Res Ec 428: Managerial Economics, Fall 2016
MW 4:00 p.m. – 5:15 p.m., Stockbridge 124

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Office Hours: See me when you need me or by appointment.

Text: I will address this issue on the first day of classes.

Prerequisites: Courses: Intermediate microeconomics (Res Ec 202 or Econ 203); introductory statistics (Res Ec 212 or Stat 240); intermediate statistics with an emphasis on regression (Res Ec 213 or Res Ec 312); familiarity with statistical software;

Topics like: decision making under uncertainty (in Res Ec 313); business finance, break-even analysis, investment project evaluation, and capital budgeting (in Res Ec 324 or Finance 311); implicit and explicit costs in an income-statement framework (Accounting 221)

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 14 and Wednesday, November 16; (2) concentrate on the material since the previous exam; and (3) be worth 25 percent of your final grade.

Final Exam: A final exam is scheduled for December 19 from 3:30-5:30 p.m. 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 software.

Summary of Grading Scheme:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Two exams during semester (each worth 25%)</td>
<td>50%</td>
</tr>
<tr>
<td>Final exam</td>
<td>30%</td>
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<tr>
<td>Ten homeworks (each worth 2%)</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
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</tbody>
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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 also will 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