

STAT 495: Applied Statistics for Industry I

Syllabus, Fall 2008

- Instructor:** W. Robert Stephenson, Department of Statistics,
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- Office Hours:** MTWTh 9:00–9:50 Central Time
M 1:10–2:00 Central Time
and by appointment.
- Lecture:** This course will be delivered via the World Wide Web. Students will view two lectures each week. Lecture tapes will be available via WebCT.
- Materials:** The text *Statistical Quality Design and Control 2nd* edition by DeVor, Chang and Sutherland is the required text. Course materials will be made available to all students via WebCT. Also check the course website.
- Computing:** The preferred computing package is JMP. This program can be downloaded from the ISU website or a CD can be sent to you. Students may use other statistical computing packages, e.g. Minitab but there is no guarantee that the instructor can help if they run into problems using such a package.
- Exams:** Exam 1: by Friday, October 3
Exam 2: by Friday, November 7
Final Exam: by Friday, December 19
- Assignments:** Reading assignments correspond to the lecture for that day. It is recommended that you read the suggested sections in the text prior to viewing the tape. The due date for each assignment is one week after it is assigned. Corrected assignments will be returned as soon as possible. Solutions will be posted via WebCT.

Grading: Grading is based on your performance on exams and homework assignments. The breakdown of points is as follows:

Exam 1:	100 pts
Exam 2:	100 pts
Final Exam:	130 pts
Homework:	100 pts
Project:	70 pts
Total	500 pts

Tape # and Material Covered Assignment

- 1. Introduction
- 2 .Statistical Thinking

Week of August 25, students view tapes 1 & 2.

- 3. Quality Improvement Sections 1.1, 1.2, 1.3
Six Sigma Sections 2.1, 2.2, 2.3
- 4. Actions Based on Data Sections 3.1, 3.2
Analytic vs. Enumerative
Studies Homework #1 assigned

Week of September 1, students will view tapes 3 & 4.

- 5. Magnificent Seven: Part 1
Flow charts, cause-and-effect,
Pareto charts
- 6. Magnificent Seven: Part 2
Histograms, scatterplots,
stratification Section 3.3
Homework #2 assigned

Week of September 8, students view tapes 5 & 6, Homework #1 due.

- 7. The Measurement System
- 8. Gage R & R Homework #3 assigned

Week of September 15, students view tapes 7 & 8, Homework #2 due.

Date	Tape # and Material Covered	Assignment
	9. Statistical Control	Sections 5.1, 5.2, 5.3
	10. Review for Exam 1	
Week of September 22, students view tapes 9 & 10, Homework #3 due.		
***** Exam 1 *****		
	11. Introduction to Control Charts	Sections 5.4, 5.5, 5.6
Week of September 29, students take Exam 1 and view tape 11.		
	12. \bar{X} & R charts, construction	Sections 6.1–6.5
	13. \bar{X} & R charts, interpretation	Chapter 6.6–6.9 Homework #4 assigned
Week of October 6, students view tapes 12 & 13.		
	14. Evaluating alarm rules Rational Subgrouping	Chapter 7
	15. Other charts for measurement data	Sections 9.1–9.3 Homework #5 assigned
Week of October 13, students view tapes 14 & 15, Homework #4 due.		
	16. Control charts for count data I	Sections 13.1–13.4
	17. Control charts for count data II	Sections 13.5, 13.6 Homework #6 assigned
Week of October 20, students view tapes 16 & 17, Homework #5 due.		
	18. Assumptions, caveats and cautions	
	19. Review for Exam 2	
Week of October 27, students view tapes 18 & 19, Homework #6 due.		

Date **Tape # and Material Covered** **Assignment**

***** **Exam 2** *****

20. Statistical thinking revisited Chapter 12

Week of November 3, students take Exam 2 and view tape 20.

21. Process Capability I Chapter 10

22. Process Capability II Homework #7 assigned

Week of November 10, students view tapes 21 & 22.

23. Quantifying sources of
variability, Nested designs

24. More on nested designs Homework #8 assigned

Week of November 17, students view tapes 23 & 24, Homework #7 due.

Thanksgiving Break - Week of November 24

25. Enumerative studies; Definitions

26. Enumerative studies; Homework #9 assigned
Probability

Week of December 1, students view tapes 25 & 26, Homework # 8 due.

27. Inference

28. Philosophy of Quality
Review for Final Exam

Week of December 8, students view tapes 27 & 28, Homework #9 due.

***** **Final Exam, Week of December 15** *****