Managerial Economics

Spring Semester 2025

Course Activity Summary

	Week	Monday	Wednesday
1	28-07-25	1. Introduction	2. Demand Analysis
2	04-08-25	3. Demand Estimation	4. Costs and Pricing
3	11-08-25	5. Data-Driven Price Optimization (Nomis Case)	6. Segmented Pricing I: Group Pricing (Airline Shuttle Case)
4	18-08-25	7. Segmented Pricing II: Versioning and Bundling	8. Segmented Pricing III: Quantity-based Pricing
5	25-08-25	9. Competitive Equilibrium (Apples Market Simulation)	10. Cost Structure and Long-run Competitive Equilibrium
6	01-09-25	11. Predicting Prices with Market Fundamentals	12. Limits of the Market - Externalities
7	08-09-25	13. Limits of the Market - Adverse Selection	Preparation for Midterm
	15-09-25 22-09 to 05-10	Holiday Week MIDTERM WEEK	
8	06-10-25	14. Market Power (online)	15. Review of Game Theory
9	13-10-25	16. Oligopoly Markets: Cournot Competition	17. Oligopoly Markets: Price Wars
10	20-10-25	18. Strategic Interactions Over Time	19. Designing Contracts to Align Incentives
11	27-10-25	20. Auction Design and Optimal Bidding	21. Auction II: Common Value Auctions and Auction Revenue
12	03-11-25	22. Matching and Market Design	23. Network Effects
13	10-11-25	24. Behavioral considerations in Markets and Strategy	Conclusion and Exam Preparation

Course Description and Administration

Managerial Economics is a core class in the third year of the Business Engineering program. This course focuses on using economic principles and management science to tackle real-world business decisions. The course applies the concepts and tools learned in previous courses covering statistics, microeconomics, spreadsheet modeling and quantitative methods, to put them into practice through real-world examples with a global perspective. By the end of this course, students will gain analytical skills to critically evaluate pricing strategies, market dynamics and design mechanisms to align incentives within an organization and across supply chains.

Learning Objectives:

- Develop the ability to use economic models and tools for business decision-making.
- Analyze and interpret data to optimize pricing, evaluate market dynamics, and design competitive strategies.
- Understand the global aspects of managerial decisions, including international markets and cultural contexts.

Types of Learning Material:

- **Pre-class quizzes:** Students are responsible to prepare specific material before coming to class, which will be evaluated through quizzes that need to be completed before coming to class. The material may include readings, short video capsules, and case studies (see below). Students can discuss with classmates about the material and quizzes, but each student is responsible for submitting their quiz (it is an individual grade that accounts for the participation grade).
- **Case studies** (e.g., global pricing strategies, demand analysis). The course uses several cases from an international perspective, and students prepare before class by reading the case and answering a short quiz. During the class, students work in groups to further analyze the case, followed by a case debrief to learn the main takeaways of the session.
- **In-class games and simulations** (e.g., strategic interactions, matching markets). Most sessions involve in-class activities where students work in groups to solve structured problems formulated in class.
- **Group Assignments**: The course has weekly group assignments that cover the material covered during the classes on that week. These assignments are aimed at preparing students for the Midterm (Solemne) and Final Exam, covering problems that are similar to those included in these evaluations. The assignments are submitted as a group, but each student should be acquainted with the solutions to the problems. Part of the group assignment encompasses problems covered during the class and group activities during the lectures can be used to complete these parts of the group assignments. The post-class assignments described in the detailed session section of this syllabus provide a summary of these group assignments. Further details on each assignment will be posted on Canvas. Working

consciously on these group assignments is critical to prepare well for the course's individual examinations.
- **Optional readings:** Book chapters from the two recommended course textbooks are provided to support the material from each session. The references and link to each content are provided in the references section below.

All the materials and readings that are required for the course will be posted on Canvas. Handouts will be provided with the material covered in class.

International Focus:

This course incorporates a global perspective by including case studies and examples from international markets, addressing challenges such as global pricing, sustainability, and market design. It is designed to encourage interactions with international students and foster a diverse learning environment. Group activities and assignments will promote collaboration among students from different cultural backgrounds. This international component prepares students to address complex business problems in a globalized world. This course is part of the ***Minor in International Business***.

It is important to note that while this course is taught in English, flexibility is provided for students requiring assistance with Spanish for discussions and evaluations.

Grading

- **Midterm and Final Exam:** 60% (30% each).
- **Group Assignments:** 25%. Include post-class assignments, submitted as a group.
- **Attendance, Quizzes, and Participation:** 15%. This is an individual grade that includes attendance to class, participation during the class and the pre-class quizzes.

Passing Criteria:

- **Final grade ≥ 4.0**
- **Average of Midterm and Final Exam ≥ 4.0**
- **Attendance ≥ 70%**

Students with excused absences to evaluations should be handled directly with the school administration.

References (recommended)

- Brander, J. A., & Perloff, J. M. "Managerial Economics and Strategy." Pearson.
- Samuelson, W. F., & Marks, S. G. "Managerial Economics." Wiley.

Session	Session Topic	**Brander & Perloff Chapters**	**Samuelson & Marks Chapters**
1	Introduction	Chapter 1: Introduction	Chapter 1: Introduction to Economic Decision Making
2	Demand Analysis	Chapter 2: Supply and Demand	Chapter 3: Demand Analysis and Optimal Pricing
3	Demand Estimation	Chapter 3: Empirical Methods	Chapter 4: Estimating and Forecasting Demand
4	Cost and Pricing	Chapter 6: Costs	Chapter 6: Cost Analysis
5-8	Data-Driven Price Optimization, Segmented pricing	Chapter 10: Pricing with Market Power	Chapter 3: Demand Analysis and Optimal Pricing Chapter 8: Monopoly
9-11	Supply Curve, Competitive Equilibrium, Predicting Prices in Competitive Markets	Chapter 6: Costs Chapter 8: Competitive Firms and Markets	Chapter 6: Cost Analysis Chapter 7: Perfect Competition
12	Limits of the Market - Externalities	Chapter 16: Government and Business	Chapter 11: Regulation and Public Goods
13	Limits of the Market - Adverse Selection	Chapter 15: Asymmetric Information	Chapter 14: Asymmetric Information
14	Limits of the Market - Fairness & Market Power	Chapter 10: Pricing with Market Power	Chapter 9: Oligopoly
15	Review of Game Theory	Chapter 12: Game Theory & Business Strat.	Chapter 10: Game Theory and Competitive Strategy
16-17	Oligopoly: Cournot Competition, Price Wars	Chapter 11: Oligopoly and Monopolistic Competition	Chapter 9: Oligopoly
18-19	Strategic Interactions Over Time	Chapter 13: Strategies Over Time	Chapter 10: Game Theory and Competitive Strategy
20-21	Aligning Incentives Through Contracts	Chapter 15: Asymmetric Information	Chapter 14: Asymmetric Information
22-23	Auction Design and Optimal Bidding	Chapter 12: Game Theory & Business Strat.	Chapter 17: Auctions and Competitive Bidding
24	Matching Markets	Specific reading provided	

Session Details

Unit I: Pricing

Session 1: Introduction
Topics: Overview of Managerial Economics, course structure, and international focus.
Motivation: Managerial decisions often require balancing trade-offs between cost, value creation, and strategic positioning. This class sets the stage by introducing the foundational concepts and explaining how the global environment shapes these decisions.

In-class Activity: Willingness to Pay and building the demand curve.
Post-class Assignment: Conduct a survey to build a demand curve.

Session 2: Demand Analysis
Topics: Marginal Revenue, Demand Elasticity, Optimal Pricing.
Motivation: Understanding the relationship between price, demand, and revenue is critical for making informed pricing decisions. This session explores how firms use elasticity to optimize pricing strategies.

Pre-class Assignment: Collect data to build demand curve
In-class Case Study: Pricing at Parker Hannifin.

Session 3: Demand Estimation
Topics: Linear regression for demand estimation.
Motivation: Firms often rely on aggregate data to predict demand. Accurate estimation allows businesses to make better pricing and production decisions.
In-class Activity: Analyze data to estimate demand using Excel.
Post-class Assignment: Submit demand estimation analysis.

Session 4: Cost and Pricing
Topics: Fixed, Marginal, Opportunity, and Sunk Costs.
Motivation: Effective pricing requires understanding which costs are relevant for decision-making. This class differentiates between costs that should and should not influence pricing strategies.
In-class Activity: Group work on pricing and investment decisions in different cost scenarios.

Session 5: Data-Driven Price Optimization
Topics: Logistic Regression to support pricing decisions.
Motivation: Advances in data analytics have enabled firms to tailor prices to individual customers. This session demonstrates how data-driven methods can be used to optimize revenue in the context of financial services.
Pre-class Assignment: Nomis (B) case (Columbia CaseWorks).
In-class Activity: Optimize pricing for financial products.
Post-class Assignment: Submit summary of case analysis conducted in class.

Session 6: Segmented Pricing I: Group Pricing
Topics: Group pricing strategies and challenges.
Motivation: Segmenting consumers by groups allows firms to price discriminate effectively. This session examines how businesses implement group pricing and address backlash.
Pre-class Reading: Airline Shuttle Route pricing (Columbia CaseWorks).
In-class Activity: Evaluate Delta's group pricing for shuttle routes.
Post-class Assignment: Submit evaluation report.

Session 7: Segmented Pricing II: Versioning and Bundling
Topics: Price segmentation by differentiating product features and bundles of products.
Motivation: Firms often provide multiple product versions or bundle products to increase revenue. This session explores when these strategies are most effective.
Pre-class Assignment: Submit examples of pricing strategies observed in practice.
In-class Activity: Develop a pricing plan for a streaming service, bundling Disney+ and ESPN.
Post-class Assignment: Submit in-class analysis.

Session 8: Segmented Pricing III: Quantity-Based Pricing
Topics: Self-selection through menu pricing.
Motivation: When firms cannot enforce group pricing, they can design pricing menus to let customers self-select. This session explores quantity-based pricing strategies.
In-class Activity: Design a theme park (Fantasilandia) pricing structure.
Post-class Assignment: Submit in-class analysis.

Unit II: Competitive Markets

Session 9: Competitive Markets
Topics: Interaction of demand and supply to determine prices.
Motivation: Competitive equilibrium is the cornerstone of market analysis. This session demonstrates how prices and quantities are determined in perfectly competitive markets.
In-class Activity: Market simulation where students act as buyers and sellers.
Post-class Assignment: Build demand and supply curves using the simulation data and predict equilibrium prices.

Session 10: Supply Curve and Market Equilibrium
Topics: Impact of costs on supply decisions.
Motivation: Competitive markets rely on firms understanding their cost structures to determine supply decisions and which markets to enter. This class highlights how costs influence short- and long-term market dynamics.
In-class Activity: Construct supply curves using case data.

Session 11: Predicting Prices using Market Fundamentals
Topics: Analyze prices based on market fundamentals to evaluate capacity expansion.
Motivation: Firms operating in competitive markets must predict prices to make investment decisions. This session explores tools for forecasting prices based on concepts of competitive markets.

Pre-class Assignment: AMAX case study and submit quiz.
In-class Activity: Use scenario analysis to forecast prices and evaluate investments for expanding capacity in Molybdenum production.
Post-class Assignment: Submit in-class analysis.

Session 12: Limits of the Market - Externalities
Topics: Negative and positive externalities, interventions to address inefficiencies.
Motivation: Market outcomes may become inefficient when externalities exist. This session explores taxation and subsidies to internalize externalities and thereby improve efficiency.
In-class Activity: Design a congestion tax policy to reduce traffic in transportation networks.
Post-class Assignment: Submit a summary of policy design and expected outcomes.

Session 13: Limits of the Market - Adverse Selection
Topics: Information asymmetry and its impact on market efficiency.
Motivation: Adverse selection leads to inefficient market outcomes.
In-class Activity: Simulate market outcomes under asymmetric information, when buyers and sellers have different information about quality of goods sold in a market.
Post-class Assignment: Submit results of in-class group activity.

Session 14: Limits of the Market –Market Power
Topics: Inefficiencies that may arise due to market power.
Motivation: Examine how concentrated markets affect competition and lead to inefficiencies.
Pre-class Reading: "Uber's Surge Pricing" case.
In-class Activity: Discuss fairness and monopoly power using international examples.
Post-class Assignment: Submit your group in-class discussion summary on Uber's reaction to consumer's backlash.

Unit III: Strategic Interactions

Session 15: Review of Game Theory
Topics: Strategic behavior in competitive and monopolistic settings.
Motivation: Game theory helps analyze situations where firms' decisions impact one another. This session introduces foundational concepts in strategic interactions.
In-class Activity: Play interactive strategy games on an online platform.

Session 16: Oligopoly Markets – Cournot Competition and Antitrust Regulation
Topics: Competition in markets with a small number of firms.
Motivation: Real-world markets often involve a few dominant firms with market power. This session explores Cournot competition and regulations to promote fair competition.
In-class Activity: Analyze pricing strategies in the poultry market under different competition structures.
Post-class Assignment: Submit analysis on oligopoly market structures.

Session 17: Oligopoly Markets – Price Wars
Topics: Product differentiation and pricing strategies.
Motivation: Price wars harm profitability in differentiated markets. This session explores policies to mitigate price competition.
In-class Activity: Analyze the "Match the Competition" strategy in the toilet paper industry.
Post-class Assignment: Submit in-class group analysis

Session 18: Strategic Interactions Over Time
Topics: Sequential games and repeated interactions.
Motivation: The timing of decisions affects outcomes in competitive markets. This session explores sequential and repeated games with examples of cooperation and first/second-mover advantages.
In-class Activity: Apply concepts to analyze toilet paper market dynamics.
Post-class Assignment: Submit group analysis on sequential games.

Unit IV: Designing Markets and Organizations

Session 19: Aligning Incentives Through Contracts
Topics: Aligning incentives within an organization
Motivation: Properly designed contracts align incentives between parties, reducing conflicts. This session explores performance-based contracts in organizations.
In-class Activity: Role-play on contract design between employers and employees.
Post-class Assignment: Submit contract design analysis.

Session 20: Auction I – Auction Design and Optimal Bidding
Topics: Auction types and bidding strategies.
Motivation: Auctions are widely used for allocating resources efficiently. This session explores optimal strategies in different auction formats.
Pre-class Reading: Video and quiz.
In-class Activity: Simulate auctions and analyze bidding strategies.
Post-class Assignment: Submit analysis on auction strategies.

Session 21: Auction II – Common Value Auctions and Revenue Maximization
Topics: Winners' curse and revenue equivalence.
Motivation: Common value auctions pose challenges due to uncertainty in valuations. This session explores strategies to mitigate these challenges and maximize seller revenue.
In-class Activity: Analyze oil drilling auction outcomes.
Post-class Assignment: Submit shading strategy analysis.

Session 22: Matching Markets
Topics: Designing efficient allocation mechanisms.
Motivation: Matching markets allocate resources where preferences matter. This session explores centralized matching algorithms and their applications in various markets.
In-class Activity: Simulate a job market with matching algorithms.
Post-class Assignment: Submit in-class analysis.

Session 23: Network Effects
TBD

Session 24: Fairness and other Behavioral Considerations
Topics: Impact of fairness considerations in markets. considerations in markets Behavioral deviations from game theory predictions.
Motivation: Behavioral aspects of individuals, such as fairness and reciprocity considerations, can impact the efficiency of markets and generate consumer backlash.
In-class Activity: Discuss Uber case and in-class experiential activities.
Pre-class Reading: "Uber's Surge Pricing" case.

Conclusion
Topics: Course review.
Motivation: Summarize key concepts and connect them to real-world managerial challenges. Discuss preparation for Final Exam.
Post-class Assignment: Course Feedback Survey.