

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 after Spring Break is given an indicative score, and then a final report plus presentation slides given a final score out of 50 points. Detailed 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 less time consuming and covers a broader range of topics than a course project, applying pencil-and-paper analytical techniques as in news analysis exercises. Course projects require a literature review and then downloading and transforming data to make original charts and tables, as in the data 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 presented and discussed, in real time. Electronic devices should always be out of sight so that class time can be devoted to your own 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 class slides with lecture audio are available through our Canvas site to watch and rewind as needed. You can also watch other lecturers present similar material: for analytical diagrams, try the great [Salman Khan](#) and for data analysis about international trends check out the wonderful legacy of [Hans Rosling](#).

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 materials

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

Students who want to see economic principles presented in other ways can consult the great Khan Academy: www.khanacademy.org/economics-finance-domain under *microeconomics*, plus the first two topics of *macroeconomics* (GDP and inflation).

For any students who like traditional textbooks, the best explanations and examples are in Paul Krugman and Robin Wells, *Economics* (Worth Publishers). Used copies can be found at www.allbookstores.com/book/compare/1429251638, and are widely available at about \$10 for the 3rd edition (2012). The updated but not better 4th edition (2015) is also available at <http://www.allbookstores.com/book/compare/1464143846>.

Deep traditionalists will want to know that the first textbook applying many economic principles to agriculture, food and nutrition is *Food Policy Analysis* (1983), now at: www.stanford.edu/group/FRI/indonesia/documents/foodpolicy/fronttoc.fm.html

Course Topics & Assignment Schedule at a Glance

Week # and dates	Topic	Exercises (due at 11:59 pm on Sundays, date shown)
Intro. Jan 18†	Introduction and housekeeping	
1. Jan 23+25	What is economics? How is it useful?	1. Personal essay (Jan. 28)
2. Jan 30-Feb 1	Market equilibrium and social welfare	2. Hand-drawn diagrams (Feb. 4)
3. Feb 6+8	Government regulation and taxes	3. Least-cost diets (Feb. 18)
4. Feb 13-15	Consumer behavior and food demand	
5. Feb 20*	Consumer behavior and food demand (continued)	4. Food news analysis (Feb. 25)
6. Feb27-Mar1†	Agricultural production and food supply	5. Farm news analysis (Mar. 4)
7. Mar 6+8	Market structure and monopolies	6. Market news analysis (Mar. 11)
8. Mar13+15	Midterm review and midterm exam (in class on Thursday) <i>Nothing new – write summary of class slides & exercises, practice with past years' exams</i>	
Spring break <i>[If project option is chosen, stage 1 due Sun. Mar. 25]</i>		
9. Mar 27+29	Market failure and collective action	7. Policy news analysis (Apr. 1)
10. Apr 3+5*	Poverty, safety nets and risk	8. Global pov. data analysis (Apr. 8)
11. Apr 10+12†	Recessions, unemployment and inflation	9. Macroecon. data analysis (Apr. 15)
12. Apr 17+19	Agricultural development and the dietary transition	10. Diet trans. data analysis (Apr. 22)
13. Apr 24+26	International trade and the food system	11. Food trade data analysis (Apr. 29)
14. May1+3†	Review sessions during class time <i>Nothing new – write summary of class slides & exercises, practice with past years' exams</i>	
15.	Final exam, tentatively from 9:00 to noon in the Sackler auditorium on Friday, May 11th <i>If project is chosen, complete report + presentation slides are due at final exam time.</i>	

† Class on Jan 18, Apr 12 & May 3 will be in Jaharis; Mar 1 in Sackler B09; all others in Sackler auditorium.

*On Th Feb 22, Monday schedule applies so there is no class & also no review session on Fri Feb 23rd; also no review Fri. Feb 16th due to Global Food+ & Apr 27 due to Gershoff. Apr. 6 is moved to Sackler 316.

Summary of the weekly exercises

Our weekly exercises, together with the exams or course project, are designed to help you gradually build the skills needed to use economics in your professional life. Each exercise adds an additional skill by digging into a specific real thing, so as you practice economics you'll also be learning amazing facts about how policy choices affect agriculture, food and nutrition. Scores on each exercise count for 5 points and we drop the lowest, for a total of half the available points for the semester.

Introductory exercises:

The first set of exercises (1-3) introduce you to the three principal instruments in our toolkit: *writing* about economics, *drawing* analytical diagrams, and *transforming* economic data. After the first exercise you will keep writing throughout the semester, a few pages every week, to gradually practice the economics style of writing.

Ex. #1. Writing about economics: what does it mean to 'think like an economist'?

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' choices and the societal outcomes of interactions between people. (One takeaway: It's a lot easier to understand one's own choices than why other people do what they do.)

Ex. #2. Drawing analytical diagrams: how production affects consumption

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. (One takeaway: Paper is cheap, and all your sketched drafts are recyclable.)

Ex. #3. Transforming data: foods, nutrients and the least-cost diet

Assemble real data on food prices, the nutrient composition of each food, and your nutrient requirements for a healthy and active life, so as to calculate the least expensive way to meet your nutrient needs; then compare that with data from the FAO and national statistical services on what very low-income people actually eat. (One takeaway: Nutrient needs are rarely the primary driver of food choice.)

News analysis exercises:

The next set of exercises (4-7) deepen your skill drawing analytical diagrams. These diagrams capture the logic of economics, just like writing $H_2+O=H_2O$ captures the logic of chemistry. To practice applying economic logic to everyday life, we'll do four "news analysis" exercises in which you'll find two media reports about that week's topic and use economics to explain current events. Each builds on the others and is needed for either the exams or the course project.

Ex. #4. Consumption preferences and food demand

Draw indifference-curve diagrams to explain two recently reported changes in food demand, one change in income or purchasing power, and one change in habits or preferences. (One takeaway: Food choices are driven by many things other than price.)

Ex. #5. Agricultural production and food supply

Draw production-possibility diagrams to explain two recently reported changes in food supply, one change in natural conditions and one change in available technologies. (One takeaway: Agriculture is driven by many things other than price.)

Ex. #6. Market structure and monopoly power

Draw supply-demand diagrams with marginal revenue or expenditure curves to explain two recently reported changes in agribusiness or the food industry, where one company may (or may not) come to have monopoly power. (One takeaway: Prices depend on how people and companies interact, which we call ‘market structure’.)

Ex. #7. Food policy and politics

Draw supply-demand diagrams, one with and one without trade, to explain two recently reported changes in government policy, perhaps addressing an environmental externality or other market failure. (One takeaway: Policies can improve outcomes, but often have big side effects.)

Data analysis exercises:

The final set of exercises (8-11) build your quant skills for working with numbers. We won’t do stats to test any hypotheses, but will practice the more fundamental task of transforming data to see it through the language of charts and tables. To practice visualizing numerical things, we’ll do four “data analysis” exercises in which you’ll download what’s available, use Excel to transform into a useful form, and create a chart or table that allows you to describe the world.

Ex. #8. Global poverty and nutritional outcomes

Create tables that compare income levels and poverty, food consumption and nutritional status around the world using data from the World Bank.

Ex. #9. US macroeconomic conditions, diet quality and nutrition assistance

Create line graphs that trace economic fluctuations and changes in food expenditure as well as the Supplemental Nutrition Assistance Program (SNAP), using US national data.

Ex. #10. Dietary transition around the world

Create scatter plots that reveal cross-country patterns in obesity and consumption of packaged foods, using Euromonitor data on branded foods and beverages, and World Health Organization (WHO) data on obesity rates.

Ex. #11. International trade and the world food system

Create line graphs that put everything together, showing how production and consumption interact to drive international trade between countries, using global data from the Food and Agriculture Organization of the UN (FAOStat).

Course Topics, Assignment Schedule and Learning Objectives

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

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

Optional reading: Krugman and Wells, Chapters 1 & 2

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

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

Optional reading: Krugman and Wells, Chapters 3 & 4

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

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

Optional reading: Krugman and Wells, Chapters 5, 6, 7 & 8

Week 4: Consumer behavior and food demand (Tuesday only, no class on Thursday)**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

Optional reading: Krugman and Wells, Chapters 9-12**Week 5: Consumer behavior and food demand (continued)****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

Optional reading: Nothing new (continued from week 4)**Week 6: Farm production, food trade and market prices****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

Optional reading: Krugman and Wells, Chapter 13**Week 7: Market structure and monopoly power****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

Optional reading: Krugman and Wells, Chapters 14, 15 & 16

Week 8: Midterm review / midterm exam in class on Thursday

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

Optional reading: Nothing new

-- 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

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

Optional reading: Krugman and Wells, Chapters 17 & 18

Week 10: Poverty, safety nets and risk

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

Optional reading: Krugman and Wells, Chapters 19, 20 & 21

Week 11: Recessions, unemployment and inflation

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

Optional reading: Krugman and Wells, Chapters 22, 23 & 24

Week 12: Agricultural transformation and the dietary transition

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 diet transition

Optional reading: Krugman and Wells, Chapters 25, 26 & 27

Week 13: International trade and the food system

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

Optional reading: Krugman and Wells, Chapter 34 and review Chapter 8

Week 14: Review and discussion

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

Optional reading: Nothing new

Week 15: Final exam or course project completion

Exam time/place is tentatively Fri. May 11, 9:00-12:00 in the Sackler auditorium. For those doing the project option, final reports and presentation slides are due then as well.