

Syllabus

NUTR 341: Environmental Economics of Food and Agriculture

Friedman School of Nutrition Science and Policy, Tufts University

Spring 2022

**Tuesdays and Thursday, 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.

Office hours:

Professor: Sean B. Cash

sean.cash@tufts.edu | Phone 617.636.6822

Office Hours: Tuesdays 12:00 – 12:50 pm and Thursdays, 4:00 – 4:50 pm, or by appointment

Office hours will be in Jaharis 127 except when announced as online only

<https://tufts.zoom.us/j/99707426275?pwd=OVh3ZEJkckxjN3ZmT1gydmYxN0FWQT09>

Teaching Assistant: Leah Costlow

leah.costlow@tufts.edu

Office Hours: Tuesdays 3:00 – 4:00 pm, or by appointment

Office hours will be in Jaharis 105 except when announced as online only

tufts.zoom.us/my/lmcostlow

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 instructor.

Special note for Spring 2022: The Friedman School of Nutrition Science and Policy is officially in-person this semester, and it is our strong desire to be meeting in the classroom as much as possible. Of course, we must also prioritize our collective health and be mindful of the ever-changing risks posed by Covid-19, especially as we start this semester with high transmission rates of the Omicron variant in Boston and across the country. The quality of learning in this course also depends on maintaining predictable instructional formats and expectations. Our approach will therefore be to be in-person whenever feasible, and to switch temporarily to online-only formats if positivity 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 order to maximize safety and assess the rate of transmission in the Friedman community our first day of class (Thursday, January 20) will be held online only, and we will have a remote activity on Tuesday, January 25. Starting on Thursday, January 27, we intend to be in-person for all future meetings unless otherwise noted. We ask for your patience and understanding if there are changes in plans.

On any days that we meet online instead of in-person, you can join us at

<https://tufts.zoom.us/j/91558510958?pwd=K2wwYmhKRkR0Q21uZmJyWGtmM1h3UT09>.

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.

Course Objectives: Students who take this course will be able to:

- 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, tentatively due on by 1:29 PM EST/EDT on Thursdays (i.e., by the start of class) on **February 10th, March 3rd, March 31st, and April 21st**. 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 17th, 2022 and is worth **20%** of your grade. The second exam will be held during the final exam period on Tuesday, May 10th, 2022 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. **10%** of your grade will be based on participation in discussion and in-class exercises.

Summary of Assignments and Grading

Assignments	Grading Weight
Problem Sets (4 total)	40%
Teach-back	10%
Exam I – March 17 th , 2022	20%
Exam II – May 10 th , 2022	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 me 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*, 11th edition, T. Tietenberg and L. Lewis, 2018 (referred to as "T&L" in the reading lists on Canvas). There will be required readings from this textbook on a regular basis. Copies are available for sale online. A copy is also on reserve at the Hirsh Library as well as in the student lounge on the first floor of Jaharis. 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, please do not hesitate to come and talk with one of us. If you prefer to speak with someone outside of the course, Dr. Rob Mack, Associate Provost and Chief Diversity Officer, 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 (<http://nutrition.tufts.edu/student/documents>). 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 (<http://students.tufts.edu/student-affairs/student-life-policies/academic-integrity-policy>).

Instructor's Philosophy on Misconduct: The material you submit to show mastery of the course material must be your own work. I 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 my awarding a failing grade for the assignment and the class, and all violations will be reported to the Academic Dean of the Friedman School.

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 me. Reading and sending text messages should wait until after class. I 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 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 me 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 me before or after class to discuss your accommodation needs.

Contacting Sean: My drop-in office hours are held on Tuesdays from 12:00 to 12:50 pm and Thursdays from 4:00 to 4:50 pm. You should feel free to come by with any questions or comments you have. Leah will hold office hours on Tuesdays from 3:00 to 4:00 pm. 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/>. The Canvas site 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.

Course & Assignment Schedule

W1: January 20-21	Introduction: Models, limits, hungry workers, and dead economists
W2: January 24-28	Optimists and pessimists (more hungry workers and dead economists), Market successes and market failures; <u>Available</u> : Problem Set 1 distributed <i>No class meeting on Tuesday, January 25 – please watch pre-recorded video and engage in modeling assignment</i>
W3: January 31-February 4	Market successes and market failures; environmental externalities; public goods and the commons
W4: February 7-11	Normative decision-making and evaluation of trade-offs; valuing the environment: Methods, strengths, and the "ick" factor <u>DUE</u> : Problem Set 1 due
W5: February 14-18	Valuing the environment and normative decision-making <u>Available</u> : Problem Set 2 distributed
W6: February 21-25	Use it and lose it: Non-renewable resources, dynamic efficiency, definitions of sustainability, and sustainable consumption Required Attendance at Wednesday, February 23rd Friedman Speaker Series – Dr. Rashid Sumaila, University of British Columbia <i>No class or office hours on Thursday, February 24th – University follows a Monday class schedule</i>
W7: February 28 - March 4	Land use and agricultural production <u>Guest lecture</u> by Nayla Bezares, Tufts University (Thursday, March 3) <u>DUE</u> : Problem Set 2 due
W8: March 7-11	Forestry management <u>Guest lecture</u> by Dr. Andrew Muhammad, University of Tennessee (Tuesday, March 8) <u>Available</u> : Problem Set 3 distributed
W9: March 14-18	<i>Catch-up and examination</i> Exam 1 – in-class on Thursday, March 17
March 21-25	<i>Spring break – no class</i>

W10: March 28- April 1	Water use: quantity and quality issues <u>Guest lecture</u> by Leslie Sanchez, Tufts University (in-class or pre-recorded TBD) <u>DUE</u> : Problem Set 3 due
W11: April 4-8	Climate change: policy analysis & impacts on agriculture and food quality <u>Guest lecture</u> by Dr. Gilbert Metcalf, Tufts University (Thursday, April 7) <u>Available</u> : Problem Set 4 distributed
W12: April 11-15	Fisheries <u>Refer back to</u> Friedman speaker series visit by Dr. Rashid Sumaila, University of British Columbia
W13: April 18-22	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 Dr. David Ortega, Michigan State University (Tuesday, April 19) <u>DUE</u> : Problem Set 4
W14: April 25-29	Behavioral economics: nudging consumers in the right direction for health and sustainability. Class wrap-up
May 2-6	May 2 (Monday): Last day of spring semester classes; May 3-5: Reading Period
May 9-13	Exam II – Tuesday, May 10 th , 1:30 – 3:30 pm

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 instructor. In fact, it is almost certain to change.