



# **ECONOMICS**

**MICROECONOMICS**  
**MACROECONOMICS**

Course Description

**Effective Fall 2012**

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## **The College Board**

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of more than 5,900 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success — including the SAT<sup>®</sup> and the Advanced Placement Program<sup>®</sup>. The organization also serves the education community through research and advocacy on behalf of students, educators, and schools.

For further information, visit [www.collegeboard.org](http://www.collegeboard.org).

## **AP Equity and Access Policy**

The College Board strongly encourages educators to make equitable access a guiding principle for their AP programs by giving all willing and academically prepared students the opportunity to participate in AP. We encourage the elimination of barriers that restrict access to AP for students from ethnic, racial, and socioeconomic groups that have been traditionally underserved. Schools should make every effort to ensure their AP classes reflect the diversity of their student population. The College Board also believes that all students should have access to academically challenging course work before they enroll in AP classes, which can prepare them for AP success. It is only through a commitment to equitable preparation and access that true equity and excellence can be achieved.

## **AP Course Descriptions**

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## About the AP<sup>®</sup> Program

AP<sup>®</sup> enables students to pursue college-level studies while still in high school. Through more than 30 courses, each culminating in a rigorous exam, AP provides willing and academically prepared students with the opportunity to earn college credit, advanced placement, or both. Taking AP courses also demonstrates to college admission officers that students have sought out the most rigorous course work available to them.

Each AP course is modeled upon a comparable college course, and college and university faculty play a vital role in ensuring that AP courses align with college-level standards. Talented and dedicated AP teachers help AP students in classrooms around the world develop and apply the content knowledge and skills they will need in college.

Each AP course concludes with a college-level assessment developed and scored by college and university faculty as well as experienced AP teachers. AP Exams are an essential part of the AP experience, enabling students to demonstrate their mastery of college-level course work. More than 90 percent of four-year colleges and universities in the United States grant students credit, placement, or both on the basis of successful AP Exam scores. Universities in more than 60 countries recognize AP Exam scores in the admission process and/or award credit and placement for qualifying scores. Visit [www.collegeboard.org/ap/creditpolicy](http://www.collegeboard.org/ap/creditpolicy) to view AP credit and placement policies at more than 1,000 colleges and universities.

Performing well on an AP Exam means more than just the successful completion of a course; it is a pathway to success in college. Research consistently shows that students who score a 3 or higher on AP Exams typically experience greater academic success in college and are more likely to graduate on time than otherwise comparable non-AP peers. Additional AP studies are available at [www.collegeboard.org/apresearchsummaries](http://www.collegeboard.org/apresearchsummaries).

## Offering AP Courses and Enrolling Students

This course description details the essential information required to understand the objectives and expectations of an AP course. The AP Program unequivocally supports the principle that each school develops and implements its own curriculum that will enable students to develop the content knowledge and skills described here.

Schools wishing to offer AP courses must participate in the AP Course Audit, a process through which AP teachers' syllabi are reviewed by college faculty. The AP Course Audit was created at the request of College Board members who sought a means for the College Board to provide teachers and administrators with clear guidelines on curricular and resource requirements for AP courses and to help colleges and universities validate courses marked "AP" on students' transcripts. This process ensures that AP teachers' syllabi meet or exceed the curricular and resource expectations that college and secondary school faculty have established for college-level courses. For more information on the AP Course Audit, visit [www.collegeboard.org/apcourseaudit](http://www.collegeboard.org/apcourseaudit).

## **How AP Courses and Exams Are Developed**

AP courses and exams are designed by committees of college faculty and expert AP teachers who ensure that each AP subject reflects and assesses college-level expectations. AP Development Committees define the scope and expectations of the course, articulating through a curriculum framework what students should know and be able to do upon completion of the AP course. Their work is informed by data collected from a range of colleges and universities to ensure that AP coursework reflects current scholarship and advances in the discipline. To find a list of each subject's current AP Development Committee members, please visit [apcentral.collegeboard.org/developmentcommittees](http://apcentral.collegeboard.org/developmentcommittees).

The AP Development Committees are also responsible for drawing clear and well-articulated connections between the AP course and AP Exam — work that includes designing and approving exam specifications and exam questions. The AP Exam development process is a multi-year endeavor; all AP Exams undergo extensive review, revision, piloting, and analysis to ensure that questions are high quality and fair, and that there is an appropriate spread of difficulty across the questions.

Throughout AP course and exam development, the College Board gathers feedback from various stakeholders in both secondary schools and higher education institutions. This feedback is carefully considered to ensure that AP courses and exams are able to provide students with a college-level learning experience and the opportunity to demonstrate their qualifications for advanced placement upon college entrance.

## **How AP Exams Are Scored**

The exam scoring process, like the course and exam development process, relies on the expertise of both AP teachers and college faculty. While multiple-choice questions are scored by machine, the free-response questions are scored by thousands of college faculty and expert AP teachers at the annual AP Reading. AP Exam Readers are thoroughly trained, and their work is monitored throughout the Reading for fairness and consistency. In each subject, a highly respected college faculty member fills the role of Chief Reader, who, with the help of AP Readers in leadership positions, maintains the accuracy of the scoring standards. Scores on the free-response questions are weighted and combined with the weighted results of the computer-scored multiple-choice questions. These composite, weighted raw scores are converted into the reported AP Exam scores of 5, 4, 3, 2, and 1.

The score-setting process is both precise and labor intensive, involving numerous psychometric analyses of the results of a specific AP Exam in a specific year and of the particular group of students who took that exam. Additionally, to ensure alignment with college-level standards, part of the score-setting process involves comparing the performance of AP students with the performance of students enrolled in comparable courses in colleges throughout the United States. In general, the AP composite score points are set so that the lowest raw score needed to earn an AP Exam score of 5 is equivalent to the average score among college students earning grades of A in the college course. Similarly, AP Exam scores of 4 are equivalent to college grades of A–, B+, and B. AP Exam scores of 3 are equivalent to college grades of B–, C+, and C.

<b>AP Score</b>	<b>Qualification</b>
5	Extremely well qualified
4	Well qualified
3	Qualified
2	Possibly qualified
1	No recommendation

### **Additional Resources**

Visit [apcentral.collegeboard.org](http://apcentral.collegeboard.org) for more information about the AP Program.

# AP Economics

## INTRODUCTION

The AP Program offers two separate exams in economics: one in microeconomics and one in macroeconomics. Each exam is intended for qualified students who wish to complete studies in secondary school equivalent to a one-semester college introductory course. Each exam presumes at least one semester of college-level preparation. Students may take one or both exams in a given year. A separate score is reported for each.

The material included in the Course Descriptions and in the two exams has been selected by economists who serve as members of the AP Macroeconomics Development Committee and AP Microeconomics Development Committee. In establishing the courses and exams, the committees surveyed the economics departments of more than 200 institutions receiving the most AP scores in economics. Using the information obtained about the content of typical introductory college courses, the committees developed the course outlines and had the multiple-choice questions covering the outlines pretested on college students enrolled in the appropriate economics courses. The AP Course Descriptions and exams are thus representative of college courses and are, therefore, considered appropriate for the measurement of skills and knowledge in the fields of introductory microeconomics and macroeconomics. Inclusion of the content, ideas, and values expressed in the material is not intended as an endorsement of them by the College Board or ETS.

## THE COURSES

### Teaching the Courses

AP classes require extra time on the part of the teacher for preparation, personal consultation with students, and the reading of a much larger number of assignments than would normally be given to students in regular classes. Accordingly, some schools assign reduced teaching hours to any teacher offering such a class or classes. If a teacher has only one semester to teach an AP Economics course, the Development Committees recommend that the teacher not attempt an integrated course but concentrate either on microeconomics or macroeconomics. To facilitate the teaching and learning of economics, the committees also suggest that AP Economics teachers have recent college-level economics courses as background preparation and that schools augment the resource materials available to teachers and students in classrooms and libraries.

Although many schools are able to set up special college-level courses, in some schools AP study may consist of tutorial work associated with a regular course, or an individually tailored program of independent study.

Examples of the organization and content of the AP courses in microeconomics and macroeconomics and of equivalent college courses, as well as suggestions for appropriate resource materials, can be found in the *AP Economics Teacher's Guide* and at AP Central ([apcentral.collegeboard.org](http://apcentral.collegeboard.org)). The Teachers' Resources section of AP Central offers reviews of textbooks, articles, websites, and other teaching resources. The electronic discussion groups (EDGs) accessible through AP Central also provide a moderated forum for exchanging ideas, insights, and practices among



members of the AP professional community. At the back of this booklet, you will find descriptions of these and other AP publications and resources and information about how to order them.

## **College Courses**

An introductory college course in microeconomics or in macroeconomics is generally one semester in length. In both subject areas there is some variety among the courses offered by colleges. The AP topic outline does not reflect any one specific college curriculum for either microeconomics or macroeconomics. Rather, the aim of an AP Economics course is to provide the student with a learning experience equivalent to that obtained in a typical college introductory microeconomics or macroeconomics course.

## **T H E E X A M S**

The AP Microeconomics Exam and the AP Macroeconomics Exam are each a little over 2 hours long. Each exam consists of a 70-minute multiple-choice section and a 60-minute free-response section. The multiple-choice section accounts for two-thirds of the student's exam score and the free-response section for the remaining one-third. Some questions in the free-response section require graphical analysis. The free-response section begins with a mandatory 10-minute reading period. During this period, students are advised to read each of the questions, sketch graphs, make notes, and plan their answers. Students then have 50 minutes to write their answers. Major areas covered in each exam are discussed in this book.

When answering the AP Macroeconomics or Microeconomics free-response questions, a student should respond clearly and concisely. Including paragraph or even full-sentence responses is not always necessary; however, it is important to address the verb prompts appropriately (as explained below). A written response that presents conflicting answers is likely to lead to the loss of points. Definitions of the following terms that are frequently used as prompts in free-response questions are:

- “Show” means to use a diagram to illustrate your answer. Correct labeling of all elements including the axes of the diagram is necessary to receive full credit.
- “Explain” means to take the reader through all of the steps or linkages in the line of economic reasoning. Graphs and symbols are acceptable as part of the explanation.
- “Identify” means to provide a specific answer that might be a list or a label on a graph, without any explanation or elaboration.
- “Calculate” means to use mathematical operations to determine a specific numerical response, along with providing your work.

# AP MICROECONOMICS

The purpose of the AP course in microeconomics is to give students a thorough understanding of the principles of economics that apply to the functions of individual decision makers, both consumers and producers, within the economic system. It places primary emphasis on the nature and functions of product markets and includes the study of factor markets and of the role of government in promoting greater efficiency and equity in the economy. The following is a brief discussion of these topics and some aspects of them that a teacher may choose to explore.

## Topics

### I. Basic Economic Concepts

The study of microeconomics requires students to understand that, in any economy, the existence of limited resources along with unlimited wants results in the need to make choices. An effective AP course, therefore, begins by introducing the concepts of opportunity costs and trade-offs, and illustrates these concepts by using the production possibilities curve or other analytical examples. The course can then proceed to a consideration of how different types of economies determine which goods and services to produce, how to produce them, and to whom to distribute them. It is also important that students understand why and how specialization and exchange increase the total output of goods and services. Students need to be able to differentiate between absolute and comparative advantage, to identify comparative advantage from differences in opportunity costs, and to apply the concept of comparative advantage, in order to determine the basis under which mutually advantageous trade can take place between countries. Specific examples from actual economic situations can be used to illustrate and reinforce the principles involved. The importance of property rights, the role of incentives in the functioning of free markets, and the principle of marginal analysis should be highlighted.

### II. The Nature and Functions of Product Markets

The study of the nature and functions of product markets falls into four broad areas: supply and demand models, consumer choice, production and costs, and theory of the firm.

A well-planned AP course requires an analysis of the determinants of supply and demand and the ways in which changes in these determinants affect equilibrium price and output. In particular, the course helps students make the important distinction between movements along the curves and shifts in the curves. The course also emphasizes the impact of government policies, such as price floors and ceilings, excise taxes, tariffs, and quotas on the free-market price and quantity exchanged. The concepts of consumer surplus and producer surplus should also be introduced. Students are expected to comprehend and apply the concepts of elasticity, including calculating price, cross-price, income elasticities of demand, and the price elasticity of supply.

The next area covered in the course is the theory of consumer choice. Students should gain an understanding of the basic postulates underlying consumer choice: utility, the law of diminishing marginal utility and utility-maximizing conditions, and

their application in consumer decision-making and in explaining the law of demand. By examining the demand side of the product market, students learn how incomes, prices, and tastes affect consumer purchases. Here it is important that students understand how to derive an individual's demand curve, how individual and market demand curves are related, and how the income and substitution effects explain the shape of the demand curve.

The third area covers production and cost analysis both in the short run and in the long run. This section begins with an introduction of the short-run production function, describing the relationship between the quantity of inputs and the quantity of output. Within the context of the production function, students should understand average and marginal products as well as the law of diminishing marginal returns. Students learn the link between productivity and costs and examine the relationships among the short-run costs: total, average, and marginal. With an introduction of the concept of cost minimization and productive efficiency, this section also includes a discussion of long-run costs and an examination of economies and diseconomies of scale, as well as returns to scale.

The fourth area covers the behavior of firms in different types of market structures. This section begins with the definition of profits, making the distinction between accounting and economic profits, and establishing the profit-maximizing rule, using marginal analysis. In covering perfect competition, the course focuses on determining short-run and long-run equilibrium, both for the profit-maximizing individual firm and for the industry, and on the equilibrium relationships among price, marginal and average revenues, marginal and average costs, and profits. Students should understand the adjustment process to long-run equilibrium.

In considering the market behavior of a monopolist, students identify and examine the sources of monopoly power and understand the relationship between a monopolist's demand curve and its marginal revenue curve. Students learn how a monopoly's total revenue changes along its demand curve as price varies. Having learned the behavior of monopolies and perfect competition, students should compare a monopolist's price, level of output, and profit with those of a firm operating in a perfectly competitive market. By paying particular attention to the concept of allocative efficiency, students learn how and why competitive markets achieve an efficient allocation of resources, whereas monopolists do not. The concept of deadweight loss is a good device to show the efficiency loss due to monopoly. The model of price discrimination provides another dimension of monopoly behavior that students need to learn and understand.

In covering oligopoly, the course stresses the interdependency of firms and their tendency to collude or to form a cartel. With a simple payoff matrix, the basic game-theory model should be used to enhance a student's understanding of the interdependent behavior of firms in an oligopolistic market and identification of dominant strategies and Nash equilibrium.

Finally, the course considers the market structure of monopolistic competition and highlights the importance of product differentiation and the role of advertising in the behavior of firms. The course then proceeds to examine firm behavior in the short run and in the long run and the existence of excess capacity and its implication for efficiency.

## **Microeconomics**

### **III. Factor Markets**

In this section of the course, students also apply the concepts of supply and demand to markets for factors such as labor, capital, and land. Students analyze the concept of derived demand, understand how a factor's marginal product and the marginal revenue product affect the demand for the factor, and consider the role of factor prices in the allocation of scarce resources. When the markets for different factors are considered separately, most attention should be given to the labor market, particularly labor supply and wage and employment determination. Although the course may emphasize perfectly competitive labor markets, the effect of deviations from perfect competition, such as minimum wages, unions, monopsonies, and product market monopolies, can also be considered. The principles studied in the analysis of the labor market should be applied to the markets for land and capital to explain the determination of economic rent and the price of capital. By studying the determination of factor prices, students gain an understanding of how the market determines the distribution of income and the sources of income inequality in a market economy.

### **IV. Market Failure and the Role of Government**

It is important for students to understand the arguments for and against government intervention in an otherwise competitive market. Students examine the conditions for allocative efficiency, using the marginal social benefit and marginal social cost principle, and the ways in which externalities, public goods, and the market distribution of income create market failures even in competitive free-market economies. In addition, students are expected to study the effectiveness of government policies such as subsidies, taxes, quantity controls, and public provision of goods and services, which are designed to correct market failures and achieve allocative efficiency. It is also important both to emphasize that monopolies can cause market failures when they use their market power to engage in behavior that restrains competition and to examine the government's attempt to solve such problems by using antitrust policy and regulations. Although there is not a generally accepted standard for judging the equity of an economy's income distribution, a well-designed course will incorporate key measures of income distribution (Lorenz curve and Gini coefficient) and examine the impact of government tax policies and transfer programs, both on the distribution of income and on allocative efficiency.

### **Topic Outline**

On the following pages is an outline of the major content areas covered by the AP Microeconomics Exam. The percentages indicated reflect the approximate percentage devoted to each content area in the multiple-choice section of the exam. The outline is a guide and is not intended as an exhaustive list of topics.

<i>Content Area</i>	<i>Percentage Goals of Exam (multiple-choice section)</i>
I. Basic Economic Concepts . . . . .	(8–14%)
A. Scarcity, choice, and opportunity cost	
B. Production possibilities curve	
C. Comparative advantage, absolute advantage, specialization, and trade	
D. Economic systems	
E. Property rights and the role of incentives	
F. Marginal analysis	
II. The Nature and Functions of Product Markets. . . . .	(55–70%)
A. Supply and demand (15–20%)	
1. Market equilibrium	
2. Determinants of supply and demand	
3. Price and quantity controls	
4. Elasticity	
a. Price, income, and cross-price elasticities of demand	
b. Price elasticity of supply	
5. Consumer surplus, producer surplus, and allocative efficiency	
6. Tax incidence and deadweight loss	
B. Theory of consumer choice (5–10%)	
1. Total utility and marginal utility	
2. Utility maximization: equalizing marginal utility per dollar	
3. Individual and market demand curves	
4. Income and substitution effects	
C. Production and costs (10–15%)	
1. Production functions: short and long run	
2. Marginal product and diminishing returns	
3. Short-run costs	
4. Long-run costs and economies of scale	
5. Cost minimizing input combination and productive efficiency	
D. Firm behavior and market structure (25–35%)	
1. Profit	
a. Accounting versus economic profits	
b. Normal profit	
c. Profit maximization: MR=MC rule	
2. Perfect competition	
a. Profit maximization	
b. Short-run supply and shutdown decision	
c. Behavior of firms and markets in the short run and in the long run	
d. Efficiency and perfect competition	
3. Monopoly	
a. Sources of market power	
b. Profit maximization	
c. Inefficiency of monopoly	
d. Price discrimination	
e. Natural monopoly	

## Microeconomics

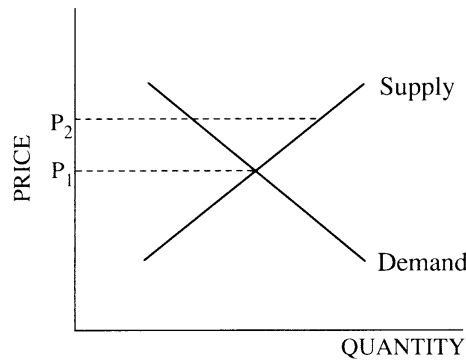
<i>Content Area</i>	<i>Percentage Goals of Exam (multiple-choice section)</i>
4. Oligopoly	
a. Interdependence, collusion, and cartels	
b. Game theory and strategic behavior	
c. Dominant strategy	
d. Nash equilibrium	
5. Monopolistic competition	
a. Product differentiation and role of advertising	
b. Profit maximization	
c. Short-run and long-run equilibrium	
d. Excess capacity and inefficiency	
III. Factor Markets . . . . .	(10–18%)
A. Derived factor demand	
B. Marginal revenue product	
C. Hiring decisions in the markets for labor and capital	
D. Market distribution of income	
IV. Market Failure and the Role of Government . . . . .	(12–18%)
A. Externalities	
1. Marginal social benefit and marginal social cost	
2. Positive externalities	
3. Negative externalities	
4. Remedies	
B. Public goods	
1. Public versus private goods	
2. Provision of public goods	
C. Public policy to promote competition	
1. Antitrust policy	
2. Regulation	
D. Income distribution	
1. Equity	
2. Sources and measures of income inequality	

**Sample Multiple-Choice Questions**

The following are examples of the kinds of multiple-choice questions found on the exam. The distribution of topics and the levels of difficulty approximate the composition of the exam as a whole. Multiple-choice scores are based on the number of questions answered correctly. Points are not deducted for incorrect answers, and no points are awarded for unanswered questions. Because points are not deducted for incorrect answers, students are encouraged to answer all multiple-choice questions. On any questions students do not know the answer to, students should eliminate as many choices as they can, and then select the best answer among the remaining choices. An answer key follows the multiple-choice questions on page 19.

*Directions:* Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that is best in each case.

1. Scarcity is correctly described by which of the following statements?
  - I. Scarcity exists if there are more uses for resources than can be satisfied at one time.
  - II. Scarcity exists if decisions must be made about alternative uses for resources.
  - III. Scarcity would not exist in a society in which people wanted to help others instead of themselves.
  - (A) I only
  - (B) II only
  - (C) III only
  - (D) I and II only
  - (E) I, II, and III
  
2. Which of the following situations would necessarily lead to an increase in the price of peaches?
  - (A) The wage paid to peach farm workers rises at the same time that medical researchers find that eating peaches reduces the chances of a person's developing cancer.
  - (B) While the wages of peach farm workers fall drastically, the peach industry launches a highly successful advertising campaign for peaches.
  - (C) A breakthrough in technology enables peach farmers to use the same amount of resources as before to produce more peaches per acre.
  - (D) The prices of apples and oranges fall.
  - (E) Weather during the growing season is ideal for peach production.

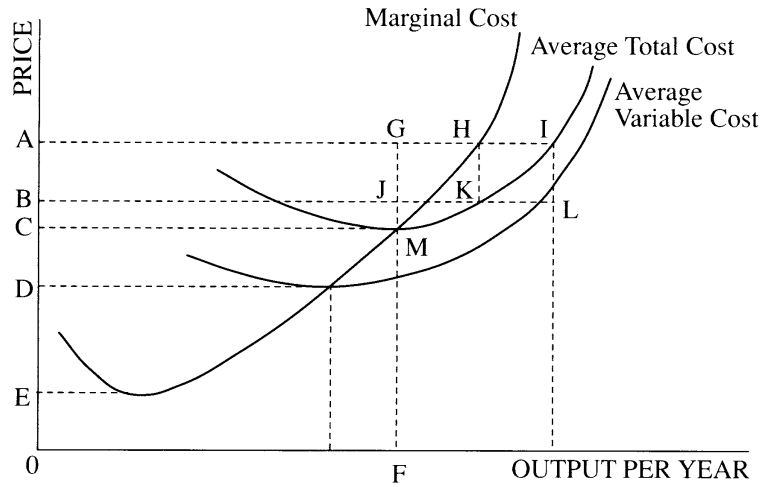


3. The diagram above shows the demand and supply curves for a normal good. The equilibrium price could rise from  $P_1$  to  $P_2$  if
  - (A) consumers' incomes increased
  - (B)  $P_2$  were set as a legal maximum
  - (C) subsidies on the product increased
  - (D) the price of a complementary product increased
  - (E) costs of production were substantially lowered
  
4. A perfectly competitive producer of steel rods and steel beams employs 100 workers with identical skills. If steel rods and steel beams sell for the same price, which of the following rules should the producer always follow to use the 100 workers efficiently?
  - I. Allocate workers so that the average cost of producing beams equals the average cost of producing rods.
  - II. Allocate workers so that the marginal product of labor is the same in both rod production and beam production.
  - III. Allocate half the workers to rod production and half the workers to beam production.
  - (A) I only
  - (B) II only
  - (C) III only
  - (D) II and III only
  - (E) I, II, and III
  
5. Assume a consumer finds that his total expenditure on compact discs stays the same after the price of compact discs declines. Which of the following is true for this price change?
  - (A) Compact discs are inferior goods to this consumer.
  - (B) The consumer's demand for compact discs increased in response to the price change.
  - (C) The consumer's demand for compact discs is perfectly price elastic.
  - (D) The consumer's demand for compact discs is perfectly price inelastic.
  - (E) The consumer's demand for compact discs is unit price elastic.



6. As its output increases, a firm's short-run marginal cost will eventually increase because of
- (A) diseconomies of scale
  - (B) a lower product price
  - (C) inefficient production
  - (D) the firm's need to break even
  - (E) diminishing returns
7. For a firm hiring labor in a perfectly competitive labor market, the marginal revenue product curve slopes downward after some point because as more of a factor is employed, which of the following declines?
- (A) Marginal product
  - (B) Marginal factor cost
  - (C) Marginal cost
  - (D) Total output
  - (E) Wage rates
8. Which of the following is always true of the relationship between average and marginal costs?
- (A) Average total costs are increasing when marginal costs are increasing.
  - (B) Marginal costs are increasing when average variable costs are higher than marginal costs.
  - (C) Average variable costs are increasing when marginal costs are increasing.
  - (D) Average variable costs are increasing when marginal costs are higher than average variable costs.
  - (E) Average total costs are constant when marginal costs are constant.

Questions 9–10 refer to the following diagram and assume a perfectly competitive market structure.

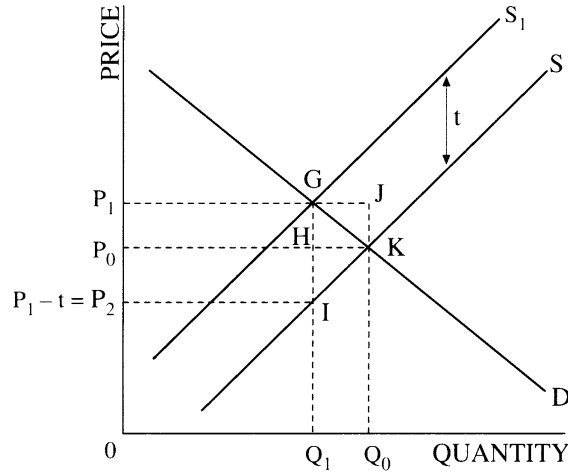


9. At the price 0A, economic profits are  
 (A) ABJG (B) ABKH (C) ABLI (D) ACMG (E) C0FM
10. In the short run, the firm will stop production when the price falls below  
 (A) 0A (B) 0B (C) 0C (D) 0D (E) 0E

11. If the marginal cost curve of a monopolist shifts up, which of the following will occur to the monopolist's price and output?
- |     | <u>Price</u> | <u>Output</u> |
|-----|--------------|---------------|
| (A) | Decrease     | Increase      |
| (B) | Decrease     | Decrease      |
| (C) | Increase     | No change     |
| (D) | Increase     | Increase      |
| (E) | Increase     | Decrease      |
12. If firms in a perfectly competitive industry have been dumping toxic waste free of charge into a river, government action to ensure a more efficient use of resources would have which of the following effects on the industry's output and product price?
- |     | <u>Output</u> | <u>Price</u> |
|-----|---------------|--------------|
| (A) | Decrease      | Decrease     |
| (B) | Decrease      | Increase     |
| (C) | Increase      | Decrease     |
| (D) | Increase      | Increase     |
| (E) | Increase      | No change    |
13. A market is clearly NOT perfectly competitive if which of the following is true in equilibrium?
- (A) Price exceeds marginal cost.
  - (B) Price exceeds average variable cost.
  - (C) Price exceeds average fixed cost.
  - (D) Price equals opportunity cost.
  - (E) Accounting profits are positive.

Questions 14–16 are based on the following information and diagram.

Assume that the original supply and demand curves of a commodity are  $S$  and  $D$ , respectively. Also assume that the government imposes an excise tax (per unit tax) of  $t$  dollars on the commodity, which shifts the supply curve to  $S_1$ .



14. The total amount of tax collected by the government is equal to
  - (A)  $P_1GQ_10$
  - (B)  $P_1GIP_2$
  - (C)  $P_0P_1JK$
  - (D)  $P_0P_1GH$
  - (E)  $P_0P_2IH$
  
15. Which of the following bears the total tax burden?
  - (A) The consumers bear it.
  - (B) The producers bear it.
  - (C) The consumers and the producers each bear a part of it.
  - (D) The group that legally pays the tax bears it.
  - (E) The government bears it.
  
16. The deadweight loss created by the tax is equal to
  - (A)  $P_1GHP_0$
  - (B)  $P_1GKP_0$
  - (C)  $GHK$
  - (D)  $GKI$
  - (E) zero

17. If a perfectly competitive industry is in long-run equilibrium, which of the following is most likely to be true?
- (A) Some firms can be expected to leave the industry.
  - (B) Individual firms are not operating at the minimum points on their average total cost curves.
  - (C) Firms are earning a return on investment that is equal to their opportunity costs.
  - (D) Some factors are not receiving a return equal to their opportunity costs.
  - (E) Consumers can anticipate price increases.
18. From the point of view of economic efficiency, a monopolist produces
- (A) too much of a good and charges too low a price
  - (B) too much of a good and charges too high a price
  - (C) too little of a good and charges too low a price
  - (D) too little of a good and charges too high a price
  - (E) the socially optimal amount of a good

		<u>Sparkle</u>	
		Strategy 1	Strategy 2
<u>Bright</u>	Strategy 1	\$3,000, \$6,000	\$2,000, \$4,000
	Strategy 2	\$500, \$3,000	\$2,500, \$0

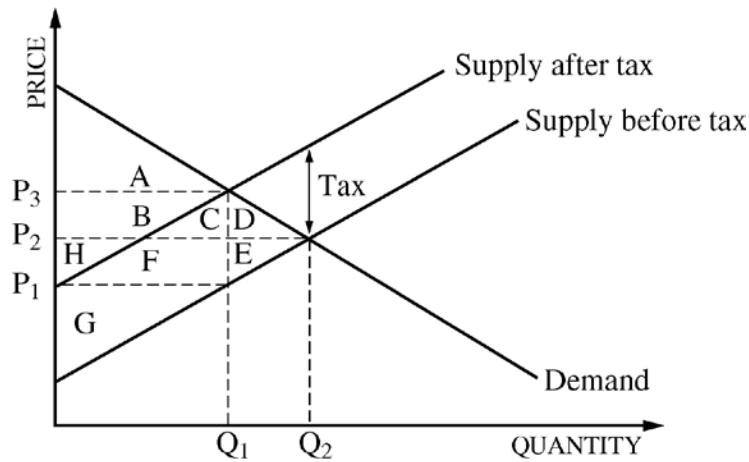
19. The payoff matrix above shows the profits associated with the strategic decisions of two oligopoly firms, Bright Company and Sparkle Company. The first entries in each cell show the profits to Bright and the second the profits to Sparkle. What are the dominant strategies for Bright and Sparkle, respectively?

- | <u>Bright</u>            | <u>Sparkle</u>       |
|--------------------------|----------------------|
| (A) Strategy 1           | Strategy 1           |
| (B) Strategy 1           | Strategy 2           |
| (C) Strategy 2           | Strategy 1           |
| (D) Strategy 2           | No dominant strategy |
| (E) No dominant strategy | Strategy 1           |

Questions 20–22 are based on the chart below, which gives a firm’s total cost of producing different levels of output.

<u>Output</u>	<u>Total Cost</u>
0	\$13
1	20
2	25
3	28
4	32
5	43
6	60

20. The marginal cost of producing the fourth unit of output is
- (A) \$ 4
  - (B) \$11
  - (C) \$19
  - (D) \$32
  - (E) impossible to determine from the information given
21. The total variable cost of producing five units of output is
- (A) \$ 6
  - (B) \$11
  - (C) \$30
  - (D) \$43
  - (E) impossible to determine from the information given
22. The profit-maximizing level of output for this firm is
- (A) 2
  - (B) 3
  - (C) 4
  - (D) 5
  - (E) impossible to determine from the information given



23. The graph above shows the market for good X. The letters in the graph denote the enclosed areas. If the government imposes an excise tax of  $t$  dollars on each unit of good X, which of the following represents the consumer surplus, producer surplus, and deadweight loss after the imposition of the tax?

	<u>Consumer Surplus</u>	<u>Producer Surplus</u>	<u>Deadweight Loss</u>
(A)	A	G	D+E
(B)	A	F+E	D+E
(C)	A+B	G+F+E	C+D
(D)	A+B+H	G+F	D+E
(E)	A+B+H	G+F+C	E

24. A Lorenz curve can be used to evaluate which of the following economic issues?
- (A) The allocative and technical efficiency of markets
  - (B) The comparative advantage of trading partners and the terms of trade
  - (C) The degree of specialization and growth within countries
  - (D) The degree of equity in income distribution
  - (E) The equilibrium of market prices and quantities throughout the world

**Answers to Multiple-Choice Questions**

1 - D	4 - B	7 - A	10 - D	13 - A	16 - D	19 - E	22 - E
2 - A	5 - E	8 - D	11 - E	14 - B	17 - C	20 - A	23 - A
3 - A	6 - E	9 - B	12 - B	15 - C	18 - D	21 - C	24 - D

## **Sample Free-Response Questions**

In the free-response section of the exam, students have a 10-minute reading period and 50 minutes to answer one long and two short free-response questions. These questions generally require students to interrelate different content areas and may ask them to analyze a given economic situation and to set forth and evaluate general microeconomics principles. Students are expected to show both analytical and organizational skills in writing their responses and to incorporate explanatory diagrams that clarify their analyses. Some questions will require students to interpret graphs that are provided as part of the questions; other questions will require students to draw their own graphs as part of their answers. All graphs should be clearly labeled. The longer free-response question will generally require students to interrelate several content areas; the two shorter questions will typically focus on a specific topic in a given content area. The score on the long question will account for one-half of the student's total free-response score; the scores on the shorter questions will each account for one-quarter of the student's total free-response score.

**Planning Time — 10 minutes**

**Writing Time — 50 minutes**

*Directions:* You have 50 minutes to answer all three of the following questions. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.



1. J & P Company operates in a perfectly competitive market for smoke alarms. J & P is currently earning short-run positive economic profits.
  - (a) Using correctly labeled side-by-side graphs for the smoke alarm market and J & P Company, indicate each of the following for both the market and the J & P Company.
    - (i) Price
    - (ii) Output
  - (b) In the graph in part (a) for J & P, indicate the area of economic profits that J & P Company is earning in the short run.
  - (c) Using a new set of correctly labeled side-by-side graphs for the smoke alarm market and J & P Company, show what will happen in the long run to each of the following.
    - (i) Long-run equilibrium price and quantity in the market
    - (ii) Long-run equilibrium price and quantity for J & P Company
  - (d) Assume that purchases of smoke alarms create positive externalities. Draw a correctly labeled graph of the smoke alarm market.
    - (i) Label the market equilibrium quantity as  $Q_m$ .
    - (ii) Label the socially optimum equilibrium quantity as  $Q_s$ .
  - (e) Identify one government policy that could be implemented to encourage the industry to produce the socially optimum level of smoke alarms.
2.
  - (a) Draw a correctly labeled graph showing a typical monopoly that is maximizing profit and indicate each of the following.
    - (i) Price
    - (ii) Quantity of output
    - (iii) Profit
  - (b) Describe and explain the relationship between the monopolist's demand curve and marginal revenue curve.
  - (c) Label each of the following on your graph in part (a).
    - (i) Consumer surplus
    - (ii) Deadweight loss
3. Assume that Company XYZ is a profit-maximizing firm that hires its labor in a perfectly competitive labor market and sells its product in a perfectly competitive output market.
  - (a) Define the marginal revenue product of labor ( $MRP_L$ ).
  - (b) Using correctly labeled side-by-side graphs, show each of the following.
    - (i) The equilibrium wage in the labor market
    - (ii) The labor supply curve the firm faces
    - (iii) The number of workers the firm will hire
  - (c) Company XYZ develops a new technology that increases its labor productivity. Currently this technology is not available to any other firm. For Company XYZ, explain how the increased productivity will affect each of the following.
    - (i) Wage rates
    - (ii) Number of workers hired

# AP MACROECONOMICS

The purpose of the AP course in macroeconomics is to give students a thorough understanding of the principles of economics that apply to an economic system as a whole. The course places particular emphasis on the study of national income and price-level determination, and also develops students' familiarity with economic performance measures, the financial sector, stabilization policies, economic growth, and international economics. There is no single approach that an AP Macroeconomics course is expected to follow. Whatever the approach, however, AP teachers are advised to take into account certain topics generally covered in college courses. The following is a brief discussion of these topics and some aspects of them that a teacher may choose to explore.

## Topics

### I. Basic Economic Concepts

A macroeconomics course introduces students to fundamental economic concepts such as scarcity and opportunity costs. Students understand the distinction between absolute and comparative advantage, and apply the principle of comparative advantage to determine the basis on which mutually advantageous trade can take place between individuals and/or countries, and to identify comparative advantage from differences in opportunity costs. Other basic concepts that are explored include the functions performed by an economic system, and the way the tools of supply and demand are used to analyze the workings of a free market economy. The course should also introduce the concept of the business cycle to give students an overview of economic fluctuations and to highlight the dynamics of unemployment, inflation, and economic growth. Coverage of these concepts provides students with the foundation for a thorough understanding of macroeconomic concepts and issues.

### II. Measurement of Economic Performance

To provide an overview of how the economy works, the course should start with a model of the circular flow of income and products that contains the four sectors: households, businesses, government, and international. It is important to identify and examine the key measures of economic performance: gross domestic product, unemployment, and inflation.

In studying the concept of gross domestic product, it is also important that students learn how gross domestic product is measured, have a clear understanding of its components, and be able to distinguish between real and nominal gross domestic product.

The course should examine the nature and causes of unemployment, the costs of unemployment, and how the unemployment rate is measured, including the criticisms associated with the measurement of the unemployment rate. It is also important to understand the concept of the natural rate of unemployment and the factors that affect it. Students should also have an understanding of inflation and how it is measured. In this section, the course should cover the costs of inflation; the main price indices, such as the consumer price index (CPI) and the gross domestic product deflator. Students should learn how these indices are constructed and used to convert nominal values into real values, as well as to convert dollar values in the past to dollar values in the present. It is also important to highlight the differences between the two price indices as a measure of inflation, as well as the problems associated with each measure.

### III. National Income and Price Determination

This section introduces the aggregate supply and aggregate demand model to explain the determination of equilibrium national output and the general price level, as well as to analyze and evaluate the effects of public policy. It is important to discuss the aggregate demand and aggregate supply concepts individually to provide students a firm understanding of the mechanics of the aggregate demand and aggregate supply model.

The aggregate demand and aggregate supply analysis often begins with a general discussion of the nature and shape of the aggregate demand and aggregate supply curves and the factors that affect them. A detailed study of aggregate demand may begin by defining the four components of aggregate demand: consumption, investment, government spending, and net exports. It also examines why the aggregate demand curve slopes downward and how changes in the determinants affect the aggregate demand curve. The spending-multiplier concept and its impact on aggregate demand, and how crowding out lessens this impact, should be demonstrated as well. The course can then present the definition and determinants of aggregate supply, the different views about the shape of the aggregate supply curve in the short run and in the long run, and highlight the importance of the shape in determining the effect of changes in aggregate demand on the economy. It is also important to understand the notion of sticky-price and sticky-wage models and their implication for the aggregate supply curve in comparison to flexible prices and wages.

Students should be able to use the aggregate demand and aggregate supply model to determine equilibrium income and price level and to analyze the impact of economic fluctuations on the economy's output and price level, both in the short run and in the long run.

### IV. Financial Sector

To understand how monetary policy works, students must understand the definitions of both the money supply and money demand and the factors that affect each of them. Here the course introduces students to the definition of money and other financial assets, such as bonds and stocks, the time value of money, measures of the money supply, fractional reserve banking, and the Federal Reserve System. In presenting the money supply, it is important to introduce the process of multiple-deposit expansion and money creation using T-accounts, and the use of the money multiplier. In learning about monetary policy, it is important to define money demand and examine its determinants. Having completed the study of money supply and money demand, the course should proceed to investigate how equilibrium in the money market determines the equilibrium nominal interest rate. Using the investment demand curve, the students should establish the link between changes in the real interest rate and changes in aggregate demand and understand how changes in aggregate demand affect real output and price level. Students should have an understanding of financial markets and the working of the loanable funds market in determining the real interest rate. It is also important that students develop a clear understanding of the differences between the money market and the loanable funds market.

## **Macroeconomics**

Having an understanding of the financial markets, students should identify and examine the tools of central bank policy and their impact on the money supply and interest rate. Students should understand the distinction between nominal and real interest rates. Students should also be introduced to the quantity theory of money, and examine and understand the effect of monetary policy on real output growth and inflation.

### **V. Stabilization Policies**

Public policy can affect the economy's output, price level, and level of employment, both in the short run and in the long run. Students should learn to analyze the impacts of fiscal policy and monetary policy on aggregate demand and on aggregate supply, as well as on the economy's output and price level, both in the short run and in the long run. It is also important to understand how an economy responds to a short-run shock and adjusts to long-run equilibrium in the absence of any public policy actions.

With both monetary and fiscal policies now incorporated in the analysis of aggregate demand and aggregate supply, an understanding of the interactions between the two is essential. Students should also examine the economic effects of government budget deficits, including crowding out; consider the issues involved in determining the burden of the national debt; and explore the relationships between deficits, interest rates, and inflation. The course should distinguish between the short-run and long-run impacts of monetary and fiscal policies and trace the short-run and long-run effects of supply shocks. Short-run and long-run Phillips curves are introduced to help students gain an understanding of the inflation-unemployment trade-off and how this trade-off may differ in the short and long run. In this section, the course identifies the causes of inflation and illustrates them by using the aggregate demand and aggregate supply model. A well-rounded course also includes an examination of the significance of expectations, including inflationary expectations.

### **VI. Economic Growth**

The course should introduce the concept and meaning of long-run economic growth and examine how economic growth occurs. Students should understand the role of productivity in raising real output and the standard of living, and the role of investment in human capital formation and physical capital accumulation, research and development, and technical progress in promoting economic growth. Having learned the determinants of growth, students should examine how public policies influence the long-run economic growth of an economy.

### **VII. Open Economy: International Trade and Finance**

An open economy interacts with the rest of the world both through the goods market and the financial markets, and it is important to understand how a country's transactions with the rest of the world are recorded in the balance of payments accounts. Students should understand the meaning of trade balance, the distinction between the current account balance and the financial account (formerly known as capital account) balance, and the implications for the foreign exchange market.

The course should also focus on the foreign exchange market and examine how the equilibrium exchange rate is determined. Students should understand how market forces and public policy affect currency demand and currency supply in the foreign exchange markets and lead to currency appreciation or depreciation. How financial capital flows affect exchange rates, and how appreciation or depreciation of a currency affects a country's exports and imports should be an integral part of the presentation. Having learned the mechanics of the foreign exchange markets, students should then understand how changes in net exports and financial capital flows affect financial and goods markets.

It is important to examine what the effects of trade restrictions are, how the international payments system hinders or facilitates trade, how domestic policy actions affect international finance and trade, and how international exchange rates affect domestic policy goals.

### Summary Outline

On the following pages is a summary outline of the major content areas covered by the AP Macroeconomics Exam. The percentages indicated reflect the approximate percentage devoted to each content area in the multiple-choice section of the exam. The outline is a guide and is not intended as an exhaustive list of topics.

## Macroeconomics

<i>Content Area</i>	<i>Percentage Goals of Exam (multiple-choice section)</i>
I. Basic Economic Concepts . . . . .	(8–12%)
A. Scarcity, choice, and opportunity costs	
B. Production possibilities curve	
C. Comparative advantage, specialization, and exchange	
D. Demand, supply, and market equilibrium	
E. Macroeconomic issues: business cycle, unemployment, inflation, growth	
II. Measurement of Economic Performance. . . . .	(12–16%)
A. National income accounts	
1. Circular flow	
2. Gross domestic product	
3. Components of gross domestic product	
4. Real versus nominal gross domestic product	
B. Inflation measurement and adjustment	
1. Price indices	
2. Nominal and real values	
3. Costs of inflation	
C. Unemployment	
1. Definition and measurement	
2. Types of unemployment	
3. Natural rate of unemployment	
III. National Income and Price Determination. . . . .	(10–15%)
A. Aggregate demand	
1. Determinants of aggregate demand	
2. Multiplier and crowding-out effects	
B. Aggregate supply	
1. Short-run and long-run analyses	
2. Sticky versus flexible wages and prices	
3. Determinants of aggregate supply	
C. Macroeconomic equilibrium	
1. Real output and price level	
2. Short and long run	
3. Actual versus full-employment output	
4. Business cycle and economic fluctuations	
IV. Financial Sector . . . . .	(15–20%)
A. Money, banking, and financial markets	
1. Definition of financial assets: money, stocks, bonds	
2. Time value of money (present and future value)	
3. Measures of money supply	
4. Banks and creation of money	
5. Money demand	
6. Money market and the equilibrium nominal interest rate	

- B. Loanable funds market
  - 1. Supply of and demand for loanable funds
  - 2. Equilibrium real interest rate
  - 3. Crowding out
- C. Central bank and control of the money supply
  - 1. Tools of central bank policy
  - 2. Quantity theory of money
  - 3. Real versus nominal interest rates
  
- V. Stabilization Policies ..... (20–30%)
  - A. Fiscal and monetary policies
    - 1. Demand-side effects
    - 2. Supply-side effects
    - 3. Policy mix
    - 4. Government deficits and debt
  - B. The Phillips curve
    - 1. Short-run and long-run Phillips curves
    - 2. Demand-pull versus cost-push inflation
    - 3. Role of expectations
  
- VI. Economic Growth ..... (5–10%)
  - A. Definition of economic growth
  - B. Determinants of economic growth
    - 1. Investment in human capital
    - 2. Investment in physical capital
    - 3. Research and development, and technological progress
  - C. Growth policy
  
- VII. Open Economy: International Trade and Finance ..... (10–15%)
  - A. Balance of payments accounts
    - 1. Balance of trade
    - 2. Current account
    - 3. Financial account (formerly known as capital account)
  - B. Foreign exchange market
    - 1. Demand for and supply of foreign exchange
    - 2. Exchange rate determination
    - 3. Currency appreciation and depreciation
  - C. Imports, exports, and financial capital flows
  - D. Relationships between international and domestic financial and goods markets

**Sample Multiple-Choice Questions**

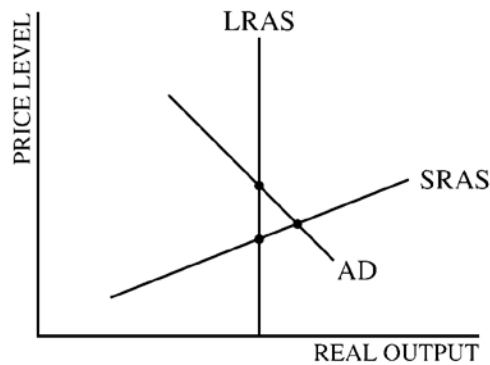
The following are examples of the kinds of multiple-choice questions found on the exam. The distribution of topics and the levels of difficulty approximate the composition of the exam as a whole. Multiple-choice scores are based on the number of questions answered correctly. Points are not deducted for incorrect answers, and no points are awarded for unanswered questions. Because points are not deducted for incorrect answers, students are encouraged to answer all multiple-choice questions. On any questions students do not know the answer to, students should eliminate as many choices as they can, and then select the best answer among the remaining choices. An answer key follows the multiple-choice questions on page 33.

*Directions:* Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that is best in each case.

	<u>Fish</u>	<u>Wheat</u>
Country A	10 labor-hours	20 labor-hours
Country B	20 labor-hours	60 labor-hours

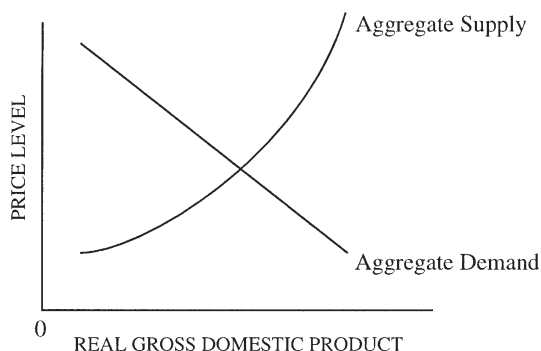
- The table above indicates labor-hours needed to produce a single unit of each of two commodities in each of two countries. If labor is the only factor used to produce the commodities, which of the following statements must be correct?
  - Country A has an absolute advantage in the production of both commodities, but a comparative advantage in the production of wheat.
  - Country B has an absolute advantage in the production of both commodities, but a comparative advantage in the production of fish.
  - Mutually advantageous trade can occur between the two countries when 2.5 units of fish are exchanged for 1 unit of wheat.
  - I only
  - II only
  - III only
  - I and III only
  - II and III only
- Suppose that the consumer price index rises from 100 to 200. From this information we may conclude that
  - each person's real income is cut in half
  - consumer incomes are doubled
  - the prices in an average consumer's market basket are doubled
  - all consumer goods prices are doubled
  - all prices in the economy are doubled





3. In the graph above, AD denotes the aggregate demand curve, SRAS the short-run aggregate supply curve, and LRAS the long-run aggregate supply curve. If no policy action were taken, which of the following changes would move the economy to its long-run equilibrium?
- An increase in aggregate demand
  - An increase in exports
  - An increase in wages
  - A decrease in wages
  - A decrease in the expected price level
4. Suppose that a national government increased deficit spending on goods and services, increasing its demand for loanable funds. In the long run, this policy would most likely result in which of the following changes in this country?
- | <u>Real</u><br><u>Interest Rate</u> | <u>Investment</u> |
|-------------------------------------|-------------------|
| (A) Decrease                        | Decrease          |
| (B) Decrease                        | Increase          |
| (C) Increase                        | Decrease          |
| (D) Increase                        | No change         |
| (E) No change                       | Increase          |
5. In an economy with lump-sum taxes and no international trade, if the marginal propensity to consume is 0.8, which of the following is true?
- When consumption increases by \$5, investment increases by a maximum of \$1.
  - When consumption increases by \$5, savings increase by a maximum of \$1.
  - When investment increases by \$1, income increases by a maximum of \$5.
  - When investment increases by \$1, consumption increases by a maximum of \$5.
  - When income increases by \$1, investment increases by a maximum of \$5.
6. If the government increases expenditures on goods and services and increases taxation by the same amount, which of the following will occur?
- Aggregate demand will be unchanged.
  - Aggregate demand will increase.
  - Interest rates will decrease.
  - The money supply will decrease.
  - The money supply will increase.

7. To counteract a recession, the Federal Reserve should
- (A) raise the reserve requirement and the discount rate
  - (B) sell securities on the open market and raise the discount rate
  - (C) sell securities on the open market and lower the discount rate
  - (D) buy securities on the open market and raise the discount rate
  - (E) buy securities on the open market and lower the discount rate



8. Based on the diagram above, what effect will an increase in the world supply of oil have on real gross domestic product and the price level?

	<u>Real Gross Domestic Product</u>	<u>Price Level</u>
(A)	Decrease	Increase
(B)	Decrease	Decrease
(C)	Increase	Increase
(D)	Increase	No change
(E)	Increase	Decrease

9. If the government simultaneously engages in expansionary monetary and fiscal policies, which of the following is the effect on interest rates and unemployment?

	<u>Interest Rates</u>	<u>Unemployment</u>
(A)	Increase	Indeterminate
(B)	Increase	Decrease
(C)	Decrease	Decrease
(D)	Indeterminate	Decrease
(E)	Indeterminate	Increase

10. If the Federal Reserve sells a significant amount of government securities in the open market, which of the following will occur?

- (A) The total amount of loans made by commercial banks will decrease.
- (B) The total amount of loans made by commercial banks will increase.
- (C) The money supply will increase.
- (D) Rates of interest will decrease.
- (E) Rates of interest and amount of loans made by commercial banks will remain unchanged.

11. The purchase of bonds by the Federal Reserve will have the greatest effect on real gross domestic product if which of the following situations exists in the economy?
- (A) The required reserve ratio is high, and the interest rate has a large effect on investment spending.
  - (B) The required reserve ratio is high, and the interest rate has a small effect on investment spending.
  - (C) The required reserve ratio is low, and the interest rate has a large effect on investment spending.
  - (D) The required reserve ratio is low, and the marginal propensity to consume is low.
  - (E) The marginal propensity to consume is high, and the interest rate has a small effect on investment spending.
12. Which of the following will most likely occur as a result of an increase in labor productivity in an economy?
- (A) An increase in output and a decrease in inflation
  - (B) An increase in interest rates and a decrease in investment
  - (C) A decrease in both money demand and money supply
  - (D) A decrease in exports and an increase in unemployment
  - (E) A leftward shift in the short-run aggregate supply curve and a decrease in output
13. Which of the following is most likely to cause an increase in the international value of the United States dollar?
- (A) Higher United States real interest rates
  - (B) Lower United States government expenditures
  - (C) Higher real interest rates abroad
  - (D) Expansionary monetary policy in the United States
  - (E) Reduced inflation abroad
14. On a short-run Phillips curve, high rates of inflation coincide with
- (A) high interest rates
  - (B) low interest rates
  - (C) high unemployment rates
  - (D) low unemployment rates
  - (E) low discount rates
15. If the reserve requirement is 25 percent and banks hold no excess reserves, an open market sale of \$400,000 of government securities by the Federal Reserve will
- (A) increase the money supply by up to \$1.6 million
  - (B) decrease the money supply by up to \$1.6 million
  - (C) increase the money supply by up to \$300,000
  - (D) increase the money supply by up to \$100,000
  - (E) decrease the money supply by up to \$100,000

16. An increase in which of the following would cause an increase in aggregate supply?
- (A) Labor productivity
  - (B) The wage rate
  - (C) Prices of imports
  - (D) Consumer spending
  - (E) Interest rates
17. Which of the following is true when the velocity of money falls?
- (A) An increase in the money supply will have less effect on nominal gross national product.
  - (B) A change in the money supply will affect output only.
  - (C) The Federal Reserve will decrease the money supply.
  - (D) Output will be greater for a given money supply.
  - (E) The public will increase its holdings of assets other than money.
18. A stimulative fiscal policy combined with a restrictive monetary policy will necessarily cause
- (A) gross domestic product to increase
  - (B) gross domestic product to decrease
  - (C) interest rates to fall
  - (D) interest rates to rise
  - (E) the federal budget deficit to decrease
19. Assume that Canadian consumers increase their demand for Mexican financial assets. How would the international supply of Canadian dollars, the value of the Mexican peso relative to the Canadian dollar, and Canadian net exports to Mexico change?
- |     | <u>Supply of<br/>Canadian Dollars</u> | <u>Value of<br/>the Peso</u> | <u>Canadian Net<br/>Exports</u> |
|-----|---------------------------------------|------------------------------|---------------------------------|
| (A) | Increase                              | Increase                     | Increase                        |
| (B) | Increase                              | Increase                     | Decrease                        |
| (C) | Decrease                              | Increase                     | Decrease                        |
| (D) | Decrease                              | Decrease                     | Increase                        |
| (E) | No change                             | Increase                     | Decrease                        |
20. If nominal gross domestic product fell while real gross domestic product rose, which of the following must be true?
- (A) Unemployment increased.
  - (B) The inflation rate was negative.
  - (C) Net exports were negative.
  - (D) The average of stock prices rose while bond prices fell.
  - (E) Nominal interest rates rose by less than the rate of inflation.

21. An increase in which of the following would reduce the United States balance-of-trade deficit?
- (A) United States demand for foreign goods
  - (B) United States rate of inflation compared to other countries
  - (C) The value of foreign currency relative to the United States dollar
  - (D) The federal budget deficit
  - (E) United States interest rates compared to other countries

**Answers to Multiple-Choice Questions**

1 – D	4 – C	7 – E	10 – A	13 – A	16 – A	19 – A
2 – C	5 – C	8 – E	11 – C	14 – D	17 – A	20 – B
3 – C	6 – B	9 – D	12 – A	15 – B	18 – D	21 – C

## **Sample Free-Response Questions**

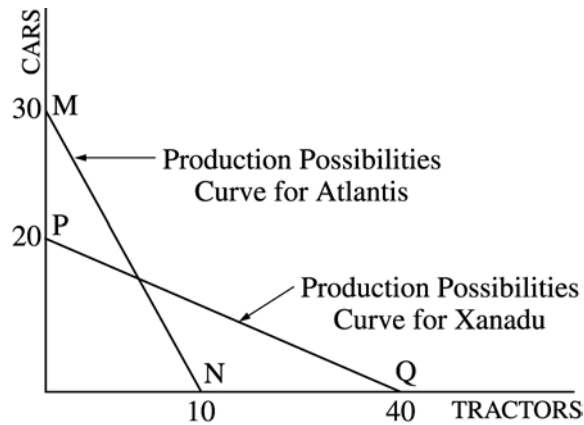
In the free-response section of the exam, students have a 10-minute reading period and 50 minutes to answer one long and two short free-response questions. These questions generally require students to interrelate different content areas and may ask them to analyze a given economic situation and to set forth and evaluate general macroeconomic principles. Students are expected to show both analytical and organizational skills in writing their responses and to incorporate explanatory diagrams that clarify their analyses. Some questions will require students to interpret graphs that are provided as part of the questions; other questions will require students to draw their own graphs as part of their answers. All graphs should be clearly labeled. The longer free-response question will generally require students to interrelate several content areas; the two shorter questions will typically focus on a specific topic in a given content area. The score on the long question will account for one-half of the student's total free-response score; the scores on the shorter questions will each account for one-quarter of the student's total free-response score.

**Planning Time — 10 minutes**

**Writing Time — 50 minutes**

*Directions:* You have 50 minutes to answer all three of the following questions. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

1. Assume that the United States economy is in a severe recession with no inflation.
  - (a) Using a correctly labeled aggregate demand and aggregate supply graph, show each of the following for the economy.
    - (i) Full-employment output
    - (ii) Current output level
    - (iii) Current price level
  - (b) The federal government announces a major decrease in spending. Using your graph in part (a), show how the decrease in spending will affect each of the following.
    - (i) Level of output
    - (ii) Price level
  - (c) Explain the mechanism by which the decrease in government spending will affect the unemployment rate.
  - (d) The Federal Reserve purchases bonds through its open-market operations.
    - (i) Using a correctly labeled graph, show the effect of this purchase on the interest rate.
    - (ii) Explain how the change in the interest rate will affect output and the price level.
  - (e) Explain how the change in the interest rate you identified in part (d) will affect each of the following.
    - (i) International value of the dollar relative to other currencies
    - (ii) United States exports
    - (iii) United States imports
  
2. Country Y is experiencing severe and unanticipated inflation.
  - (a) Explain the effect of this inflation on each of the following.
    - (i) A family with savings in a fixed-interest-rate time deposit account
    - (ii) A business repaying a long-term, fixed-interest-rate loan
  - (b) Identify one fiscal policy action that could be implemented to reduce inflation.
  - (c) Identify an open-market operation that could be implemented to reduce inflation.
  - (d) Suppose that Country Y continues to experience high inflation in the long run. Indicate the effect of this inflation on the nominal interest rate in Country Y.
  - (e) If Country Y's inflation is high relative to that of other countries, explain the effect of this inflation on the international value of Country Y's currency.



3. Assume that two countries, Atlantis and Xanadu, have equal amounts of resources. Atlantis can produce 30 cars or 10 tractors or any combination, as shown by the line MN in the figure above. Xanadu can produce 20 cars or 40 tractors or any combination, as shown by the line PQ in the figure above.
  - (a) Which country has an absolute advantage in the production of tractors? Explain how you determined your answer.
  - (b) Which country has a comparative advantage in the production of cars? Using the concept of opportunity cost, explain how you determined your answer.
  - (c) If the two countries specialize and trade with each other, which country will import cars? Explain why.
  - (d) If the terms of trade are such that one car can be exchanged for one tractor, explain how Atlantis will benefit from such trade.



## Teacher Support

### AP Central® ([apcentral.collegeboard.org](http://apcentral.collegeboard.org))

You can find the following Web resources at AP Central:

- AP Course Descriptions, information about the AP Course Audit, AP Exam questions and scoring guidelines, sample syllabi, and feature articles.
- A searchable Institutes and Workshops database, providing information about professional development events.
- The Course Home Pages ([apcentral.collegeboard.org/coursehomepages](http://apcentral.collegeboard.org/coursehomepages)), which contain articles, teaching tips, activities, lab ideas, and other course-specific content contributed by colleagues in the AP community.
- Moderated electronic discussion groups (EDGs) for each AP course, provided to facilitate the exchange of ideas and practices.

### Additional Resources

**Teacher’s Guides and Course Descriptions** may be downloaded free of charge from AP Central; printed copies may be purchased through the College Board Store ([store.collegeboard.org](http://store.collegeboard.org)).

**Course Audit Resources.** For those looking for information on developing syllabi, the AP Course Audit website offers a host of valuable resources. Each subject has a syllabus development guide that includes the guidelines reviewers use to evaluate syllabi as well as multiple samples of evidence for each requirement. Four sample syllabi written by AP teachers and college faculty who teach the equivalent course at colleges and universities are also available. Along with a syllabus self-evaluation checklist and an example textbook list, a set of curricular/resource requirements is provided for each course that outlines the expectations that college faculty nationwide have established for college-level courses. Visit [www.collegeboard.org/apcourseaudit](http://www.collegeboard.org/apcourseaudit) for more information and to download these free resources.

**Released Exams.** Periodically the AP Program releases a complete copy of each exam. In addition to providing the multiple-choice questions and answers, the publication describes the process of scoring the free-response questions and includes examples of students’ actual responses, the scoring standards, and commentaries that explain why the responses received the scores they did. Released Exams are available at the College Board Store ([store.collegeboard.org](http://store.collegeboard.org)).

Additional, **free AP resources** are available to help students, parents, AP Coordinators, and high school and college faculty learn more about the AP Program and its courses and exams. Visit [www.collegeboard.org/apfreepubs](http://www.collegeboard.org/apfreepubs) for details.

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