

COURSE SYLLABUS

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1. Resources

Description from Course Catalog: Principles of price determination applied to the analysis of consumer demand and business supply; production and costs; comparison of various market structures; income distribution; general equilibrium analysis. Elementary knowledge of calculus assumed.

Prerequisites: A course in "Principles of Microeconomics" (Drake's ECON 002) and a course in calculus (Drake's MATH 028 or higher). The **calculus prerequisite is essential** because differentiation (dy/dx) is used throughout the course. However, advanced concepts such as integration and Lagrange multipliers are not used.

If you have not used differential calculus recently, you will find ECON 173 challenging. Allocate study time for an intensive review of calculus before and during the first week of class. See *Part 1: Mathematical Tools* in the schedule below for resources.

Zimpleman Promises: "Our graduates will be equipped with the technical skills, business acumen, empathy, and experience necessary to innovate and lead in a globally complex, diverse, and dynamic world. They will be (1) Proficient in their fields, (2) Data-driven, strategic, and innovative problem solvers, (3) Effective communicators, (4) Socially and ethically responsible leaders, and (5) Global and multicultural citizens." This course addresses all five Promises, but especially Promise (1).

Who should take this course:

- Economics majors. This course is required for the Economics and Quantitative Economics major programs.
- Finance majors. This course counts as an elective in the Finance major program.
- Students preparing for graduate school. If you are planning to attend grad school in economics or a field that uses economic analysis (business, public administration, law, environmental policy, international relations, etc.) this course provides helpful preparation.

Lectures: CRN 1352 meets Tuesday and Thursday 8:00-9:15 AM in Aliber 010.

How to contact instructor:

- Office: 319 Aliber Hall
- Telephone and voice mail: 271-3129
- Electronic mail: william.boal@drake.edu (preferred)
- U.S. mail: Zimpleman College of Business, Drake University, 2507 University Avenue, Des Moines, Iowa 50311-4505

Office hours: Office hours are a time when you can get help with homework, ask questions about course material, and discuss your grade or anything related to this course or economics in general. Bring your slideshow handouts. My office hours this semester are **Monday, Tuesday, and Wednesday, 1-3 PM**. If these hours are inconvenient due to schedule conflicts, please send email to schedule a special appointment and suggest some alternate times.

What this course is about: This course covers *price theory*, the fundamental theoretical framework of economics which distinguishes it from other social sciences. Students completing this course will be well-prepared for virtually any other economics course (including macroeconomics). Many topics in ECON 173 were introduced in ECON 002, but here they are covered more thoroughly and rigorously using algebra, analytic geometry, and basic differential calculus.

Resources to purchase:

- Required: Roberto Serrano & Allan M. Feldman, *A Short Course in Intermediate Microeconomics with Calculus*, 2nd edition, Cambridge, Cambridge University Press, 2018, ISBN 978-1-108-43919-0 (paperback).
- Required: *Boal's Econ 173 Slideshow Handouts*, a course packet. Available for purchase at University Bookstore. Please bring it to class every day.
- Recommended: Your favorite introductory microeconomics textbook, for reference.
- Recommended: Your favorite calculus textbook, for reference.
- Recommended: A three-ring binder and a highlighter for your course packet.

Online resources:

- Drake email. Course announcements will occasionally be sent to this account, so check it daily. Announcements often get diverted to “Junk” or “Clutter” folders, so check them as well as your inbox.
- Blackboard (drake.blackboard.com). Required online quizzes are posted here. If you have difficulty accessing Blackboard, please call the ITS HelpDesk at 271-3001.
- Course materials webpage (wmboal.com/imicro). Instructor’s lecture notes, homework problems, and old exams are posted here.

Tutoring resources:

- Your instructor should be your first resource for questions and help.
- The Economics Tutoring Lab provides free tutoring by advanced economics students. The Lab opens about the third week of the semester. Hours and location are at www.drake.edu/economics/resources/. Appointments can be made at www.drake.edu/access-success/tutoring/.
- The Math Tutoring Lab (<https://www.drake.edu/access-success/tutoring>) can help with purely mathematical questions.

2. Requirements

Course grade: Each exam, quiz, and homework assignment is graded on a scale from zero to 100. Your overall course score is calculated as a weighted average, using the following formula:

$$\text{SCORE} = 80\% \times \text{average Exam score} + 10\% \times \text{average Blackboard quiz score} + 10\% \times \text{average Homework problem score} - \text{Absences}$$

A SCORE of 97 or above is required for an A+, 93 for an A, 90 for an A-, 87 for a B+, 83 for a B, 80 for a B-, 77 for a C+, 73 for a C, 70 for a C-, 67 for a D+, 63 for a D, and 60 for a D-. SCORES will not be rounded before awarding letter grades. Extra credit work is not available.

Exams: There will be four in-class exams and a final examination. All exams are closed-book, closed-notes. *No calculators*, computers, wireless devices or mobile phones are permitted during exams. The nature of the course material is cumulative, so exams may contain material from previous sections of the course. The final exam counts double and is required—students who do not take the final will not pass the course.

Homework problems: All problems are taken from the instructor's Lecture Notes posted at wmboal.com/imicro. Three homework problems are due each time, but they are not to be turned in. Instead, one problem of the three will be given as a closed-book quiz at the beginning of class.

Blackboard quizzes: These online multiple-choice quizzes cover the slideshows presented in class and are accessed from Blackboard. They consist of 5-10 multiple-choice questions and are due soon after the topic is covered in class. You can take each slideshow quiz up to three times until the due date, but the questions will change. Blackboard records your average score, so don't retake a quiz unless you are confident that you can improve.

Policy on absences: Attendance is taken at every class. Students may miss up to three classes for any reason without penalty (except when exams are given). Thereafter, one point will be deducted from the course SCORE for each absence. Athletic team trips, documented by an official schedule sheet, will not be counted as absences.

Policy on rescheduling exams: If your own medical emergency, or a serious illness or death in your family requires you to miss an exam, you may be given a makeup exam. However, you must inform me of the emergency before the exam (e.g., by phone or email) and soon afterward submit a written explanation (including date of absence and documentation).

Certain other circumstances are acceptable reasons for rescheduling an exam. These include religious observance, medical appointment, interview trip, and athletic team trip. Because these circumstances can be predicted, you must send me an email request to reschedule, with an explanation, at least one week before the date of the exam.

Unacceptable reasons include family vacation, ride leaving early for break, early plane flight, overslept, etc.

Policy on grade corrections: Accurate grading is important. If you find an error, please let me know as soon as possible. The deadline for regrading homework, problem sets, or midterm exams is the day of the final exam.

Policy on computers and phones in class: Computers, tablets, and phones must be turned off during class unless I specifically announce otherwise.

Disability accommodation: Any student who has a disability that substantially limits his or her ability to perform in this course under normal circumstances should contact Student Disability Services, 271-1835, to request accommodation. Any request must be received and approved at least one week before the necessary accommodation. All relevant information will be kept strictly confidential.

How to succeed in this course:

- Attend every class.
- Read the textbook and online lecture notes before class.
- Study with pencil and paper. Try to reproduce any numerical examples and mathematical derivations while covering the page. Everything will make more sense if you work it through yourself.
- Prepare for exams by working old exams, posted at wmboal.com/imicro. Don't look at the answer key until *after* you have worked each problem, or you will become overconfident.
- If you are doing all this but not doing as well as you would like, please ask for help. Talk to me after class, send email to william.boal@drake.edu, or visit my office hours. I am eager to help!

Policy on academic integrity: The Zimpleman Academic Integrity Policy (<https://www.drake.edu/zimpleman/about/policies/>) applies to this course. The consequences of violating this policy vary, depending on my evaluation of the severity of the dishonesty. A violation (such as cheating, plagiarism, or fabrication) can result in a grade of zero on the test or assignment, an F for the course grade, or even expulsion from the university. Please read the policy and ask for clarification if necessary.

3. Schedule

Textbook and lecture notes should be read before lecture. "Internet sites to see" are optional readings. If bad weather or an epidemic closes campus, most likely we will have class online using Blackboard Collaborate.

Part 1: Mathematical Tools

Big ideas: Rates of change are fundamental to modern economic theory. The economic term “marginal” corresponds to the mathematical term “derivative.” The economic term “ceteris paribus” corresponds to the mathematical term “partial.”

Famous quote: «Quiconque connaît la notation algébrique, lit d'un clin-d'oeil dans une équation le résultat auquel on parvient péniblement par des règles de fausse position, dans l'arithmétique de Banque.» [“Anyone who understands algebraic notation, reads at a glance in an equation results reached arithmetically only with great labor and pains.”]
--A. A. Cournot, *Researches on Mathematical Principles of the Theory of Wealth* (1838)

A. Welcome and review of basic calculus [Aug 27]

- Bring these slideshow handouts to class: *Welcome to intermediate microeconomics. Derivatives.* Elasticities. Maximizing a function.* (* Not covered in class—view on Blackboard.)
- Read lecture notes posted at wmboal.com/imicro: chapter 1.
- Optionally, review your favorite calculus textbook, sections on techniques of differentiation and optimization.
- Optionally, view videos on derivative rules at <https://www.khanacademy.org/math/ap-calculus-bc>.
- Take TWO quizzes on Blackboard by Aug 28.
- Do homework problems (1.19), (1.26), (1.32) posted at wmboal.com/imicro, due Aug 29.

B. Introduction to multivariate calculus [Aug 29]

- Bring these slideshow handouts to class: *Functions of several variables. Partial and total derivatives. Partial elasticities. Marginal rates of substitution.*
- Read lecture notes posted at wmboal.com/imicro: chapter 2.
- Optionally, review your favorite calculus textbook, sections on functions of several variables and partial differentiation.
- Optionally, view videos on partial derivatives at <https://www.khanacademy.org/math/multivariable-calculus>.
- Take TWO quizzes on Blackboard by Sept 2.
- No problems due. Instead, study for exam.

First exam [Sept 3]

- Prepare by studying slideshow handouts, old exams posted at wmboal.com/imicro, and recent homeworks.
- No calculators are permitted during exams.
- Exam seating is assigned, so please check the projector screen before you sit down.

Part 2: Consumers and Demand

Big ideas: Demand curves arise from consumers doing the best they can with what they have—that is, maximizing utility subject to a budget constraint.

Famous quote: “Consumption is the sole end and purpose of all production; and the interest of the producer ought to be attended to only so far as it may be necessary for promoting that of the consumer.”
--Adam Smith, *The Wealth of Nations* (1776).

A. Preferences and utility [Sept 5]

- Read lecture notes posted at wmboal.com/imicro: chapter 3.
- Optionally, read Serrano and Feldman textbook, chapter 2.
- Bring these slideshow handouts to class: *Preferences. The concept of utility. Utility functions.*
- Take slideshow quiz on Blackboard by Sept 6.
- Do homework problems (3.3), (3.7), (3.10) posted at wmboal.com/imicro, due Sept 10.

B. Budgets and choice [Sept 10]

- Read lecture notes posted at wmboal.com/imicro: chapter 4.
- Optionally, read Serrano and Feldman textbook, chapter 3.
- Bring these slideshow handouts to class: *The budget constraint. Choice.*
- Take slideshow quiz on Blackboard by Sept 11.
- Do homework problems (4.2), (4.11), (4.14) posted at wmboal.com/imicro, due Sept 12.

C. Demand functions [Sept 12]

- Read lecture notes posted at wmboal.com/imicro: chapter 5.
- Optionally, read Serrano and Feldman textbook, chapter 4 sections 4.1-4.4.
- Bring these slideshow handouts to class: *Demand functions for an individual consumer. Effects of changes in prices and income. Finding individual demand functions. Market demand.*
- Take slideshow quiz on Blackboard by Sept 13.
- Do homework problems (5.6), (5.11), (5.20) posted at wmboal.com/imicro, due Sept 17.

D. Demand elasticities [Sept 17]

- Review lecture notes posted at wmboal.com/imicro: chapter 1 sections 1.5-1.7, chapter 2 sections 2.6-2.7.
- Optionally, read Serrano and Feldman textbook, chapter 4 sections 4.7-4.8.
- Bring these slideshow handouts to class: *The price elasticity of demand. Elasticity and spending. Other elasticities. Income elasticity and spending shares. Finding elasticities from demand functions.*
- Take slideshow quiz on Blackboard by Sept 18.
- Do homework problems (6.1), (6.10), (6.16) posted at wmboal.com/imicro, due Sept 19.
- Internet sites to see: The Economic Research Service of the Department of Agriculture provides estimates of the price and income elasticities of demand for various foods and broad consumption categories at www.ers.usda.gov/data-products/international-food-consumption-patterns.aspx. Wikipedia articles on “[Price elasticity of demand](#)” and “[Income elasticity of demand](#)” also offer estimates.

E. Income and substitution effects [Sept 19]

- Read lecture notes posted at wmboal.com/imicro: chapter 7.
- Optionally, read Serrano and Feldman textbook, chapter 4 section 4.5.
- Bring these slideshow handouts to class: *Income and substitution effects. Slutsky equation.*
- Take slideshow quiz on Blackboard by Sept 20.
- Do homework problems (7.2), (7.6), (7.11) posted at wmboal.com/imicro, due Sept 24.

F. Measuring consumer welfare [Sept 24]

- Read lecture notes posted at wmboal.com/imicro: chapter 8.
- Optionally, read Serrano and Feldman textbook, chapter 4 section 4.6.
- Bring these slideshow handouts to class: *The effect of price changes on consumer welfare. Practical COL indexes. Compensated demand. Consumer surplus.*
- Take slideshow quiz on Blackboard by Sept 25.
- Internet sites to see: The U.S. Consumer Price index (CPI-U), basically a Laspeyres index, is calculated by the Bureau of Labor Statistics. For information about the CPI-U, go to www.bls.gov/cpi and click on About CPI > Questions and Answers. The BLS also computes a Chained Consumer Price Index (C-CPI-U), basically a Fisher index. For information about the C-CPI-U, click on CPI Methods > Chained CPI.
- No problems due. Instead, study for exam.

Second exam [Sept 26]

- Prepare by studying slideshow handouts, old exams posted at wmboal.com/imicro, and recent homeworks.
- No calculators are permitted during exams.
- Exam seating is assigned, so please check the projector screen before you sit down.

Part 3: Firms and Competition

Big ideas: Supply curves arise from firms doing the best they can with what they have—that is, maximizing profit subject to given prices for outputs and inputs.

Famous quote: “It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest.”

--Adam Smith, *The Wealth of Nations* (1776).

A. Production [Oct 1, Oct 3]

- Read Serrano and Feldman textbook, chapter 8, and chapter 9 sections 9.1-9.2.
- Bring these slideshow handouts to class: *Production. Input substitution. Fixed-proportions production technology. Returns to scale. Technical change.*
- Take slideshow quiz on Blackboard by Oct 4.
- Do homework problems (9.5), (9.7), (9.10) posted at wmboal.com/imicro, due Oct 8.

B. Cost [Oct 8]

- Read Serrano and Feldman textbook, chapter 9 section 9.3, and chapter 10.
- Bring these slideshow handouts to class: *Costs and profits. Isocost lines. Cost minimization. Cost curves. Cost in the short run.*
- Take slideshow quiz on Blackboard by Oct 9.
- Do homework problems (10.1), (10.8), (10.11) posted at wmboal.com/imicro, due Oct 10.

C. Profit maximization and supply [Oct 10, Oct 17]

- Read Serrano and Feldman textbook, chapter 11 sections 11.1-11.4.
- Bring these slideshow handouts to class: *Profit maximization. Profit maximization in the short run. Short-run market equilibrium. Long-run market equilibrium. Increasing-cost and decreasing-cost industries.*
- Take slideshow quiz on Blackboard by Oct 18.
- Do homework problems (11.3), (11.6), (11.9) posted at wmboal.com/imicro, due Oct 22.
- Enjoy Fall Break! [10/14-15]

D. Welfare analysis [Oct 22]

- Read Serrano and Feldman textbook, chapter 11 sections 11.5-11.6.
- Bring these slideshow handouts to class: *Producer surplus. Economic efficiency. Efficiency of competitive markets. Welfare analysis of price controls and quotas. Welfare analysis of taxes and subsidies. Welfare analysis of international trade.*
- Take slideshow quiz on Blackboard by Oct 23.
- No problems due. Instead, study for exam.

Third exam [Oct 24]

- Prepare by studying slideshow handouts, old exams posted at wmboal.com/imicro, and recent homeworks.
- No calculators are permitted during exams.
- Exam seating is assigned, so please check the projector screen before you sit down.

Part 4: General Equilibrium and Market Power

Big ideas: When all markets are in competitive equilibrium, the result is Pareto-optimal, though not necessarily “fair.” However, when sellers are few in number, or sell differentiated products, they do not take price as given, so markets fail and the result is *not* Pareto-optimal.

Famous quote: “People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices.”

--Adam Smith, [*The Wealth of Nations*](#) (1776).

A. General Equilibrium [Oct 29, Oct 31]

- Read Serrano and Feldman textbook, chapter 15.
- Bring these slideshow handouts to class: *What is general equilibrium? The Edgeworth box diagram. Trading in an exchange economy. Exchange efficiency: welfare theorems. Technical efficiency. Efficient output mix.*
- Take slideshow quiz on Blackboard by Nov 1.
- Do homework problems (13.1), (13.7), (13.8) posted at wmboal.com/imicro, due Nov 5.

B. Monopoly [Nov 5]

- Read Serrano and Feldman textbook, chapter 12 sections 12.1-12.4.
- Bring these slideshow handouts to class: *Monopoly and barriers to entry. The monopolist's marginal revenue. Monopoly pricing. Welfare analysis of monopoly. Monopoly price discrimination.*
- Take slideshow quiz on Blackboard by Nov 6.
- Do homework problems (14.2), (14.4), (14.10) posted at wmboal.com/imicro, due Nov 7.

C. Imperfect competition [Nov 7, Nov 12]

- Read Serrano and Feldman textbook, chapter 12 section 12.5, and chapter 13 sections 13.1, 13.2, 13.4.
- Bring these slideshow handouts to class: *The oligopolist's marginal revenue. Cournot duopoly. Cournot oligopoly. Joint profit maximization (collusion). Monopolistic competition.*
- Take slideshow quiz on Blackboard by Nov 13.
- Do homework problems (15.3), (15.4), (15.20) posted at wmboal.com/imicro, due Nov 14.
- Internet sites to see: Antitrust laws are enforced in the United States by the Antitrust Division of the Department of Justice (www.usdoj.gov/atr) and the Bureau of Competition of the Federal Trade Commission (www.ftc.gov/bc/index.shtml). Future antitrust lawyers will want to view the “Merger Guidelines” posted at each website.

D. Introduction to game theory [Nov 14]

- Read Serrano and Feldman textbook, chapter 14 sections 14.1-14.4.
- Bring these slideshow handouts to class: *Basic concepts of game theory. Dominant strategies and best replies. Equilibria in games. Famous games. Cournot versus price competition.*
- Take slideshow quiz on Blackboard by Nov 15.
- No problems due. Instead, study for exam.

Fourth exam [Nov 19]

- Prepare by studying slideshow handouts, old exams posted at wmboal.com/imicro, and recent homeworks.
- No calculators are permitted during exams.
- Exam seating is assigned, so please check the projector screen before you sit down.

Part 5: Further Topics

Big ideas: Even when sellers and buyers are numerous and trade a homogeneous product, a market can still fail if third parties are affected (externalities and public goods) or if one side of the market knows more than the other side (asymmetric information).

Famous quote: “In general industrialists are interested, not in the social, but only in the private, net product of their operations.”

--Arthur C. Pigou, [*The Economics of Welfare*](#) (1920)

A. Externalities and public goods [Nov 21, Nov 26]

- Read Serrano and Feldman textbook, chapter 17, and chapter 18 sections 18.1-18.4.
- Bring these slideshow handouts to class: *Externalities and property rights. Policy responses to externalities. Pigou taxes and subsidies. Nonrival goods. Nonexcludable goods.*
- Take slideshow quiz on Blackboard by Nov 27.
- Do homework problems (17.6), (17.11), (17.13) posted at wmboal.com/imicro, due Dec 3.
- Internet sites to see: The U.S. Environmental Protection Agency currently authorizes “allowance” trading for air pollution emissions (<https://www.epa.gov/green-power-markets>).
- Enjoy Thanksgiving break! [11/27-29]

B. Uncertainty and information [Dec 3, Dec 5]

- Read Serrano and Feldman textbook, chapter 19, and chapter 20 sections 20.1-20.4.
- Bring these slideshow handouts to class: *Probability and expected value. Expected utility maximization. Demand for insurance. Hidden characteristics and adverse selection. Hidden actions and moral hazard.*
- Take slideshow quiz on Blackboard by Dec 6 (“Dead Day”).
- No problems due. Instead, study for final exam.

Final Exam

The [Office of the Registrar](#) has scheduled the final exam for this course on **Friday, December 13 at 7:30 AM** in the regular classroom. The content of the final exam is comprehensive and includes questions from parts 2, 3, 4, and 5 of the course.

- Prepare by reviewing the exams you have already taken this semester, old final exams posted at wmboal.com/imicro, and recent homework problems.
- No calculators are permitted during exams.
- Exam seating is assigned, so please check the projector screen before you sit down.

[end of syllabus]