

Agricultural Economics 552
Introduction to Mathematical Programming

Syllabus Fall 2016
Lectures – Tuesday and Thursday 1:30pm-2:45pm
KРАН G002
Computer Help Session – Wednesday 3:00-3:50
Hicks Library G959

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Overview:

Mathematical programming (especially linear programming) is widely used in academia, business, and government to analyze decisions. It is, along with econometrics and simulation, one of the three main computer-based analytical tools of the applied economist.

Objectives:

The focus of this course will be on the theory and practical aspects of linear programming and on the formulation of optimization models. Topics will include: linear programming assumptions and theory, model formulation, graphical solution, a brief introduction to the Simplex method, interpretation of model results, and classical problems (farm planning, transportation, assignment, production planning, etc.). The course will involve a good deal of hands-on model formulation and construction. The tool for numerical model solution will be the GAMS modeling language, the basic features of which will be addressed during the course.

Lectures:

Lectures will be delivered during regular class sessions, and there will be

reading assignments. Expect to read the indicated pages of the book before class.

Book:

The primary text for the course is Mathematical Programming for Agricultural, Environmental and Resource Economics, by H.M. Kaiser and K.D. Messer, which can be purchased either as a regular book or if you have a compatible reader, as an e-book. Two other books will be useful references (Brooke, A., D. Kendrick, and A. Meeraus, GAMS: User's Guide and GAMS Solver Manuals, GAMS Development Corporation, Washington, D.C.), but these are available as part of the Help facility in the GAMS software. (This reference material, along with a variety of other useful documents relevant to the GAMS language, is on the Web at <http://www.gams.com/docs/document.htm>.)

Exams and Grades:

Grades will be based on performance on two examinations with one in mid-October (20%), and one immediately prior to Thanksgiving break (25%), homework (25%), a class project (25%) and class participation (5%). The tentative date for the first examination is Thursday, October 6 during the regular class period. The second examination will be administered on November 22 during the regular class hour and will be comprehensive. Projects will be presented orally and via written reports after Thanksgiving.

Homework Policy:

To be considered "on time," homework papers must be submitted by the time the instructor begins grading them. This will occur no earlier than 5:00 pm on the day that the papers are due, and may occur somewhat later. Check with the teaching assistant for the grading schedule if you will be handing in a paper late. Papers that are turned in late, but are turned in before corrected papers and solutions have been distributed, will receive a 10% penalty. Papers turned in after corrected papers and solutions have been distributed will be marked, but no credit will be given.

Homework comprises a substantial portion of the grade for this course. Some of the homework will be challenging. Because the instructor believes that you learn a lot by working together and that figuring things out together does a good job of simulating the way you will operate in your career, you are encouraged to discuss homework and strategy for solution. However, you are required to write up the homework (including the programs) independently. Violations of this rule will be dealt with harshly (see Academic Misconduct section below).

Computer Usage:

Each student will have to learn to use the GAMS programming language

(available on the Department's computer network). You may download the student version of GAMS at <http://www.gams.com/download/>. Use of GAMS will be *required* for the homework. Students should be familiar with the MS-Windows operating system.

Communication:

Please note that our primary out-of-class method of communication will be via email to your Purdue email address. We will not generally attempt to contact you at email addresses other than your Purdue email address. It is your responsibility to check for e-mail on a regular basis. We recommend checking your Purdue email at least once every 24 hours. We also may use your official campus mail address in some instances.

Special Needs:

If you have a disability that requires academic adjustments, please make an appointment with me during the first week of class to discuss your needs. Please note that university policy requires all students with disabilities to be registered with [Adaptive Programs](#) in the [Office of the Dean of Students](#) before classroom accommodations can be provided.

Academic Integrity:

University policy on academic dishonesty is clear: academic dishonesty in any form is strictly prohibited. Anyone found to be cheating or helping someone else cheat will be referred directly to the Dean of Students for disciplinary action. Penalties are severe and may include dismissal from the University. The risks associated with cheating far outweigh the perceived benefits. Academic dishonesty includes citing someone else's work as your own, using "cheat sheets" or sharing your answers with someone else. If you are unsure whether your planned action constitutes academic dishonesty, seek clarification from your instructor. Other information regarding your rights and responsibilities as a student is contained in the Purdue University [Code of Conduct](#). Writing assignments for this course will be checked for originality using the iThenticate software.

Campus Emergencies:

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. To get information about changes in this course visit the course home page, contact me by email at preckel@purdue.edu, call me at my office (494-4240).

This syllabus is subject to change.