Course Description: Resource allocation, production selection, scale of operation of agricultural firms including risk and uncertainty associated with agricultural production.

Prerequisites: A basic understanding of differential calculus and a strong knowledge of microeconomic theory.

Course Objectives:

- To develop a thorough understanding of the classical microeconomic theory of the firm under static certainty.
- To develop the ability to perform graphical and mathematical analyses using production economic theory.
- To provide experience in applying production economic theory to managerial and policy problems.

Textbook: No textbook will be required for this course. The instructor will provide material as needed.

You will need a calculator for many of the assignments in this course. Also you will need to have access to some type of spreadsheet program with graphing capabilities. I would recommend using Excel, Lotus, or Quatro Pro.

Course Requirements:

- Module Assignments 25%
- Research Paper 25%
- Mid Term Exam 25%
- Final Exam 25%
Grading:

90% or Above        A
80% - 89%            B
70% - 79%            C
60% - 69%            D
Below 60%            F

*I reserve the right to curve grades up.

Tentative Course Outline

I. Introduction
   A. Definitions
   B. Assumptions
   C. Calculus Review

II. Technical Aspects of Production
   A. The Production Function
       B. The Factor Product Model
          1. Concepts of Production Functions
          2. Law of Diminishing Marginal Returns
          3. Stages of Production
          4. Elasticity of Production (Single Input)
   C. The Factor-Factor Model
      1. Isoquants
      2. Marginal Rate of Substitution
      3. Elasticity of Factor Substitution
      4. Isoclines and Ridgelines
      5. Factor Interdependence
      6. Elasticities of Production and Function Coefficient
      7. Homogeneous Production Functions
      8. Returns to Scale

III. Economic Aspects of Production: The Input Perspective

   A. Factor Product Model
      1. Total Value Product, Average Value Product, Marginal Value Productivity
      2. Profit Function Concepts
      3. Factor Costs
      4. Profit and Maximum Profit
      5. Economic Region of Production
      6. Factor Demand
B. The Factor-Factor Model
1. Profit Maximization
2. Unconstrained Optimization
3. Expansion Path
4. Constrained Optimization
5. Factor Demand Functions

IV. Economic Aspects of Production: The Output Perspective
A. Cost Functions
B. Relating Cost Functions to Production Functions
C. Revenue Functions
D. Profit Maximization
E. Product Supply Function

V. Multiproduct Production
A. Concepts and Terminology
B. Two Product Production With A Single Factor
1. Product Transformation Curve
2. Rate of Product Transformation
3. Profit Maximization
4. Constrained Revenue Maximization

VI. Duality (Visited)
A. Envelope Theorem
B. Hotelling's Lemma
C. Shepard's Lemma
D. Profit maximization
E. Cost Minimization
TERM PAPER GUIDELINES

Term Paper
The term paper should cover a topic that is related to some aspect of production theory. The objective of the paper is to explain the theory in a manner so that others can learn about it by reading your paper. Also, discussion of empirical findings by researchers is acceptable.

Guidelines:

Length: The term paper should be at least 10 to 15 pages of double spaced text, not including tables, figures, etc.

Format: The term paper should follow American Journal of Agricultural Economics (AJAE) reference style and should have one inch margins everywhere. The papers should include the following sections.

1. Title page
2. Abstract
3. Introduction
4. Explanation of theory
5. Conclusions
6. References