University of Wisconsin-Madison  
Department of Economics  

Econ 311  
Fall 2020  

Syllabus  
Microeconomics I  

I. GENERALITIES  

Credits: This 3 Credit course has two 75 min lectures per week. Students are expected to work approximately 6 hours outside class to complete assignments and learn the relevant material.  

Meeting Time and Location: The class meets on Mondays and Wednesdays from 2:30PM to 3:45PM via Blackboard Collaborate Ultra in Canvas. The Fall semester runs from September 2, 2020 to December 10, 2020.  

Instruction Mode: All instruction is online via Blackboard Collaborate Ultra in Canvas.  

Prerequisites: Three semesters of calculus (Math 234), linear algebra (Math 340) and Graduate standing, or consent of instructor.  

Instructor: Your course instructor is Professor Deneckere. All communication regarding the course should occur via Canvas Conversations also called “Inbox” - there is an image link to it on the far left hand side of your screen in Canvas. It is easy to use and works well on a phone.  

In emergencies, you can also reach me via email at rideneck@wisc.edu. However, my wisc.edu email is a bit chaotic, so communication via Canvas Conversations is more reliable.  

Office Hours: Regularly scheduled office hours are Mondays and Wednesdays, from 12:45PM to 1:45 PM. Office hours will also be held via the Blackboard Collaborate Ultra application in Canvas.  

Course Description: Second course in a two-semester sequence covering: consumer theory, producer theory, and markets under partial and general equilibrium, and with externalities or market power. The sequence will include an introduction to decision theory and game theory, and applications to auction theory and partially informed trade.  

Learning Outcomes: The goal of this course is to provide students with theoretical tools to understand the operation of markets in which traders are asymmetrically informed, and in which the number of traders is limited. We will analyze the impediments to market efficiency, both in private and public goods markets. Students will gain experience in formulating theoretical models and determine and analyze their equilibrium.
Accommodation for Students with Disabilities: The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform me of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. I will work either directly with you or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. [http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php](http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php)

Diversity and Inclusion: Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.” [https://diversity.wisc.edu/](https://diversity.wisc.edu/)

Academic Integrity: Academic Integrity is critical to maintaining fair and knowledge based learning at UW Madison. Academic dishonesty is a serious violation: it undermines the bonds of trust and honesty between members of our academic community, degrades the value of your degree and defrauds those who may eventually depend upon your knowledge and integrity.

Examples of academic misconduct include, but are not limited to: cheating on an examination (copying from another student's paper, referring to materials on the exam other than those explicitly permitted, continuing to work on an exam after the time has expired, turning in an exam for regrading after making changes to the exam), copying the homework of someone else, submitting for credit work done by someone else, stealing examinations or course materials, tampering with the grade records or with another student's work, or knowingly and intentionally assisting another student in any of the above. Students are reminded that online sources, including anonymous or unattributed ones like Wikipedia, still need to be cited like any other source; and copying from any source without attribution is considered plagiarism.

The Dept. of Economics will deal with these offenses harshly following UWS14 procedures:
1. The penalty for misconduct in most cases will be removal from the course and a failing grade,
2. The department will inform the Dean of Students as required and additional sanctions may be applied.
3. The department will keep an internal record of misconduct incidents. This information will be made available to teaching faculty writing recommendation letters and to admission offices of the School of Business and Engineering.

If you think you see incidents of misconduct, you should tell your instructor about them, in which case they will take appropriate action and protect your identity. You could also choose to contact our administrator Tammy Herbst -Koebl [therbst@wisc.edu](mailto:therbst@wisc.edu) and your identity will be kept confidential.
For more information, refer to https://www.students.wisc.edu/doso/academic-integrity/. If you have knowledge that these standards are being violated, then you should share that information with the instructor.

Grievance Procedure: The Department of Economics has developed a grievance procedure through which you may register comments or complaints about a course, an instructor, or a teaching assistant. The Department continues to provide a course evaluation each semester in every class. If you wish to make anonymous complaints to an instructor or teaching assistant, the appropriate vehicle is the course evaluation. If you have a disagreement with an instructor or a teaching assistant, we strongly encourage you to try to resolve the dispute with him or her directly. The grievance procedure is designed for situations where neither of these channels is appropriate.

If you wish to file a grievance, you should go to room 7238 Social Science and request a Course Comment Sheet. When completing the comment sheet, you will need to provide a detailed statement that describes what aspects of the course you find unsatisfactory. You will need to sign the sheet and provide your student identification number, your address, and a phone where you can be reached. The Department plans to investigate comments fully and will respond in writing to complaints. Your name, address, phone number, and student ID number will not be revealed to the instructor or teaching assistant involved and will be treated as confidential. The Department needs this information, because it may become necessary for a commenting student to have a meeting with the department chair or a nominee to gather additional information. A name and address are necessary for providing a written response.

II. COURSE CONTENT

This course investigates how market outcomes are determined when competition is limited, often severely so. It also reveals conditions under which the process of competition can be expected to yield outcomes that are approximately efficient. It also studies the nature of outcomes that can be expected when competition fails to reach efficiency.

The main tools of analysis are economic models based on game theory and probability. Despite this somewhat theoretical bent, we will extensively study real-world market mechanisms, such as bargaining and auctions. In addition, we will examine markets that require special analysis, such as the market for health care and financial markets. Finally, the course also brings to bear evidence from experimental economics.

Much of the material that we discuss derives from extensive economic research done over the past two decades or so, particularly in the area of economics of asymmetric information. Consequently, we will cover contributions by at least six Nobel Prize laureates.

III. MATERIALS

Required Texts

There simply is no currently available text that treats this material in an accessible fashion. All existing textbooks are hopelessly outdated, having changed little over the last three decades, despite huge advances in our understanding of how markets operate.
Consequently, students will be required to take notes in class. In time, I will also post lecture notes that summarize much of the material that we will discuss.

In addition, there will be readings from recent research and case material that I will make available on the course website on Canvas Collaborate Ultra..

**Supplementary Material**

For your convenience, you may wish to consult a recent unpublished manuscript that contains a simpler treatment of some of the topics to be discussed in class:


You can download the manuscript from Tim’s website, [http://faculty.insead.edu/vanzandt/](http://faculty.insead.edu/vanzandt/).

Students who wish to see an alternative and accessible explanation of some of the auction material discussed in class may find the first few chapters in following text useful:


The book is a great read, but goes much further than we do in class, by extensively discussing and analyzing bidding in eBay auctions. However, it lacks any treatment of the important class of all pay auctions.

### III. COURSE REQUIREMENTS

1. **Prerequisites**

   Econ 701 is an *advanced treatment* of Microeconomics. Importantly, you will be expected to be comfortable applying mathematics. Mathematics is often the most convenient tool for reasoning precisely, and we will use it regularly in class. In particular, we will introduce and employ the tools of probability theory, multivariable calculus and multivariate optimization.

2. **Academic Standards**

   Students are strongly encouraged to actively discuss the course material with their classmates. Such discussions can include the material or methods necessary to solve the homework problems. However, you may not discuss the actual questions or answers prior to the due date of the homework, and all work on them should strictly be done on an individual basis.

   If you have knowledge that these standards are being violated, then you should share that information with the instructor.
IV. GRADING

The course grade will be a weighted average of the homework (10%), the midterm exam (45%) and the final exam (45%).

V. COURSE OUTLINE

The outline described below is approximate only. We will follow the syllabus in the order mentioned, but the exact timing of topics may differ somewhat depending upon the needs of the class. Occasionally, if interest in the class warrants so, I may introduce some extra material.

**Session 1** (Wed, September 2): Probability Theory: Discrete Random Variables I

Probability Space, Events, Union of Events, Independence

**Session 2** (Wed, September 9): Probability Theory: Discrete Random Variables II

Conditional Probability and Bayes’ Theorem, Random Variables, Expected Value, Distribution Function

**Session 3** (Mo, September 14): Probability Theory: Continuous Probability I

Distribution Functions, density functions, random variable

**Session 4** (We, September 16): Probability Theory: Continuous Probability II

Expectation, independence, order statistics

**Session 5** (Mo, September 21): Gains from Trade, Bilateral Trade

Van Zandt, Ch. 1

**Session 6** (We, September 23): Multilateral Trade: Pit Markets, Double Auction

Van Zandt, Ch. 2

**Session 7** (Mo, September 28): Multilateral Trade: Brokers

Matchmaker Monopoly: Fixed Fee Brokerage

**Session 8** (We, September 30): Game Theory, Dominant Strategies

Golden Balls
Van Zandt, Ch. 12
Session 9 (Mo, October 5): Game Theory: Nash Equilibrium

Bayesian Games, Bayesian Equilibrium, Split-the-Difference Game

Session 10 (We, October 7): Impediments to Trade: Private Information

Inefficiency in bilateral bargaining: Split the Difference Mechanism and The Hagerty-Rogerson Result

Session 11 (Mo, October 12): Auctions I: Efficient Allocations and the Vickrey Auction

The ascending clock auction

Session 12: (We, October 14): Impediments to Trade: Monopoly Power

Auctions with a reserve price

Session 13 (Mo, October 19): Auctions II: First Price Auctions

The descending clock auction

Session 14 (We, October 21): Auction Revenue and Revenue Equivalence

Comparing expected revenue in the first and second price auctions

Session 15 (Mo, October 26): Revenue Equivalence II

Finding Optimal Bid Functions, Optimal Reserve Price

Session 16 (We, October 28): Auctions III: The Game of Chicken

Wars of Attrition

Session 17 (Mo, Nov 2): Auctions IV: All Pay Auctions

Rent Dissipation

Session 18 (We, November 4): Review Session

Session 19 (Mo, November 9): Midterm Examination

Session 20 (We, November 11): The Emergence of Competition: Cournot Oligopoly

Symmetric Equilibria, Asymptotics, Monotonicity
Session 21 (Mo, November 16): Competition between Privately Informed Sellers

Double auctions and Price Discovery, Large Markets

Session 22 (We, November 18): Impediments to Trade: Adverse Selection and the Lemons Problem


Session 23 (Mo, November 23): Adverse Selection II

Screening and the Health Care Market

Session 24 (We, November 25): Adverse Selection III

The Credit Market

Session 25 (Mo, November 30): Correcting Externalities

Urban Transport, Pigouvian Taxation, Tradeable Pollution Rights

Session 26 (We, December 2): Public Goods

Pure Public Goods, Fisheries, Depletable Resources

Session 27 (Mo, December 7): Impediments to the Provision of Public Goods: Private Information

Split-the-Cost Mechanism

Session 28 (We, December 9): Review Session

We, December 16: Final Exam