

# ECON 410: Intermediate Microeconomics

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Class Hours: MoTuWeThFr 11:30 AM - 1:00 PM

Class Room: Gardner Hall 309

Office Hours: MoWeFr 3:00 PM - 4:00 PM

Web: [noahlyman.com/teaching.html](http://noahlyman.com/teaching.html)

Recitation Hours: TuTh 1:30 PM - 2:45 PM

Recitation Room: Gardner Hall 309

Office: Gardner Hall 410

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## Course Description

This course in intermediate microeconomics focuses on understanding consumer behaviour, producer behaviour, and how markets operate. This course is divided into the following three topics:

- *Consumer theory*: How individuals optimally make decisions in the face of scarcity and how these decisions vary in response to changes in the economic environment.
- *Firm Theory*: How firms optimally make decisions in the face of scarcity and how these decisions vary in response to changes in the economic environment.
- *Market Organization*: How perfectly competitive, monopolistic, and oligopolistic markets are organized and the outcomes of these markets.

## Course Goals

My teaching goals for this course are as follows:

1. Develop comfort with the basics of constrained optimization and apply them in the analysis of economic decision making.
2. Understand what *rationality* means in economics.
3. Solve utility maximization problems using techniques such as the Lagrangian approach, bang per buck, etc.
4. Derive demand functions in the context of consumer and producer theory. Understand the use of *comparative statics* and what they teach us about the preferences of consumers.
5. Discuss how uncertainty and preferences over risk impact optimal decision making in situations including but not limited to: employment and schooling decisions, the consumption

of health care, and portfolio analysis.

6. Discuss how various policies affect firms' abilities to produce and the implications for prices faced by consumers.
7. Distinguish between different forms of market organization and their implications for social welfare.

## Learning Objectives

Upon successfully completing ECON 410, students should be able to do the following:

1. Remember key concepts and objects in microeconomics including but not limited to: marginal utility, bang per buck, optimality, demand functions, expectations, returns to scale, and social welfare.
2. Understand the basic mechanics of constrained optimization techniques and their use in the context of economic decision making.
3. Apply the tools of constrained optimization and probability theory to determine optimal decisions in a wide variety of economic scenarios.
4. Rigorously analyze the decision making of both consumers and firms using the key tools and concepts from microeconomic theory.
5. Use microeconomic theory to evaluate the consequences of various policies on individual and societal well-being.
6. Creatively develop problem solving strategies and policy suggestions relating to consumer and firm decisions.

## Prerequisites and Requirements

ECON 101 and one of MATH 152, 231, STOR 112, or 113.

## Course Materials

- **Supplemental Textbooks & Reading Materials:** I will not directly follow a specific textbook, but for supplemental study material and practice problems I suggest the following:
  - For relatively simple coverage of the material: *Microeconomics* - David Besanko and Ronald Braeutigam
  - For a slightly more rigorous coverage of the material: *Intermediate Microeconomics with Calculus: a Modern Approach* - Hal Varian
  - For those curious about microeconomics at the graduate level: *Microeconomic Theory* - Andreu Mas-Colell, Michael Whinston and Jerry R. Green

- **Sakai:** All announcements, materials, assignments, grades, etc. will be posted on the course's Sakai site. Please visit [sakai.unc.edu](https://sakai.unc.edu).

## Course Content

### Section 1: Introduction and Math Review

- Preview of the course
- Algebra, calculus, and constrained optimization

### Section 2: Consumer Theory

- Preferences and utility
- Budget constraints
- Utility maximization
- Demand functions and comparative statics
- Income and substitution effects
- Uncertainty

### Section 3: Producer Theory

- Production
- Cost minimization
- Input demand functions
- Cost functions

### Section 4: Market Structure

- Perfect competition
- Monopoly
- Game theory & Oligopoly

## Assessments

The following items will contribute to your overall grade:

- **Problem Sets (20%):** There will be 8 problem sets assigned throughout the semester. Each problem set will be due on Gradescope/Sakai at 11:59 PM of the due date specified in the course schedule below. Answer keys will be posted on Sakai 16 minutes later at 12:15 AM, so late work will not be accepted. Please see below for problem set assignment and due dates.

- **Recitation** (5%): As part of the course, you are required to register for a recitation section. Recitation attendance is required. Your recitation grade will be computed as:  $\frac{\#sections\ attended}{\#sections\ scheduled}$ . If you have a University Approved Absence, please let me know so that we may plan accordingly.
- **Midterms** (45%): There will be two midterms in the class. For each student, the midterm with the lowest score will account for 15% of their final grade while the midterm with the highest score will account for 30% of their final grade. Each student is allowed to bring a standard 3 × 5 inch index card with notes (front & back) to reference during the exam. The notes must be in your own handwriting, and students cannot share note cards during the exam. Students are also permitted to bring a basic four-function calculator to use during the exam. Scientific and financial calculators are not permitted. If you are unsure about whether your calculator is acceptable, please check with me before the date of the exam.
- **Final Exam** (30%): There will be one final exam at the end of the semester. The final exam will be cumulative. Just like for the midterms, students are permitted to bring a 3 × 5 inch index card and calculator to use during the exam. Please see below for the final exam date.

The UNC grading scale will be used. I reserve the right to curve grades if needed, but it will only ever be in the benefit of the student. The table below shows the grading scale, which corresponds to the traditional UNC undergraduate grading scale. To read the table, the percentage in each cell corresponds to the cut-off (or minimum percentage) for each letter grade minus/neutral/plus combination. These values are *inclusive*. So an A- corresponds to a percentage greater than or equal to 90% and *strictly less than* 93%. A B+ corresponds to a percentage greater than 87% and *strictly less than* 90%. And so on.

Cut-Offs For Letter Grades			
Letter Grade	( - )	( )	( + )
A	90%	93%	NA
B	80%	83%	87%
C	70%	73%	77%
D	NA	60%	65%
F	NA	0%	NA

## Course Policies

### Communication Channels

Feel free to contact me via email with any questions. I will try to respond as soon as possible. If I do not respond within twenty-four hours, feel free to send a follow-up email. When addressing me, "Noah" is fine. I am not a professor (only a graduate student), and I am not yet a doctor.

Please make sure to notice the inference from the communication policy time frame. *I am not obligated to respond to emails regarding assignments that are sent within twenty-four hours of the deadline.* There are two reasons behind this policy. The first is for your benefit as a

student. Digesting the material can take much longer than anticipated and you must plan your time accordingly. The second reason behind the policy is that I am also busy and a student. I have deadlines and obligations and will not always be available to address questions on short notice.

### **During Class**

Students should come to class having reviewed the day's slides beforehand. During lecture, questions and discussion are strongly encouraged. Cell phones and other devices not being used for class and/or note-taking should be silenced and put away during the class. Students are expected to not have tabs/browsers open that do not relate to the lecture.

### **Recitation Sections**

You are required to register for one recitation session for this course. As stated previously, recitation attendance is required as part of your grade. While the focus of the lectures will be to foster an understanding of the material, the recitations will be devoted largely towards applications and examples. Recitation problems are a very good signal of what exam problems will look like, so attending recitations is vital for exam preparation. If you have a University Approved Absence, please let me know so that we can make plans accordingly.

### **Submitting Assignments**

Each problem set will have a multiple choice component and a long form component. Multiple choice answers will be submitted under the "Tests & Quizzes" tab on the Sakai site. Long form answers will be submitted in Gradescope. You will receive an email with instructions for setting up your Gradescope account at [www.gradescope.com](http://www.gradescope.com).

### **Typos**

As stated earlier, I encourage you to look through the slides before class. If you find any typos in the slides (prior to us going through said slides in class), email me. If I verify that it is indeed a typo, I will give you 3 extra points on the next problem set. Same goes for problem sets and practice problems: if you find a typo in either of these, and I verify that it is in fact a typo, I will give you 3 extra points on the next problem set. This is mainly to incentivize you to look carefully through the fine details when studying the course material.

### **Regrade Policy**

Regrading requests must be submitted via Gradescope within **48 hours** of the assignment being returned.

### **Lecture Attendance Policy**

**In-person** lecture attendance is **strongly** recommended, but not required as part of your grade. Not attending lecture will hurt both your grade and your understanding of the course. Lectures will primarily be spent going through slides. During lectures, I will share my slides via Zoom.

This is intended for students who face pre-communicated circumstances preventing them from attending in person. Those who have the opportunity to attend lectures are expected to take full advantage of it, as virtual attendance is not a perfect substitute for in-person attendance.

### **Academic Integrity and Honesty**

You are required to follow the UNC Honor Code as stated. If you are unfamiliar with the honor code, please see me or visit: <https://catalog.unc.edu/policies-procedures/honor-code/>. Any violations of the honor code will be reported accordingly.

### **Accommodations for Disabilities**

UNC accommodates reasonable requests for students with learning disabilities, physical disabilities, mental health struggles, chronic medical conditions, temporary disability, or pregnancy complications, all of which can impair student success. See the ARS website for contact and registration information: <https://ars.unc.edu/about-ars/contact-us>.

### **Counseling and Psychological Services**

CAPS is committed to addressing the mental health needs of the UNC community. Please do not hesitate to reach out: <https://caps.unc.edu>

### **Discrimination and Title IX**

I value the perspectives of individuals from all backgrounds reflecting the diversity of our students. I broadly define diversity to include race, gender identity, national origin, ethnicity, religion, social class, age, sexual orientation, political background, and physical and learning ability. I strive to make this classroom an inclusive space for all students. Please let me know if there is anything I can do to improve, I appreciate suggestions.

Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Please contact the Director of Title IX Compliance (Adrienne Allison - [Adrienne.allison@unc.edu](mailto:Adrienne.allison@unc.edu)), Report and Response Coordinators in the Equal Opportunity and Compliance Office ([reportandresponse@unc.edu](mailto:reportandresponse@unc.edu)), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators ([gvsc@unc.edu](mailto:gvsc@unc.edu); confidential) to discuss your specific needs. Additional resources are available at [safe.unc.edu](http://safe.unc.edu).

### **Preferred Name & Preferred Gender Pronouns**

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records.

## Additional Resources

- **The Learning Center:** The UNC Learning Center is a great resource both for students who are struggling in their courses and for those who want to be proactive and develop sound study practices to prevent falling behind. They offer individual consultations, peer tutoring, academic coaching, test prep programming, study skills workshops, and peer study groups. If you think you might benefit from their services, please visit them in SASB North or visit their website to set up an appointment: <http://learningcenter.unc.edu>.
- **EconAid Center:** Additional help can be obtained through the EconAid Center. More information can be found at <https://econ.unc.edu/undergraduate/econaid/>.

## Syllabus Changes

The professor reserves the right to make changes to the syllabus, including problem set due dates and test dates. These changes will be announced as early as possible.

## Important Dates

Please check the registrar's page for important dates: add/drop, breaks, course final, etc.

- Wednesday, May 17, 2023: First day of class
- Thursday, May 18, 2023: Last day to add a class
- Friday, May 19, 2023: Last day to drop a class (no record)
- Monday, May 29, 2023: Memorial day, no classes held
- Friday, June 2, 2023: Last day to drop a class (on record)
- Sunday, June 18, 2023: Last day to withdraw
- Monday, June 19, 2023: Juneteenth, no classes held
- Wednesday, June 21: Reading day, no classes held
- Thursday, June 22, 2023: Final exam (11:30 am - 2:30 pm)

## Course Schedule

<b>Date:</b>	<b>Lesson:</b>	<b>Assignment:</b>	<b>Due Date:</b>
5/17	Introduction & Math Review	PS 1 Assigned	
5/18	Math Review		
5/19	Preferences & Utility	PS 2 Assigned	PS 1 Due
5/22	Preferences & Utility		
5/23	Budget Constraints/Utility Maximization	PS 3 Assigned	PS 2 Due
5/24	Utility Maximization		
5/25	Demand Functions		PS 3 Due
5/26	<b>Midterm 1</b>		
5/29	<b>Memorial Day - No Class</b>		
5/30	Income & Substitution Effects	PS 4 Assigned	
5/31	Income & Substitution Effects		
6/1	Uncertainty	PS 5 Assigned	PS 4 Due
6/2	Uncertainty		
6/5	Production	PS 6 Assigned	PS 5 Due
6/6	Cost Minimization		
6/7	Cost Minimization		
6/8	Input Demand		PS 6 Due
6/9	<b>Midterm 2</b>		
6/12	Perfect Competition	PS 7 Assigned	
6/13	Perfect Competition		
6/14	Monopoly	PS 8 Assigned	PS 7 Due
6/15	Monopoly		
6/16	<b>Juneteenth - No Class</b>		
6/19	Game Theory		PS 8 Due
6/20	Game Theory		
6/22	<b>Final Exam: 11:30 am - 2:30 pm</b>		