Intermediate Microeconomics

Course Introduction

Instructor: Xiaokuai Shao

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Basic Information

- Intermediate Microeconomics (50200605)
- Targeted Students: Undergraduate (3rd Grade)
- Instructor: Xiaokuai Shao
  - Assistant Professor of Economics, International Business School, Beijing Foreign Studies University
- Tuesday 11-12 (17:30-21:20); Teaching Building 309 West Campus

- 课程资料下载/讨论答疑/作业提交
  - BB: https://bb.bfsu.edu.cn/
- 讨论
  - 企业微信群
  - shaoxiaokuai@bfsu.edu.cn

Objectives

The course presents basic theories of microeconomics and its applications.

- A bridge between "principle of economics" and "advanced microeconomics"
- The purpose of this course is to make students well trained and proficient in systematically calculating and proving the technical issues in microeconomics.
- Students should be able to use analytical and mathematical tools in microeconomics to conduct research in more advanced topics.
- Modelling and analytical tools are emphasized—especially for the "tricky" parts.
- Challenging issues/practices/ are provided; Technical difficulties: no lower than those in Tsinghua U and Peking U.
- Applying graduate schools.

Prerequisite Knowledge

- Principle of Economics
- Calculus
  - derivatives
  - optimization
- Linear Algebra
  - linear systems
  - quadratic forms
- Probability Theory

Covered Topics

- Competitive Markets
  - Consumer theory
  - Firm theory
  - Partial & general equilibrium
- Imperfect Competition and Strategic Behavior
  - Monopoly
  - Game theory and strategic behavior
  - Oligopoly

Textbooks

- Primary:
  Nicholson, Walter, and Christopher M. Snyder. Microeconomic Theory: Basic Principles and Extensions. Nelson Education, 2012.
- Supplements:
  - Varian, Hal R. Intermediate Microeconomics: A Modern Approach.
- Lecture notes:
  - Slides
  - Hand-writings on blackboard

Detailed Contents

- 1 Introduction and Preliminaries
- 2 Preference and utility
- 3 Utility maximization (Marshallian demand)
- 4 Expenditure minimization (Hicksian demand)
- 5 Duality and Slutsky equation
- 6 Substitution and income effects
- 7 Production and profit maximization
- 8 Cost minimization and conditional input demand
- Midterm exam

After mid-term ...

- 9 Partial equilibrium
- 10 General equilibrium
- 11 Monopoly and price discrimination
- 12 Game theory and strategic behavior
- 13 Basics in oligopoly
- Final exam

Assessments

- Homework Assignments: 10%
  - Questions mentioned in class should be handed in before the next class via BB.
  - Photos/scanned/PDF/...LaTeXis encouraged.
- Midterm: 40%
  - Closed-book exam that covers the topics discussed before partial equilibrium.
  - A "cheating sheet" of an A4 size is allowed.
- Final Exam: 50%
  - Cover the topics throughout the course with an emphasis on the topics discussed after the mid-term.
  - A "cheating sheet" of an A4 size is allowed.

Branches

- Undergraduate: principle of economics $\rightarrow$ intermediate micro/macro/econometrics
  - micro theory: industrial organization, game theory, contract theory and mechanism design
  - macro theory: monetary and fiscal policies
  - econometrics theory; empirical issues: labor, public, international, etc.
- Graduate: advanced micro/macro/econometrics
  - End of the first year: qualification
  - 2nd—...research.
    Microeconomics:
    - theory: general equilibrium, game theory, industrial organization
    - empirical issues

Brief History of "Value"

- Today: "price"
- Earlier times: price v.s. value. Value: the price charged by human could deviate from the value of the good.
- Adam Smith: "value in use" and "value in exchange" (price)
  - water: value in use $>$ value in exchange
  - diamond: value in use $<$ value in exchange.
- The cost of producing the goods.
  - cost of diamond $>$ cost of water
  - but: which comes first: people need diamond $\rightarrow$ that's why workers spend efforts to find/produce diamond?
  - cost: labor; land; capital

- The marginalist revolution: total units v.s. the additional unit
  - demand side
- Marshallian supply–demand synthesis: you cannot tell which blade of a scissors does the cutting:
  - water v.s. diamond paradox resolved: prices reflect both the marginal evaluation that demanders place on goods and the marginal costs of producing the goods.
- From partial equilibrium to general equilibrium
  - Walras: effects of a change in one market are followed through other markets.
- Welfare economics: normative implications
  - Smith, Ricardo, Marx, and Marshall
  - Edgeworth and Pareto: "economic efficiency" and the "invisible hand" firstly enunciated by Adam Smith.
  - Classical $\rightarrow$ Neoclassical

Modern Economics

- Mathematics:
  - Paul Samuelson
- Market frictions: information, market power, externalities, public goods
  - information: game theory and mechanism design
  - market power: industrial organization/regulation
- Other branches after the world war II:
  - macroeconomics: Keyesian; Lucas; Friedman, etc
  - positive analysis
  - behavioral, institutional, etc.

Useful Tools for Microeconomics

- Writing:
  - LaTeX v.s. Microsoft Word
  - Beamer v.s. PPT
- Calculation: Maple, Mathematica, Matlab
- Plotting: Microsoft Visio

LaTeX

You are encouraged to hand-in your assignments using LaTeX

- Texlive (engine) + TeXstudio (editor)
- Type inline maths: type "$math here$"
  - Greek letters: \alpha $= \alpha$; \beta $= \beta$;
  - \frac{num}{den} $= \frac{num}{den}$; \sqrt{arg} $= \sqrt{arg}$; \left(\frac{x}{y}\right)^{\alpha} $= \left(\frac{x}{y}\right)^{\alpha}$
  - \partial $= \partial$; \int_{x_1}^{x_2} $f(x)dx = \int_{x_1}^{x_2} f(x)dx$
- \textbf{*bold*} $=$ **bold**; \textit{*italics*} $=$ *italics*; {\color{*red*}text} $=$ *text*

Maple

- $\frac{d}{dx}(x^n)$: type "diff(x^n,x)" $\rightarrow nx^{n-1}$
- solve x and y from

$$\begin{cases} a_{11}x + a_{12}y = b_1 \\ a_{21}x + a_{22}y = b_2 \end{cases}$$

solve($\{a\_11 \cdot x + a\_12 \cdot y = b\_1, a\_21 \cdot x + a\_22 \cdot y = b\_2\}, \{x, y\}$)