

Syllabus

Advanced Topics in Production (1/2 of AREC 705 course)

Instructor:	Dana L. Hoag		
Office Hours:	By appointment		
Meeting time:	Tuesday, 2:00-3:40 (Ends October 11, half way through)		
Location:	11 Eddy		
Readings:	(provided in Canvas) Risk Analysis in Theory and Practice, by Jean-Paul Chavas. 2004 Applied Risk Management in Agriculture, by Dana Hoag, 2009 Coping with Risk in Agriculture: Applied Decision Analysis by Hardaker, Lien, Anderson and Huirne, 2015		
Software:	Simetar, student version (\$25)		
Grading:	Risk Analysis Project =	80%.	Due by December 2
	Concept presentation =	20%	Due in class, October 11

Course Outline (We will sprinkle some Simetar lessons into most lectures)

Week 1

- 1) Introduction to risk management (JPC- p. 5-11; Hoag- chp 2) (Richardson Simetar chapter 2014, and Introduction to Simetar 2006)
 - a. What is risk and uncertainty
 - b. Risk Payoff Matrix exercise
 - c. Strategic Risk Management: Risk Navigator (Hoag-chp 4)
 - i. Sources of risk (Hoag-chp 8)
 - ii. Controls for risk (Hoag-chp 9)
 - iii. Measuring risk (Hoag-chp 10) (CWR chp 3)
 - iv. Putting it together in a Payoff Matrix (Hoag-chp 11)
 - v. Ranking

Week 2

- 2) Expected Utility framework (JPC-chp 3)
 - a. Maximizing expected value v.s. expected utility (JPC-chp 3)
 - b. Graphical representation of utility combined with risk
 - c. Taylor series expansion to show $EU = f(\pi, \sigma \pi)$

Week 3

- 3) Risk preferences (JPC-chp 4; Hoag –chp 6)
 - i. Measures (Zilberman lecture 9)
 - ii. Elicitation (Hoag, p. 100-103)

Week 4

- 4) Measuring risk (Hoag-chp 8) (jpc pg 9-18) (Simetar chap 2 and 4, Simetar Simulation for applied risk)

Week 5-6

- 5) Stochastic efficiency and methods when preferences are unknown (JPC-chp 5; CWR chp 7)
 - a. MV frontier and utility preference mapping (JPC-chp 6)(Zilberman Lecture 13)
 - b. Stochastic dominance
 - i. First degree and second degree
 - ii. SD with respect to a function and S Efficiency RF (JPC-chp 5)
 - c. MOTAD

Week 7

- 6) Making choices when including risk preferences
- 7) Problem solving examples
 - a. Production theory (JPC-chp 8) (raison example)
 - b. Price stabilization (JPC-chp 13)
- 8) Other models
 - a. Safety first

Risk Analysis Project

Your project is due December 2. You will develop an analysis in Semitar to address an empirical issue. That project file will be handed in to me. Please annotate the file sufficiently so that I can follow what you did. Use color, lines, and comments, as well as vformula so that I can follow all of your steps. You may develop a separate written supplement that explains what you did if you like. You may choose any topic you like, but I will require that it contain the following:

1. My approval of your topic idea
2. Submit a brief outline to me before the end of the risk portion of the class, which should be approved
3. A map of states, actions, probabilities
4. A contributing factor diagram
5. A list of KOV's and KIV's
6. Actual data (explain where you found it)
7. Elicitation of risk preference from at least 1 person
8. At least 3 stochastic variables
9. At least 1 pair of stochastic variables that are dependent
10. A dashboard for inputs
11. A dashboard for KOV's
12. Risk premium as a percentage of the expected value

You will also be required to present your idea the last day of class. We hand the class over to Dr. Graff on October 11 half way through. Your presentations will be presented during the first 50 minutes. Plan on about 10 minutes each. The idea is to present the problem that your project is to address, NOT to show how you will solve it with Simetar. It should include a background that sets up your problem statement, then how you would apply risk analysis to address it. Include a description about how your analysis in Simetar will address that problem.