

AGEC 352 Spring 2017 Course Syllabus

Course Name:

Agricultural Economics 352, Quantitative Techniques for Firm Decision Making

Course Website:

Gradebook and all other course information/material will be available via Blackboard Learn.

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Sesmero Office Hours: MW 10:30-11:30 AM

Meeting Times:

Lecture: MW 9:30-10:20 Krannert Building, Room G016

Laboratory: Tuesday 11:30-12:20 & 12:30-1:20 Stanley Coulter Hall 179

Required Text

There will be no official textbook for AGECE 352 this semester. The course will be heavily based on lecture notes by the instructor that will be distributed in the form of handouts. A book that may be found useful, however, is "[Management Science with Spreadsheet Modeling \(3rd edition\)](#)" by Patrick Johanns. This is an easy-to-use book that can be useful for the students beyond the requirements of the course. An online resource that might prove useful to find cheap used (without the CD is fine) versions of books is <http://www.bookfinder.com/>. Another book that may inform lectures and evaluations is "[Quantitative Analysis for Management \(11th Edition\)](#)" Barry Render (Author), Ralph M. Stair, JR (Author), Michael E. Hanna (Author). I suggest this book as a good combination of breadth, depth, and simplicity.

Other Recommended Readings

"Decision Modeling with Microsoft Excel, 6th edition" by Moore, Weatherford, Eppen, Gould, and Schmidt, Prentice Hall, 2001.

"Quantitative Models for Management", [K. Roscoe, Davis](#)

"Excel Models for Business and Operations Management, 2 Edition", John Barlow

“Data Analysis and Decision Making with Microsoft Excel, Revised” (with CD-ROM and Decision Tools and Statistic Tools Suite), [S. Christian\(S. Christian Albright\) Albright](#) (Author), [Wayne Winston](#) (Author), [Christopher Zappe](#) (Author)

“Quantitative Methods for Business” [David R. Anderson](#) (Author), [Thomas A. Williams](#) (Author), [Dennis J. Sweeney](#) (Author)

“Foundations in Strategic Management (Foundations Series in Management)” [Jeffrey S.\(Jeffrey S. Harrison\) Harrison](#) (Author), [Caron H. St. John](#) (Author)

Course Objectives

AGEC 352 is a course dealing with the application of quantitative tools to support management problem solving. This course involves studying management problems, identifying important decision variables, developing alternatives, evaluating alternatives, and identifying and justifying the most promising alternative. To support the evaluation of alternatives, the course will emphasize the construction, solution, and interpretation of mathematical models with particular emphasis on linear programming and related optimization methods. As such, it requires some knowledge and use of mathematics, statistics, microeconomics principles, and computer spreadsheet software. There are no instructor prescribed prerequisites for taking this class, but an introductory level course in applied computing (e.g. AGEC 202) and statistics (e.g. STAT 305) should provide the proper background. As with almost any upper division AGEC course a working knowledge of microeconomic principles is fundamental.

By the end of the course, the student should have acquired the following skills:

1. Manipulate and use spreadsheets.
2. Formulate linear programming problems.
3. Solve linear programming problems in Excel.
4. Understand graphically the concept of optimality in a linear program.
5. Interpret results obtained from linear programming models.
6. Understand the properties of optimal linear programming solutions.
7. Formulate and solve programming problems under uncertainty.
8. Recognize and demonstrate instances where linear programming and simulation modeling might be valuable.

These objectives will be achieved primarily by close examination of example problems. Example problems will be either classic problems in linear programming or practical examples from farm management or agri-business.

Course Schedule

The following lists topics covered in each class in the course. The course is for the most part modular, meaning the two lectures for the week will feature heavily the problem case you are working on as a laboratory assignment. Thus it is important to attend all lectures and complete laboratory assignments in a timely fashion to stay on pace in the course.

Week #	Date	Type	Topic	Lecture #
Week 1	09-Jan	Lecture	Intro to the course	Lecture 1
	10-Jan	No Lab		
	11-Jan	Lecture	Algebraic Modeling and Problems	Lecture 2
Week 2	16-Jan	Martin Luther King Jr. Day: No Class		
	17-Jan	No Lab		
	18-Jan	Lecture	Algebraic Modeling and Spreadsheets	Lecture 3
Week 3	23-Jan	Lecture	Constraints and Feasible Sets	Lecture 4
	24-Jan	Lab	Constraints and Graphics	Lab 1
	25-Jan	Lecture	Maximization: Objective and Feasible Sets	Lecture 5
Week 4	30-Feb	Lecture	Simplex Method - Implementation	Lecture 6
	31-Feb	Lab	Simplex Method	Lab 2
	01-Feb	Lecture	Simplex Method - Minimization	Lecture 7
Week 5	06-Feb	Lecture	Sensitivity I	Lecture 8
	07-Feb	Lab	Sensitivity	Lab 3
Week 6	08-Feb	Lecture	Sensitivity II	Lecture 9
	13-Feb	Lecture	Sensitivity - review	Lecture 10
	14-Feb	Lab	Sensitivity	Lab 4
	15-Feb	Lecture	Matrix: Transportation	Lecture 11
Week 7	20-Feb	Lecture	Review - Q&A (solve practice exam)	
	21-Feb	No lab		
	22-Feb	Exam		
Week 8	27-Feb	Lecture	Multiperiod Production and Inventory	Lecture 12
	28-Feb	Lab	Multiperiod Production and Inventory	Lab 5
	01-Mar	Lecture	Multiperiod Production and Inventory	Lecture 13
Week 9	06-Mar	Lecture	Marketing Research	Lecture 14
	07-Mar	Lab	Marketing Research	Lab 6
	08-Mar	Lecture	Workforce Scheduling	Lecture 15
Week 10	13-Mar	SPRING VACATION		
	14-Mar			
	15-Mar			
Week 11	20-Mar	Lecture	Workforce Scheduling	Lecture 16
	21-Mar	Lab	Workforce Scheduling	Lab 7
	22-Mar	Lecture	Complex Constraints	Lecture 17
Week 12	27-Mar	Lecture	Integer Programming	Lecture 18
	28-Mar	Lab	Integer Programming	Lab 8
	29-Mar	Lecture	Simulation Modeling	Lecture 19
Week 13	03-Apr	Lecture	Review - Q&A (solve practice exam)	Lecture 20
	04-Apr	No Lab		

	05-Apr	Exam		
Week 14	10-Apr	Lecture	Simulation Modeling	Lecture 21
	11-Apr	Lab	Simulation	Lab 9
	12-Apr	Lecture	Critical Path	Lecture 22
Week 15	17-Apr	Lecture	Decision Analysis	Lecture 23
	18-Apr	Lab	Decision Analysis	Lab 10
	19-Apr	Lecture	Review Final Lab	Lecture 24
Week 16	24-Apr	Lecture	Review Course and Evaluations	Lecture 27
	25-Apr	No Lab (except request)		
	26-Apr	Lecture	Review - Q&A	Lecture 28
	1-6 May	Finals week – Exam 3		

Course Grading

Laboratory (Weekly assignments)	20 %
Quizzes	20 %
Exam I	20 %
Exam II	20 %
Exam III	20 %

The course grade will be determined from performance on three exams, homework assignments, and quizzes. Homework will be assigned each week while quizzes will be unscheduled. Extra credit projects or assignments will not be offered. Makeup assignments, quizzes, and exams are allowed for University excused absences; please contact the instructor in advance if possible to make arrangements. Purdue allows for the assignment of +/- grades to be used in calculation of the GPA. The following grading scale will be applied in the assignment of letter grades with the +/- system.

Grade	Greater than or equal to	But less than
A+	97%	--
A	92%	97%
A-	90%	92%
B+	87%	90%
B	82%	87%
B-	80%	82%
C+	77%	80%
C	72%	77%
C-	70%	72%
D+	67%	70%
D	62%	67%
D-	60%	62%
F	--	60%

Homework Assignments

Laboratory and Weekly Assignments

Beginning in week 3, we will start having weekly laboratory each Tuesday during the assigned course times (11:30-12:20 and 12:30-1:20). During the lab period, students are expected to work through the week's lab handout. Before some labs, students may have a window of time to take a short quiz related to the previous lecture via Blackboard.

Assignment questions at the end of lab handouts have more detailed questions where students are required to provide short answers explaining modeling techniques and results. These assignments are to be turned in during the lecture period of the following Monday. These assignments will require the application of tools discussed in class as well as experience with working through the lab handout. When working on an exercise and/or case problem, you are encouraged to discuss your ideas or proposed solutions with others. Working together, it is often possible to make discoveries that we would not have made on our own and to learn more quickly.

Each class member is required to complete each assignment on-time. These assignments must be typed to receive credit.

Quizzes

Quizzes will be held periodically through the semester and will include questions that are reflective of recently covered material and indicative of exam questions. They will cover material presented in class, in assigned readings, and in homework assignments. Most quiz topics and dates will be announced ahead of time (i.e. the previous class meeting), but I reserve the right to give an unannounced quiz (particularly if attendance in lecture drops considerably).

Exams

Three exams will be given. All exams are comprehensive with respect to material covered prior to that point in the class. Exam formats are multiple choice, true or false, or short answer. Exams are given during lecture periods and are intended to be completed during the fifty minute lecture window. Exams will be given during the 7th and 13th week of the semester and the final exam will take place during finals week.

Computer Use

Students are expected to know the basics of spreadsheet software such as Excel. Excel will be the primary software tool used in class.

Assistance Outside Class

Class time is limited, so it may not be possible to answer all of your questions during class. If you have questions that you would like to discuss outside class time and the reserved office

hours, you are encouraged to contact my secretary Linda (lrklotz@purdue.edu) or me (jsesmero@purdue.edu) for an appointment. In discussing your questions, please come prepared. Our discussion will be more productive if you have thought about your question(s) and written them out. If your question deals with a computer problem, you will need to bring a copy of the current file you are using. Without this file or a copy of the input and output, it is impossible to locate the problem.

It is especially important to hear from you when you are frustrated with this class. If you are frustrated or unhappy with the course for any reason, contacting me will indicate concern and hopefully will result in some relief.

Attendance and Classroom Etiquette Policy

AGEC 352 has as its formal attendance policy that you are expected to attend class. If you contract an illness and have to miss class, you are responsible for the work missed. Accommodations (such as extended due dates) for illness and University business related absences will be handled on a case-by-case basis.

More generally, 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 beyond the instructor's control. These changes to the course will be made note of on the course website listed at the beginning of this syllabus.

Cellphone use is prohibited in the classroom. Turn them off and keep them out-of-sight. I will not confiscate cellphones but I reserve the right to, if used during exams and labs, penalize its use through grades. Laptop use for note-taking is accepted but they have to be turned off during exams and labs. Texting and email use during class time are usually a big distraction. Students are expected to be respectful of others in the classroom.

Academic Integrity

Each student enrolled in AGEC 352 is encouraged to study and work exercises with others. That said, this class abides by the University policy on academic integrity as embodied in the following statement:

University policy on academic misconduct is clear - academic dishonesty in any form is strictly prohibited. Instances of academic dishonesty will be referred to the [Dean of Students for disciplinary action](#). Penalties are severe and may include failure on the exam, quiz, paper, or project, failure in the course, and/or expulsion from the University. The risks associated with academic dishonesty far outweigh the perceived benefits. Academic dishonesty includes citing someone else's work as your own, using unauthorized "crib sheets" during exams, or sharing your answers with someone else. If you are unsure whether an action you are considering constitutes academic dishonesty, seek clarification from your instructor.

Students with Disabilities

If you have a disability that requires special academic accommodation, please make an appointment to speak with me within the first three weeks of the semester in order to discuss any adjustments. It is important that we talk about this at the beginning of the semester. 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.

Score Revisions

The instructor or teaching assistant grades all of your work and sometimes makes errors. If the error lowers your grade it is your responsibility to inform the instructor of the mistake. This can be done by checking your work against that of classmates, posted answer keys, or discussion with the instructor.

Again, scores will be posted on Blackboard upon grading. If your score for an assignment is not posted after two weeks from the due date, it is your responsibility to notify the instructor or teaching assistant. Failure to report a missing grade within three weeks from the due date will result in an incomplete score.