



IME 960F: Statistical Process Control Fall 2023

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Preferred Method of Contact:	email
Office Hours:	T 5:30 – 6:30 PM or by appointment
Classroom, Days/Time:	Wallace Hall, Room 123, TR 7:05 – 8:20 PM
Prerequisites:	Math 243. Calculus II
Teaching Assistant:	Abdelhakim Al Turk
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How to use this syllabus

This syllabus provides you with information specific to this course, and it also provides information about important university policies. This document should be viewed as a course overview; it is not a contract and is subject to change as the semester evolves. All changes will be announced in class and on the Blackboard page of this course under Announcements menu.

Students with Disabilities

A disability is something that affects a major life activity. These life activities include, but are not limited to, learning, walking, breathing, hearing, and seeing, in addition to many other physical, sensory functions, and psychological disabilities.

If you are a student with a disability, or believe you might have a disability, which requires accommodations, please contact the Office of Disability Services (ODS) www.wichita.edu/ods to discuss reasonable and appropriate accommodations and eligibility requirements. It is the University's goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability ODS will review your concerns and determine, with you, what academic accommodations are necessary and appropriate for you. For example, adaptations of teaching methods, class materials or testing may be made on a case-by-case basis if warranted, as required by the Americans with Disabilities Act (ADA). All information and documentation of your disability is confidential and will not be released by ODS without your written permission.

Respect for Diversity

Wichita State University is committed to being an inclusive campus that reflects the evolving diversity of society. To further that goal, Wichita State University does not discriminate in its employment practices, educational programs or activities on the basis of age (40 years or older), ancestry, color, disability, gender, gender expression, gender identity, genetic information, marital status, national origin, political affiliation, pregnancy, race, religion, sex, sexual orientation, or status as a veteran. Retaliation against an individual filing or cooperating in a complaint process is also prohibited.

Students from all diverse backgrounds and perspectives are welcome in this Course and the diversity that students bring to this course should be viewed as a resource, strength and benefit. All materials and activities are presented with the intent to be respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition,

if any of our class meetings conflict with your religious events, please let me know so that we can make arrangements for you.

Course Description

A study of the measurement and control of quality using statistical methods. Includes quality management, statistical process control and acceptance sampling.

Measurable Student Learning Outcomes

Upon successful completion of this course, students will be able to:

- Evaluate the quality system and calculate the cost of poor quality
- Design appropriate statistical techniques to monitor and control performance over time.
- Analyze the measurement system performance and examine its capability
- Propose improvement plans and determine their economic feasibilities
- Design acceptance-sampling plans to assure quality at stated levels of risk.

Required Texts/Readings Textbook

Montgomery, Introduction to Statistical Quality Control, 8th edition, Wiley, 2019.

Other Readings

- All reading assignments posted on course Blackboard <https://blackboard.wichita.edu/>
- *Supplemental Text Material* from <https://bcs.wiley.com/bs-books/Books?action=index&itemId=1119399300&bcsId=11512>
- Jennings , Student Solutions Manual to accompany Introduction to Statistical Quality Control, 7th Edition, John Wiley & Sons, 2013 (**optional**)

Other Equipment/Materials

You are required to install STATGRAPHICS ®, Centurion 19, on your computer or laptop. Instructions on how to download the software using the WSU License are provided in **Appendix A**. If you are a MAC – Apple user, please follow the steps in this link for remote access to the software: <https://www.wichita.edu/engrremote>

Class Protocol

You are expected to read assigned readings prior to class meetings. Homework will not be collected on regular basis; however, some assignments may be collected, and you will be notified of this at the time of the assignment. Weekly quizzes will be given during the semester to evaluate comprehension of selected topics. Any missed quiz will be automatically graded as zero. Three regular in-class tests will be administered based on the material covered. Plan on taking the exams as scheduled. No make-up exams or quizzes will be given without prior arrangements with the instructor. All in-class tests and quizzes will be open-book and only class notes will be allowed. You will need a calculator with simple statistical functions. Also, you are expected to complete a term project. Details will be given during the semester. You will be instructed to use the Statgraphics software to complete the project.

Contact Policy

Although you may attempt to reach me by phone, email communication is always preferred. Feel free to email me any questions or concerns following these guidelines:

- Always use the course name in the subject line of the email
- Remember to sign your name.
- Always email me from your WSU email address. Email sent from personal email servers like Gmail, Yahoo, etc., tend to end up in my spam folder, and I never see them. You may also email me through Blackboard via the Email My Instructor tab. I also offer zoom meetings, which allows you to ask questions and receive immediate answers.
- You should NOT contact me for tech support. Any technical problems involving your computer, or Blackboard should go through the OneStop. You can contact them at 316-978-3909. You can also fill out a request for help form at their website.

Response Time

I will do my best to respond to your e-mails within two days. I will respond to e-mails received during the weekend by Monday of the following week.

Feedback on Assignments

Feedback on all quizzes and exams will be made available on Blackboard within one week.

Grading Scale

WSU uses a +/- grading scale for final grades and to calculate grade point averages. In this class, grades are assigned according to the following chart.

Percentages	Letter grade	Grade Points	Interpretation
95%	A	4.00	<i>The A range denotes excellent performance.</i>
90%	A-	3.70	
87%	B+	3.30	
84%	B	3.00	<i>The B range denotes good performance.</i>
80%	B-	2.70	
77%	C+	2.30	
74%	C	2.00	<i>The C range denotes satisfactory performance.</i>
70%	C-	1.70	
67%	D+	1.30	
64%	D	1.00	<i>The D range denotes unsatisfactory performance.</i>
60%	D-	0.70	
Below 60%	F	0.00	<i>F denotes failing performance.</i>

Assignments

Your final grade will be distributed as follows:

<i>Assignment</i>	<i>% Points</i>	<i>Date</i>
<i>Quizzes</i>	<i>10%</i>	<i>TBD</i>
<i>Exam 1</i>	<i>25%</i>	<i>Thursday, October 5</i>
<i>Exam 2</i>	<i>25%</i>	<i>Thursday, November 2</i>
<i>Project</i>	<i>15%</i>	<i>Thursday, November 16</i>
<i>Final Exam</i>	<i>25%</i>	<i>Thursday, December 7</i>

Late Assignments

The term project will specify due date for submission on Blackboard. The submission link will expire on the due date. You will need special permission from the instructor to submit your project after the due date.

Missed Assignments and Exams

No make-up exams or quizzes will be given without prior arrangement with the instructor. In case of an emergency, you will need to contact the instructor before the exam or quiz, submit a written request, and provide supporting documents of the emergency.

Academic Integrity

Students at Wichita State University are expected to uphold high academic standards. WSU will not tolerate a lack of academic integrity. Students are responsible for knowing and following the Student Code of Conduct http://webs.wichita.edu/inaudit/ch8_05.htm and the Student Academic Honesty policy http://webs.wichita.edu/inaudit/ch2_17.htm. When the faculty member determines sanctions are warranted for violations of academic integrity, regardless of severity, the faculty member must report the infraction to the Office of Student Conduct and Community Standards. If you need more information about the process or wish to appeal a decision, please visit https://www.wichita.edu/about/student_conduct/ai.php.

Students violating such standards must accept the consequences and appropriately assessed penalties, which may include a failing grade in the course.

Definition of a Credit Hour

Success in this 3-credit hour course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course for instruction and preparation/studying or course related activities for a total of 135 hours.

Syllabus Policies and Student Resources

All students should familiarize themselves with the course-related policies and student resources that can be found at: www.wichita.edu/syllabuspolicies.

Tentative Schedule:

Week	Date	Topics, Readings, Assignments, Deadlines
1	8/22 - 8/24	Introduction The Meaning of Quality and Quality Improvement Reading Assignment #1
2	8/29 - 8/31	Aspects of Quality Improvement Management Strategies and Deming's 14 Points
3	9/5 - 9/7	Management Models and Standards Quality Costs Reading Assignment #2
4	9/12 - 9/14	Methods and Philosophy of Statistical Process Control The Seven Tools and the Shewhart's PDCA Cycle Reading Assignment #3
5	9/19 - 9/21	Control Charts for Variables \bar{x} -R Control Charts
6	9/26 - 9/28	\bar{x} -S Charts Charts for Individual Measurements Reading Assignment #4
7	10/3 - 10/5	Charts for Individual Measurements (cont.) Exam 1
8	10/10 - 10/12	Control Charts for Attributes
9	10/19	Process Capability Analysis Using Histograms
10	10/24 - 10/26	Process Capability Analysis Using Control Charts Reading Assignment #5
11	10/31 - 11/2	Gauge and Measuring System Capability Studies Exam 2
12	11/7 - 11/9	Estimating Natural Tolerance Limits Reading Assignment #6
13	11/14 - 11/16	Lot-By-Lot Acceptance Sampling by Attributes Term Project
14	11/21	Single and Double Sampling Plans Reading Assignment #7
15	11/28 - 11/30	Sequential Sampling and MIL STD 105E Reading Assignment# 8
	12/5 - 12/7	Other Acceptance Sampling Techniques Final Exam

Appendix A Installing STATGRAPHICS® on your PC

Go to

- 1) <https://www.statgraphics.com/download19>
- 2) Select the language (English) and the version (32-bit or 64-bit)
- 3) Download the software
- 4) Run the software as **Administrator** and select **Activate**
- 5) Enter the necessary information (fields with an *). Of course, use your name and YOUR WSU EMAIL ADDRESS and your phone number. You do not enter the Product key – it is created when you enter the Serial number field.
- 6) Enter this Code into the Serial number field: **NGB0-0B0A-10E4-YK0E-1EM0** then click on “1. Press Here” and an email will be generated for your computer and sent to your WSU email address. DO NOT CLOSE THIS WINDOW! Cut and paste that number from the email into the Activate area below and then click on the Activate button to the right. If you don’t find the e-mail your Inbox check the Junk e-mail folder.

STATGRAPHICS Centurion Activation

StatPoint Technologies, Inc.

Step 1: To activate the program, first enter the following information (* required):

*Last name: Tedder *First name: Ken

*Organization: College Of Engineering, WSU

*E-Mail: kenneth.tedder@wichita.edu

Address:

Address:

City: State:

*Country: United States of America Postal Code:

*Phone: 3169786098 Fax:

Product key: Request: Request activation code.

*Serial number: **NGB0-0B0A-10E4-YK0E-1EM0**

Step 2: Use either of the following 2 ways to request an activation code:

1. Press Here to submit request over the Internet (recommended - automated response).

2. Press Here to request an activation code via E-mail (requires manual response).

Step 3: When you receive your activation code by return e-mail, enter it below and press the Activate button:

Activate

NETWORK LICENSES ONLY: If license file (sgc.usr) exists in another location, enter directory:

Browse

Print Done Help