ApEc 3002

Syllabus and Course Outline, Fall 2018

Applied Microeconomics: Managerial Economics

Course Description: ApEc 3002 focuses on the application of microeconomic theory to managerial problems. Lectures, readings, problem sets, lab sessions, small group exercises and discussions integrate theory and applications. Topics include: an introduction to regression analysis, demand analysis and demand function estimation, cost function estimation, resource allocation decisions, linear and nonlinear programming, market structure, pricing policy, risk analysis and capital budgeting. 4 Credits.

Prerequisites: ApEc 3001 or Econ 3101, SCO 2550 or Stat 3011.

Objectives:
Develop a thorough understanding of microeconomic theory and its application to managerial problems.
Develop skills in the use of quantitative methods for the analysis of managerial decisions.
Develop skills in communicating results and recommendations from economic analysis.

Meeting Times and Places:
Lecture, Section 001: 10:15-11:30, Tuesdays and Thursdays, 143 Ruttan Hall.
Lab, Section 002: 10:40-12:35, Wednesdays, 50 Coffey Hall.
Lab, Section 003: 12:50-2:45, Wednesdays, 50 Coffey Hall.

Instructor:
Jeffrey Apland, 332c Ruttan Hall
Office Hours: 11:30-12:30 Tuesdays and Thursdays; 12:00-1:00 Wednesdays; and by Appointment
Email: japland@umn.edu, Phone: 625-1353;

Teaching Assistant:
Silver Namunane; Waite Library and Learning Commons, 232 Ruttan Hall
Office Hours: 9:00-10:00 am Tuesdays and Thursdays; and by Appointment
Email: namun003@umn.edu

Office Hours and Appointments: If you need to meet with the instructor or TA and cannot meet during office hours, please send an email or call to arrange an appointment. Emailed questions may be directed to either the instructor or the TA, but you are encouraged to send them to both of us, so we can respond promptly.

References: The required text is Managerial Economics, eighth edition, by William F. Samuelson and Stephen G. Marks, published by John Wiley and Sons, Hoboken, New Jersey. Additional assigned and supplementary readings may be announced during the semester. Readings for the course are on UM Library Course Reserves at: https://reserves.lib.umn.edu/

Computer Labs and Small Group Exercises: Work in labs and on assignments will involve using Excel for basic quantitative analyses, charting, regression analysis, linear and nonlinear programming and financial analyses; and Word for document preparation. Each student will be assigned to small groups to work on in-class and in-lab problems throughout the semester.
Grading: Final grades will be determined by the scale in the table below, based on the weighted average of scores on assignments, in-class small group problems, and examinations. The weight will be applied to the score as a percentage of possible points on each item. The total weight for assignments will be 32% and the weight for in-class group exercises will be 8%. The weights for each of two midterm examinations and the final exam will be 20%.

<table>
<thead>
<tr>
<th>Weighted Ave</th>
<th>Final Grade</th>
<th>Weighted Ave</th>
<th>Final Grade</th>
<th>Weighted Ave</th>
<th>Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93.0-100.0</td>
<td>A</td>
<td>80.0-82.9</td>
<td>B-</td>
<td>67.0-69.9</td>
<td>D+</td>
</tr>
<tr>
<td>90.0-92.9</td>
<td>A-</td>
<td>77.0-79.9</td>
<td>C+</td>
<td>60.0-66.9</td>
<td>D</td>
</tr>
<tr>
<td>87.0-89.9</td>
<td>B+</td>
<td>73.0-76.9</td>
<td>C</td>
<td>0-59.9</td>
<td>F</td>
</tr>
<tr>
<td>83.0-86.9</td>
<td>B</td>
<td>70.0-72.9</td>
<td>C-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Unless otherwise noted, assignments must be turned in at the beginning of class on the due date. Except in cases of a valid health or family-related excuse, points will be deducted for late assignments. Scores will be reduced by 5% per day until the assignments have been graded and returned. Scores will be reduced by 10% per day after the assignments have been graded and returned.

In-class small group exercises will be collected the same day and absences will be excused only after documented proof of illness or emergency is provided. However, your lowest score on small group exercises will be dropped in calculating the final average score for group exercises.

Make-up examinations will be given only after documented proof of illness or emergency is submitted.

Under the S/N grade base, an S is equivalent to a C- or better. For answers to frequently asked questions about grades and grade policies, go to Student One Stop.

Final Examination Time and Date: 8:00 am - 10:00 am, Thursday, December 20th

Some Other Useful References:

*Spreadsheet Modeling and Decision Analysis*. Ragsdale.

*Quantitative Methods for Business*. Anderson, Sweeney, Williams, Camm, Cochran, Fry and Ohlmann.

*Managerial Economics; Applications, Strategy and Tactics*. McGuigan, Moyer and Harris.

**Student Learning Outcomes:** The University of Minnesota – Twin Cities has developed the following set of student learning outcomes that define what students will be able to do when they have completed any undergraduate degree, regardless of major:

- **Can identify, define, and solve problems**
- Can locate and critically evaluate information

- **Have mastered a body of knowledge and a mode of inquiry**
- Understand diverse philosophies and cultures within and across societies

- **Can communicate effectively**
- Understand the role of creativity, innovation, discovery, and expression across disciplines
- Have acquired skills for effective citizenship and life-long learning.

While all seven of these learning outcomes are addressed in ApEc 3002, the course emphasizes the learning outcomes listed above in bold type.

Students with disabilities that affect their ability to participate fully in class or to meet all course requirements are encouraged to bring this to the attention of the instructor so that appropriate accommodations can be arranged. Further information is available from Disabilities Resources (180 McNamara).

University policy prohibits sexual harassment as defined in the December 1998 policy statement, available at the Office of Equal Opportunity and Affirmative Action. Questions or concerns about sexual harassment should be directed to this office, located in 274 McNamara.

For assistance with any University-based conflicts or complaints please contact the Student Conflict Resolution Center at sos@umn.edu or call 612-624-7272.
Course Outline:

I. Introduction, Overview of the Course, and Review
   Reference for Section I:  Chapter 1; Samuelson and Marks.

II. An Overview of Optimization and Marginal Analysis in Managerial Economics
   A. Marginal Analysis and Sensitivity Analysis
   B. Components of an Optimization Problem
   C. Explicit and Implicit Constraints on Decisions
   D. Constrained Optimization
   Reference for Section II:  Chapter 2 and Chapter 2 Appendix; Samuelson and Marks.

III. Demand Analysis and Optimal Pricing
   A. Indifference Curves, Budget Constraints and Utility Maximization
   B. The Demand Function and Shifters of Demand
   C. Elasticities
      1. Price Elasticity of Demand and its Determinants
      2. Income and Cross-Price Elasticities
   D. Price Elasticity, Revenue and Marginal Revenue
   Reference for Section III:  Chapter 3 Appendix and Chapter 3 pp. 59-75; Samuelson and Marks.

IV. Estimating Demand and Forecasting
   A. Steps to Demand Estimation and Forecasting
   B. Regression Analysis
   C. Forecasting Techniques
   Reference for Section IV:  Chapter 4; Samuelson and Marks.
V. Production Functions and Efficient Resource Allocation
   A. Technology and the Production Function
   B. Production with One Variable Input
      1. Total, Average and Marginal Products
      2. The Law of Diminishing Returns
      3. Profit Maximization with One Variable Input
   C. Production with Two or More Variable Inputs
      1. Isoquants and the Marginal Rate of Technical Substitution
      2. Types of Factor-Factor Relationships
   E. Profit Maximization and Allocation of Several Inputs
      1. Isocost Lines and Cost Minimization
      2. The Expansion Path
      3. The Profit Maximizing Input Combination
      4. Returns to Scale
   F. Estimation of Production Functions
   Reference for Section V: Chapter 5; Samuelson and Marks.

VI. Cost Analysis and Applications
   A. Cost Concepts and Cost Measurement
   B. Short Run Cost Functions
      1. Total, Marginal and Average Cost Curves
      2. The Profit Maximizing Level of Output
   C. Long Run Cost Functions
      1. Long Run and Short Run Cost Curves
      2. The Expansion Path and the Cost Function
   D. Economies of Size and Economies of Scale
   E. Cost Function Estimation
   F. Breakeven Analysis and Operating Leverage
   G. Learning and Cost
   Reference for Section VI: Chapter 6; Samuelson and Marks.
VII. Linear Programming Applications to Management Problems of the Firm
   A. Parts of a Linear Program
   B. Graphical Solution to a Linear Program
   C. Applications
      1. Blending Problems
      2. Product Mix Problems
      3. Resource Acquisition
      4. Transportation Problems
   D. The LP Isoquant
      1. Cost Minimization
      2. Output Maximization
      3. Revenue and Net Revenue Maximization

Reference for Section VII: Chapter 16; Samuelson and Marks.

VIII. Perfect and Imperfect Competition
   A. Pure Competition
   B. Monopoly and Monopolistic Competition
   C. Oligopoly

Reference for Section VIII: Chapters 7, 8 and 9; Samuelson and Marks.

IX. Investment Analysis and Capital Budgeting
   A. Compounding and Discounting
   B. Budgeting
   C. Investment Criteria
   D. Investment and Capital Budgeting With Linear Programming

X. Risk Analysis
   A. Characterizing a Risky Prospect
   B. Expected Utility and Risk Preferences
   C. Probabilistic Budgeting
   D. Strategies of Risk Management

Reference for Section X: Chapter 12; Samuelson and Marks.