

**INSTRUCTOR** Dr. Subha Chakraborti  
Office: 345 Alston  
Phone: 348-8907  
Email: [schakrab@cba.ua.edu](mailto:schakrab@cba.ua.edu)

**OFFICE HOURS:** TBA  
other times by appointment.

**TEXTBOOK** Introduction to Statistical Quality Control, 5<sup>th</sup> Edition  
Douglas C. Montgomery

**PREREQUISITE** ST 260 or equivalent

### COURSE DESCRIPTION

Coverage includes basic statistical process monitoring tools such as the Shewhart, CUSUM and EWMA control charts. The emphasis is on problem solving. Common philosophies and strategies are discussed.

**OBJECTIVES** To become familiar with statistical concepts and tools associated process monitoring and quality improvement.

**EVALUATION** The semester grades will be based on a weighted average as follows:

Homework assignments	10%	Quizzes & In-class work	10%
Exams (2)	50% (25% each)	Final Exam	30%

### POLICIES

1. You must read the assigned material before going to lecture. This is a key to understanding in class.
2. Homework will be assigned regularly. You must do the homework before it's due and not wait until the last minute. Group study is encouraged but the final product submitted for any grade must be your own work or no grade will be assigned. No late homework will be accepted. Submitted homework must be prepared in a format discussed in class or it won't be graded. Homework must be typed in Word with any printouts or charts from Excel or Minitab embedded.
3. Questions regarding homework are best discussed during office hours. See the instructor and/or the TA.
4. Quizzes: some unannounced. These are based on homework, reading assignments and class discussions.
5. The lowest quiz grade will be dropped and the lowest two homework grades will be dropped.
6. No recording and transmitting devices are allowed. Cell-phones must be turned off. No food or drinks.
7. Make-up: Exams: generally not given. See instructor in extenuating circumstances. No make-ups for quizzes.
8. Attendance and class participation: expected. Random attendance checks are possible. If you miss a class, it's your responsibility to make-up for what you missed. See make-up policy for quizzes and exams. Class participation is required.
9. ¼ point of extra credit will be given for attending a SOMS meeting.
10. Familiarity and working knowledge of basic topics from ST 260 are necessary and expected. **Review!**
11. Familiarity and working knowledge of popular software such as Excel and Minitab are expected. **Review!**
12. The final exam will be comprehensive.
13. All acts of dishonesty in any work constitute academic misconduct. The UA Academic Misconduct Disciplinary Policy will be followed in the event of academic misconduct.

### IN THE EVENT OF AN EMERGENCY

We will adhere to the following actions in accordance with University policies. FIRE/FIRE ALARM: Evacuate the building and stay out of the building at a safe distance until authorized to return. TORNADO WARNING: Move to the Lower Level, inside classrooms, offices or corridors. Remain until the warning has expired. Classes are cancelled until the warning expires.

### STUDENTS WITH SPECIAL NEEDS

To request disability accommodations, please contact the Office of Disability Services at 348-4285. After consultation with that office, contact your professor. However, it is the student's responsibility to make arrangements for the accommodations on a timely basis. Special arrangements for exams must be made at least one week prior to the exam date or your instructor is not required to provide requested accommodations. Any request for special arrangements made less than one week prior to an exam date may not be honored.

- I. Introduction / Quality Improvement/Brief history, Total Quality Management/ Methods/Quality Philosophy
- II. Statistical Methods Used in Quality Control and Improvement/ Inferences about Process Quality—Review of selected topics
- III. Control Charts for Variables: Xbar, R and S control charts

**EXAM I**

- IV. Control Charts for Attributes: Charts for proportion and number of defective items, demerit charts
- V. CUSUM and EWMA Charts
- VI. Process Capability Analysis.  
Assessment with statistical summaries and/or graphical methods and commonly used indices

**EXAM II**

- VII. Other Univariate SPC Methods  
Including charts for correlated observations, short runs, and economic design of control charts.
- VIII. Multivariate Control Charts (Time permitting)
- IX. Applications

**COMPREHENSIVE FINAL EXAM:  
Thursday, DEC. 13, 7-9:30 PM**

*The instructor reserves the right to make any changes to the plan as and when it's necessary.*