

AEREC 534: Advanced Production Analysis

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Course Description

This course is oriented towards developing the analysis of static and dynamic production decision processes within deterministic and stochastic settings. The course objectives are a) to develop the tools to conduct static and dynamic analysis; b) to give the student an appreciation of the historical development of the empirical and theoretical models of short- and long-run production decision making; c) to expose the student to research topics currently discussed in the literature; and, d) to develop the student's ability to critically evaluate research in the theory of the firm.

Class Format

Students will prepare written papers, discussions of assigned topics and papers, and a final examination.

Prerequisite

Graduate level course in microeconomic theory and econometrics is considered necessary to successfully complete the course.

Texts

Subal C. Kumbhakar & C. A. Knox Lovell, *Stochastic Frontier Analysis*, Cambridge Univ Press, 2000.

Topical Outline

PART I: Foundations of Production Analysis

A. Set theoretic approaches

B. Measurement Concepts in Production Analysis

- **Characterizing Technologies**
- **Scope Economies**
- **Capacity Utilization**
- **Performance Measurement**
- **Productivity Growth**
- **Aggregation**

C. Specification and Measurement Econometric Approaches

- **Endogeneity & Stochastic specifications**
- **Primal, Dual & Distance functions**

D. Uncertainty in Production Analysis

- **Decision Making Under Uncertainty**
- **Firm Behavior Under Uncertainty**

PART II: Production Analysis Over Time

A. Technological Progress

- **Innovation, Technical Change & Evolutionary Processes**
- **Learning-By-Experience**
- **Endogenous Technology, Induced Innovation and Adoption**

B. Economics of Innovation

- **Measuring Innovation**
- **Processes of Innovation/Path Dependence**
- **R&D and Growth**

C. Dynamics of Firm Adjustment