



School of Engineering and Applied Sciences
AMS 271 Industrial Statistics
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On-Demand Course Syllabus

Office Hours

By appointment

Catalog Description

Introduction to basic statistics used in industrial settings. Measurements, scales, data collection and organization, probability and discrete distributions, measure of central tendency, measures of dispersions, and continuous distributions. *Prerequisites: MATH 116 or equivalent.*

Required Textbook



Besterfield, D. H. (2013). *Quality improvement* (9th Ed.). Upper Saddle River, NJ: Pearson 978-0132624411

Other readings are assigned as supplemental.

Course Objectives

By the end of the course module, the student will be able to:

- Demonstrate knowledge of variability and its implications.
- Identify types of variables and appropriate tools to organize data.
- Demonstrate knowledge of variability and its implications.
- Demonstrate application of various distributions.
- Calculate and interpret simple statistics
- Construct and use various diagrams, charts, and other tools.

Course Topics

This course covers quality improvement principles and practices, and systematic statistical process control tools and techniques. The topics include the standards, practices, and basic tools of quality within a managerial framework. Students will demonstrate an understanding of systematic statistical process control tools and techniques, construct and interpret quality diagrams, explain the basic theorems of probability, and know the rules for compound probability. The course covers fundamental statistics for the purpose of assessing the value of processes with regard to cost, quality, schedule, and product improvement. Students will demonstrate an understanding of control charts for attributes and variables-type data, process capability, and statistical analysis skills using actual industrial data. The course includes measurement analysis, acceptance sampling, and reliability. Students will demonstrate an understanding of gage studies, operating characteristics (OC) curves, outgoing quality (AOQ) curves, components of reliability, and reliability or failure rate as a function of time.

Course Structure and Design

The course will consist of readings from the assigned text and other supplemental materials, chapter quizzes, essays, assignments and assessments.

Assigned readings. The textbooks and supplemental readings will provide you the content to support your success in the online discussions, completion of homework assignments, and the analysis project.

Activity assignments. There will be several assignments on specific topics related to quality management.

Analysis projects. Each student will complete two statistical analysis reports of processes using actual industry data.

Quizzes. The quizzes will assess your knowledge of the weekly readings to prepare you for the exams, which will assess your competency in applying the learned material.

Exams. There are two exams in the course. The final exam will be a comprehensive assessment of your competency in applying the learned material.

Grading

The weighted grading for the course follows:

	Percent
Activity Assignments	30
Analysis Projects (15/15)	30
Exams (10/15)	25
Quizzes	15
TOTAL	100

You will know in advance the standards for each assignment. You are responsible for:

- Asking for help or clarification when needed
- Completing all course module deliverables
- Committing to a high level of professional development and learning

The grade for this course is based upon performance to a standard. Students are expected to put forth effort congruent with the highest standard. The grade is based upon your performance to a standard. The earned final grade is based on Overall Grading Criteria listed above. The final grade is per my discretion.

You are ultimately responsible for your learning. Those who take responsibility for their learning are generally more successful in the course module. Successful students are active learners who read the text, complete the assigned work, ask questions as needed, and participate fully in the course module.

Grading Criteria

There are five grade levels possible:

Mastery, A+, A, 100% – \geq 90%

Demonstrates superior work performance and mastery of the subject content. The work/performance is commendable and demonstrates exceptional thinking and/or performance. The work or research exceeds expected requirements with substantial depth and efficiency. The work is highly organized, formatted correctly, and communicates effectively.

Competency, B+, B, <90% – \geq 80%

Demonstrates a clear understanding of the subject content with no flaws. The work or research accomplishes the purpose of the task and identifies the most important ideas. The work is over and beyond the minimum requirements with depth. The work is organized, formatted correctly, and communicates effectively.

Minimal Competency, C+, C, < 80% – \geq 70%

Performance at minimum standard. Work displays some understanding of major concepts. Main points of content are covered and required elements included, but the work lacks competent professionalism.

Deficient, D, < 70% – \geq 60%

Shows an incomplete understanding of the task/project. The purpose of the task or research was not accomplished. The work/performance is ineffectual or inappropriate. One or more important elements are omitted. The work is vague, incomplete, and incorrectly formatted. The presentation is so flawed that it obscures the meaning.

Unacceptable; Standard not yet met, F, < 60% – 0%

Significantly incomplete and/or deficient. Significant parts omitted or plagiarized. Work shows no understanding of the subject content. Important purpose of the task or research was not achieved. Work did not meet the minimum requirements. Work suggests incompetence.

Course Policies General

General communication and expectations. Students should work independently on assignments unless the instructor gives prior permission for collaboration. Students will communicate with the instructor using the learning management system Blackboard or other communication media such as e-mail, voicemail, or Skype. Access to a late-model computer with standard business software and an Internet connection is required.

This is a paperless course module. This course module and all associated communication within or as part of should adhere to the [WKU Information Technology Acceptable Use Policy](#). All assignments and related documents will be submitted on-line via Blackboard. Students must make prior arrangements before submitting hard copy reports or papers. If you have problems transmitting information, telephone or e-mail immediately, and we'll get the problem solved.

Ground rules for communication

1. Use e-mail for private or personal messages to the instructor and questions regarding grades.
2. Please submit papers as text/word files (e.g., DOC, RTF, TXT, HTML, or PDF), PowerPoint files (e.g., PPT), or spreadsheet files (e.g., .XLS, WKS) uploaded to the Blackboard. Use other file formats at your own risk. If I can't read them, I can't grade them!
3. For **all** assignments that are uploaded to Blackboard, include your name at the top of the document AND as part of the **file name** (e.g., Doggett_Homework.doc). With NetID, your name is no longer associated with documents uploaded to Blackboard. Thus, when I download your file, I am no longer able to see your name associated with the file. If you do not put your name at the top of the document, then go back to BB to locate it. This is time-consuming. It is much easier for you to simply put your name on the document and as part of the file name.

Important: Blackboard has a difficult time processing file sizes over 10 MB. If your file does not upload correctly, you may need to change to a different file format that uses less memory!

Instructor availability. My availability during the week is from 8:00 AM to 5:00 PM CT M-F with limited availability on the weekends. Students may reasonably expect a response from me within 24 hours during the week, but not necessarily on the weekends.

Extra Credit. There is no extra credit work available. Additional work beyond what is assigned will not be considered.

Academic Honesty. All Western Kentucky University policies are in effect. All work

must reflect APA citation standards. All your work must be your own, unless I authorize collaboration. Presenting the words, ideas, or expressions of another person in any form and claiming them as one's own is plagiarism and will not be tolerated. The claim of ignorance is no excuse. (See [academic offenses](#) in the WKU student handbook.) The University Catalog states, “Students who commit any act of academic dishonesty may receive from the instructor a failing grade in that portion of the coursework in which the act is detected or a failing grade in the course module without possibility of withdrawal.”

Student Accessibility Resource Center. In compliance with university policy, students with disabilities who require academic and/or auxiliary accommodations for this course module must contact the [Student Accessibility Resource Center](#) at Downing Student Union, 1074. The phone number is 270.745.5004. Please do not request accommodations directly from the instructor without a letter of accommodation. This course module is compliant with the WKU standards for [web accessibility](#).

Title IX Statement. Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU’s Title IX Sexual Misconduct/Assault Policy (#0.2070) at <https://wku.edu/eoo/documents/titleix/wkutitleixpolicyandgrievanceprocedure.pdf> and Discrimination and Harassment Policy (#0.2040) at https://wku.edu/policies/hr_policies/2040_discrimination_harassment_policy.pdf

Add/Drop Policy. Students who have trouble working independently are encouraged to drop the course module. Please check On Demand’s policy to drop a course as there are deadlines in place based on the day you registered for the course.