Res Ec 428: Managerial Economics, Fall, 2015
MW 4:00 p.m. – 5:15 p.m., Holdsworth 305

Instructor: Bernie Morzuch
Office: 221 Stockbridge Hall, Telephone: 545-5718
e-mail: morzuch@resecon.umass.edu

Text: I have yet to decide on a text.

Prerequisites: Intermediate microeconomics, introductory statistics, and familiarity with computers. Individual courses in linear programming and econometrics are helpful but not absolutely necessary. Students frequently take econometrics concurrently with this course.

Objectives: The purpose of this course is to show you how to connect and apply the courses that you've taken in this major.

Examinations: There will be two exams during the semester in addition to a final exam. Each of the two exams will: (1) be outside of class and be two hours in length; they are scheduled for 3:30-5:30 p.m. on Friday, October 16 and Friday, November 20; (2) concentrate on the material since the previous exam; and (3) be worth 25 percent of your final grade.

Final Exam: A final exam will be scheduled during finals week. The final is worth 30 percent of your final grade and will be comprehensive.

Homeworks: Ten homeworks will be assigned throughout the semester. Collectively, they will be worth 20 percent of your final grade. As each homework is assigned, I will provide you with explicit instructions on using the appropriate computer package.

Summary of Grading Scheme:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two exams during semester</td>
<td>50%</td>
</tr>
<tr>
<td>Final exam</td>
<td>30%</td>
</tr>
<tr>
<td>Ten homeworks</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Class Attendance: You are expected to be in class. The way to avoid any conceivable misunderstanding associated with this course is by attending class.

Topical Outline: I would like to cover the topics presented on the next three pages. I know that I will not cover all of them. I may not follow the order presented on these three pages. I will provide necessary supplementary material.
Topic 1  
**Review of Basic Economic Concepts**

- Present value analysis; discounted cash flows
- Economic concept of cost versus accounting cost
- Objectives of the firm
  - Maximizing profit versus maximizing other individual objectives
  - Constrained decision making
  - Attaining several goals simultaneously
- Examples of each of the above in managerial and business decision making

Topic 2  
**Review of Basic Statistical Concepts**

- Definition of a random variable
- Random variables in economics
- Probability and probability distributions of a random variable
- Expected value and variance of a random variable
- Using variance as a quantification of risk
- Why expected value and variance are important in business decision making

Topic 3  
**Risk and Uncertainty In Business Situations**

- Risky situations defined
- Uncertain situations defined
- Decision criteria under risky situations
  - Decision tree analysis
  - Risk-adjusted discount rate approach
  - Risk-return trade-off functions
- Decision criteria under uncertain situations
  - Minimax regret criterion
  - Maximin criterion

Topic 4  
**Market Demand**

- Theory
- Functions, curves, elasticity, and measurement
- Distinctions among perfect competition, monopoly, monopolistic competition, and oligopoly

Topic 5  
**Structural Estimation of Demand Functions: Econometric Approach**

- Data needs
- Specification
- Possible problems encountered: autocorrelation and collinearity
- Hypothesis tests of and confidence intervals for the regression coefficients
- Goodness-of-fit tests
- Using the regression results to make decisions
Topic 6  *Forecasting With An Econometrically-Estimated Demand Function*

- Confidence intervals for the dependent variable
- Prediction intervals for the dependent variable
- Distinction between ex post and ex ante forecasting
- The need to predict explanatory variables in ex ante forecasting

Topic 7  *Time Series Approaches To Forecasting*

- Distinction between time series and econometric approaches
- Basic time-series approaches:
  - Moving averages (MA)
  - Exponential smoothing

Topic 8  *Forecasting Demand Using The Basic Time-Series Approaches*

- Data needs
- Comparing econometric and time-series forecasts
- Decision criteria for making comparisons
- More complex time-series methods (as time permits):
  - Autoregressive (AR) processes
  - Autoregressive/moving average (ARMA) processes (commonly referred to as Box Jenkins approaches)

Topic 9  *Production*

- Theory
- Functions, input elasticities, and measurement
- Isoquants and isocost curves
- Optimal employment of inputs
- Constrained and unconstrained profit maximization
- Changes in input prices and their effect on optimal input employment
- Expansion path
- Returns to scale

Topic 10  *Production Function Estimation: Econometric Approach*

- Data needs
- Specification
- Possible problems encountered: autocorrelation, heteroscedasticity, and collinearity
- Hypothesis tests of and confidence intervals for the regression coefficients
- Using the results to make decisions about input usage
Topic 11  Deriving Cost Functions From The Production Function

. Duality between production and cost
. Generating the supply function
. Linear programming: an alternative to the econometric approach
  . The linear programming model
  . Using the model to make decisions about input usage
  . Sensitivity analysis: exploring the change in input usage due to changes in input and output prices

Topic 12  Pricing And Output Decisions: Applications

. Combining demand and cost information to make pricing and output decisions
. Pricing and output decisions under perfect competition, monopoly, monopolistic competition, and oligopoly
. Sensitivity of decisions to elasticity of demand

Topic 13  Pricing Practices

. Pricing of multiple products with interdependent demands
. Pricing and output decisions of jointly produced products
. Price discrimination
. Fully distributed versus incremental cost pricing
. Pricing intermediary products (transfer pricing)
. Peak load pricing

Topic 14  Managerial Objectives Beyond Profit Maximization

. Investment decisions and capital budgeting
. Simultaneously achieving profit, employment, and investment goals
. Goal programming

Topic 15  Taxes and Managerial Decisions

. Excise taxes
. Taxes on profit
. Taxes on inputs
. Property taxes
. Tax preferences