THOMPSON RIVERS UNIVERSITY

Course Outline

Business Undeclared
School of Business & Economics

ECON 6020 - **3.00** - Academic

Applied Microeconomics for Sustainable Management

Rationale

Based on recommendations from the Degree Quality Assessment Board, the following minor course changes are proposed:

- Change the course acronym from ESMN to ECON
- Add a second degree to the prerequisites and change the names of the degrees

Calendar Description

Students examine more advanced microeconomic tools and apply these to economic sustainable management. Topics include market analysis for economic sustainability, demand analysis and estimation, the role of elasticities in sustainable management; consumer behavior and rationale choice; risk behavior and assessment; production efficiency; cost analysis and estimation; the role of the market structure for sustainable management; game theory and strategic behavior; and asymmetric information problems.

Credits/Hours

Course Has Variable Hours: No
Credits: 3.00
Lecture Hours: 3.00
Seminar Hours: 0
Lab Hours: 0
Other Hours: 0
Clarify:
Total Hours: 3.00
Delivery Methods: (Face to Face)
Impact on Courses/Programs/Departments: Not is expected.
Repeat Types: A - Once for credit (default)
Grading Methods: (G - Graduate Programs)

Educational Objectives/Outcomes

1. Discuss the role of applied economics for sustainable management.

2. Apply market analysis to sustainability issues.
3. Predict the effects of changing market condition on price and quantity.
4. Use the concept of elasticity of demand to explain sustainability issues.
5. Illustrate how consumers make decisions under risk and uncertainty.
6. Examine how decisions are taken under risk and uncertainty paying particular attention to climate changenegotiations and race to the bottom sustainable practices.
7. Explain alternative ways of measuring the productivity of all inputs used to produce goods and services.
8. Describe the effects of technology and innovation on cost, profit and market share of environmental goods.
9. Interpret results of demand estimation for sustainable goods and services using regression analysis.
10. Illustrate how firms with market power use different pricing strategies to price goods and services for
10. Illustrate how firms with market power use different pricing strategies to price goods and services forsustainability.
11. Explain how game theory helps stakeholders better understand mutually interdependent management decisionsand relate to environmental issues.
12. Explain why asymmetric information can lead to moral hazard and adverse selection, and identify strategies formitigating these potential problems.

Prerequisites

Admission to MEEM or MScEEM or approval of degree committee

Co-Requisites

Recommended Requisites

Exclusion Requisites

Texts/Materials

Textbooks

1. **Required** Pindyck, Robert, D. Rubinfeld. *Microeconomics*, 8th Edition ed. Prentice Hall-Pearson

Student Evaluation

The Course grade is based on the following course evaluations.

Assignments/Case Studies (25.00%) Quizzes (10.00%) Class Participation (5.00%) Mid-term Exam (20.00%) Final Exam (40.00%)

Course Topics

1. Introduction to Applied Microeconomics for Sustainable Management

- Themes of applied microeconomics for sustainable management
- Role of markets for sustainable practices
- Real versus nominal prices
- Contribution of applied microeconomics to sustainability issues
- Application 1: The price of eggs and the price of a college education
- Application 2:The minimum wage rate
- Application 3: Corporate decision making: the Toyota Prius
- Application 4: Public policy design: fuel efficiency for the 21st century

2. Review of Basic Demand and Supply Concepts

- Supply and demand concepts
- Market equilibrium
- Changes in market equilibrium
- Effects of government intervention: price controls
- Application 1: The demand for clean air
- Application 2: Emissions trading and clean air
- Application 3: The long-run behavior of natural resource prices
- Application 4: Price controls and natural gas shortages

3. The Concept of Elasticities

- Elasticities of demand and supply
- Factors affecting the elasticities of demand and supply
- Short-run versus long-run price elasticities
- Understanding and predicting the effect of changing market conditions
- Application 1: Upheaval in the world oil market
- Application 2: The behavior of copper prices
- Application 3: The demand for gasoline and automobiles

4. Consumer Behavior and Rational Choice

- Utility function and the law of diminishing marginal utility
- Indifference curves and the marginal rate of substitution
- Budget constraint
- Consumer equilibrium
- Effect of changing income and changing prices
- Income and substitution effects
- Deriving the uncompensated and compensated demand curve
- Demand estimation
- Consumer surplus
- Network externalities
- Application 1: Designing new automobiles
- Application 2: The effects of gasoline tax with a rebate
- Application 3: The long-run demand for gasoline
- Application 4: The value of clean air

5. Uncertainty and Risk Behavior

-
-

- Concepts of risk and uncertainty
- Probability concepts
- Absolute and relative risk measurement
- Utility theory of risk analysis
- Adjusting valuation models for risk
- Behavioral economics
- Application 1: Deterring environmentally bad behavior
- Application 2: The use of risk adjusted discount rates
- Application 3: The economics of environmental risk assessment

Application 4: The risk of an oil spill

6. Production

- Production function
- Factors that shift the production function
- Productivity measures – total, average and marginal product
- Law of diminishing returns
- Returns to scale
- Iso-quant and Iso-cost curves
- Least-cost production
- Application 1: Malthus and the food crises
- Application 2: Labor productivity and the standard of living

Application 3: A production function for wheat

7. Cost Analysis and Estimation

- Measuring costs: Which costs matter in decision making?
- Costs in the short run
- Costs in the long run
- Short-run versus long-run costs
- Economies of scale, economies of scope and cost complementarity

Dynamic changes in costs: the learning curve

Estimating and predicting costs

- Application 1: The short-run cost of aluminum smelting
- Application 2: The effect of effluent fee on input choices
- Application 3: Reducing the use of energy
- Application 4: Economies of scope in the trucking industry
- Application 5: Cost functions for electric power

8. Competitive Markets

- Perfectly competitive markets
- Profit maximization
- Marginal revenue and marginal cost
- Choosing output in the short run
- The firm's short run supply curve
- The market's short run supply curve
- Choosing production in the long run
- The industry's long run supply cure
- Application 1: The short run output decision of an Aluminum Smelting Plant
- Application 2: The short run production of petroleum products

Application 3: Constant-Increasing and Decreasing cost industries: Coffee – Oil and Automobiles

9. The Analysis of Competitive Markets

-
-

- Evaluating gains and losses from government policies
- The efficiency of competitive markets
- Minimum prices
- Price supports and production quotas
- Import quotas and tariffs
- The impact of a tax or subsidy
- Application 1: Price controls and natural gas shortages
- Application 2: The market for human kidneys
- Application 3: Supporting the price of wheat
- Application 4: The sugar quota

Application 5: A tax on gasoline

10. Monopoly Markets

- Monopoly
- Monopoly power
- Sources of monopoly power
- The social costs of monopoly power
- Limiting market power: The Antitrust laws
- Application 1: Is Monopoly good for the environment?
- Application 2: B.C. Hydro regulation? How?
- Application 3: Different pricing strategies for natural monopolies

Application 4: Are monopolies becoming scarce with globalization?

11. Game Theory and Strategic Behavior

- The Theory of Games
- Dominant and Maximin Strategies
- The Prisoner's Dilemma
- Nash Equilibrium
- Repeated games
- Sequential games
- Threats, commitments and credibility
- Entry deterrence
- Application 1: Game theory in climate change negotiations

Application 2: Competition and race to the bottom

12. Asymmetric Information

The Lemons model
Moral hazard and adverse selection

-
-

- Using signals to avoid the Lemons problem
- Screening in insurance markets
- Moral hazard and principal agent problems
- Application 1: Moral Hazard and the national health care debate
- Application 2:The good and bad of incentive pay
- Application 3: Getting the board to focus on the long run

Methods for Prior Learning Assessment and Recognition

Students can apply for PLAR but it cannot be used to meet the program residency requirement.

Last Action Taken

Implement by Graduate Studies Committee Chair Debbie (Proxy GSC Chair) Krebs

Current Date: 27-Oct-20