ECONOMICS 3070
Spring 1992
INTERMEDIATE MICROECONOMIC THEORY
PROFESSOR J. KRUSE

Office: Econ 11
Office Hours: 2:00-2:50 MWF
Phone: 492-8736

Time: 1:00-1:50 p.m. MWF
Place: Econ 119 or equivalent
Prerequisite: Math 107, 108 or equivalent
Required text: Intermediate Microeconomics, A Modern Approach

The goal of this course is to prepare you with the needed foundation in microeconomic theory to understand the underlying assumptions, strengths and weaknesses of the theories used in your upper division applied courses. In presenting this material to you the instructor recognizes that differences in cultural background may lead to different learning styles. Consequently the material and intuition will be presented in a variety of ways to give all students an opportunity learn this important foundation material.

Grading Policy: Each student’s course grade for Economics 3070 will be determined using the following basis:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm 1</td>
<td>100</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>100</td>
</tr>
<tr>
<td>Final(Comprehensive)</td>
<td>100</td>
</tr>
<tr>
<td>Class activity</td>
<td>50</td>
</tr>
</tbody>
</table>

Minimum Percentage for each letter grade: The following table lists the minimum percentage score necessary to achieve each letter grade. I will not raise the minimum, but do reserve the right to lower the minimum requirements.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Minimum total points (derived from the sum of three exam scores and the class activity score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>322 (92%)</td>
</tr>
<tr>
<td>A-</td>
<td>315 (90%)</td>
</tr>
<tr>
<td>B+</td>
<td>308 (88%)</td>
</tr>
<tr>
<td>B</td>
<td>280 (80%)</td>
</tr>
<tr>
<td>B-</td>
<td>273 (78%)</td>
</tr>
<tr>
<td>C+</td>
<td>266 (76%)</td>
</tr>
<tr>
<td>C</td>
<td>245 (70%)</td>
</tr>
<tr>
<td>C-</td>
<td>238 (68%)</td>
</tr>
<tr>
<td>D</td>
<td>210 (60%)</td>
</tr>
</tbody>
</table>
Class activity includes announced quizzes (worth 10 points each), unannounced in-class markets (worth 10 points each). There will be at least eight such 10-point opportunities. The five highest scores from this body of work comprise the class activity score.

Make-up Exams: Each student is expected to take all of the exams and quizzes at the designated time and place. Students who miss any exam without a university accepted excuse will receive a grade of zero for the missed exam. MAKE UP EXAMS WILL NOT BE GIVEN. The final exam will assume all point values of exams that were missed with a university accepted excuse. A make-up exam will be given to those students who miss the final exam and do have a university-accepted excuse.

Students who miss an exam must provide a signed written statement explaining the reason why they missed the exam within one week of the exam. Otherwise, a zero will be awarded.

Important dates:
- 1-31 Quiz 1
- 2-14 Quiz 2
- 2-28 Quiz 3
- 3-6 EXAM I
- 3-18 Quiz 4
- 3-20 No Class
- 4-10 Quiz 5
- 4-17 Quiz 6
- 4-29 EXAM II
- 5-9 8:30 to 10:30 a.m. FINAL EXAM (comprehensive)

The Course
- Ch 1 & 16 Supply, Demand, Competitive Equilibrium & Welfare
- Ch 2 The Budget Constraint
- Ch 3 Preferences
- Ch 4 Utility
- Ch 5 Choice
- Ch 6 Demand
- Ch 8 The Slutsky Equation
- Ch 9 Buying and Selling
- Ch 27 Exchange
- Ch 10 Intertemporal Choice
- Ch 11 Asset Markets
- Ch 12 Uncertainty
- Ch 15 Market Demand
- Ch 17 Technology
- Ch 18 Profit Maximization
- Ch 19 Cost Minimization
- Ch 20 Cost Curves
This schedule is tentative. Announcements made by the instructor in class preempt this schedule.
1. What does pareto efficient mean?

2. The demand for good 1 is given by the following equation.
   Given present consumer tastes for good 1,
   \[ q_1 = 1 - .1P_2 + .2P_3 - 2P_1 \]
   Presently:
   - Consumer income = 100
   - \( P_2 \): price of good 2 = 10
   - \( P_3 \): price of good 3 = 5

   a) Plot the demand curve in \( P_1, q_1 \) space.
   b) Is good 2 a substitute or complement?
   c) Is good 3 a substitute or complement?
   d) Find the inverse demand for good 1.
   e) What will happen if income changes to 200?

3. Given the present technology of production, the supply of good 1 is given by the following equation:
   \[ q_1 = P_1 - .5(w + r) \]
   Presently:
   - \( w \): wage rate = 10
   - \( r \): rental rate on capital equipment = 6

   a) Plot the supply curve in \( P_1, q_1 \) space.
   b) Find the inverse supply for good 1.
   c) What will happen if \( w \) goes up to 16?

4. Calculate the equilibrium price and quantity for the initial supply and demand curves given in 2 and 3. Calculate equilibrium price and quantity using the inverse demand and inverse supply curves.

5. Calculate the new equilibrium when 2e occurs. Repeat this exercise for 3c.

6. Demand and supply are given by the following functions:
   \[ \text{D: } Q = 100 - 3P \]
   \[ \text{S: } Q = 3P - 20 \]

   Plot, Solve for Equilibrium Price and Quantity (\( P^* = 20, Q^* = 40 \)), calculate Consumer surplus at the equilibrium (\( CS = 266 \ 2/3 \)), Producer Surplus at the equilibrium (\( PS = 266 \ 2/3 \)), Total Surplus (\( TS = 533 \ 1/3 \))

   Suppose consumers must pay a $2 tax on each unit they consume.
   So \( P_s = P_d + 2 \). Calculate \( P_s(=21), P_d(=19) \), and \( Q(=37) \) in equilibrium. Calculate consumer surplus (\( =228.166 \)), producer surplus (\( =228.166 \)), tax revenue (\( =74 \)), total surplus (\( =530 \ 1/3 \)), and deadweight loss (\( =3 \)). Represent this case graphically.

   Now suppose, instead, that sellers must pay a $2 tax on each unit they sell. Calculate the prices, quantity traded, consumer surplus, producer surplus, tax revenue, total surplus, and deadweight loss. (all answers are the same as in the previous case)

7. The following is a demand function for movie tickets in Gunnison, Colorado:
   \[ Q_m = .003I + .1P_c + .2P_v - .5P_p - 40P_m \]
I: per capita Household Income = $10,000

Pc: Price of Concert Tickets = $10.00

Pv: Price of Movie Video Rental = $2.50

Pp: Price of Popcorn = $3.00

Pm: Price of Movie Tickets

There are two movie theatres in Gunnison, each with a seating capacity of 100 seats. If either theatre tries to sell more tickets than its 100 seats, they get into BIG trouble. The trouble is big enough that they never exceed their 100 seat capacities. Both theatres figure that their economic costs are a constant $2.00 per ticket. Both theatres want to sell out if possible. What price can they charge for their tickets and still sell out. Represent the demand and supply curves graphically. Calculate the Consumer surplus (500) and producer surplus (100) at the equilibrium price (2.50) and quantity (200).

What if the city of Gunnison imposes a $0.50 seat tax. Calculate the equilibrium price buyers pay (2.50), price sellers receive (2.00) equilibrium quantity (200), consumer surplus (500) producer surplus (0), tax revenue (100), total surplus (600), and deadweight loss (0) under the tax.

What if the city of Gunnison imposes a $1.00 seat tax. Calculate the equilibrium price buyers pay (3.00), price sellers receive (2.00), equilibrium quantity (180), consumer surplus (405) producer surplus (0), tax revenue (180), total surplus (585), and deadweight loss (15) under the tax.

8. Define budget set. Define Budget line. What does each axis measure? What do its vertical intercept, horizontal intercept and its slope measure?

9. A consumer spends her entire income on pizza and record albums. Draw the budget line for each of the following situations, identifying the intercepts and the slope in each case. (Measure pizza consumption horizontally)
   a) Monthly income is 1000, the price of pizza is 8 and the price of record albums is 10.
   b) Same conditions as in a, except that income is 500.
   c) Same conditions as in a, except that income is 2000 and pizza is 16
   d) Same conditions as in a, except that record albums cost 5.
   e) Compare the budget lines in c and d.

10. A consumer has income of 100. The price of food is 10 per unit. Using the case of a composite good and food, graphically analyze the effect of the following taxes and subsidies:
   a) A quantity subsidy of 5 is placed on food.
   b) An ad valorem tax of 20% is placed on food.
   c) Consumers face a lumpsum tax of 30.
   d) Consumers are not allowed to purchase more than 8 units of food.