Tufts Health Sciences Library provides help with [research and writing](#) in ways that represent previous work while avoiding plagiarism. It is the responsibility of each student to understand and comply with these standards, as violations will be sanctioned by penalties ranging from failure on an assignment and the course to dismissal from the school.

Accommodations of Disabilities

Tufts University is committed to providing equal access and support to all students through the provision of reasonable accommodations so that each student may access their curricula and achieve their personal and academic potential. If you have a disability that requires reasonable accommodations, please contact Matt Hast, the Friedman School Assistant Dean of Student Affairs (matthew.hast@tufts.edu) to arrange for appropriate accommodations. Please be aware that accommodations cannot be enacted retroactively, making timeliness a critical aspect for their provision.

Course Topics & Assignment Schedule at a Glance

Week / Classes	Topic	Module	Assignments (due Sundays at midnight)
1. Sep 8-13	What is economics?	1	1. Personal essay (Sep 13)
2. Sep 14-20	Market equilibrium and social welfare	2	2. Hand-drawn diagrams (Sep 20)
3. Sep 21-27	Government regulation and taxes	3	3. Revised personal essay or draft blog post (Sep 27)
4. Sep 28-Oct 4	Household behavior and food consumption with residency workshop 8:00-12:15 ET, Oct. 6-8 (Tues., Weds. & Thursday)	4	4. News analysis on food choice & demand (Oct 4)
5. Oct 5-11			5. Least-cost diets (<i>workshop activity</i>) (Oct 11)
6. Oct 12-18	Agricultural production and food supply	5	6. News analysis on agriculture and food supply (Oct 18)
7. Oct 19-25	Market structure and monopoly power	6	7. News analysis on food markets (Oct 25)
8. Oct 26-Nov 1	Market failure and collective action	7	8. News analysis on food policy (Nov 1)
9. Nov 2-8	Course project: draft problem statement, analytical methods & data sources (drafts due Nov. 8 th , then peer feedback due Nov 15)		
10. Nov 9-15	Poverty, safety nets and risk	8	9. Data analysis on global poverty and nutrition (Nov 15)
11. Nov 16-22	Recessions, unemployment and inflation	9	10. Data analysis on U.S. macro & nutrition (Nov 22)
12. Nov 23-29	Growth, investment and agriculture	10	<i>None (Thanksgiving)</i>
13. Nov 30-Dec 6	Globalization, trade and the world food system	11	11. Data analysis on global dietary transition (Dec 6)
14. Dec 6-11	Course projects (reports and presentations) due Sunday, December 13 th Peer feedback on other students' course projects due Sunday Dec. 20 th		

Course Topics, Assignment Schedule and Learning Objectives

Note: Schedule is subject to change. Learning objectives will be pursued in terms of their applicability to agriculture, food and nutrition, using examples from the U.S. and a wide variety of other countries. All assignments except presentations are due at midnight Eastern time on the Sunday at the end of the week shown, but students are encouraged to upload their work as soon as it is completed for comments and feedback it. Optional chapter references are to Krugman and Wells, *Economics* (2nd ed., 2012), for students who might want to see traditional textbook explanations in addition to our class lectures.

Week 1

Lecture module: 1. What is economics? How is it useful for food policy analysis?

Assignment: Ex. 1. Personal essay: Thinking like an economist

Objectives: Upon completion of this week, students will be able to:

- Describe the principles used in economics to explain and predict social outcomes
- Describe the strengths and limitations of economics as a social science
- Describe the strengths and limitations of economics for everyday life

Week 2

Lecture module: 2. *Market equilibrium and social welfare in the food system*

Assignment: Ex. 2. Analytical diagrams: Drawing by hand

Objectives: Upon completion of this week, students will be able to:

- Use production possibility frontiers to derive supply curves from observed prices and observed quantities
- Use supply and demand curves to derive producer and consumer surplus measures of economic welfare from observed prices and quantities
- Describe the strengths and limitations of using supply curves, demand curves and economic surplus to evaluate social welfare changes

Week 3

Lecture module: 3. *Government regulation, taxes and subsidies in food markets*

Assignment: Ex. 3. Draft blog post (based on Ex. #1 personal essay, or other commentary)

Objectives: Upon completion of this week, students will be able to:

- Use supply, demand and economic surplus to evaluate the effects of government regulation and taxes on prices, quantities and social welfare
- Use elasticities to characterize consumer and producer response to changes in income, prices and production possibilities
- Use supply and demand diagrams with and without international trade to explain and predict prices, quantities and social welfare changes

Week 4

Lecture module: 4. Household behavior and food consumption

Assignment: Ex. 4. News analysis about consumer preferences and food demand

Objectives: Upon completion of this week, students will be able to:

- Use USDA data sources to compute the nutrient composition of a diet, relative to recommended daily intake of major nutrients
- Compare your first guess at the least-cost foods that would meet your nutrient needs to what world's poorest people actually eat, as estimated by food balance sheets and dietary recall surveys
- Describe differences in food quantities and nutrient adequacy between your guess and the actual diets of low-income people in Ethiopia and elsewhere.

Week 5 (includes residency)

Lecture module: No new material (follow-up from residency)

Assignment: Ex. 5. Least-cost diet exercise, done in person during residency

Objectives: Upon completion of this week, students will be able to:

- Use marginal benefits, indifference curves and budget constraints to derive demand curves from observed prices and quantities
- Use the distinction between income and substitution effects to assess consumer welfare changes in response to variation in prices and preferences
- Describe the strengths and limitations of optimization as an explanation for food consumption choices in the U.S. and elsewhere

Week 6

Lecture module: 5. Agricultural production and food supply

Assignment: Ex. 6. News analysis about farm production and food supply

Objectives: Upon completion of this week, students will be able to:

- Use marginal costs, fixed costs and input response in production to derive supply curves
- Use the distinction between scale economies and supply response to assess producer welfare changes in response to variation in prices and technologies
- Describe current events in the agricultural sector using economics principles

Week 7

Lecture module: 6. Market structure and monopoly power

Assignment: Ex. 7. News analysis about food companies and market power

Objectives: Upon completion of this week, students will be able to:

- Use economics principles to identify the market conditions needed for firms to acquire monopoly power in markets for food, farm inputs and other sectors
- Describe the behavior of individuals and firms in monopolies and other market structures
- Describe current events in food markets in terms of market structure

Week 8

Lecture module: 7. Market failure and collective action

Assignment: Ex. 8. News analysis about food policy and politics

Objectives: Upon completion of this week, students will be able to:

- Use economic surplus to evaluate welfare consequences of externalities, environmental damage and other market failures
- Describe the opportunities for collective action to provide public goods and regulation, taxation and property rights enforcement to remedy market failures
- Describe current events in terms of market failure and collective action

Week 9

Putting it all together – completing stage 1 of the course project

Assignment: Upload project stage 1 as detailed in course project guidelines

Objectives: Upon completion of this week, students will be able to:

- Use economic principles to address an important food and nutrition policy question, identifying appropriate analytical diagrams and data sources.
- Communicate that economic analysis in writing, using constructive criticism of others' writing to help each other write more effectively.

Week 10 1

Lecture module: 8. Poverty, safety nets and risk

Assignment: Ex. 9. Data analysis on poverty and nutrition

Objectives: Upon completion of this week, students will be able to:

- Use economic principles to apply poverty lines and other thresholds for measuring welfare and targeting social programs
- Describe major influences on income distribution, inequality and social mobility
- Obtain and present current data on global poverty and malnutrition rates

Week 11

Lecture module: 9. Recessions, unemployment and inflation

Assignment: Ex. 10. Data analysis on income, growth and development

Objectives: Upon completion of this week, students will be able to:

- Use economic principles to explain and predict business cycle fluctuations, including the timing and extent of recessions, unemployment and inflation
- Describe the role of fiscal and monetary policy in managing business cycles
- Obtain and present current data on incomes, employment and inflation

Week 12

Lecture module: 10. Growth, investment and agriculture

Assignment: None (give thanks instead!)

Objectives: Upon completion of this week, students will be able to:

- Use economic principles to explain and predict economic growth and structural transformation between agriculture, industry and services over time
- Describe the experience of economic growth across countries and regions
- Obtain and present current data on economic growth and development

Week 13

Lecture module: 11. Globalization, trade and the food system

Assignment: Ex. 11. Data analysis on world food trade

Objectives: Upon completion of this week, students will be able to:

- Use economic principles to explain, predict and evaluate changes in international trade, foreign investment and capital flows among countries
- Describe the major changes associated with globalization of agriculture and food
- Obtain and present current data on food production, consumption and trade

Week 14

Putting it all together – completing stage 2 of the course project

Assignment: Upload complete report as detailed in course project guidelines

Objectives: Upon completion of this week, students will be able to:

- Use economic principles to address an important food and nutrition policy question, drawing appropriate analytical diagrams and using available data to construct meaningful charts and tables.
- Present food and nutrition policy analyses verbally and in writing, through practice in presenting own results and providing feedback on others' presentations.

Assignments in brief

Activities undertaken in this course are adapted for online work, before and after the week 5 exercise which is done in-person during the residency period. The assignments aim primarily to build your skills explaining and predicting change through a series of “news analysis” exercises, and downloading data to visualize trends and variation in a series of “data analysis” exercises. Students who might want to showcase their work in public can post edited versions of their assignments to our course blog, so all assignments could be undertaken not only as skill-building exercises but also valuable information for others interested in food and nutrition. Your own assignments will count for 90% of your grade in this class, and 10% will be determined by your comments in the weekly discussion forums on Canvas.

Week 1. Personal essay: *What does it mean to ‘think like an economist’?*

Our first exercise is to describe one or more example(s) from your own life in which you did (or did not) use economic principles in your own decisions, to understand others peoples’ choices and the societal outcomes of interactions between people. (Max. 1000 words)

Week 2 -- Graphing exercise: *Drawing by hand*

This assignment asks you to hand-draw the main diagrams used in economics to show two-dimensional slices of our infinite-dimensional world, following a set of instructions provided online. Upload photos of your charts and describe what you drew. (Max. 500 words)

Week 3 – Draft blog post: *An example of ‘thinking like an economist’*

From what you’ve seen from the first two weeks of class, this assignment asks you to draft an initial blog post describing an example of economics in action. These should be shorter than your ex. #1, and typically addresses one or more items elsewhere on the web which you can discuss and link to in your blog post. These draft blog posts can be revised versions of your personal essay, or a commentary on something else. You are particularly encouraged to use this as an introduction to the question you’ll address in your course project. (Max. 500 words)

Week 4 – News analysis: *Consumption preferences and food demand*

This first “news analysis” exercise asks you to provide economic analyses of two recently reported changes in food demand, distinguishing between changes in income or purchasing power as shown by the level of budget constraints, and changes in preferences as shown by the slope of indifference curves.

Week 5 -- Group exercise: *Least-cost diets around the world*

During the in-person residency, you will work together in small groups to assemble real data from the USDA on food composition and nutrient needs, and from the FAO and national statistical services on what people actually eat around the world, to compare with what you think might be a the least-cost diet needed to meet your nutritional needs.

Week 6 -- News analysis: Agriculture and food production

This second news-analysis exercise addresses actual or possible change in the natural conditions or technological available for farmers' food production choices reported somewhere in the world, as shown by shifts in production possibility frontiers.

Week 7 -- News analysis: Food companies and market structure

The third news analysis concerns the behavior of one or more individual companies that may (or may not) come to hold a monopoly position in a particular market, as shown by supply, demand and marginal revenue or expenditure curves.

Week 8 -- News analysis: Food policy and politics

Your final news analysis concerns how political systems have responded to events in food and nutrition, describing and analyzing a particular intervention in the US or elsewhere, as shown by supply, demand and prices in trade with other regions.

Week 9 – Project stage 1: Draft problem statement, analytical methods and data sources

The first stage of the course project builds on the first set of exercises, asking you to identify a specific food and nutrition policy problem of interest, draw one or more analytical diagrams needed to explain and predict observed outcomes, and describe one or more available data sources with which you can make original charts and tables to summarize those observations. Detailed instructions are provided in the project guidelines.

Week 10 -- Data analysis: Global poverty and nutritional outcomes

This is the first of three assignments to practice obtaining, transforming and presenting current data from authoritative sources, concerning income levels and poverty, food consumption and nutritional status around the world using data assembled by the World Bank.

Week 11 – Data analysis: US macroeconomic conditions, diet quality and nutrition assistance

The second data-analysis exercise uses data from U.S. agencies on economic fluctuations and changes in food expenditure as well as the Supplemental Nutrition Assistance Program (SNAP).

Week 12 – No new assignment *This week is for Thanksgiving!***Week 13 -- Data analysis: Dietary transition around the world**

The last data-analysis exercise focuses on changing intake of potentially harmful foods and diet-related disease, using Euromonitor data on branded foods and beverages, and World Health Organization (WHO) data on obesity rates.

Week 14 – Project stage 2: Final presentation in writing and in person (by video)

We end the class by presenting and learning from each other's course projects, putting all your skills together and communicating the results effectively in person (through a recorded video) and in writing (through a well-documented report). Detailed instructions are provided in the project guidelines.

Published research

Research-minded students will know that exciting new work appears every year on all the topics we address in this class. To keep up, you might want to do occasional google scholar searches, and link your account to journal subscriptions in the Tufts [library](#).

To get a sense of what's being written by the Tufts faculty, here's a list of at least one source for each week. Where we have not recently published something on the topic, I chose something else of interest:

Week 1: What is economics? How is it useful for food policy analysis?

Finaret, Amelia B. and William A. Masters, 2019. "Beyond calories: The new economics of nutrition." *Annual Review of Resource Economics*, forthcoming.
<https://ase.tufts.edu/economics/documents/papers/2018/mastersBeyondCalories.pdf>

Week 2: Market equilibrium and social welfare in the food system

Masters, William A., 2016. "Economic causes of malnutrition", chapter 2.2 in M. Eggersdofer, ed., *Good Nutrition: Perspectives for the 21st Century*. Basel, Karger.
<https://www.karger.com/Article/Pdf/452378>

Week 3: Government regulation, taxes and subsidies in food markets

Pomeranz, Jennifer L., Parke Wilde, Yue Huang, Renata Micha, and Dariush Mozaffarian, 2018. "Legal and administrative feasibility of a federal junk food and sugar-sweetened beverage tax to improve diet." *American Journal of Public Health* 108(2): 203-209.
<http://www.doi.org/10.2105/ajph.2017.304159>

Weeks 4 & 5: Consumer behavior and food demand

Hartmann, Monika, Sean B. Cash, Ching-Hua Yeh, Stefanie C. Landwehr, and Anna R. McAlister, 2017. "Children's purchase behavior in the snack market: Can branding or lower prices motivate healthier choices?" *Appetite* 117: 247-254.
<https://doi.org/10.1016/j.appet.2017.06.014>

Week 6: Farm production, food trade and market prices

Tichenor, Nicole E., Hannah HE van Zanten, Imke JM de Boer, Christian J. Peters, Ashley C. McCarthy, and Timothy S. Griffin, 2017. "Land use efficiency of beef systems in the Northeastern USA from a food supply perspective." *Agricultural Systems* 156: 34-42.
<https://doi.org/10.1016/j.agsy.2017.05.011>

Masters, W.A. and N.Z. Rosenblum, 2017. Senegal groundnut value chain: Competitiveness and prospects for development. Washington, DC: The World Bank.
<http://documents.worldbank.org/curated/en/523961498623774515>

Week 7: Market structure and monopoly power

MacDonald, James M., 2017. "Consolidation, concentration, and competition in the food system." *Economic Review of the Kansas City Federal Reserve Bank*, SI17: 85-105.
<https://www.kansascityfed.org/~media/files/publicat/econrev/econrevarchive/2017/si17macdonald.pdf>

Week 8: Midterm review / midterm exam

Week 9: Market failure and collective action

Doss, Cheryl R., and Ruth Meinzen-Dick, 2015. "Collective action within the household: Insights from natural resource management." *World Development* 74: 171-183.
<https://doi.org/10.1016/j.worlddev.2015.05.001>

Week 10: Poverty, safety nets and risk

Flores-Lagunes, Alfonso, Hugo B. Jales, Judith Liu, and Norbert L. Wilson (2018). "The Differential Incidence and Severity of Food Insecurity by Racial, Ethnic, and Immigrant Groups over the Great Recession in the United States." *American Economic Association Papers and Proceedings* 108, pp. 379-83.
<https://www.aeaweb.org/articles?id=10.1257/pandp.20181106>

Week 11: Recessions, unemployment and inflation

Hoynes, Hilary, Diane W. Schanzenbach, and Douglas Almond, 2016. "Long-run impacts of childhood access to the safety net." *American Economic Review* 106(4): 903-34.
<http://doi.org/10.1257/aer.20130375>

Week 12: Agricultural transformation and the dietary transition

Masters, W.A., N.Z. Rosenblum, and R.G. Alemu, 2018. "Agricultural transformation, nutrition transition and food policy in Africa: Preston curves reveal new stylised facts." *Journal of Development Studies* 54(5): 788-802.
<https://doi.org/10.1080/00220388.2018.1430768>

Week 13: International trade and the food system

Chen, Rui, Valentina Hartarska, and Norbert LW Wilson. "The causal impact of HACCP on seafood imports in the US: An application of difference-in-differences within the gravity model." *Food Policy* 79 (2018): 166-178.
<https://doi.org/10.1016/j.foodpol.2018.07.003>

Traditional textbook chapters

Some students still like traditional textbooks. A great textbook, like a great lecture, is a distinctly wonderful thing, explaining things in a particularly useful way. For introductory principles, the best book I know is by *Economics* by Paul Krugman and Robin Wells. Used copies of the 4th edition (2015) are available for under \$20 at www.allbookstores.com/book/compare/1464143846. The newer but not better 5th edition is at www.allbookstores.com/book/compare/1319066607, and the sequence of topics in our class follows the same order as the textbook. For the rare student who might want or need additional explanations and examples from outside the food system, here are the supporting chapters for each week:

1. What is economics? How is it useful for food policy analysis?

Chapters 1 & 2

2. Market equilibrium and social welfare in the food system

Chapters 3 & 4

3. Government regulation, taxes and subsidies in food markets

Chapters 5, 6, 7 & 8

4-5. Household behavior and food consumption

Chapters 9, 10, 11, 12

6. Agricultural production and food supply

Chapter 13

7. Market structure and monopoly power

Chapters 14, 15 & 16

8. Market failure and collective action

Chapters 17 & 18

9. Poverty, safety nets and risk

Chapters 19, 20 & 21

10. Recessions, unemployment and inflation

Chapters 22, 23 & 24

11. Growth, investment and agriculture

Chapters 25, 26 & 27

12. Globalization, trade and the food system

Chapter 34 and review Chapter 8