

**THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE**

Department of Mathematical Sciences

Course #: STAT 5370 (CRN 17967)

Course Title: Statistical Quality Control

Credit Hrs: 3

Term: Fall 2022

Course Meetings & Location: Monday and Wednesday : 12 PM - 1.20 PM at College of Business
Administration 330

Prerequisite Courses: Basic Statistics and Probability courses

Course Fee: (if applicable) N/A

Instructor: Dr. Ritwik Bhattacharya

Office Location: Bell Hall 223

Contact Info:

E-mail address: ritwik@utep.edu

Fax # 915-747-6502 (Math Department)

Emergency Contact: 915-747-5761 (Math Department)

Office Hrs: Monday to Friday; 3PM to 5 PM. Please send me an email for an
appointment

Textbook(s), Materials: Required: Douglas C. Montgomery, Introduction to Statistical
Quality Control, John Wiley and Sons.

Suggested:

Course Objectives (Learning Outcomes): At the end of this course, the student will be able to select and apply statistical quality control tools for the improvement of production and service processes.

Contents:

Topic 1: Introductory Statistical Quality Control

- ✓ Basic Definitions (Quality, Quality Control, Statistical Quality Control)
- ✓ Variability
- ✓ Quality and Variability
- ✓ History of quality control

Topic 2: Statistical Quality Control Techniques

- ✓ Control Charts
- ✓ Rational subgroups
- ✓ Average run length concepts (ARL)

Topic 3: Control charts by variables

- ✓ X-bar and R chart
- ✓ X-bar and s chart
- ✓ Control chart for individuals

Topic 4: Control charts by attributes

- ✓ The p-chart
- ✓ The c-chart
- ✓ The u-chart

Topic 5: Special control chart

- ✓ CUSUM chart
- ✓ EWMA chart

Topic 6: Acceptance sampling

- ✓ Fundamentals of acceptance sampling
- ✓ Single sampling
- ✓ Double sampling
- ✓ Multiple sampling

Course Activities/Assignments: Lecture notes will be available and uploaded in Blackboard after each class. There will be seven assignments in total to be delivered. I will upload those assignments over time with a deadline of submission. You need to submit those electronically as instructed. The solution key will be provided after the deadline of the assignment. It is highly recommended that you do assignments regularly and independently before checking out the solutions.

Assessment of Course Objectives: The final grade will be based on assignments grades, two midterms and the final exam.

Course Schedule: **Class range:** August 22, 2022 - December 1, 2022

First Partial Exam: September 28, 2022, Wednesday; 12 PM - 1.20 PM

Second Partial Exam: October 26, 2022, Wednesday; 12 PM - 1.20 PM

Final Exam: December 9, 2022, Friday; 1 PM - 3.45 PM

Course-drop deadline: October 28, 2022 (No “W” will be assigned for dropping the course after the deadline!)

Grading Policy:

First Partial Exam	20%
Second Partial Exam	20%
Assignments	10%
Final Exam	50%

The usual grading scale will be used for this course:

90–100%	=	A
80–89%	=	B
70–79%	=	C
60–69%	=	D
0–59%	=	F

Make-up Policy: Make-up work will be given only in the case of a documented emergency. Note that make-up work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss an exam and the reason is not considered excusable, you will receive a zero. It is therefore important to reach out to me - in advance if possible - and explain with proper documentation why you missed a given course requirement. Once a deadline has been established for make-up work, no further extensions or exceptions will be granted.

- Attendance Policy:** You are expected to attend class so that you may turn in the in-class assignments and homework projects. Lecture and lab attendance is further required and helpful to decide the grade in “borderline” situations. Two or more unexcused absences (from the lab and/or the lecture) may result in an instructor-initiated drop or final grade reduction. Your academic advisor may be consulted before final action is decided and taken. If a student has to be absent from a class, he/she will be responsible for catching up with course material. Late arrivals are not permitted. Being late by 10 minutes or more or leaving the classroom before the class is dismissed will be considered an absence.
- Academic Integrity Policy:** Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.
- Disability Statement:** The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or email them at cass@utep.edu, or apply for accommodations online via the CASS portal.
- Military Statement:** If you are a military student with the potential of being called to military service and/or training during the semester, please contact me by the end of the first week of class.

Disclaimer

This syllabus may be subject to changes if these are deemed necessary by the instructor.

Despite all efforts, this syllabus may contain typos and errors.

Last updated: 21 August, 2022