

AGEC 352 Spring 2018 Course Syllabus

Course Name:

Agricultural Economics 352, Quantitative Techniques for Firm Decision Making

Black Board Course Website:

<https://mycourses.purdue.edu/>

Course Contacts:

Instructor: Craig Dobbins	Administrative Assistant: Malissa Allen
Office: Krannert 686	Office: Krannert 681
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Office Hours: call or email Malissa Allen or myself for an appointment

Meeting Times:

<i>Lecture:</i>	MW	3:30-4:20	WALC B074
<i>Laboratory:</i>	Tuesday	11:30-12:20	Stanley Coulter 179
<i>Laboratory:</i>	Tuesday	12:30-1:20	Stanley Coulter 179

Learning Outcomes

AGEC 352 is an introduction to management science. The course addresses using analytic tools to support management decision making. The overall learning outcomes for the course are for students to

- Correctly use the vocabulary of modeling and management science.
- Integrate economic and business principals with analytic methods to support business problem solving.
- Use optimization, decision analysis, and simulation to aid decision making.
- Appreciate the value analytical models can contribute to decision making.
- Support decision making by applying software tools such as Excel, Solver, Precision Tree, and @Risk to business problems.

The course emphasizes supporting business decision making through the construction, solution, and interpretation of mathematical models used to evaluate alternatives. The emphasis will be on linear programming and related optimization models, decision analysis, and simulation. As such, it requires some knowledge and use of mathematics, statistics, microeconomic principles, computer spreadsheet software, and most importantly the use of your critical thinking skill.

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STAT 301 is a prerequisite for taking this class. You may need to refresh your memory of basic statistics when we discuss decision analysis and simulation. An introductory level course in applied spreadsheet computing (e.g. AGECE 202, ASM 104) will also be helpful. If it has been a while since you have used Excel, you might want to review the basic steps of formatting and developing equations. As with almost any upper division AGECE course a working knowledge of microeconomic principles is fundamental. There may be times during the course that you will need to review some of the material presented in AGECE 20300 and 22000.

Course outcomes are achieved by reading and studying the textbook, applying concepts to example decision cases, and integrating economics with model results to develop a logical problem solution and recommended course of action. Decision cases will be from farm management, agri-business management as well as other fields.

Text

The required text for the class is Johanns, Patrick, *Management Science with Spreadsheet Modeling*, Third Edition, Kendall Hunt, 2012. This text contains reading material and exercises. It is direct and to the point. The text provides basic information about the tools we will be using and about using Excel with these tools. By today's standards, this is a relatively inexpensive textbook. People that purchase used copies of this book complain that some exercises are often missing. Since all the exercises you will be asked to work on are from other sources, missing text exercises will not hinder the usefulness of a used text.

Course Organization

Topics: The general structure for the course is to focus on a different topic each week. For each week, there is a text reading assignment, case problem, and quizzes over the material. Monday and Wednesday will usually be short lectures. The remaining time in MW will provide time to ask questions and work on the case problems. You may want to bring your laptop to make the best use of this time. Tuesday is in a computer lab, to work on this aspect of the decision cases.

Decision Cases: During the semester, you will complete a number of decision case exercises. These are available on Blackboard. Decision cases illustrate the application of the tool we are studying each week. Most of these cases will come from the food and agricultural industry.

You may work together on the exercises. This is why you are provided class time. By working together, it is often possible to make discoveries that we would not have made on our own and to learn more quickly. **You must complete and submit requested material on the date due.** Each person must submit requested material. Exercise due dates are indicated at the bottom of the exercise. Paper are due at the beginning of class. Decision cases will be graded by selecting random parts of the case to grade.

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Quizzes: On Mondays and Wednesdays, a short in class quiz will occur. The quiz will cover the readings and class work. Quiz questions will come from a set of weekly questions on Blackboard. They are located on Blackboard in the weekly material. The questions will be available Thursday morning. You have unlimited attempts for each set of questions. The only quiz grades counted in your course grade are those taken in class. There are no quiz makeups.

Exams: There will be two exams during the semester, one in week six and one in week thirteen. The course final will occur whenever the final is scheduled. If the final is scheduled for late in finals week, do not expect it to be rescheduled. Questions on the exams will be short answer with a few multiple choice and true/false. The questions will be like those on the quizzes and exercises. All exams are comprehensive with respect to material covered at the time of the exam. Each exam is approximately 100 points.

Attendance Policy

The course provides you time to work on the decision cases and ask questions during class. If you miss class, you are not participating and contributing to the class. The course attendance policy for AGECE 352 requires your attendance at every class unless you are sick or have an emergency. If you are ill, please take care of yourself and please do what you can to avoid spreading the illness to others. You are provided two weeks of absence (a total of four Monday &/or Wednesday misses). After four misses, your class participation grade will decline by 1% for each additional day missed.

If you miss class because of the requirements of another class, **you** are responsible for the work missed and **submitting it on or before its due date**. Accommodations (such as extended due dates) in the case of an illness or emergency will be handled on a case-by-case basis. A missed quiz is a missed quiz and has a score of zero.

Course Grades: The course grade will be determined from your performance on exams, decision problems, quizzes, and class participation. Class participation will be subjective. Class attendance, participation in class discussions, asking questions, etc. will influence class participation. The total points in each area and the percentage of total points are given in the table below.

Item	Points	Percentage
Decision cases (team work exercises)	72	13%
Quizzes	149	26%
Attendance/Participation	45	8%
Midterm Exam I	100	18%
Midterm Exam II	100	18%
Final Exam	100	18%
Total	566	100%

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Opportunities for extra credit are available throughout the semester. A maximum of 40 points are possible. After breakpoints for letter grades are determined, extra credit points are added and a new letter grade will be determined. All extra credit work must be submitted by April 9.

There is no makeup of exercises or quizzes. If there is conflict that will prevent you from completing an assignment or exam, please contact me two weeks prior to the due date. If an emergency occurs that creates a problem associated with completing your work, let me know as soon as possible.

The initial breakpoints for assigning letter grades with the +/- system are in the table below.

Grade	Greater Than	Less than or equal to
A+	97%	100%
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%

Score Revisions

The instructor or teaching assistant will score all your work. Sometimes errors are made. If the error causes your grade to be lower than it should be, it is your responsibility to inform the instructor of the mistake. Errors can be identified by checking your work against that of classmates, posted answer keys, or discussion with the instructor. This must be done within **one** week of the assignment being returned.

Scores will be posted on Blackboard. If your score for an assignment is not posted after the assignment has been returned, it is your responsibility to notify me. This must be done within **one** week of the assignment being returned.

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Computer Software

Students need to know the basics of Excel spreadsheet software. Solver comes with Excel, but you may need to install it. The first exercise that requires Solver will explain the installation process. Excel and the Excel add-ins Solver, @Risk, and Precision Tree are used. Using the add-ins is covered in the class.

The Palisades Decision Tools contains the @Risk and Precision Tree software. This is available in the ITaP computer labs. It is also made available free with the purchase of the text. If you have a Windows computer, (they claim you can use it on a Mac in Windows mode) you can download the software from <http://www.palisade.com/bookdownloads/johanns/>. Once you click on the link, you will need to answer a security question that by using your book.

Palisades Decision Tools is also available in the ITaP computer labs under Course Software. Go to Start -> All Programs -> Course Software -> Agriculture -> AGECEC -> Palisades Decision Tools. We will be using @Risk for simulation analysis and Precision Tree for decision analysis.

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, you are encouraged to stop by my office from 1:00 to 2:30 pm Wednesday and Thursday or contact my assistant or me 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 or your laptop. Without the file or a copy of the input and output, it is impossible to locate the problem. Maybe an even more effective approach would be to send the file and concerns before our meeting.

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

Emergency

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to change. These changes to the course will be noted on the course website listed at the beginning of this syllabus.

Course Schedule

The following lists the plan for topics covered in each week in the course. The course is for the most part modular, meaning the two lectures for the week will focus heavily on the decision case(s) you

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are working. Thus it is important to attend all lectures and complete laboratory assignments in a timely fashion to stay on pace in the course.

	Topic	Reading Assignment	Notes for You & Me
Week 1 January 8	Course & Management Science Introduction	Chapter 1	Exercise 1
Week 2 January 15	Spreadsheet Model Design in Excel (No Class Monday)	Chapter 2	Martin Luther King Jr. Day Exercise 2
Week 3 January 22	Optimization of Liner Models	Chapter 3	Exercise 3
Week 4 January 29	Optimization of Liner Models	Chapter 3	Exercise 4
Week 5 February 5	Optimization Applications	Chapter 4	Exercise 5
Week 6 February 12	Optimization Applications Exam 1 Tuesday & Wednesday	Chapter 5, 107 – 113, 118 - 123 Chapters 1-4	
Week 7 February 19	Non-Linear Optimization	Chapter 5, 107 – 113, 118 - 123	Exercise 6
Week 8: February 26	Integer Modeling & Applications	Chapter 6	Exercise 7
Week 9 March 5	Integer Modeling & Applications	Chapter 6	Exercise 8
Week 10 March 12	Spring Break		
Week 11 March 19	Simulation Modeling	Chapter 7 (pages 177-184, 186-205)	Exercise 9
Week 12 March 26	Simulation Modeling	Chapter 7 (pages 177-184, 186-205)	Exercise 10

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Week 13 April 2	Decision Analysis Exam 2 Tuesday & Wednesday	Chapter 9 Chapters 1-7	
Week 14 April 9	Decision Analysis	Chapter 9	Exercise 11
Week 15 April 16	Decision Analysis	Chapter 9	Exercise 12
Week 16 April 23	Course Review	Chapters 1-7, 9	
April 30 – May 5	Finals		

Academic Integrity

Each student enrolled in AGECE 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 giving your answers to 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 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.

P.S.

This is a plan; I reserve the right to change my mind about any of this at any time. I'm always open to student suggestions for improvement.