STATISTICS 6640 - PRINCIPLES OF STATISTICAL QUALITY CONTROL
Autumn 2013

Lectures: M, W, F 9:10 – 10:05, MP 2019
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Grader: Mr. Cao (Phone = 2-9236, email = cao.93@osu.edu, office hours = _________)

Text: Introduction to Statistical Quality Control 6th Ed.) by D. C. Montgomery

This course will provide an introduction to various topics in Statistical Process Control (SPC). Prerequisite is a course in Mathematical Statistics such as Stat. 6201, Stat. 6302, or Stat. 6802. The emphasis of this course will be applied. There will be regular homework problems, most of which will involve the analysis of data that is best done with computer software.

We will use Minitab and JMP. Some instruction on the use of these packages will be provided in class. Minitab is available at several public computing sites. These can be determined by going to the web site https://ocio.osu.edu/elearning/labs-and-classrooms/labs

JMP is produced by SAS and has a menu interface, but is not quite as easy to use as Minitab. One advantage for OSU users is that you can get a Windows or Macintosh version for free from the Office of Information Technology (see below). JMP is also available at several public computing sites – see https://ocio.osu.edu/elearning/labs-and-classrooms/labs

If you own a PC running a recent version of Windows, you can obtain a site-licensed copy of JMP and Minitab (Minitab is only available to faculty and regular staff, however). If you own a Macintosh computer, you can obtain copies of JMP, but not Minitab. For more information about site licensed software, see the web site https://ocio.osu.edu/software


Homework: There will be regular homework assignments. Data sets can be downloaded at the student companion site for the book.

http://bcs.wiley.com/he-bcs/Books?action=index&bcsId=4328&itemId=0470169923

This site also has some other material that might be of interest (for example, a link to a JMP reference guide).
**Exams:** There will be a midterm (week 8) and final exam. Exams will be open book and calculators are allowed. The final exam is comprehensive and will be given at the regularly scheduled time (see below).

**Grading:** Course grades will be based on homework and exam scores. Homework will count for 30% of the course grade, the midterm for 30% of the course grade, and the final exam for 40% of the course grade.

**COURSE OUTLINE (TENTATIVE)**

*chapters refer to the text*

**Week 1:** Introduction and Review (chapters 1 and 2). Introduction to Minitab and JMP

**Week 2:** Review (chapters 3 and 4).

**Week 3:** Review, continued (chapter 4)

**Week 4:** Basic Methods of Statistical Process Control (chapter 5)

**Week 5:** Basic Methods of Statistical Process Control, continued, Control Charts for x-bar, R, and s (6.1 - 6.3)

**Week 6:** Control Charts for x-bar, R, and s, continued (6.1 - 6.3)

**Week 7:** Control Charts for Individual Measurements (6.4).

**Week 8:** Midterm 1. Control Charts for Fraction Noncomforming (7.1 - 7.2)

**Week 9:** Control Charts for Fraction Noncomforming, continued (7.1 - 7.2)

**Week 10:** Control Charts for Defects, Control Between Attributes and Variables Control Charts (7.3 - 7.4)

**Week 11:** Control Charts for Defects, Control Between Attributes and Variables Control Charts (7.3 - 7.4), continued

**Week 12:** CUSUM, Weighted Moving Average Control Charts (9.1-9.3)

**Week 13:** CUSUM, Weighted Moving Average Control Charts, continued (9.1-9.3)

**Week 14-16:** Overview of Additional Topics.

**Final Exam = Wednesday, December 11, 8:00 - 9:45**