

NUTR 238: Economics for Food & Nutrition Policy

Syllabus for Spring 2023

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NUTR 238: Economics for Food & Nutrition Policy

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1. The basics: what, who, when and where

Course objectives

NUTR 238 helps students use economic principles to explain, predict and evaluate changes in agriculture, food and nutrition. Our aim is to gain familiarity with analytical methods and data sources needed to:

- (1) identify causal relationships in and between production, consumption and trade using analytical diagrams that illustrate economic principles;
- (2) evaluate the business and social welfare consequences of changes in markets and policies including regulation, taxation and enforcement of property rights;
- (3) use data to compare outcomes in terms of poverty, inequality and disparities between groups, in relation to trends and fluctuations over time.

The course serves as a first introduction to economic principles through applications to agriculture, food and nutrition, and as an exploration of agriculture, food and nutrition through an economic lens. All methods are presented graphically using analytical diagrams and data visualization, building skills needed for professional life and more advanced classes.

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TAs: Ingrid Zhou (fangruo.zhou@tufts.edu)
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Class sessions: *Tu-Th 4:15-5:45pm* in the Jaharis Building, Behrakis Auditorium
 In-person students can use Zoom chat, at [934 108 75472](https://93410875472.zoom.us), passcode **FoodEcon**, where you can use a codename to type questions or comments anonymously.
 For students who cannot attend in person, classroom audio/video will be available via Canvas on Echo360.

Office hours: *Fridays noon-1pm*, Zoom only: [961 621 23288](https://96162123288.zoom.us), passcode: **FoodEcon**.
 These are optional help sessions, usually focused on each week's exercise.

Class timing: For easiest access, use the Canvas calendar feed to your own agenda.

Tufts credit: *3 credits*, defined as 3 classroom hours per week over 15 weeks. The baseline expectation for 3 credits is at least 6 additional hours each week (no outside reading, just exercises, discussion and either project or exams).

Prerequisites: *None*. The math we use is basic geometry, drawing lines and curves on a plane, and we do a lot of data visualization but no statistics or regression.

2. Context: a safe environment for learning and growth

Safety, diversity and inclusion

This class is for you. You belong here. As a school and in this class, we will do all we can to ensure that the course accurately represents the diverse experiences of all people, especially those whose lives often go unrecognized in society and in research. We will also do all we can to help you participate actively in this class, overcoming any barriers to participation and thereby create an academic climate built on diversity and inclusion.

Our success depends on your ability to participate. We offer many ways for you to share ideas within the class, and to let us know about barriers that we can help overcome.

If you notice obstacles of any kind, or believe that you or others were misrepresented, maltreated or disregarded in any way, please let us know. Your first point of contact for improving this or other classes is your instructor or teaching assistants, who can help in many ways within and outside the class. We can talk before or after each class session, or you can reach out for individual conversations at any time. If you have any concerns that we might not be able to solve, we encourage you to contact any of the school staff listed here:

<https://nutrition.tufts.edu/about/leadership>. If you observe or experience any potential discrimination or misconduct, channels for anonymous reporting are explained here: <https://oeo.tufts.edu/reporting>.

Accommodation of disabilities and other special circumstances

Many students' circumstances can be obstacles to learning. We have a long track record of success in helping students achieve their academic goals, but can do this only if students actively request the accommodations they need. University-wide policies are detailed here: <https://oeo.tufts.edu/policies-procedures/accommodation-policies>. Accommodations are routinely provided for nursing mothers, students with qualified service animals, students with sincerely held religious beliefs, and students with physical or academic disabilities. Your confidential point of contact for all accommodations is Matt Hast, the Friedman School Assistant Dean of Student Affairs, at 617.636.6719 or matthew.hast@tufts.edu. Since accommodations cannot be provided retroactively, students must contact Matt Hast at the very start of the semester.

Mental and physical health

Tufts University offers a variety of assistance to support students' health and wellness. If you feel sad, anxious, or maybe don't know what you are feeling, a first point of contact is the Boston campus Student Wellness Advisor who is paid by Tufts to listen, understand, and refer you to specific services as needed: <https://medicine.tufts.edu/student-life/wellness/health-wellness>. In some cases, the appropriate provider will depend on your health insurance plan as explained here: <https://nutrition.tufts.edu/students/health-services-insurance>. Tufts also offers strong support for students' spiritual and religious lives through the chaplaincy: <https://chaplaincy.tufts.edu>, and for physical activity with a [downtown gym](#) and other resources.

3. Academic conduct: rules of the road, for success in this class

The academic standards we use to foster learning are spelled out in the school's Policies and Procedures Manual (<https://nutrition.tufts.edu/about/policies-and-procedures>). A few additional notes are provided here to help you succeed in this class.

Academic integrity and plagiarism

Education happens when we take other peoples' ideas and make them our own. Successful learning calls requires academic integrity, through which you transform class content and other material into your own work. The most common violation of academic integrity is plagiarism, whereby a student falsely claims to have created something that they copied from elsewhere. Plagiarism is best avoided by acknowledging sources, recognizing that all of us speak and write in terms that echo what we have heard and read. For example in economics, we all draw the same diagrams, but we apply and interpret them in unique ways. Resources to help you work effectively without plagiarism are included in our library's great guides to [research and writing](#).

Academic conduct and climate

In this and other classes, learning is an exchange of ideas, connecting the dots between course content, your own experience, and the experiences of other students. We all have many shared values and beliefs, forming the common ground that holds us together. In the classroom it can be helpful to articulate those shared opinions, but it is especially important to hear dissent. Success depends on creating a climate of mutual respect and curiosity about each other and about the world. The phrase "campus climate" refers to inclusive practices for students with diverse backgrounds, especially marginalized or previously excluded groups, and also diverse viewpoints, for students with unusual or unpopular ideas. If we all think alike, no one can learn. If you have an idea that differs from what others are saying, we want to hear it!

Communication, making an effort, mistakes and skill-building

This class is designed to help you learn as much as you can, building skills from week to week. If you are unable to attend class or do activities on time for any reason, please reach out to me beforehand by email with a brief explanation of what you need. I can extend deadlines and will do my best to help you, but I can do that only if you send email as soon as possible with a subject line that tells me what's needed, and sufficient information for me to respond. The more effort you make in the class and in communicating with me, the more helpful and rewarding your experience will be. You are welcome to take the course lightly, and can succeed by being attentive in class and doing all activities within the target of nine hours per week (three in class, plus six for other work), but you might also love the content and spend more time on it. You will know you're succeeding not just from weekly feedback, but from aha! moments of insight, and noticing your own ability to do things faster and better. Each activity is designed to be just challenging enough for you to make, notice and fix mistakes. If you find yourself making no mistakes at all, or you don't fix the mistakes you make, you won't be learning. Beyond economics, this class teaches a variety of skills that will help you in many settings, most importantly the self-confidence to try new things and learn as you go.

4. Course content: active learning, one week at a time

This course is designed around active learning, in person and online. You can do fine in the class by completing each activity from day to day through the course site at canvas.tufts.edu.

If you've read this far in the syllabus, congratulations! Reading this and other documents found on Canvas will be rewarding, offering unusually detailed written explanations. Each document like this one starts with the essentials of what's needed, and then provides detailed guidelines and explanation of how and why that activity will help you.

This detailed syllabus and the other course documents are designed so that a quick scan of headings and paragraphs will tell you what's there, so you can return to it as needed later.

Outside reading

There is none. The class consists of each activity you find on Canvas, including class slides and assignment guidelines. The course content will help you find and use other information including news of current events, data and analyses of interest to you. Students who want to see our analytical diagrams explained differently (without food and nutrition content) can watch the great videos of [Salman Khan](#), or spend \$10 on the 2015 edition of the brilliant [Krugman-Wells textbook](#) (later editions are newer, but not better). For data analysis, some students may also want extra help with Excel, for which there are many videos and explanations online. For extra-ambitious students, the last pages of this syllabus have a section entitled *Journal Club* with links to recent research on each week's topic by Friedman faculty and others, and another section links to the traditional textbook I am writing entitled *Food Economics: From Agriculture to Health*.

Speaking up

During each class session in person, you are welcome to raise your hand at any time, and are also encouraged to open a zoom chat box on your phone (without joining audio!) so as to ask questions and make comments that way if you prefer texting to talking. You are also welcome to rename yourself so as to ask questions or make comments anonymously in the chat, and ensure maximum possible participation. We also have weekly discussion boards for each topic on Canvas for you to share comments and links, and many opportunities for conversation before or after class, as well as during the Friday help sessions.

Communicating clearly

My job is to help you, but I can do that only if you say what you need as soon as you need it. For me and most faculty, the best channel is email, with subject lines that say what you need. Subject lines should be specific, such as "What is XXX?", "Can I do YYY?". In an emergency you can just write "I need help", but it is much easier to help if you say "I need help with ZZZ". For most things please send a single email to me and all TAs simultaneously, so whoever gets to it first can reply-all and solve the problem as fast as possible, but if you need confidentiality you can email with one of us individually. The main thing is for you to communicate as early and as clearly as possible. I will respond as soon as you can, but if you email after a deadline or event it will be too late for me to grant an extension or help solve the problem.

5. Assignments, feedback and grading

The course is a sequence of activities, each designed to foster insight and help you practice the skills you will need to use economic principles in real life. The full set of assignments with numerical feedback is detailed below, in addition to which other written and verbal activity includes participation in each class session, optional weekly online discussion forums, an optional group discussion of that week's exercise each Friday at lunchtime, and individual conversations at other times.

Summary of numerical scores recorded in Canvas

Weekly Exercises (top 10 of 12, 5 pts each)	50 points
Project or exams	50 points
Midterm (20) & final (30) or Project report & slides (50)	
Total	100 points

Letter grades for this course will be assigned holistically based on mastery shown in the final exams or the project, plus consistent performance on the weekly exercises and class participation. Education is an [odyssey](#), in which each step matters but what counts the most is your peak achievements. In practical terms, the odyssey principle of grading means that weekly exercises all count equally and add up to one-half of your numerical score for the semester, and the other half is driven by peak achievement in the exams or a project. Of the twelve weekly exercises, the two with the lowest score will be dropped, so you can miss two without penalty. With exams a better score on the final replaces mistakes on the midterm, and with projects your initial score on the draft first phase will be replaced by a final score. Students who are unable to complete anything on time for any reason should notify me by email, or by phone or text if needed, *prior to the deadline*, with a brief explanation for why the extension is needed.

In this class the only feasible way to achieve high numerical scores is to actively participate in class and complete the weekly activities. Historically, every student who does that has earned roughly the same or higher grades than they usually get in other quantitative classes. Because there are no readings, group work or other time-consuming tasks, students who are attentive in class and then follow exercise instructions can readily complete the course with the standard six hours of homework in addition to three hours of class each week. Many of the students enrolled each year take that approach, but the class also offers many opportunities for much more discovery, analysis and learning each week, on whatever topics catch your attention.

After each week's classes, a series of twelve exercises help build your economist skills. The first two are warm-up exercises to start thinking about what economists actually do, and to see the connection between food choice and human nutrient requirements. The next six exercises apply economic principles to news stories about current events in the food system, and the last four practice downloading and analyzing authoritative data about trends over time and disparities among countries. Each of these assignments is scored out of 5 points. Two are dropped so only the top 10 are counted, for a total of 50 points. The remaining 50 points can be from either exams or a project option.

6. Career goals and study practices

The skills learned in this class are how to interpret observed outcomes as the result of economic principles drawn in analytical diagrams, how to obtain and transform data into meaningful charts and tables, and how to describe the results of accurately in plain English. These skills will be very useful in any career path. Students who also take a few other economics courses may get jobs with “economist” in the title, often doing more advanced things not in this class such as statistical estimation, hypothesis testing and empirical modeling.

Before spring break we focus on analytical diagrams. To complete each week’s exercise and prepare for the midterm exam, the most important step is for you to practice redrawing each type of diagram. These diagrams show the logic of causal mechanisms behind the data we see, just like diagrams used in nutritional biochemistry or other natural sciences. Practice drawing them many times yourself is key to understanding.

After spring break we focus on data analysis. To complete the last four weekly exercises, and the course project if you are doing one, you must download and transform data into your own original charts and tables using Excel. As with the analytical diagrams, success requires deliberate practice, catching and fixing mistakes and clearly writing up your results in plain English to explain what you discovered each week.

7. Choosing between exams or project option

Most students choose the exam option, which applies the skills learned through the exercises to answer food and nutrition policy questions raised by recent news stories. Students who have kept up in class and on the weekly exercises, and have then reviewed the whole story arc before each exam, will find the exams very straightforward. Both exams are like our news analysis exercises, asking you to draw the analytical diagrams used to explain, predict and evaluate changes in agriculture, food and nutrition. This is the standard skill that economists use to analyze individual choices and societal outcomes. Previous exams and their answer keys are available for practice. The questions refer to different scenarios but the analytical tasks are readily practiced by answering previous years’ questions under exam-like conditions.

A few students prefer the project option, which requires much more time than exams but allows you to do a deep dive into a specific topic of special interest to you. 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. This can be especially valuable if that investigation helps guide your future career, and you can use the report itself as a writing sample for job applications. The project options can be very rewarding but if you just want to do research in general and don’t have a topic in mind, the exam option is usually a better way to build skills because it covers all the topics. 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.

8. Schedule of topics and assignments at a glance

Week # and dates	Topic	Exercises (due at the end of Sunday, 11:59pm ET)
Intro. Jan 19	Introduction and housekeeping	1. Personal essay (Jan. 22)
1. Jan 24+26	What is economics? How can it help ag., food systems & nutrition?	2. Least cost diets (food prices & nutrient needs) (Jan. 29)
2. Jan31+Feb2	Food preferences and dietary intake	3. Food choice & demand news (indifference curves) (Feb. 5)
3. Feb 7+9	Agricultural production and food supply	4. Farm production & supply news (production possibility frontiers) (Feb. 12)
4. Feb 14+16	Predicting market prices and quantities	5. Markets & prices news (supply, demand & trade) (Feb. 19)
5. Feb 21*	Evaluating change in food markets	6. Externalities news (supply, demand & trade) (Feb. 26)
6. Feb28+Mar2	Market structure and monopolies	7. Market power news (marginal revenue & expenditure) (Mar 5)
7. Mar 7+9	Government policies and programs	8. Policy news (economic surplus) (Mar. 12)
8. Mar 14+16	Midterm review and midterm exam (in class on Thursday, Mar. 16) <i>Nothing new – write summary of slides & exercises, practice with past exams</i>	
Spring break [If project option is chosen, stage 1 due Sun. Mar. 26 at 11:59pm]		
9. Mar28+30	Poverty, safety nets and risk	9. Global poverty & nutrition data (tables) (Apr. 2)
10. Apr 4+6	Behavioral economics in the food system	10. Intl. dietary transition data (scatterplots) (Apr. 9)
11. Apr 11+13	Macroeconomics: Unemployment, recessions and inflation	11. U.S. poverty & nutrition data (line graphs) (Apr. 16)
12. Apr 18+20	Agricultural development and the dietary transition	12. Food trade data analysis (line graphs) (Apr 23)
13. Apr 25+27	International trade and the food system	<i>No exercise due – project work or exam prep instead, plus course evaluation due May 1st</i>
14. May 2+4	Review sessions during class time <i>Nothing new – redraw class slides & news analysis diagrams, practice past exams</i>	
15. May 9	Final exam (done online), tentatively Tuesday May 9 th from 4-7pm <i>If project is chosen, complete report + presentation slides are due at final exam time.</i>	

* No class on Feb 23 because Monday's schedule applies that day.

9. 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 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.

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

Describe one or more example(s) from your own life which might be explained using economic principles to describe your own decisions, the choices made by others, and the outcomes of interactions between you and the rest of society. *(One takeaway: Economics requires us to imagine other peoples' choices from their point of view.)*

Ex. #2. Transforming data: foods, nutrients and the least-cost diet

Use real data on food prices, the nutrient composition of each food, and a typical person's nutrient requirements for a healthy and active life, in an Excel template to calculate the least expensive way to meet nutrient requirements, and then write in a Word template about how those results compare to data from the FAO and national statistical services on what very low-income people actually eat. *(One takeaway: Food choices are related to nutrient needs, but influenced by many other factors as well.)*

News analysis exercises

The next set of six exercises (3-8) deepen your skill drawing analytical diagrams. These diagrams capture the logic of economics, just like writing H₂O in chemistry. To practice applying economic logic to everyday life, we'll do six "news analysis" exercises in which you'll find two media reports about that week's topic and use economics to explain current events.

Ex. #3. News analysis about consumption preferences and food demand

Indifference curves and budget lines

Draw indifference-curve diagrams (and demand curves) 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 income and preferences, not just price.)*

Ex. #4. News analysis about agricultural production and food supply

Production possibility frontiers

Draw production-possibility diagrams (and supply curves) 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 climate and technology, not just price.)*

Ex. #5. News analysis about markets and prices*Supply, demand, and trade*

Draw supply-demand diagrams to explain two recently reported changes in food supply, demand, and prices. One story should reflect food-related services that are not transported or traded over long distances; the second story should involve a food that is either imported or exported. *(One takeaway: Most farm products are traded, so local supply and demand have little effect on their price; it's local services whose prices are driven by local supply and demand.)*

Ex. #6. News analysis about environmental and social externalities*Economic surplus and non-market costs or benefits*

Draw supply-demand diagrams to explain two recently reported stories involving food-related externalities. One should be related to production, and the other should be related to consumption. *(One takeaway: Food systems often have consequences well beyond the people who are actively participating in the marketplace.)*

Ex. #7. News analysis about market structure and monopoly power*Market power and the role of competition in social welfare*

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 the structure of the market between them.)*

Ex. #8. News analysis about food policy and social welfare*Political economy and social choice to improve outcomes*

Draw supply-demand diagrams, one with and one without trade, to explain two recently reported changes in government policy. *(One takeaway: Policies can improve outcomes, but often have big unintended side effects.)*

Data analysis exercises

The final set of exercises (9-12) build your quant skills for working with numbers. We won't do statistics to estimate functions or test hypotheses, and won't run simulation models, but we 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 it into a useful form, and create a chart or table that allows you to describe the world. For help with Excel, please reach out to the TAs or consult the many resources available online.

Ex. #9. 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. *(One takeaway: Most things are never measured, so we need to look hard for data, read carefully about it, and use it creatively.)*

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. *(One takeaway: The transition to packaged and restaurant food is closely tied to rising obesity rates, with wide variation across countries.)*

Ex. #11. 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. *(One takeaway: Economic collapse during COVID differs from previous recessions in many ways, but has notable similarities: people with money stop spending it, so the government can step in to smooth economic activity and prevent mass unemployment.)*

Ex. #12. 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 worldwide data from FAOSTAT. *(One takeaway: Everything is connected. Economics offers a way to see interactions between different parts of the food system so that everything adds up, and you can see how farming, eating and trading influence each other, guided by our individual choices and government policies.)*

10. Learning objectives for each week

Intro Week: Introduction and housekeeping

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

Exercise: #2. Least cost diets

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

- Use indifference curves and budget constraints to derive demand curves from observed prices and quantities
- Distinguish between the income effect and the substitution effect, graphically and conceptually
- Assess changes to consumer welfare that come from changes to the food system
- Describe the strengths and limitations of optimization as an explanation for food consumption choices around the world

Week 2: Food preferences, information, and dietary intake

Exercise: #3. News analysis about food choice and demand

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

Week 3: Agricultural production and food supply

Exercise: #4. News analysis about farm production and 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, 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 4: Predicting food market prices and quantities (Tuesday only, no class on Thursday)**Exercise:** #5. News analysis about markets and prices**Objectives:** Upon completion of this week, students will be able to:

- Use elasticities to characterize consumer and producer response to changes in income, prices and production possibilities
- Explain why supply is the marginal cost curve and demand is the marginal benefit curve;
- Use supply and demand diagrams to explain observed outcomes and predict change; and
- Explore the supply and demand model with and without trade.

Week 5: Evaluating change in food market outcomes**Exercise:** #6. News analysis about environmental and social externalities**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 supply and demand diagrams with and without international trade to explain and predict prices, quantities and social welfare changes
- Describe the opportunities for collective action to provide public goods and the policy options to address externalities.

Week 6: Market structure and monopolies**Exercise:** #7. News analysis about 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 7: Government policies and programs**Exercise:** #8. News analysis about food policy and social welfare**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 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

-- 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: Poverty, safety nets, and risk

Exercise: #9. Data analysis about global 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 10: Behavioral economics in the food system

Exercise: #10. Data analysis about international dietary transition

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

- Describe recent findings in behavioral economics, incorporating psychology and marketing to explain non-optimizing aspects of food consumption behavior
- Use the distinction between income and substitution effects to assess consumer welfare changes in response to variation in prices and preferences

Week 11: Recessions, unemployment, and inflation

Exercise: #11. Data analysis about U.S. poverty and nutrition

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: Agricultural transformation and the dietary transition

Exercise: #12. Data analysis about food trade

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

Week 13: International trade and the food system

Exercise: No exercise due. Work on course project or prep for exam.

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

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

For those doing the project option, final reports and presentation slides are due at the same time as the final exam.

11. For people who like textbooks: my draft in progress

I had hoped to have a high-quality draft of my new textbook for you to read, but it's still rough. Ask me for the latest version if you'd like to see the draft. Coauthor is Friedman alum [Amelia Finaret](#), and title is ***Food Economics: From Agriculture to Health***. It's designed for use in many schools around the world, and to parallel our class:

Week	Topic	Exercises	Chapters
Intro.	Introduction and housekeeping	1. Personal essay	Ch. 1: Introduction
1.	What is economics? How is it useful?	2. Least cost diets	Ch. 2.1: Consumer choices
2.	Preferences and dietary intake	3. Food choice & demand (indifference curves)	Ch. 2.1: Consumer choices (continued)
3.	Agric. production and food supply	4. Farm production & supply (production possibility frontiers)	Ch. 2.2: Producer choices
4.	Predicting market prices & quantities	5. Markets & prices (supply, demand & trade diagrams)	Ch. 3: Societal outcomes
5.	Evaluating change in market outcomes	6. Environmental externalities (economic surplus)	Ch. 4: Social welfare, surplus and externalities
6.	Market structure and monopolies	7. Market power (marginal revenue & expenditure)	Ch. 5: Market power, monopsony & monopoly
7.	Government policies & programs	8. Policy news (counterfactuals)	Ch. 6: Collective action
8.	Midterm review and midterm exam -- <i>nothing new</i>		
9.	Poverty, safety nets and risk	9. Global poverty & nutrition data (tables)	Ch. 7: Poverty and risk
10.	Behavioral econ. in the food system	10. Intl. dietary transition data (scatterplots)	Ch. 8: Psychology and decision-making
11.	Macro: Recessions and unemployment	11. U.S. poverty & nutrition data (line graphs)	Ch. 9: Food in the macroeconomy
12.	Agric. development and diet transition	12. Food trade data analysis (line graphs)	Ch. 10: International development
13.	Global trade and the food system	<i>No exercise due – work on projects or exam prep instead</i>	Ch. 11: World food system; Ch. 12: The future of food

12. Journal club: frontiers of food economics

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 use the [Tufts VPN](#) for easy access to Tufts library subscriptions.

IMHO the best single source on current research is the detailed *Handbook* chapter here:

Masters, W.A., Finaret, A.B. and Block, S.A., 2022. [The economics of malnutrition: Dietary transition and food system transformation](#). *Handbook of Agricultural Economics*, vol. 6, edited by C.B. Barrett and D.R. Just. Amsterdam: Elsevier. <https://arxiv.org/abs/2202.02579>

For individual studies by 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, and what can least-cost diets reveal about food policy?

Finaret, A.B. and Masters, W.A., 2019. Beyond calories: The new economics of nutrition. *Annual Review of Resource Economics*, 11, pp.237-259.
<https://doi.org/10.1146/annurev-resource-100518-094053>

Bai, Y., Alemu, R., Block, S.A., Headey, D. and Masters, W.A., 2020. Cost and affordability of nutritious diets at retail prices: Evidence from 177 countries. *Food Policy*, p.101983.
<https://doi.org/10.1016/j.foodpol.2020.101983>

Week 2: 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>

Choudhury, S., Headey, D.D. and Masters, W.A., 2019. First foods: Diet quality among infants aged 6–23 months in 42 countries. *Food Policy*, 88, p.101762.
<https://doi.org/10.1016/j.foodpol.2019.101762>

Week 3: 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 4: Market equilibrium

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>

Bai, Yan, Elena N. Naumova, and William A. Masters, 2020. "Seasonality of diet costs reveals food system performance in East Africa." *Science Advances* 6(49): eabc2162.
<https://advances.sciencemag.org/content/6/49/eabc2162.abstract>

Week 5: Environmental externalities

Reinhardt, Sarah L., Rebecca Boehm, Nicole Tichenor Blackstone, Naglaa H. El-Abbadi, Joy S. McNally Brandow, Salima F. Taylor, and Marcia S. DeLonge, 2020. "Systematic review of dietary patterns and sustainability in the United States." *Advances in Nutrition* 11(4): 1016-1031 <https://doi.org/10.1093/advances/nmaa026>

Week 6: 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 7: Government policies and programs

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>

Week 8: Midterm review / midterm exam

Week 9: 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 10: Behavioral economics in the food system

Finaret, Amelia B. and William A. Masters, 2019. "Beyond calories: The new economics of nutrition." *Annual Review of Resource Economics*, forthcoming.
<https://doi.org/10.1146/annurev-resource-100518-094053>

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

Lividini, K. and Masters, W.A., 2022. Tracing global flows of bioactive compounds from farm to fork in nutrient balance sheets can help guide intervention towards healthier food supplies. *Nature Food*, 3(9), pp.703-715. <https://doi.org/10.1038/s43016-022-00585-w>

Bell, W., Lividini, K. and Masters, W.A., 2021. Global dietary convergence from 1970 to 2010 altered inequality in agriculture, nutrition, and health. *Nature Food* 2(3), pp.156-165.
<https://doi.org/10.1038/s43016-021-00241-9>