

Syllabus

NUTR 341: Environmental Economics of Food and Agriculture
Friedman School of Nutrition Science and Policy, Tufts University
Spring 2024

Tuesdays & Thursdays, 1:30 to 3:00 pm EST/EDT
Jaharis 105

Lectures: This course will consist of in-person lectures and discussions on Tuesdays and Thursdays. Unless otherwise announced in advance, attendance is expected at all class sessions; please be in touch with us if you anticipate problems with regular attendance.

Instructors' office hours:

Sean B. Cash

sean.cash@tufts.edu | Phone 617.636.6822

Office Hours: Tuesdays 12:00 – 12:50 pm and Thursdays, 4:15 – 5:10 pm, or by appointment
Office hours will be in Jaharis 127 except when announced as online only

Leah Costlow

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Office Hours: Thursdays 3:00 – 4:00 pm, or by appointment
Office hours will be in Jaharis 105 except when announced as online only

Tufts Graduate Credit: 3 SHUs

Prerequisites for taking this course: At least one course in microeconomics principles, such as NUTR 238, or consent of the instructors.

Note on class format: This class is officially in-person this semester, and it is our strong desire for students to be physically present in the classroom as much as possible. The quality of learning in this course also depends on maintaining predictable instructional formats and expectations. Class will switch temporarily to online-only formats when there are weather emergencies or if illness rates among students and staff are high. In any case: **please do not attend class** on any day that we are meeting in person that you are not feeling well. Email your instructors and we will excuse you from in-class participation and attempt to accommodate you in other ways as feasible. In the event that class must move online, you can join us at: <https://tufts.zoom.us/j/93666442449?pwd=eml3dk9FNESwY0w3YXJyVlZnNXBRZz09>.

Course Description: The primary goal of this class is to learn the tools and concepts necessary for economic analysis of a variety of environmental, natural resource, and agricultural issues, particularly with regard to environmental and resource use aspects of food production and consumption. Throughout the semester, we will be addressing a broad range of problems and issues in the context of microeconomic theory and methods. Microeconomics is the social science that deals with balancing our (seemingly unlimited) wants and needs within the limitations of our personal, social, and natural environments. It therefore provides useful frameworks for considering issues such as our use of land; how we invest in protecting the quality of our air, water, and soil; the impact of our food production decisions on other species; how food consumption decisions intersect with environmental concerns; and the effect of climate change on food production. A recurring topic in this class will be on why and when markets fail to ensure the quality of our environment, as well as how collective action, institutions, and market forces can be used to help address these failures.

This course is required for AFE students and is recommended for any Friedman student with an interest in economic aspects of the food/environment interface.

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| Course Objectives: Students who take this course will be able to: |
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- identify and explain key microeconomic concepts relevant to food production and the environment;
- apply these concepts to analysis of environmental and resource use challenges involving food production and consumption;
- understand how economic insights can be used in designing more effective policies and processes for protecting the environment and managing natural resources;
- understand and apply economic frameworks for measurement of social welfare impacts of environmental and agricultural policy changes;
- describe the approaches available for incorporating non-market benefits and costs into economic analyses; and
- develop a basic understanding of current economic research insights into questions of environmental protection, sustainability, and the food system.

Description of assignments, tests, and other required activities:
 Your grade in this class will be determined by problem sets, participation, and two exams. Points will be awarded for each assignment, and an overall course score will be calculated from the weights given below. Your overall course score will then be translated into a letter grade on the basis of “natural breaks” in the distribution of class grades.

Problem Sets: 40% of your grade will be based on four lengthy take-home assignments, submitted in hard copy by 1:29 PM EST/EDT on Thursdays (i.e., by the start of class) on **February 15th, March 7th, April 4th, and April 25th**. Each assignment will be distributed on Canvas approximately two weeks before it is due. You are encouraged to work in small groups on these problem sets, but each student is responsible for handing in their own answers, in their own words.

Teach-back: 10% of your grade will be based on your preparing and presenting a five-minute “teach-back” in which you apply an economic tool or concept learned the previous week to a current agricultural, environmental, or related issue at the start of a subsequent class. Each student will be assigned a slot. Additional details will be discussed the first day of class.

Exams: The first exam will be held in class on March 14, 2024 and is worth 20% of your grade. The second exam will be held remotely during the final exam period between Sunday May 5th and Thursday May 9th, 2024 and is also worth 20% of your overall grade. Additional information on the format, grading and content of the exams will be distributed prior to each exam.

Participation: Regular attendance in class is a necessary (but not sufficient!) condition for mastering this material and passing the course, and your active participation benefits your classmates as we learn from each other. 10% of your grade will be based on participation in discussion and in-class exercises.

Summary of Assignments and Grading

| Assignments | Grading Weight |
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| Problem Sets (4 total) | 40% |
| Teach-back | 10% |
| Exam I – March 14 th , 2024 | 20% |
| Exam II – May 5 th – May 9 th , 2024 | 20% |
| Participation | 10% |
| Total | 100% |

Penalties for late or incomplete assignments: No late assignments will be accepted and a zero grade will be recorded. If you think you may have difficulty completing a problem set on time, please ask us for an extension as early as possible. *No extensions will be granted less than 48 hours before*

an assignment is due except in emergency circumstances. We will try to accommodate busy schedules, but not poor planning.

Grading Questions: If you believe that an assignment or exam question was graded incorrectly, you are welcome to raise the issue with us. If you simply don't like your grade and come to argue with us for more points, you will probably find that there are better uses of your time. In any case, we will follow a simple rule: *We will not discuss any grade during the first day after the assignment has been returned.*

Course texts and Materials: The primary textbook for this course is *Environmental and Natural Resource Economics*, T. Tietenberg and L. Lewis (referred to as "T&L" in the reading lists on Canvas). We will use the 12th edition (2023). There will be required readings from this textbook on a regular basis. Copies are available for sale online, and this edition is available online from Tufts libraries. You may use the 11th edition only for certain chapters as noted in the weekly modules on Canvas. In the last two weeks of the course, you will also be asked to read several chapters from *Nudge: The Final Edition*, C. Sunstein and R. Thaler, 2021. All other readings will be made available on Canvas.

Since the material in this course builds on itself from week to week, it is important that you keep up with the readings as they are assigned. Assigned readings are to be completed *before* the relevant class meeting. It is impossible to participate fully in the discussions if you have not done the readings.

Inclusion and Sensitive Topics

It is our intent that students from all backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed by all as a resource, strength and benefit. It is also our intent to present materials and activities that are respectful of diversity across gender, sexuality, disability, age, socioeconomic status, ethnicity, race, national origin and culture. Your suggestions are encouraged and appreciated. Please let us know ways to improve the effectiveness of the course for you personally or for other students or student groups. To help accomplish this:

- If you have a name and/or set of pronouns that differ from those that appear in your official Tufts records, please let us know!
- If any of our class meetings conflict with your religious events, please let us know so that we can make arrangements for you.
- If you feel like your performance in the class is being impacted by your experiences outside of class – or dynamics within this class – please do not hesitate to come and talk with one of us. If you prefer to speak with someone outside of the course, the [Office of the Vice Provost for Institutional Inclusive Excellence](#) is an excellent resource.

Our approach to potentially sensitive topics in this class is to not shy away from those topics that are relevant to the topic of studies at the Friedman School. Such topics will necessarily include subjects such as values placed on things not traded in markets (including human lives), problems and approaches that have engendered controversial policies such as population growth, and discussions of the appropriate role of government in a variety of areas. Our goals in covering such material are to never choose a topic solely to be provocative, and to ensure that students in the class are familiar with how we approach both the analysis and interpretation of data on such topics. We always strive to be sensitive and respectful in how we approach such topics, and ask that all students in the class do the same.

Academic Conduct

School Policy on Academic Conduct: Academic integrity, including avoiding plagiarism, is critically important. Each student is responsible for being familiar with the standards and policies outlined in the Friedman School's *Policies and Procedures* manual (https://nutrition.tufts.edu/sites/default/files/documents-forms/2023-2024PoliciesandProceduresHandbook_0.pdf). It is the responsibility of the student to be aware

of, and comply with, these policies and standards. In accordance with Tufts University's policy on academic misconduct, violations of standards of academic conduct will be sanctioned by penalties ranging from grade reduction or failure on an assignment; grade reduction or failure of a course; up to dismissal from the school, depending on the nature and context of any infraction (<https://students.tufts.edu/community-standards/support-resources/academic-integrity-resources>).

Instructors' Philosophy on Misconduct: The material you submit to show mastery of the course material must be your own work. We take proper academic conduct seriously, as it is unfair to other students when academic misconduct is not addressed. The policy followed here is quite simple: Any plagiarism or cheating will result in us awarding a failing grade for the assignment and the class, and all violations will be reported to the Academic Dean of the Friedman School. As part of proper academic conduct, you must cite all sources, including generative AI tools as noted in more detail below.

Policy for Use of Generative AI

In this course, you may use generative AI tools for your learning, just as you can collaborate with your peers for things such as brainstorming, getting feedback, revising, or editing your own work. However, you may not submit any work generated by an AI platform as your own; this is a violation of Tufts' academic integrity standards (see link above). To help guide you in the use of AI in this course – consider the following guidelines:

1. Familiarize yourself with AI tools and remember that bias is embedded in the creation and in the output of these systems; you may encounter harmful language and ideas. AI platforms can produce inaccurate or false information with confidence (so called hallucinations, e.g., it frequently invents false references). Text from AI may closely mimic human knowledge, understanding, and even human emotions. When you create an account, the companies who own these tools often retain the rights to use your information and the content shared with them in a variety of ways.
2. Cite all AI tools when used or referred to in assigned work. See How to Cite ChatGPT from the APA & How to Cite Generative AI from the MLA.
3. Identify the way it contributed to your work. For example, you can include a statement that you asked an AI to “identify any grammatical or spelling errors” in your writing, or you used it to get started in thinking about topics for your paper. Any statement directly generated by an AI system should be in quotation marks.
4. If you have questions, please ask us.

Classroom Conduct and Disruptions: Because this class relies heavily on both lecture and group discussion, it is important that everyone be able to participate fully without disruption or distraction. Please make sure that all communications devices are silent and put away during class meetings, as even subtle interruptions are distractions to your classmates and your instructors. Reading and sending text messages should wait until after class. We reserve the right to ask anyone who is attending the class in body but not in mind to leave the meeting.

Accommodating Disabilities: Students with documented disabilities are entitled to academic and classroom-based adjustments and accommodations. The Assistant Dean of Student Affairs, Matt Hast, is available to assist you in addressing these needs and accessing relevant resources on campus. If you require accommodations in this class, please arrange to meet with us in office hours (or by appointment) during the first two weeks of the semester. To maintain the confidentiality of your request, please do not approach us before or after class to discuss your accommodation needs.

Contacting Your Instructors: Sean's drop-in office hours are held on Tuesdays from 12:00 to 12:50 pm and Thursdays from 4:15 to 5:10 pm. Leah will hold office hours on Thursdays from 3:00 to 4:00 pm. You should feel free to come by with any questions or comments you have. All office hours will be in person except when previously scheduled as online only.

All class announcements will be sent through Canvas. Please make sure your announcement notifications are turned on to be received immediately through email. Tufts' guidance on how to check and adjust your notification settings, and recommendations on useful settings, are available at <https://sites.tufts.edu/canvas/2017/09/08/notifications-recommendations-for-students/>. Canvas is also the primary location for all our course materials including slides, pre-recorded videos for asynchronous

viewing, handouts, and additional readings. Please do not use email to submit any assignments unless specific arrangements have been made to do so.

We ask that you post most questions regarding the course material on Canvas discussion threads so that all your colleagues can also benefit from hearing the question and response, or bring it up during class or office hours. Please avoid sending broad requests for assistance over email. For example, "How do I answer this week's assignment?" is a short question that requires a long answer that you probably won't receive over email. Of course, email is great for any administrative questions you may have, or anything of a personal nature. Please include both Sean and Leah on course-related emails to ensure a prompt response, unless you prefer to contact one of us in particular.

Course & Assignment Schedule

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| W1: January 17-19 | Introduction: Models, limits, hungry workers, and dead economists |
| W2: January 22-26 | Optimists and pessimists (more hungry workers and dead economists), Market successes and market failures <u>Available:</u> Problem Set 1 distributed |
| W3: January 29-February 2 | Market successes and market failures; environmental externalities; public goods and the commons |
| W4: February 5-9 | Normative decision-making and evaluation of trade-offs; valuing the environment: Methods, strengths, and the “ick” factor |
| W5: February 12-16 | Valuing the environment and normative decision-making <u>DUE:</u> Problem Set 1 due February 15 th <u>Available:</u> Problem Set 2 distributed |
| W6: February 19-23 | Use it and lose it: Non-renewable resources, dynamic efficiency, definitions of sustainability, and sustainable consumption <i>No class or office hours on Thursday, February 22nd – University follows a Monday class schedule</i> |
| W7: February 26 - March 1 | Land use and agricultural production <u>Guest lecture</u> by Carol Ramos, SUNY Buffalo (Thursday February 29 th) |
| W8: March 4-8 | Forestry management <u>Guest lecture</u> by Dr. Andrew Muhammad, University of Tennessee (Tuesday March 5 th) <u>DUE:</u> Problem Set 2 due March 7 th <u>Available:</u> Problem Set 3 distributed |
| W9: March 11-15 | <i>Catch-up and examination</i> Exam 1 – in class March 14 th |
| March 18-22 | <i>Spring break – no class</i> |
| W10: March 25-March 29 | Water use: quantity and quality issues |
| W11: April 1-5 | Climate change: policy analysis & impacts on agriculture and food quality <u>DUE:</u> Problem Set 3 due April 4 th <u>Available:</u> Problem Set 4 distributed |
| W12: April 8-12 | Fisheries and Recycling <u>Guest lecture</u> by Gretchen Carey, Republic Services and MassRecycles (Thursday, April 11 th) |
| W13: April 15-19 | Consumer behavior and consumer behavior research in agriculture, food, and environment; environmental impacts of consumer food choice; Economics and food movements: Ensuring food sufficiency, environmental quality, and happiness in the long run. <u>Guest lecture</u> by Katherine Fuller, Friedman School (Tuesday, April 18 th) |
| W14: April 22-26 | Behavioral economics: nudging consumers in the right direction for health and sustainability. Class wrap-up <u>DUE:</u> Problem Set 4 due April 25 th |
| April 29 – May 3 | April 29 (Monday): Last day of spring semester classes; May 1-2: Reading Period |
| May 6 – 10 | Exam II – online, May 5 th to May 9 th |

A course outline with learning objectives and tentative reading schedules is available in the modules section of Canvas. The final reading schedule for each section will be announced approximately two weeks in advance on Canvas and in class.

This schedule is subject to modifications at the discretion of the instructors. In fact, it is almost certain to change.