

AGEC 352 Fall 2017 Course Syllabus

Course Name:

Agricultural Economics 352, Quantitative Techniques for Firm Decision Making

Black Board Course Website:

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

Instructor: Craig Dobbins

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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	STEW 320
<i>Laboratory:</i>	Tuesday	11:30-12:20	Stanley Coulter G046
<i>Laboratory:</i>	Tuesday	12:30-1:20	Stanley Coulter G046
<i>Laboratory:</i>	Tuesday	1:30 – 2:20	Stanley Coulter G046

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

- Be able to use 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 construction, solution, and interpretation of mathematical models used to evaluate alternatives. The emphasis will be on linear programming and related optimization models, decision models, and simulation models. As such, it requires some knowledge and use of mathematics, statistics, microeconomic principles, and computer spreadsheet software.

STAT 301 is a prerequisite for taking this class. You may need to refresh your memory of basic statistic when we discuss decision analysis problems and simulation. An introductory level course in applied spreadsheet computing (e.g. AGEC 202, ASM 104) will also be helpful. We will start using Excel on day two. 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 AGEC 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 AGEC 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 reading material provides information about using Excel for solving the kinds of management problems we will be discussing. 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 should not hinder using the text as a reference.

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 and case problem or a set of problems. Monday and Wednesday will have some lectures, hopefully short. The remaining time in MW will provide time to ask questions and work with your team on the decision cases. Tuesday is in a computer lab, to work on this aspect of the decision cases. Bringing a laptop to class on Monday and Wednesday will allow you to continue your computer work.

Decision Cases (Team work exercises): During the semester, you will be asked to complete a number of decision case exercises. These are available on Blackboard. Decision cases will address different types of management problems. Most of these cases will come from the food and agricultural industry.

These decision cases will be completed in teams of three or four students. Team members are assigned and are posted on Blackboard. Everyone is expected to participate in drafting spreadsheet models, interpreting results, answering questions, making sure question answers are correct, and reviewing material before submission making sure words are correctly spelled, proper grammar is used, and ideas are expressed clearly.

In addition, each individual is asked to take one of three roles: 1) Leader – responsible for keeping discussions organized and on topic, meeting deadlines, keeping me informed of

team problems, changes in team membership, and work with Recorder and Checker to be sure answers to questions are clear and well organized; 2) Checker – makes sure models are correctly formulated, makes sure the team can explain the model formulation, makes sure all team members can explain the correct answer to questions, and work with Recorder and Leader to be sure answers to questions are clear and well organized; and 3) Recorder – review papers to be sure they are well organized, answers address the questions asked, proper grammar, spelling, and sentence structure is used, and work with Leader and Checker to be sure answers to questions are clear and well organized.

Rotate these roles every five weeks. For example, the Leader becomes the Recorder, the Recorder becomes the Checker, and the Checker becomes the Leader. If you happen to be on a team of four, there will be two team members in one of the roles. The rotation dates are listed in the Course Schedule.

Teams are expected to submit answers to decision case questions on the date due. Place your papers in a neat pile on the table.

Working together, it is often possible to make discoveries that we would not have made on our own and to learn more quickly. Working as a team also brings with it potential problems. Chief among them is the problem of free riders. If this becomes a problem for you, I ask that you try to solve this on your own. If you are unable to get this problem resolved, let me know and we will work together to find a solution.

Due dates of exercises are indicated on the bottom of the exercise. These can be adjusted as needed.

Quizzes: There is a short quiz to complete before class on Mondays and Wednesdays. The quiz questions will come from readings and class work. The quizzes are due at 3:30 pm on Monday and Wednesday. They are located on Blackboard in the material for the week. You have unlimited attempts for each quiz, but it will disappear Friday at midnight. Your grade will be the highest score you achieve. There are no quiz makeups.

Exams: There will be two exams during the semester, one in week six and one in week fourteen. The final will be given 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.

Course Grading: The course grade will be determined from your performance on three exams, decision problems, quizzes, and class participation. Class participation will be subjective. It will be influenced by class attendance, participating in class discussions, being a good contributor to your team, etc. The points applied to each item to arrive at an overall weighted average score are given in the table below.

Item	Points	Percentage
Decision cases (team work exercises)	72	12.6%
Quizzes	151	26.6%
Participation	45	7.9%
Midterm Exam I	100	17.6%
Midterm Exam II	100	17.6%
Final Exam	100	17.6%
Total	568	100%

Opportunities for extra credit will be provided throughout the semester. A maximum of 40 points are possible. These points will be added after letter grades have been determined and a new letter grade will then be calculated. All extra credit work must be submitted by November 21.

There is no makeup of exercises or quizzes. If a conflict arises that will prevent you from completing an assignment, quiz, 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 following grading scale will be applied in the assignment of letter grades with the +/- system. Score cutoffs for grades may

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%

Attendance Policy

The course is organized to provide you time to work on the decision cases and ask questions during class. If you miss class, then you are not making a contribution to your team. The course attendance policy for AGECE 352 is that you are expected to attend 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 not spread the illness to others.

If you miss class because of the requirements of another class, **you** are responsible for the work missed and **submitting it on time or before it is due**. 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.

Computer Software

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

Towards the end of the semester, the course will explore using simulation and decision analysis to support business decision making. @Risk and Precision Tree are two additional Excel add-ins that make it easier to use these tools. They are part a package called Palisades Decision Tools. Palisades Decision Tools is available in the ITaP computer labs under Course Software. Go to **Start -> All Programs -> Course Software**. It is under Agriculture. We will be using @Risk for simulation analysis and Precision Tree for decision analysis.

The Palisades software is 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 can be answered using your book. and you will be ready to download

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 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 Aug 21	Course & Management Science Introduction	Chapter 1	Read before Wednesday Exercise 1
Week 2 Aug. 28	Spreadsheet Model Design in Excel	Chapter 2	Read before Monday Exercise 2
Week 3 Sept 4	Optimization of Linear Models	Chapter 3	Labor Day Read before Tuesday Exercise 3
Week 4 Sept 11	Optimization of Linear Models	Chapter 3	Read before Monday Exercise 4
Week 5 Sept 18	Optimization Applications	Chapter 4	Read before Monday Exercise 5
Change team roles			
Week 6 Sept 25	Optimization Applications Exam Tuesday & Wednesday	Chapter 4 Chapters 1-4	
Week 7 Oct 2	Non-Linear Optimization	Chapter 5	Read before Monday Exercise 6
Week 8: Oct. 9	Non-Linear Optimization	Chapter 5	Fall Break Oct. 9 & 10
Week 9 Oct 16	Integer Modeling & Applications	Chapter 6	Read before Monday Exercise 7

Week 10 Oct. 23	Integer Modeling & Applications	Chapter 6	Exercise 8
Change team roles			
Week 11 Oct. 30	Simulation Modeling (pages 177-184, 186-205)	Chapter 7 (pages 177-184, 186-205)	Read before Monday Exercise 9
Week 12 Nov. 6	Simulation Modeling	Chapter 7 (pages 177-184, 186-205)	Exercise 10
Week 13 Nov 13	Decision Analysis	Chapter 9	Read before Monday Exercise 11
Week 14 Nov. 20	Exam Monday & Tuesday, Thanksgiving Nov. 22-24	Chapters 1-7	
Week 15 Nov 27	Decision Analysis	Chapter 9	Read before Monday Exercise 12
Week 16 Dec 4	Decision Analysis	Chapter 9	
Dec 11-16	Finals		

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 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 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 graders will score all of 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.

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.