

## ***NUTR 238 -- Economics for Food & Nutrition Policy*** **Syllabus for Spring 2017**

**Time & place:** Tues-Thurs 4:15-5:45 pm in Sackler Auditorium, except Jan 19, Mar 16 and May 4 in Jaharis Auditorium, and Apr 13 in Sackler B09

<b>Instructor:</b>	Will Masters	<b>Office:</b>	Jaharis Rm 251
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**Review sessions:** Fridays 12:00-1:30 (*see Trunk site for rooms*)  
and stop by rm 251, email or call for individual meetings at other times.

**TAs:** Rachel Gilbert (rachel.gilbert@tufts.edu, ph. 508.596.1415)  
Mehreen Ismail (mehreen.ismail@tufts.edu, ph. 848.228.6617)

**TA help sessions:** Tuesdays 3:00-4:00 (*see Trunk site for rooms*)  
or email for individual appointments.

**Tufts credit:** 1 credit (3 classroom hours per week over 15 weeks)

**Prerequisites:** Graduate standing, or permission of the instructor.

### **Course description**

This course equips students with the economic analysis methods most widely used in food and nutrition policy, to explain and predict food consumption and production choices, market interactions and government interventions in the food system. We use the analytical diagrams and data-visualization methods taught in standard courses on the principles of economics, applied to current news stories and data sources about food and nutrition problems in the United States and around the world.

### **Course objectives**

NUTR 238 helps students explain, predict and evaluate changes in food and nutrition using economic 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.

### **Textbook and supporting materials**

The traditional print textbook for this course is Paul Krugman and Robin Wells, *Economics* (Worth Publishers, 2nd ed., 2009). Used copies are available online for about \$10, as listed here: [www.allbookstores.com/book/compare/0716771586](http://www.allbookstores.com/book/compare/0716771586). Newer editions may be used instead but are not needed; some students don't use the printed text at all, although it does provide an extraordinarily clear and convenient way to review the concepts and methods presented in class.

Each classroom lecture and discussion session is supported by course content at our Trunk site, including slides and lecture videos available to review after each class. To see the same content presented in different ways, beyond the Krugman-Wells textbook some students also benefit from the brilliant Khan Academy videos available here: [www.khanacademy.org/economics-finance-domain](http://www.khanacademy.org/economics-finance-domain). Our class uses all of the concepts presented there under *microeconomics*, plus the first two topics of *macroeconomics* (GDP and inflation). Many of these concepts were first applied to food and nutrition in a classic text from 1983 entitled *Food Policy Analysis* by Timmer, Falcon and Pearson, now at: [www.stanford.edu/group/FRI/indonesia/documents/foodpolicy/fronttoc.fm.html](http://www.stanford.edu/group/FRI/indonesia/documents/foodpolicy/fronttoc.fm.html).

**Assignments and grading: weekly exercises, and cumulative exams or course project**

A series of eleven weekly assignments are designed to gradually build your economic-analysis skills. The first three are warm-up exercises to write in plain English, sketch economic analysis diagrams and downloadable data to compute the nutritional consequences of individual food choices. The next four exercises ask you to apply economic principles to news stories about current events in the food system, and the last four ask you to practice downloading and analyzing authoritative data about trends over time and disparities among countries. Each of these assignments is graded out of 5 points. Your score on the lowest one (or any missed assignment) will be dropped, for a total of 50 points accounting for half of the semester total.

The remaining 50 points are typically from midterm and final exams, which apply the skills built in your exercises to answer food and nutrition policy questions raised by recent news stories. The in-class midterm is worth 20 points and a three-hour final exam is worth 30 points. Both exams are like the news analysis exercises, asking you to draw and interpret the analytical diagrams needed to explain, predict and analyze current events in agriculture, food markets and dietary choices. Several previous exams and their answer keys will be available to practice doing this. Sketching and explaining these diagrams quickly is the standard skill used in professional life to understand and frame economic arguments. Specific questions will refer to recent news stories from the previous few months, but the analytical task remains similar from year to year and is readily practiced by answering previous years' questions under exam-like conditions.

The alternative to exams is a course project, for students who can and wish to devote more time than the exams require to investigating a specific topic. A first stage due in week 9 after Spring Break is given an indicative score, and then a final report plus presentation slides given a final score out of 45 points, with another 5 points for comments on other students' projects. Separate project guidelines are available for students considering this option. Doing a project is time-consuming but rewarding for those seeking to investigate a particular question in depth, with actual data. This can be especially valuable if that investigation helps guide your future career. The report itself may also provide a useful writing sample to support your job search.

Students should choose whether to take the exams or pursue a project in the first few weeks of class, by the time of the midterm in week 8 at the latest. The exam option is much less time consuming and covers a broader range of topics than a course project. Course projects also differ from exams in that they require downloading and transforming data to make original charts and tables, typically using Excel. That is an expanded version of the data analysis exercises, whereas the exam option focuses on the skills acquired through the news analysis exercises.

Whether you choose the exam option or the course project, letter grades for the course will be assigned holistically based on mastery shown in exams or the project plus consistent performance on the weekly exercises. For those choosing the exams, our final exam is cumulative and higher scores at that time will replace midterm results.

### **Penalties for late or incomplete assignments**

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

### **Classroom behavior and study practices**

Classroom discussion will be based on analytical diagrams and data visualizations. For you to use these methods it is essential to actively hand-draw your own figures with notations as they are discussed in real time. There is little need to write text in class. The main task is to sketch and annotate diagrams and charts based on the class slides, and participate in class discussion. For this reason, electronic devices should always remain out of sight so that class time can be devoted to hand-drawn notes and discussion.

After class, to complete each week's exercise and prepare for exams, the most important step is for you to practice redrawing each type of diagram as needed throughout the semester. You can then compare your sketches with the corresponding text and graphs in the slides and readings, redraw the diagrams repeatedly and write your own synthesis to summarize the class in your own terms. Videos of the slides with lecture audio are available at our Trunk site for you to watch and rewind as needed. You can also watch other lecturers present similar material: for analytical diagrams, the most famous is Salman Khan at:

[www.khanacademy.org/economics-finance-domain/microeconomics](http://www.khanacademy.org/economics-finance-domain/microeconomics),

and for data analysis about international trends the leading presenter is Hans Rosling:

[www.youtube.com/results?search\\_query=rosling&search\\_sort=video\\_view\\_count](http://www.youtube.com/results?search_query=rosling&search_sort=video_view_count).

**Academic conduct**

In brief: Education invites you to take the ideas of others and make them your own, so you are encouraged to read widely and to discuss class materials with other students, but any material you produce to show mastery of these ideas must be your own work. More specifically, each student is responsible for upholding the highest standards of academic integrity, as specified in the Friedman School's *Policies and Procedures* manual (<http://nutrition.tufts.edu/student/documents>) and Tufts University policies (<http://uss.tufts.edu/studentAffairs/documents/tuftsStudentHandbook.pdf>). 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.

**Accommodation 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 the Friedman School Assistant Dean of Student Affairs at 617-636-6719 to make arrangements for determination of 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**

<b>Week # and dates</b>	<b>Topic</b>	<b>Reading* (KW 2<sup>nd</sup> ed.)</b>	<b>Online lectures* (on Trunk site)</b>	<b>Exercises (due at 11:59 pm on date shown)</b>
Intro. Jan 19†	Introduction and housekeeping	None		
1. Jan 24+26	What is economics? How is it useful?	Ch. 1-2	Week 1	1. Personal essay (due Sun. Jan. 29)
2. Jan 31- Feb 2	Market equilibrium and social welfare	Ch. 3-4	Week 2 (a&b) + Drawing Videos	2. Hand-drawn diagrams (due Sun. Feb. 5)
3. Feb 7+9	Government regulation and taxes	Ch. 5-8	Week 3 (a&b)	3. Least-cost diets (due Sun. Feb. 19)
4. Feb 14-16	Consumer behavior and food demand	Ch. 9-12	Week 4 (a&b)	
5. Feb 21**	Consumer behavior and food demand (continued)			4. Food news analysis (due Sun. Feb. 26)
6. Feb 28- Mar 2	Farm production & food supply	Ch. 13	Week 5 (a&b) Week 6 (a&b)	5. Farm news analysis (due Sun. Mar. 5)
7. Mar 7-9	Market structure	Ch. 14-16	Week 7 (a&b)	6. Market news analysis (due Sun. Mar. 12)
8. Mar14+16†	Midterm review and midterm exam (in class on Thursday) <i>No new material – review &amp; summarize class slides &amp; exercises, take mock midterm</i>			
<b>Spring break</b> <span style="float: right;"><i>[If project option is chosen, stage 1 due Sun. Mar. 26]</i></span>				
9. Mar28+30	Market failure and collective action	Ch. 17-18	Week 9 (a&b)	7. Policy news analysis (Due Sun. Apr. 2)
10. Apr 4+6	Poverty, safety nets and risk	Ch. 19-21	Week 10 (a&b)	8. Poverty data analysis (Due Sun. Apr. 9)
11. Apr 11+13†	Recessions, unem- ployment & inflation	Ch. 22-24	Week 11 (a&b)	9. Macro data analysis (Due Sun. Apr. 16)
12. Apr 18+20	Growth, investment and agriculture	Ch. 25-27	Week 12 (a&b)	10. Global data analysis (Due Sun Apr. 23)
13. Apr 25+27	Globalization, trade and the food system	Ch. 34	Week 13 (a&b)	11. Food data analysis (Due Sun. Apr. 30)
14. May 2+4†	Review sessions during class time <i>No new material – review &amp; summarize class slides &amp; exercises, take mock final exam</i>			
15.	Final exam, tentatively Tues. May 9 <sup>th</sup> from 9:30 am to 12:30 pm in Jaharis Auditorium <i>[If project is chosen, complete report + presentation slides are due at final exam time.]</i>			

† These Thursday sessions (Jan 19, Mar 16, Apr 13 & May 4) will be in Jaharis; all others will be in Sackler.

\* Readings and online lectures are entirely optional. Readings provide a different presentation and perspective on each week's material, and online lectures permit reviewing class material more slowly.

\*\*On Th Feb 23, Monday schedule applies so there is no class & also no review session on Fri Feb 24<sup>th</sup>.

**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. Readings are optional, for background and reference on topics for which an additional perspective is helpful.

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

**Reading:** Krugman and Wells, Chapters 1 & 2

**Exercise:** #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: Market equilibrium and social welfare in the food system**

**Reading:** Krugman and Wells, Chapters 3 & 4

**Exercise:** #2. Hand-drawn diagrams

**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: Government regulation, taxes and subsidies in food markets**

**Reading:** Krugman and Wells, Chapters 5, 6, 7 & 8

**Exercise:** Begin work on #3, the least-cost diet exercise (due next week)

**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: Consumer behavior and food demand** (Tuesday only, no class on Thursday)**Reading:** Krugman and Wells, Chapters 9-12**Exercise:** #3. Least-cost diet exercise**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 5: Consumer behavior and food demand (continued)****Reading:** No new reading (continued from week 4)**Exercise:** #4. News analysis about consumer preferences and purchasing power**Objectives:** Upon completion of this week, students will be able to:

- Use change in budget constraints to analyze effects on dietary intake of programs that alter purchasing power, such as WIC, SNAP, school feeding etc.
- Use change in indifference curves to analyze effects on dietary intake of programs that alter preferences, such as advertising and behavior-change efforts
- Describe recent findings in behavioral economics, incorporating psychology and marketing to explain non-optimizing aspects of food consumption behavior

**Week 6: Farm production, food trade and market prices****Reading:** Krugman and Wells, Chapter 13**Exercise:** #5. News analysis about farm production, commodity trade and prices**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, and identify the market conditions needed for perfect competition in food supply
- Use the distinction between scale economies and supply response to assess producer, consumer and social welfare changes in perfectly competitive markets, in self-sufficient locations and in trade with other regions
- Describe current events in the agricultural sector using economics principles

**Week 7: Market structure and monopoly power****Reading:** Krugman and Wells, Chapters 14, 15 & 16**Exercise:** #6. News analysis about agribusiness and food companies**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: Midterm review / midterm exam in class on Thursday**

**Reading:** Nothing new -- review previous course slides and readings

**Exercise:** Redraw graphs, summarize notes and readings; take mock midterm exam

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

- Use economic principles to explain and predict consumption, production and economic welfare changes using graphical methods
- Describe the strengths and weaknesses of economics methods relative to other approaches to explain, predict and evaluate responses to current events

-- Spring break --

*For students who have chosen the project option, stage 1 is due at the end of the break, but can be submitted sooner for earlier feedback if desired.*

**Week 9: Market failure and collective action**

**Reading:** Krugman and Wells, Chapters 17 & 18

**Exercise:** #7. 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 10: Poverty, safety nets and risk**

**Reading:** Krugman and Wells, Chapters 19, 20 & 21

**Exercise:** #8. 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: Recessions, unemployment and inflation**

**Reading:** Krugman and Wells, Chapters 22, 23 & 24

**Exercise:** #9. Data analysis on income, jobs and food assistance programs

**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: Economic growth, agricultural transformation and dietary transition**

**Reading:** Krugman and Wells, Chapters 25, 26 & 27

**Exercise:** #10. Data analysis on economic growth and dietary transition

**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: Globalization, trade and the food system**

**Reading:** Krugman and Wells, Chapter 34 and review Chapter 8

**Exercise:** #11. Data analysis on world food markets and 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: Review and discussion**

**Reading:** Nothing new -- review previous course slides and readings

**Exercise:** Redraw graphs, summarize notes and readings; take mock final exam

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

- Use economic principles for the various purposes described in the course description and weekly objectives
- Describe those various applications of economic principles in terms of their common features, strengths and weaknesses
- Judge the applicability of economics principles for personal, career and social decisions

**Week 15: Final exam or course project completion**

*Exam time/place is tentatively Tuesday, 9:30-12:30am in the Jaharis Auditorium. For those doing the project option, final reports and presentation slides are due then as well.*