

Fall 2021

Prof. Janet Kohlhase  
University of Houston

ECON 7341  
MICROECONOMIC THEORY I

Class meets TTh 2:30-4pm CDT in 108 McElhinney  
TA session meets Fridays 11:30am-1:00pm CDT in 115 McElhinney

**Office:** 201B McElhinney (M)  
**hours:** TTh 4-5pm (online preferred) and by appointment 713-743-3799  
**email:** jkohlhase@uh.edu  
**web pages:** <http://www.uh.edu/~kohlhase> (general information)  
<http://www.uh.edu/blackboard> (class website, use Blackboard Learn;  
password access; also available via AccessUH)

**TA:** The teaching assistant for the course is Yujie Zhang, a second year Ph.D. student in economics, office 203A McElhinney Hall (M), email yzhang187@uh.edu, office hours by appointment, online preferred.

**Overview:** This course is the first in a sequence of two advanced microeconomic theory courses offered in the Ph.D-level graduate economics curriculum at the University of Houston. This course provides an in-depth coverage of the modern microeconomic theory of economic choices made by individual consumers and firms. The course also examines non-strategic markets such as perfect competition (both partial and general equilibrium versions) and monopoly. Topics covered include special classes of preferences and production functions, choice under uncertainty, measures of welfare at various levels—consumer, one market, and many markets in general equilibrium. The course uses mathematical methods typically used in microeconomic theory such as optimization, constrained optimization (including the Kuhn-Tucker Theorem), the envelope theorem, and comparative statics. The second micro course (Econ 7342) will develop models of asymmetric information, strategic behavior and interactions among agents and groups of agents.

**Logistics:** The Micro 1 class is intended for person-to-person instruction. Zoom will occasionally be used as needed. The teaching assistant plans to use Teams for her TA sessions. Exams are planned to be taken in person, but you should be prepared to take exams remotely if necessary.

What does that mean for you? You should download video conferencing software to your devices for both Zoom and Teams. You also must have a webcam so that you can participate synchronously and to be monitored while you take exams. You also should have a high-quality scanner to copy your exams and problem sets to load to Blackboard or Teams or to email to the TA.

Class time consists of two parts, lectures and TA sessions. The lectures are held TTh 2:30-4pm CDT and are taught by me. The TA sessions are held on Fridays from 11:30am-1pm

in room 115M and are taught by the teaching assistant. The TA will develop background material for the course or discuss the problem sets in the Friday sessions, and students may be asked to present solutions too. Occasionally I may use the Friday period for extra lectures, as needed. I expect you to attend all lectures and TA sessions and to be an active participant in each. Problem sets and other course materials will be posted on our class Blackboard website.

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## **Required Information from the University of Houston**

### Face Covering Policy

To reduce the spread of COVID-19, the University strongly encourages everyone (vaccinated or not) to wear face coverings indoors on campus including classrooms for both faculty and students.

### Presence in Class

Your presence in class each session means that you:

- Are NOT exhibiting any [Coronavirus Symptoms](#) that makes you think that you may have COVID-19
- Have NOT tested positive or been diagnosed for COVID-19
- Have NOT knowingly been exposed to someone with COVID-19 or suspected/presumed COVID-19

If you are experiencing any COVID-19 symptoms that are not clearly related to a pre-existing medical condition, do not come to class. Please see [Student Protocols](#) for what to do if you experience symptoms and [Potential Exposure to Coronavirus](#) for what to do if you have potentially been exposed to COVID-19. Consult the [Graduate Excused Absence Policy](#)) for information regarding excused absences due to medical reasons.

### COVID-19 Information

Students are encouraged to visit the University's [COVID-19](#) website for important information including on-campus testing, vaccines, diagnosis and symptom protocols, campus cleaning and safety practices, report forms, and positive cases on campus. Please check the website throughout the semester for updates.

### Vaccinations

Data suggests that vaccination remains the best intervention for reliable protection against COVID-19. Students are asked to familiarize themselves with pertinent [vaccine information](#), consult with their health care provider. The University strongly encourages all students, faculty and staff to be vaccinated.

### Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for disabled students. In accordance with Section 504

and ADA guidelines, UH strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please contact [the Justin Dart Jr. Student Accessibility Center](#) (formerly the Justin Dart, Jr. Center for Students with DisABILITIES).

#### Excused Absence Policy

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston [Graduate Excused Absence Policy](#) for reasons including: medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to [military service](#), [religious holy days](#), [pregnancy and related conditions](#), and [disability](#).

#### Recording of Class

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the [Justin Dart, Jr. Student Accessibility Center](#). If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with **anyone** without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

#### Syllabus Changes

Due to the changing nature of the COVID-19 pandemic, please note that the instructor may need to make modifications to the course syllabus and may do so at any time. Notice of such changes will be announced as quickly as possible through email and postings on Blackboard.

#### UH Email

Please check and use your Cougarnet email for communications related to this course. To access this email, [login](#) to your Microsoft 365 account with your Cougarnet credentials.

#### Webcams

Access to a webcam is required for students participating remotely in this course. Webcams must be turned on during exams to ensure the academic integrity of exam administration.

## Honor Code Statement

Students may be asked to sign an honor code statement as part of their submission of any graded work including but not limited to projects, quizzes, and exams: *“I understand and agree to abide by the provisions in the [University of Houston Graduate Academic Honesty Policy](#). I understand that academic honesty is taken very seriously and, in the cases of violations, penalties may include suspension or expulsion from the University of Houston.”*

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## **Helpful Information from the University of Houston**

**Emergency Updates (weather and other):** [www.uh.edu/emergency](http://www.uh.edu/emergency)

**COVID-19 Updates:** <https://uh.edu/covid-19/>

**Coogs Care:** <https://www.uh.edu/dsaes/coogscare/>

**Laptop Checkout Requests:** <https://www.uh.edu/infotech/about/planning/off-campus/index.php#do-you-need-a-laptop>

**Health FAQs:** <https://uh.edu/covid-19/faq/health-wellness-prevention-faqs/>

**Student Health Center:** <https://uh.edu/class/english/lcc/current-students/student-health-center/index.php>

**Counseling and Psychological Services:** Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS ([www.uh.edu/caps](http://www.uh.edu/caps)) by calling 713-743-5454 during and after business hours for routine appointments or if you or somebody you know is in crisis. No appointment is necessary for the “Let’s Talk” program, a drop-in consultation service at convenient locations and hours around campus ( <https://uh.edu/caps/outreach/lets-talk/index>).

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## COURSE DESCRIPTION

### Required Textbook:

**(JR)** G.A. Jehle and P.J. Reny, *Advanced Microeconomic Theory*, 3<sup>rd</sup> edition, Financial Times Prentice Hall (an imprint of Pearson), 2011, ISBN-13: 978-0-273-73191-7.

### Highly Recommended Textbook:

**(MWG)** A. Mas-Colell, M.D. Whinston and J.R. Green, *Microeconomic Theory*, Oxford University Press, 1995, ISBN-10: 019507340.

### Other Useful Textbooks:

#### Micro Theory:

**(V)** H. Varian, *Microeconomic Analysis*, 3<sup>rd</sup> ed., Norton, 1992. A shorter treatment of PhD-level microeconomic theory than the above two books.

Kreps, David. *A Course in Microeconomic Theory*, Princeton University Press, 1990. A more “chatty” text than the above three books.

**(NS)** W. Nicholson and C. Snyder, *Microeconomic Theory: Basic Principles with Extensions*, 11<sup>th</sup> ed., Southwestern/Cengage Learning, 2008, 2012. Micro theory at the “masters-level.” Easier than the above three books, a good transition book between undergrad intermediate and graduate advanced courses. Earlier editions (some with only Nicholson as the author) are also fine. This book is more advanced than Nicholson’s undergrad intermediate text, *Intermediate Microeconomics*.

#### Math related:

K. Sydsaeter, A. Strom and P. Berck, *Economists Mathematical Manual*, 4<sup>th</sup> ed. Springer, 2005. A short book defining most of the mathematical notation you will encounter in micro theory.

**(SS)** E. Silberberg and W. Suen, *The Structure of Economics: a Mathematical Analysis*, 3<sup>rd</sup> ed., Irwin McGraw-Hill, 2001. Very good on constrained optimization and comparative statics.

**(SB)** C. P. Simon and L. Blume, *Mathematics for Economists*, Norton, 1994. Good on optimization, concave functions, homogeneous functions.

**(CW)** A. C. Chiang and K. Wainwright, *Fundamental Methods of Mathematical Economics*, 4<sup>th</sup> ed., McGraw-Hill Irwin, 2005 (or any edition; earlier editions authored solely by Chiang). The classic math-econ book written at a lower level than **SS** and **SB**.

<b>Course Evaluation:</b>	30%	Midterm (tentative date: Tuesday October 19, 2021)
	55%	Final Exam (exact date: Tuesday December 14, 2021, 2-5pm CT)
	15%	Problem sets

Exams consist of problems and will be closed-book, closed-note. Exams are planned to be administered face-to-face. However, if circumstances require, the exams could be administered online synchronously where students are observed via webcams taking, scanning and emailing the completed exams to the TA. About 10 problem sets will be assigned during the semester and each will be assigned a specific due date. Completing the problem sets is an important part of the course, and will help you better understand the course material.

**Course Policies:** All exams and problem sets are mandatory. Unapproved absence from any exam counts as a zero. No late assignments are accepted. Any late homework receives a score of zero. Original hard copies of your own problem set solutions that you complete yourself are required. You may form study-groups (in fact I encourage you to do so), but each student must turn in her/his own problem sets. Each problem set turned in must be unique and original. You are expected to do your own work on the exams; no collaboration allowed. No makeup exams. Any absence from an exam for medical reasons must be documented by your physician. Any other absence from an exam must be approved by me *in advance* in writing.

**All exams and homeworks are covered by the Honesty code of the University of Houston** (see UH Academic Honesty guidelines at URL):

<http://publications.uh.edu/content.php?catoid=30&navoid=11256>

**Course Preparation:** Students should have a working knowledge of multivariate calculus, matrix algebra, formal logic and probability; also be competent in intermediate microeconomics with calculus.

### **Learning Outcomes:**

- Students will learn through lectures, labs, homework, exams and readings to master microeconomic theory to a level that enables students to critically analyze research articles published in leading applied economic theory journals.
- Students will learn the methods of microeconomic theory that, in conjunction with other core classes, will provide the foundation for independent research in many fields of economics.
- Students will develop their mathematical and analytical skills to the level expected in the second graduate microeconomics, Econ 7342, and master microeconomic theory to a level that enables them to pass the Ph.D. qualifying exams in microeconomic theory

**Course Outline (may be revised during the semester)**

<b>Topic</b>	<b>Readings</b>
<b>1. Introduction and Review of Competitive and Monopoly Markets</b>	Math review (on your own): JR & MWG—mathematical appendices; SS ch. 1 Markets: JR ch. 4, NS chs. 12 & 14
<b>2. Producer Theory</b>	
a. Production Technology	JR 3.1-3.2 MWG 5a-5b V ch.1 SB chs. 20 & 21
b. Cost Minimization and Conditional Factor Demands	JR 3.3 MWG 5c-5d V chs. 4 & 5
c. Duality—Technology and Costs	JR 3.4 MWG 5c-5d V ch.6
d. Profit Maximization, Profit Functions and Supply	JR 3.5 MWG 5c-5d V chs. 2 & 3
e. More on soc's, reciprocity, Envelope Theorem	NS ch.2 pp. 32-43 SB 19.2 JR A2 pp. 603-607
<b>3. Consumer Theory</b>	
a. Preferences and Utility	JR 1.1-1.2 MWG ch. 1; 3a-3c
b. Consumer Choice and Marshallian Demand	JR 1.3 MWG ch. 2; 3d CW pp.402-418 (Kuhn-Tucker)
c. Indirect Utility, Expenditure Functions and Hicksian Demand	JR 1.4-1.5 MWG 3e

d. Properties of Demands; Duality—Utility and Expenditure, Slutsky Equation	JR 1.5, 2.1-2.2 MWG 3f-3h
e. Individual Measures of Welfare Change	JR 4.3.1
f. Revealed Preference	JR 2.3 MWG 1.2-1.3
<b>4. Consumer Choice under Uncertainty</b>	JR 2.4 MWG ch. 6 Machina (1987)
<b>5. Partial Equilibrium, Efficiency and Welfare</b> Comparing Competitive and Monopoly Outcomes, Pareto Optimality	JR ch.4 MWG ch. 10; 12a-12b
<b>6. Simple General Equilibrium (GE), Efficiency and Welfare in exchange economies</b> Edgeworth Box, Exchange Economies, the Core, Existence of Competitive Equilibrium, Pareto Optimality in GE, Fundamental Welfare Theorems	JR 5.1, 5.2 V ch. 17, 21.1 MWG 15, 16c-f
<b>7. Topics in General Equilibrium</b> Production, Uncertainty, Externalities	JR 5.3, 5.4, V ch.18, 24.4 MWG 16g

**Articles (more may be assigned during the semester):**

Machina, Mark (1987), “Choice Under Uncertainty: Problems Solved and Unsolved,” *Journal of Economic Perspectives*, vol. 1:121-154.