

## AGEC 352 Fall 2018 Course Syllabus

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**Course Name:**

Agricultural Economics 352, Quantitative Techniques for Firm Decision Making

**Blackboard Course Website:**

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

**Instructor:** Craig Dobbins

**Office:** Krannert 690

**Phone:** 494-9041

**email:** [cdobbins@purdue.edu](mailto:cdobbins@purdue.edu)

**Administrative Assistant:** Jessica Bonnell

**Office:** Krannert 688

**Phone:** 494-4208

**email:** [jonesjl@purdue.edu](mailto:jonesjl@purdue.edu)

**Office Hours: Wednesday & Thursday 1:00 - 2:30** or call (preferred) or email Jessica Bonnell or myself for an appointment

**Meeting Times:**

<i>Lecture:</i>	MW	9:30 – 10:20 am	WALC B74
<i>Laboratory:</i>	Tuesday	11:30 am – 12:20 pm	Stanley Coulter 179
<i>Laboratory:</i>	Tuesday	12:30 – 1:20 pm	Stanley Coulter 179

**Learning Outcomes**

AGEC 352 is about business decision making and introduces management science. The course uses various analytic tools developed to support decision making in various types of situations. 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 techniques to support business decision making.
- Use optimization, decision analysis, and simulation to aid decision making.
- Appreciate the value analytical models 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, nonlinear programming, decision analysis models, and simulation models. As such, the course 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 statistics 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.

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 are the methods used to achieve course outcomes. 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 has 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. Comments from people that purchase used copies indicate the book has missing exercises. Since all the exercises you will work are provided on Blackboard, a text with some or all exercises missing should not hinder the usefulness of the text.

### **Course Organization**

**Topics:** The general structure for the course is to focus on a different topic each week. For each topic, there is a text reading assignment, case problems, and in-class quizzes on Monday and Wednesday over the material. Monday and Wednesday will usually have short lectures. The remaining time MW provides time to ask questions and work on the case problems. Bring your laptop to make the best use of this class time. Tuesday is in a computer lab and the entire class period is devoted to working on the decision cases. Completing the exercises will take longer than the 50 minutes allotted for the Tuesday labs.

**Decision Cases:** During the semester, you will complete several 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 are given class time to work together on the exercises. 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 a copy of the requested material. Exercise due dates are indicated at the bottom of the exercise. All assignments are due at the beginning of class on the due date. Submit your exercise as one file by attaching your assignment file to the Blackboard assignment page. Decision case assignments are graded by reviewing random parts of the assignment and using the rubric below.

Item	0	1	2
Completeness	Missing three or more items	Missing 1 or 2 items	All requested items present
Accuracy	Incorrect answers to 3 or more questions	Incorrect answers to 1 or 2 questions	All questions correct
Organization	Little effort displayed in organization of material	Organization of material needs to be improved	Easy to locate material
Originality	Little doubt items were copied or close to being copied	Answers to questions lack originality	Answers to questions display originality

**Quizzes:** On Mondays and Wednesdays, a short in-class quiz will occur. The quiz will cover **readings** and **classwork**. There is a set of weekly questions on Blackboard to help you prepare for these quizzes. These quiz questions are in the weekly material on Blackboard. You have unlimited attempts for each set of questions. The only quiz grades counted in your course grade are those taken in class.

**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 exams will be short answer with a few multiple choice and true/false. The questions will be like those on the quizzes (multiple choice & true/false) and exercises (short answer). All exams are comprehensive with respect to material covered at the time of the exam. Each exam is approximately 100 points.

### **Attendance Policy & Participation Points**

The course schedule provides you time to work on 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 AGEC 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). With four or fewer lecture misses, class participation points will be 65 points. After four misses, your class participation grade will be calculated using the following formula:  $(\text{total lectures [24]} - \text{missed lectures(?)}) / \text{total lectures [24]} * 65$  points.

If you miss class because of the requirements of another class, **you** are responsible for completing quizzes before the due date. Send me an email and I will send you a copy of a quiz to take. **Assignments are expected to be submitted on or before the 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.

There is no makeup of exercises or quizzes unless you make arrangements prior to the due date. If there is a conflict that will prevent you from completing an assignment or exam, please try to contact me one week 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.

**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 estimated total points in each area and the approximate percentage of total points are given in the table below.

Item	Points
Decision cases (team work exercises)	96
Quizzes (approximately)	120
Attendance/Participation	65
Midterm Exam I	100
Midterm Exam II	100
Final Exam	100
Total	581

Opportunities for extra credit are available throughout the semester. A maximum of 50 points are possible. All extra credit work is due by April 12, 2019.

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

Grade	Greater Than or Equal To	Less than
A+	97%	100%
A	93%	97%
A-	90%	93%
B+	87%	90%
B	83%	87%
B-	80%	83%
C+	77%	80%
C	72%	77%
C-	70%	72%
D+	67%	70%
D	62%	67%
D-	60%	62%
F	--	60%

There may be adjustments made to these at the end of the course.

## Score Revisions

The instructor or teaching assistant will score all your work. Sometimes mistakes are made. If the mistake 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 (both yours and mine) by checking your work against posted keys or by discussing the issue with the instructor. This must be done within **one** week of the assignment being returned.

Scores are posted on Blackboard. If a Blackboard score for an assignment does not display after the assignment is returned, it means you have a grade of zero for the assignment. It is your responsibility to notify me of this error. Grade corrections must be done within **one** week of the assignment being returned.

## 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. Use of add-ins is covered in class.

The Palisades Decision Tools contains the @Risk and Precision Tree software. This is also available in the ITaP computer labs. If you have a Windows computer, it is also made available free with the purchase of the text. Sorry Mac users, it will only work on your machine if you use it 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 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 -> AGECE -> 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 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 the class. If you are frustrated or unhappy with the course for any reason, contacting me will hopefully result in some relief.

### Emergency

In case 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. The course, for the most part is modular. This means 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.

	<b>Topic</b>	<b>Reading Assignment</b>	<b>Notes for You &amp; Me</b>
Week 1 January 7	Course & Management Science Introduction	Chapter 1	Exercise 1
Week 2 January 14	Spreadsheet Model Design in Excel	Chapter 2	Exercise 2
Week 3 January 21	Optimization of Liner Models	Chapter 3	MLK Day Exercise 3
Week 4 January 28	Optimization of Liner Models	Chapter 3	Exercise 4
Week 5 February 4	Optimization Applications	Chapter 4	Exercise 5
Week 6 February 11	<b>Exam Tuesday &amp; Wednesday</b> Nonlinear Optimization Applications	Chapters 1-4 Chapter 5	Exercise 6
Week 7 February 18	Non-Linear Optimization	Chapter 5	
Week 8: February 25	Integer Modeling & Applications	Chapter 6	Exercise 7

Week 9 March 4	Integer Modeling & Applications	Chapter 6	Exercise 8
Week 10 March 11	Spring Break		
Week 11 March 18	Simulation Modeling (pages 177-184, 186-205)	Chapter 7 (pages 177-184, 186-205)	Exercise 9
Week 12 March 25	Simulation Modeling	Chapter 7 (pages 177-184, 186-205)	Exercise 10
Week 13 April 1	<b>Exam Tuesday &amp; Wednesday</b> Decision Analysis	Chapters 1-7	
Week 14 April 8	Decision Analysis	Chapter 9	Exercise 11
Week 15 April 15	Decision Analysis	Chapter 9	Exercise 12
Week 16 April 22	Decision Analysis	Chapter 9	
April 29 - May 4	Finals Week		

### 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.