

**Agricultural Production Economics**  
**AGEC 612**  
**Summer, 2006**  
**Course Overview**

**Instructor:**

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**Objectives:**

The focus of this course is on economic analysis of production agriculture. The influential role of plant and animal biological growth processes sets this field of study apart from industrial production processes, where much greater levels of control are available to the producer and input and output relationships are measured with more completeness and precision. This course covers the basic theory and analytical tools requisite to conduct analysis of optimal management decisions subject to the biological production technology.

The successful student upon completion of this course will be able to demonstrate:

- 1) Understanding of basic production economics theory.
- 2) Familiarity with tools/problems of production economics research.
- 3) Familiarity with research issues/debates in the field.
- 4) Verbal and mathematical understanding of key concepts.

**Pedagogical Approach:**

The organizing principle of the course will be iterative approximation of the agricultural production problem. Initial models and analysis will be quite simple and reflective of work done in intermediate microeconomics. Subsequent modeling and analysis will add complexity to the core model. Each of these iterations will involve both applied and theoretical extensions.

We will initially focus on the input side of the production process. Output side analysis will be introduced later in the class. Analysis will be conducted for the most part on primal problems, as several other courses in the department operate exclusively from the dual side.

**Course Work:**

- 1) Reading is an important part of any graduate course and this class will not serve as an exception. There is no text for the course, but lectures will be largely based on *The Analysis of Response in Crop and Livestock Production* by John Dillon and Jock Anderson. This book is on reserve in the library, and your lecture schedule will indicate which pages accompany lecture topics. This

book should not be considered assigned reading as it is expected that lectures will present the material you are expected to know at the level of detail required of you. Assigned readings will be given from academic journals. These will be discussed quite briefly in class but you will be responsible for knowing the major issues and research approaches taken in these articles, as well as being able to react to the readings based on material covered in lecture. The reading list is incomplete at the moment. All readings will be available from one of the e-journal sources of Purdue Libraries. Reading assignments will be provided on Mondays for the week with appropriate updating of the schedule.

- 2) There will be approximately 10 homework assignments during the eight-week session. Two of these cover out-of-class experiential opportunities (Indiana Farm Management Tour, Top Farmer Crop Workshop), which will require you to commit time to traveling to the Farm Management Tour or working as a TA in the Top Farmer Crop Workshop. If you are unable to work these out-of-class opportunities into your schedule, please see me and an alternative assignment will be provided. On the day of our midterm examination, you will be assigned to write a proposal for your class paper due at the time of the final exam. Remaining assignments will include quantitative analysis of production economic problems including: analysis of efficient (optimal) decision-making under static deterministic conditions with later relaxations of these, and estimation of technical input and output relationships in agricultural production.
- 3) There is a paper requirement for this course. The standard paper topic for AGEC 612 in the past has consisted of economic analysis of a new or modified production technology as reported in an agricultural science journal (e.g. *Agronomy Journal*, *Animal Science*, *Crop Science*, *Transactions of the ASAE*) or in the farm press. For this paper, imagine that you are working with producers or agribusiness to optimize the technology economically. In some cases, enough physical results will be reported in the literature to permit an empirical analysis. In other cases, the paper will focus on developing an analytic framework. All papers should include a numerical analysis, either with observed data or an example. You should begin thinking about paper topics as early as possible. Your major professor is often a good source of inspiration for class paper topics.

If the class size is small, an alternative to individual class papers might be a class-wide joint paper. We will discuss this as an option during the first day of class. The most basic requirement is that everyone agrees to participate in the class-wide paper project. I will serve as project coordinator as a means of ensuring an equitable and efficient distribution of labor and timeliness of completed tasks. The ultimate goal would be to produce something that could be submitted to an academic journal under joint authorship by all class members.

The basic outline of the class paper is as follows:

- Abstract
- Introduction and description of problem for analysis
- Objectives of the analysis
- Review of related research
- Materials and methods
- Results
- Discussion
- Conclusions
- References

- 4) Two examinations will be given during the eight-week session. The midterm is scheduled for July 6<sup>th</sup> which would include material covered in class through July 3<sup>rd</sup>. The final exam will be in our class' block during the final exam period, and will be comprehensive.

### **Grading Information:**

Homework:	20 percent
Course Paper/Proj.:	30 percent
Midterm Exam:	20 percent
Final Exam:	30 percent

### **Deadlines:**

Homework due dates are given on the class schedule. Late homework assignments will be penalized 10 percent per unexcused late day.

If individual papers are chosen for the class project, a one-page proposal is due on July 11<sup>th</sup> as one of your regular homework assignments. The final paper will be due at the time of the final exam. Late papers are strongly discouraged. Incompletes are bad for everyone involved and will not be allowed without a justified reason. I am happy to work with you on finding a solution to timely completion of your project.

### **Software and Computing:**

You are free to use any software you desire. The class is designed for spreadsheet based analysis and while I will endeavor to help you with any other software you wish to use, only assistance with spreadsheet work is strictly guaranteed.