

SYLLABUS

AREC 304—Intermediate Production and Consumption Analysis

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Textbook: Abbreviated lecture notes and supplemental readings posted on class website at www.ag.arizona.edu/arec/classes.html (click on AREC 304; User name: arec304; Password: ipca)

Scope: For all individuals and societies the fundamental questions of “what to produce,” “how to produce,” and “for whom to produce” are inescapable. Throughout much of the world these matters are resolved using market mechanisms driven by economic incentives and price signals. This course focuses on intermediate-level microeconomics with the aim of understanding the fundamentals of 1) producer choice, product supply, and factor demand, 2) consumer choice and demand, 3) the market mechanism under price-taking and price-making behavior, 4) the efficiency of competitive markets, and 5) policy analysis of government intervention in markets.

Prerequisites: ECON 200 or 201A and MATH 113

Learning

Outcomes:

Upon completion of this course you will know how (and why) it is that:

- The Law of Demand (downward-sloping demand) generally holds.
- The Law of Supply (upward-sloping supply) and the Law of Factor Demand (downward-sloping factor demand) always hold.
- Other properties (cross-price effects, homogeneity, LaChatelier effects) of supply and demand generally hold.
- Competitive markets generally maximize economic welfare.
- Government intervention in the marketplace, other than to remedy market failure, necessarily reduces economic welfare.

You will also learn:

- To predict the direction and extent of market price and quantity changes due to changes in consumer income, prices of related goods, population, improved technology, and production costs.
- How to determine the economic cost and who gains and who loses from government intervention/policy.

Grading:

Your course grade will be based on points earned on your *best four of five* 20-point problem/writing sets (PWS), your *best four of five* 5-point pop quizzes, three 100-point midterm exams, and an “optional” 100-point final exam (see possible point scenarios below). PWSs are due *at the beginning of class on the due date. No late PWSs will be accepted.* If you fail to hand in a PWS on time, your score for that activity will be recorded as zero. *No make-up exams will be given.* Scores for missed exams will be recorded as zero. However, in addition to being able to drop your lowest PWS score (noted above), you will be allowed to replace your lowest (or missing) exam score by taking the optional final exam.

Possible Point Scenarios

	Possible Points	
	w/o final	with final
Problem/Writing Sets (PWS)	80	80
Pop Quizzes	20	20
Midterm Exams	300	200
Final Exam	<u>--</u>	<u>100</u>
Total possible points	400	400

Determination of course grade: Your course grade will be determined by your percentile score (total points earned divided by 400: $\geq 90\%$ = A; 80 to 89 % = B; 70 to 79 % = C; 60 to 69 % = D; $< 60\%$ = E).

Deciding whether or not to take the optional final exam: At the beginning of the last class day, you will be given a slip of paper showing your overall percentage score and letter grade earned, based on your best four PWSs, your best four pop quizzes, and your three mid-term exam scores. The number of points that you would need to earn on the final exam in order to raise your course grade will also be provided. Those happy with their grade earned will be excused. If you are interested in the chance of raising your course grade, you will be invited to remain and review for the final exam.

Plagiarism penalty: Plagiarism is a form of cheating and will not be tolerated. I encourage you to work together on the PWSs (discuss the problem and share ideas). However, each of you is expected to produce your own individual final report for each PWS. Failure to do so will result in the awarding of zero points for a “copied” PWS for all parties involved.

Special Needs: Students who need special accommodation or services should contact the DRC (Disability Resources Center), 1224 East Lowell Street, Tucson, AZ 85721, (520) 621-3268, FAX (520) 621-9423, <http://www.drc.arizona.edu/>. You must register and request that the DRC send me official notification of your accommodations needs as soon as possible.

Weekly Class Schedule: Fall 2015

<i>Week #</i>	<i>Days</i>	<i>Topics* & Important Dates</i>	
	(T)		
1 (8/25)	TR	Intro, math review, assumptions	
2 (9/1)	TR	Producer theory: prod func prop	
3 (9/8)	TR	Profit max and factor demand	
4 (9/15)	TR	Costs of production	[PWS #1 due R, 9/17]
5 (9/22)	TR	Profit max and product supply	[Exam #1 on R 9/24]
6 (9/29)	TR	Two-variable-factor case	
7 (10/6)	TR	Consumer theory	[PWS #2 due R, 10/8]
8 (10/13)	TR	Cont: consumer theory	
9 (10/20)	TR	Consumer demand	[PWS #3 due R, 10/22]
10 (10/27)	TR	Competitive markets and econ welfare	[Exam #2 on R, 10/29]
11 (11/3)	TR	Monopoly	
12 (11/10)	TR	Policy analysis	[PWS #4 due R, 11/12]
13 (11/17)	TR	Cont: policy analysis	
14 (11/24)	T	Cont. policy analysis	[PWS #5 due T, 11/24]
15 (12/1)	TR	Cont. policy analysis	[Exam #3 on R, 12/3]
16 (12/8)	T	Review (opt final exam)	
17 (12/14)	M	Optional final exam: Mon., 12/14 (10:30 to 12:30)	

* Detailed topic outline, pp. 4-5.

Other Important Dates

1. Last day to drop with no record on transcript – 9/6
2. Last day to drop with grade of W – 11/1

Course Outline

AREC 304—Intermediate Production and Consumption Analysis

I. Mathematics Review and Economic Modeling Approach

- A. Algebra and elementary differential calculus
- B. Comparative statics, *ceteris paribus*, and key assumptions (homogeneous inputs, outputs, and goods; perfect knowledge; certainty; timeless, monopiod analysis; market power; utility maximization and profit maximization)

II. Producer Theory with price-taking behavior

- A. Production functions and properties including factor elasticity (generic, Cobb-Douglas, quadratic, classic 3-stage models)
- B. Input-side vs. output-side profit maximization problems
- C. Input-side profit maximization with one variable factor and factor demand
- D. Properties of factor demand functions (comparative static own- and product-price effects)
- E. Variable costs of production
 - 1. Relationship to the production function for single-variable-factor case (Cobb-Douglas, quadratic, and classic 3-stage cases)
 - 2. Marginal cost, average variable cost, and cost curve geometry
 - 3. Elasticity of variable cost function
- F. Output-side profit maximization with one variable factor, product supply, and properties of supply functions (comparative static own- and factor-price effects)
- G. Two-variable-factor case (cost minimization problem, deriving variable cost function, and brief revisit of output-side profit max and product supply)
- H. Supply elasticities (own-price and factor price) and implications

III. Consumer Theory with price-taking behavior

- A. Consumer choice, preference axioms, and the indifference map
- B. Utility functions
- C. Budget equation
- D. Constrained utility maximization and the income consumption curve
- E. Consumer demand and properties of demand (comparative static own-price effect and cross-price effects for substitute and complementary goods; marginal income effect; no money illusion; long-run vs short-run)
- F. Geometry of substitution and income effect
- G. Demand elasticities (own-price, income, and cross-price) and implications

IV. The Competitive Market Model and Economic Welfare

- A. From individual consumer demand and firm-level supply to market demand and supply
- B. Equilibrium price and quantity
- C. Consumers' surplus
- D. Producers' surplus (profit exclusive of fixed cost)
- E. The "invisible hand" and maximization of economic welfare (economic efficiency)
- F. Market failure (public goods, externalities, and market power)

V. Monopoly (price-making behavior) and Economic Welfare

- A. Output-side, profit-maximization when product price is endogenous
- B. Implications for product supply
- C. Implications for economic efficiency
- D. Pros and cons of government intervention

VI. Policy Analysis

- A. Some ideas from public choice / political economy (when political process works well and poorly, user charges, special interest effect, short-sightedness effect, rent seeking)
- B. Implications of market intervention absent market failure (binding ceiling prices and product shortages; binding floor prices and product surpluses)
- C. Intervention for rent seeking gain [redistribution of producers' and consumers' surplus, taxpayer burden, and dead-weight loss using four stylized farm policy examples—free market, price subsidy without supply control, marketing quotas (price floor with supply control), and target prices with deficiency payments]
 - 1. The analytical/conceptual framework
 - 2. The geometry of four stylized farm policy examples
 - 3. Policies that result in demand or supply shifts
 - 4. Who captures the rents? Implication of differing supply and demand own-price elasticities and parallel vs. pivotal supply shift
- D. Surplus Calculations "On the Back of an Envelope"