

AP[®] Microeconomics

Syllabus 4

AP[®] Microeconomics is a one-trimester (12-week) course that focuses on how economic decisions are made by individuals, firms, and organizational structures. Supply and demand analysis is developed to demonstrate how market prices are determined, how those prices determine an economy's allocation of goods and services, how factors of production are allocated in the production process, and how goods and services are distributed throughout the economy. We evaluate the strengths and weaknesses of economic decision makers by using the concepts of efficiency and equity. We also analyze and evaluate the effects of government intervention. Emphasis is placed on reasoned logical argument so that we can use economics as a method and model for decision making.

Text and Materials

Gwartney, James D., et al. *Economics: Private and Public Choice*. Fort Worth: Dryden Press, 2005.

Morton, John S. *Advanced Placement Economics: Microeconomics*. New York: National Council on Economic Education, 2003.
Two books: *Student Activities* and *Teacher Resources Manual*.

Studenmund, A. H., Richard L. Stroup, and James D. Gwartney. *Coursebook to Accompany Economics: Private and Public Choice*. Fort Worth: Dryden Press, 2005.

Study Procedures: While the syllabus details the topics and assignments, students have found it helpful to follow these study procedures:

1. Review each unit's AP content and AP Exam expectations. Focus your reading and class time on mastering the core concepts as outlined by the College Board in the *AP Microeconomics Course Description*. Review the types of questions asked about the AP content.
2. Preview the Performance Objectives. The unit Objectives are what you will be expected to demonstrate. The Chief Faculty Consultant in AP Economics periodically identifies and compiles a list of problematic areas. Chief Reader Notes are cited to indicate particular problem areas of student learning.

3. Take notes on the Teaching Concepts/Lessons. These are presentations of economic concepts, and your personal notes on them become your best text. You are encouraged to share your notes with other students in order to check the accuracy of your notes, clarify misunderstandings, and assist in solving the AP practice exercises.
4. Practice Graphs. Each unit specifies the graphs you must be able to draw and explain. All graphs must be correctly labeled. **[CR6]**
5. Do the practice problems. Exhibitions of Understanding are a series of readings and exercises that you must complete as guided classroom practice or as homework. Some practice problems are previous AP Economics Exam questions.
6. Know when calculator use is permissible. Calculators are not allowed on any portion of the AP Economics Exam. However, calculators can be used for solving homework assignments and problem sets. They may also be used during class.

CR6—The course teaches students how to generate, interpret, label, and analyze graphs, charts, and data to describe and explain economic concepts.

Evaluation: Standard scores are used (mean = 50; standard deviation = 20) to evaluate student performance. The general weights assigned to the scores are:

- 1/3—Completion of homework assignments (evaluated on a criterion-reference basis)
- 1/3—Three problem sets (evaluated on a norm-reference basis)
- 1/3—Two objective examinations (midterm and final, evaluated on a norm-reference basis)

Course Outline

Unit I: AP Content and AP Exam Expectations (1 week)

I. Basic Economic Concepts

- A. Scarcity: the nature of economic systems **[CR1]**
- B. Opportunity cost and production possibilities **[CR5]**
- C. Specialization and comparative advantage
- D. The functions of any economic system (what, how, and for whom to produce) **[CR1]**

CR1—The course teaches students basic economic concepts.

CR5—The course promotes the understanding of economic decision making and its factors, such as marginal analysis and opportunity costs.

Performance Objectives

You must be able to:

1. Define scarcity, choice, and cost.

2. Define and compute opportunity cost.
3. List and define the axioms of economic reasoning.
4. Distinguish between positive and normative statements.
5. List and explain the economic questions facing all nations.
6. Construct and interpret production possibilities schedules and graphs.
7. Define how production possibilities schedules and graphs illustrate the issues of scarcity, choice, and cost.
8. Define and calculate absolute and comparative advantage for production and exchange.
9. Define allocation, efficiency, and equity.
10. Explain ways in which societies determine allocation, efficiency, and equity.

Chief Reader Note

- Solve comparative advantage problems holding inputs constant with outputs varying and holding outputs constant with inputs varying.

Teaching Concepts/Lessons

1. The Economic Problem: Scarcity, Choice, and Cost
2. The Economic Problem: Efficiency and Equity
3. The Logic of Individual Choice: $MSC = MSB$
4. The Logic of Trade: Absolute versus Comparative Advantage

Graphs

You must be able to:

1. Illustrate and label a production possibilities curve.
2. Illustrate the concepts of scarcity, choice, cost, and economic growth.
3. Illustrate the effects of trade on a production possibility graph.

[CR6]

Exhibitions of Understanding

You must complete the following exercises:

- Gwartney, Chapter 1
- Coursebook
 - #1, The Economic Approach
 - #2, Some Tools of the Economist
- APE Exercises
 - #2, Scarcity, Opportunity Cost, and Production Possibilities Curve
 - #3, Scarcity, Opportunity Cost, Values, and Choice
 - #4, The Cost of College
 - #5, Types of Economic Systems
 - #6, Broad Goals of a Society
 - #9, The Hatfields and the McCoys

CR6—The course teaches students how to generate, interpret, label, and analyze graphs, charts, and data to describe and explain economic concepts.

Unit II-A: AP Content and AP Exam Expectations (1 week)

II. The Nature and Functions of Product Markets

A. Supply and Demand

1. Price and quantity determination
2. Basic manipulation of supply and demand, including ceilings and floors **[CR2]**

- 1989 AP Exam, imposition of a price ceiling
- 1990 AP Exam, the effects on price and output given a change in demand in competitive industry
- 1991 AP Exam, how a change in wage rate affected supply and demand in 1992; how a price ceiling affected Q_d and Q_s
- 1993 AP Exam, how a cost change affected an industry
- 1993 AP Exam, how a complement's price affects a given good in terms of price and quantities
- 1994 AP Exam, how a per-unit tax affected price and quantity
- 1995 AP Exam, how technology affected price and quantities of a good and its substitute
- 1996 AP Exam, supply and demand analysis of tickets with inelastic supply curve; effects of a price ceiling on a market

CR2—The course provides students with instruction in the nature and functions of product markets.

Performance Objectives

You must be able to:

1. Define and illustrate supply and demand through schedules and graphs.
2. Distinguish between changes in supply and demand and between changes in quantity demanded and supplied.
3. Explain the inverse and positive relationships between price and quantity demanded and quantity supplied.
4. Identify and explain the variables that cause changes in supply and demand.
5. Define and illustrate equilibrium.
6. Define and illustrate surpluses and shortages.
7. Define effects of surpluses and shortages on prices and quantities.
8. Predict the changes in prices and quantities given changes in demand and/or supply.
9. Interpret and compute equilibrium price and quantity from graphs, mathematical equations, and/or data.
10. Interpret market conditions given novel data.
11. Define and explain the effects of price ceilings and price supports.

Chief Reader Notes

- Distinguish between elastic and inelastic supply and demand.

- Know how to impose an effective price ceiling and how to interpret graphs.

Teaching Concepts/Lessons

1. Demand and Supply: Changes in Q_d/Q_s
2. Equilibrium: $Q_d=Q_s$
3. Factors Causing a Change in Supply and Demand
4. Market Problems
5. Ceilings and Floors **[CR2]**

CR2—The course provides students with instruction in the nature and functions of product markets.

Graphs

You must be able to:

1. Illustrate and correctly label a supply and demand graph.
2. Show changes in supply/demand.
3. Show the effects of a price ceiling and price floors.
4. Show a change in demand (supply) versus a change in quantity demanded (quantity supplied). **[CR6]**

CR6—The course teaches students how to generate, interpret, label, and analyze graphs, charts, and data to describe and explain economic concepts.

Exhibitions of Understanding

You must complete the following exercises:

- Gwartney, Chapters 2 and 3
- Coursebook
 - #3, Supply, Demand, and the Market Process
- APE Exercises
 - #13, Reasons for Changes in Demand
 - #16, Reasons for Changes in Supply
 - #17, Supply Curves
 - #18, Equilibrium Prices and Equilibrium Quantities
 - #19, Shifts in Supply and Demand
 - #20, How Markets Allocate Resources
 - #25, Price Floors and Ceilings
 - #26, Rent Controls and Affordable Housing
 - #27, The Minimum Wage and Unemployment
 - #28, Farm Supports
 - #29, Pricing Problems
- 1996 AP Exam: Problem #2

Unit II-B: AP Content and AP Exam Expectations

(1 week)

B. Models of Consumer Choice

1. Consumer choice behind demand curve
2. Elasticity **[CR2]**
 - 1990 AP Exam, relationship among elasticity, revenue, and profit
 - 1994 AP Exam, what happens to price and tax revenues when an inelastic product becomes more elastic

CR2—The course provides students with instruction in the nature and functions of product markets.

Performance Objectives

You must be able to:

1. Explain the theory of marginal utility and its relationship to demand.
2. Construct and interpret marginal utility schedules and curves.
3. Explain how a rational individual decides what to purchase, given necessary information about utility, prices, and income.
4. Derive consumer demand schedules and curves given necessary information about utility, prices, and income.
5. Define, explain, calculate, and interpret the price elasticity of demand.
6. Identify and interpret the relationship between the price elasticity of demand and the effect of a price change on total revenue.
7. List and explain the determinants of price elasticity of demand.
8. Define, calculate, and interpret cross elasticities and income elasticities of demand.
9. Define and differentiate between normal and inferior goods.
10. Calculate and explain the price elasticity of supply.
11. Explain the burden of taxation given elasticity information.

Teaching Concepts/Lessons

1. Total Utility versus Marginal Utility
2. Law of Diminishing Marginal Utility
3. $Mu/P_x = MU/P_y$
4. Elasticity (ignore sign)
 - a. Calculation
 - b. Interpretation
 - c. Relationship with TR
5. Income Elasticity
6. Cross Elasticity

Graphs

You must be able to:

1. Draw and illustrate an elastic and an inelastic demand curve.
2. Draw and illustrate consumer/producer tax burden given an elastic and inelastic demand curve.
3. Given a change in supply, compare and contrast the effects of price and quantity changes with elastic and inelastic demand curves.

Exhibitions of Understanding

You must complete the following exercises:

- Gwartney, Chapter 7
- Coursebook

- #17, Demand and Consumer Choice
- APE Exercises
 - #15, Why Use a Demand Curve Downsloping?
 - #21, What Is Price Elasticity of Demand?
 - #22, Elasticity of Demand and Changes in Total Revenue
 - #23, Applying Elasticity to the Real World
 - #24, Elasticity Coefficients
- 1994 AP Exam: Problem #2

Unit II-C: AP Content and AP Exam Expectations (1 1/2 weeks)

C. Firm Production, Costs, Revenues

1. Marginal product and diminishing returns
2. Average and marginal cost and revenues
3. Long-run costs and economies of scale **[CR2]**
 - No specific question from 1989 to 1995 AP Exams, but concepts are critical to answering questions about competitive and monopolistic firms
 - 1996 AP Exam, knowledge of cost concepts and graph of individual firm are necessary to answer the question
 - 1997 AP Exam, calculation of MP and use of marginal analysis to derive supply curve in a competitive firm **[CR5]**

CR2—The course provides students with instruction in the nature and functions of product markets.

CR5—The course promotes the understanding of economic decision making and its factors, such as marginal analysis and opportunity costs.

Performance Objectives

You must be able to:

1. Define and differentiate among different businesses.
2. Define the concepts of firm and industry.
3. Define, explain, and calculate total product, marginal product, and average product, and describe the relationship among these concepts.
4. Define and interpret production functions.
5. Define and differentiate between short run and long run and between fixed and variable inputs.
6. Define the law of diminishing returns and explain how it is depicted by the total product and marginal product curves.
7. Explain the relationship between production and cost.
8. Define and differentiate between explicit and implicit costs.
9. Define and calculate cost graphs.
10. Calculate and define fixed, variable, average, marginal, and total costs, and explain how they vary with the level of output in the short run and long run.
11. Define and explain economies and diseconomies of scale and constant returns to scale.
12. Define and calculate the least-cost combination of inputs to employ for an existing firm.

Teaching Concepts/Lessons

1. Total Production versus Marginal Production
2. Short Run: Diminishing MP
3. Link Production to Cost
 - a. Fixed Cost
 - b. Variable Cost
 - c. Explicit Cost + Implicit Cost = Total Cost
4. Profits: Accounting versus Economic

Graphs

You must be able to:

1. Draw and interpret a production function graph.
2. Draw and interpret a total-cost graph and average-cost graphs.
3. Identify average-fixed, average-variable, and average-cost curves and marginal cost.

Exhibitions of Understanding

You must complete the following exercises:

- Gwartney, Chapter 18
- Coursebook
 - #18, Cost and Supply of Goods
- APE Exercises
 - #30, Different Types of Market Structure
 - #31, Cost of the Individual Firm

Unit II-D & E: AP Content and AP Exam

Expectations (3 1/2 weeks)

- D. Product Pricing and Outputs Both in the Individual Firm and in the Market
 1. Perfect competition
 2. Imperfect competition
 - a. monopoly
 - b. oligopoly and monopolistic competition **[CR2]**
- E. Efficiency and Government Policy Toward Imperfect Competition

CR2—The course provides students with instruction in the nature and functions of product markets.

Competition-Related Questions

- 1989 AP Exam, a competitive firm with a price ceiling imposed on it
- 1990 AP Exam, a competitive firm that experiences a change in the demand for its product
- 1991 AP Exam, how a competitive firm determines output and what happens when variable cost increases
- 1992 AP Exam, a competitive firm that experiences an increase in wholesale prices and a price ceiling
- 1993 AP Exam, a competitive firm experiencing a change in variable cost

- 1994 AP Exam, how wage rates affect the cost for the firm and hence their output
- 1995 AP Exam, how technology affects industry and a firm
- 1996 AP Exam, short-run decisions made by a competitive firm, given specific cost data with efficiency comparison of a monopoly model
- 1997 AP Exam, derive a supply curve for a perfectly competitive firm

Monopoly-Related Questions

- 1989 AP Exam, assumptions and behavior of a monopolist
- 1992 AP Exam, recognizing a business as a monopoly and how the firm determines level of output and prices
- 1993 AP Exam, same question as 1992
- 1994 AP Exam, same question as in previous years on output and price but specifically tested the difference between MR and demand curve of a monopolist
- 1995 AP Exam, explain relationships between MR in a competitive and monopolistic firm and the relationship between MR and MC
- 1996 AP Exam, determine output and price for monopoly; conditions of monopoly versus competitive; compare and contrast output, pricing, and efficiency of competitor with a monopolist
- 1997 AP Exam, determine price, output, and profits of a natural monopoly; evaluate impact of government pricing that controls profits and efficient use of resources; determine conditions of shutdown for a monopoly

Performance Objectives

You must be able to:

1. Define maximization of profits.
2. Apply the concepts of marginal cost and marginal revenue to determine maximization of profits.
3. Understand and apply the rule $MR = MC$.
4. Understand the concept of minimization of losses.
5. Define the shutdown criterion.
6. For each of the following firms:

Pure Competition	Oligopoly/Monopolistic Competition	Pure Monopoly
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- a. Define and explain the conditions under which it functions.
- b. Construct marginal revenue/cost analyses to determine price and output.
- c. Determine the short-run and long-run equilibrium.
- d. Identify the short-run market supply curve.
- e. Compare and contrast pricing and output between and among the firms.

- f. Compare and contrast the demand curve and marginal revenue curve.
- g. Compare and contrast allocative and technical (productive) efficiency among the firms.
- h. Compare and contrast product differentiation among the firms.
- i. Compare and contrast the degree of price discrimination among the firms.
- j. Compare and contrast the effects of government regulation to make it more efficient.

Chief Reader Notes

- Know and distinguish between allocative ($p = mc$) and productive (technological) efficiency ($p = \min ATC$).
- Compare and contrast efficiencies of monopoly and competitive firms and understand when firms are operating efficiently.
- Identify profit-maximizing price and output.
- Explain why marginal revenue is less than price in a monopoly.
- Explain why marginal revenue curve lies below the demand curve
- Explain the difference between marginal revenue for competition and marginal revenue for a monopoly.
- Explain the different kinds of price regulation.

Teaching Concepts/Lessons

1. Making Short-Run Decisions
2. Industry versus Firm
3. Competition: Assumptions
 - a. Output and Price Rule
 - b. Profits: Short Run and Long Run
 - c. Efficiency: Short Run and Long Run
4. Monopoly: Assumptions
 - a. Output and Price Rule
 - b. Limitations of a Monopolist
 - c. Efficiency: Short Run and Long Run. Compare/Contrast with Competition Model
 - d. Monopoly Regulation: Average and Marginal Cost Pricing
5. Oligopoly: Assumptions
 - a. Characteristics: Limited Market Power; Shared Demand
 - b. Kinked Demand, Cournot, Prisoner's Dilemma; Contestable Market
6. Monopolistic Competition: Assumptions
 - a. Shared Demand
 - b. Entry/Exiting and Long-Run Equilibrium
 - c. Efficiency: Compared to Monopoly and Competition

Graphs

You must be able to:

1. Draw graphs and differentiate between a competitive firm and a competitive industry.
2. Draw graphs and correctly label a competitive firm that makes excessive profits, earns zero profits, and minimizes losses.
3. Draw a sequence of graphs that shows a competitive firm making excessive profits (or minimizing its losses) with a return to long-run equilibrium.
4. Draw and label a monopoly firm that makes excessive profits (and minimization of losses).
5. Draw a graph to illustrate the effects in output, price, and profits if the demand increases (or decreases) in a monopolistic firm.
6. Illustrate graphically the problems of monopoly inefficiency (allocative and technical).
7. Draw and label a monopolistic competitive firm and illustrate long-run equilibrium.

Exhibitions of Understanding

You must complete the following:

- Gwartney, Chapters 19, 20, and 21
- Coursebook
 - #19, The Firm Under Pure Competition
 - #20, Monopoly and High Barriers to Entry
 - #21, The Intermediate Cases: Monopolistic Competition and Oligopoly
 - #22, Business Structure, Regulation, and Deregulation
- APE Exercises
 - #32, An Introduction to Perfect Competition
 - #34, Cost and Competitive Market Supply (Perfect Competition)
 - #35, Short-Run and Long-Run Competitive Equilibrium
 - #36, Graphing Perfect Competition
 - #37, Marginal Revenue for an Imperfect Competitor
 - #38, Pure Monopoly
 - #39, Monopoly Pricing
 - #41, Regulating Monopoly
 - #43, A Quick Review of Perfect Competition and Monopoly
 - #44, Monopolistic Competition
 - #45, Supply, Demand, and Videotape
 - #46, The Kinked Demand Curve of an Oligopolist
- 1996 AP Exam: Problem 1
- 1997 AP Exam: Problem 2

Unit III: AP Content and AP Exam Expectations (2 weeks)

III. Factor Markets

A. Derived factor demand

B. Determination of wages and other factor prices [CR3]

- 1991 AP Exam, minimum wage impact on competitive industry
- 1994 AP Exam, entry of new workers into labor market and derived demand; a reduction in demand for product; use of minimum wage; and how minimum wage affects a typical firm
- 1991 and 1994 AP Exams, explain relationship between MRC and MRP
- 1995 AP Exam, how a price change in product affects MRP, wage rates, and quantity of workers
- 1997 AP Exam, calculation of MRP; draw supply and demand curve for labor for a firm; determine number of workers to be hired, effects of a change in the price of the commodity on the number of people hired; understanding of MRC

CR3—The course provides students with instruction in factor markets.

Performance Objectives

You must be able to:

1. Explain the concept of derived demand.
2. Calculate and explain the quantity of labor or a resource to be hired/bought by a firm.
3. Construct a short-run demand schedule for a resource.
4. Calculate and explain the relative amounts or proportions a producer should acquire of two or more resources.
5. Explain the relationship between MP and the demand for an input.
6. Explain and apply the concept of least-cost combination of inputs to novel data.
7. Explain and apply the rule for finding least-cost combination.
8. Explain how the marginal productivity theory of resource demand applies to wage rate determination.
9. Explain how the wage rate is determined.
10. Calculate and determine wage rates in a competitive labor market and in a monopolistic labor market.
11. Explain the concept of bilateral monopoly.
12. Explain the purpose of labor unions and their organization.
13. Explain the effects of unions and specific union tactics on wages and employment in both competitive and monopolistic markets.
14. Evaluate the efficiency of specific legislation aimed at increasing wage rates and employment.
15. Distinguish between pure economic rent and quasi rent.
16. Distinguish between nominal and real interest rate.

Chief Reader Notes

- Explain the effect of a product price change on marginal revenue product curve.
- Explain the reason for shift in demand for an input in response to a change in produce price.
- Explain the consequences of shift in the MRP curve on wage rate and level of employment.
- Explain that the demand for labor is the downward sloping of the marginal revenue product curve.
- Explain how a firm decides the level of inputs to hire or use in the productive process ($MRC = MRP$).

Teaching Concepts/Lessons

1. Factor Demand
 - a. Derived Demand and Derivation of the MRP
 - b. $MRP = \{MPP * P_x \text{ (of good)}\}$
 - c. Impact of Changes in Demand (price of product) on MRP
2. The Supply of Labor and Wage Determination
 - a. Supply Curve for Firm versus Industry
3. Hiring Rule for Competitive and Monopsonistic Employer
4. Labor Unions and Minimum Wage: Strategies and Impact on Wages and Employment **[CR3]**

CR3—The course provides students with instruction in factor markets.

Graphs

You must be able to:

1. Draw and illustrate a demand curve for labor.
2. Draw and illustrate a supply curve for labor in a single competitive firm and a competitive market.
3. Draw and illustrate an effective minimum wage.
4. Draw and illustrate the supply and demand curve for labor in a monopsonistic market.
5. Draw and illustrate the various effects of labor union negotiations on wages and employment in a monopsonistic industry.

Exhibitions of Understanding

You must complete the following exercises:

- Gwartney, Chapters 21, 22, 24, and 26
- Coursebook
 - #23, The Supply and Demand for Productive Resources
 - #24, Earnings, Productivity, and Job Market
 - #26, Labor Unions and Collective Bargaining
- APE Exercises
 - #49, Firm in the Middle
 - #50, The Derived Demand for a Resource
 - #51, How Many Workers Should Be Hired?
 - #52, The Only (Yo-Yo) Game in Town

- #53, Factor Market Pricing
- #54, What Is the Optimum Allocation of Resources?
- #55, How Wages Are Determined in Competitive Labor Markets
- #56, How Wages Are Determined in Monopsonistic Labor Markets
- #57, The Effects of Unions on Wages and Employment in Competitive and Monopsonistic Labor Markets
- #59, The Determination of Interest Rates and Their Effect on Investment Decisions
- 1997 AP Exam: Problem 1
- 1995 AP Exam: Problem 1

Unit IV: AP Content and AP Exam Expectations (1/2 week)

IV. Efficiency, Equity, and Role of Government

A. Market failures

1. Externalities
2. Public goods **[CR4]**

B. Distribution of income

- 1995 AP Exam, identification of an externality problem and how a sales tax on a good affects prices, quantity, after-tax revenues, and efficiency
- 1997 AP Exam, use marginal analysis to regulate an industry that generates negative externalities

CR4—The course provides students with instruction in market failure and the role of government.

Performance Objectives

You must be able to:

1. Define and explain the effects of price ceilings and price supports.
2. Identify potential areas of market failures (externalities and spillovers).
3. Define and explain public goods.
4. Identify economic functions of government in a market economy.

Chief Reader Note

- Define public goods that include nonrivalry and nonexcludability in consumption.

Teaching Concepts/Lessons

1. Public Goods: Nonrivalry and Nonexclusion
2. Externalities and Spillovers
3. Correcting for Externalities
4. Distribution of Income: Lorenz Curve **[CR4]**

CR4—The course provides students with instruction in market failure and the role of government.

Graphs

You must be able to:

1. Illustrate the effects of externalities and spillovers on a supply/demand graph.

2. Illustrate the effects of a government regulation on producers and/or consumers.
3. Illustrate price ceilings and floors.

Exhibitions of Understanding

You must complete the following exercises:

- Gwartney, Chapters 29, 27, and 30
- Coursebook
 - #29, Problem Areas for the Market
 - #27, Inequality, Income Mobility, and the Battle Against Poverty
 - #30, Public Choice: Understanding Government and Government Failure
- APE Exercises
 - #62, Private or Public? Public Goods and Services
 - #63, Private versus Public
 - #64, Third-Party Cost and Benefits
 - #65, Externalities Worksheet
 - #67, Economic Efficiency and the Optimum Amount of Pollution Cleanup
 - #69, Paying to Use a Scarce Resource
 - #70, Public Choice Economics
 - #73, Excise Taxes
- 1995 AP Exam: Problem 2