

Agricultural Economics 552
Introduction to Mathematical Programming

Syllabus Fall 2017
Lectures – Tuesday and Thursday 1:30pm-2:45pm
KRAN G002
Computer Help Session – TBA

Instructor:

Paul Preckel

Office and Phone:

589 Krannert, 494-4240

E-mail:

preckel@purdue.edu

Teaching Assistant:

Andrea Zhao

E-mail:

zhao723@purdue.edu

Office:

Krannert 603 (Office Hour TBA)

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 (25%), and one immediately after the Thanksgiving break (25%), homework (20%), a class project (25%) and class participation (5%). The first examination is in two parts. The tentative date for the first part of the first examination is Thursday, October 5 during the regular class period. The tentative date for the second part of the first examination will be during that same week at the time and in the lab of the computer help session. This will be a hands-on examination requiring you to perform some computing tasks using GAMS. The second examination will be on November 30 during the regular class hour and will be comprehensive. Projects will be presented orally and via written reports after Thanksgiving. Grades are curved. This means that they are based on an index, rather than assigned on a percentage basis. If you want to know where you lie in the grade distribution at any point during the semester, see the instructor.

Homework Policy:

To be considered "on time," homework papers must be submitted by the time grading begins. 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 Integrity 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, and half of the midterm examination will require use of GAMS on a computer.

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 the instructor 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.

Counseling Services:

Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765)494-6995 and <http://www.purdue.edu/caps/> during and after hours, on weekends and holidays, or through its counselors physically located in the Purdue University Student Health Center (PUSH) during business hours.

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.