

Iowa State University
Department of Industrial and Manufacturing Systems Engineering
IE 561: Total Quality Management
Fall 2018

Class Time and Location: Tue Thur 9:30-10:50, Howe 1344

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This course focuses on improving quality within different organizations, to include manufacturing firms, service industries, the non-profit sector, and government agencies. We will begin by understanding Deming's approach to quality and his system of profound knowledge. Various dimensions of quality to include focusing on the customer, the workforce, and processes will be discussed. Since quality can be defined differently, we will explore how to define quality within an organization and ensure the definition corresponds with the organization's ultimate goals. The latter half of the course will concentrate on advanced topics in statistical quality control.

Learning outcomes:

1. Define quality and connect quality to an organization's goals and objectives.
2. Ability to improve quality within an organization.
3. Interpret statistical data and understand how variability impacts a system.
4. Analyze information and communicate the analysis effectively.

Prerequisites: Undergraduate course in statistical quality assurance (IE 361), primarily the basics of probability, hypothesis testing, control charts, and design of experiments

Textbook:

Montgomery, D.C. *Introduction to Statistical Quality Control*, 7th edition. Hoboken, NJ: Wiley, 2013. [Also on reserve at the library]

There will also be required readings of journal articles. These articles will be available through the Iowa State library course reserves and/or Canvas.

Assignments:

- Prerequisite assignments: There are four assignments to help you remember and/or learn the prerequisite material. The prerequisite assignments are due Friday, October 12.

- Readings and responses: There will be several required readings during the first half of the course for which you will need write critical analyses of the readings.
- Homework assignments on statistical quality control (second half of the course)
- Case studies, presentations, and longer written assignments (e.g., memos)

For research-minded graduate students, you have the option of writing a term paper on a quality-related topic. This term paper will replace some of the required assignments. The goal of the term paper would be to have a paper that can be submitted to a journal by the end of the semester. In order to exercise this option, you should talk with me to discuss requirements.

Many of the reading and case study assignments will be used as part of class discussion. For these assignments, the due date will be strictly enforced. Failure to submit the assignment by the due date will result in a 0 for that assignment. It will be clearly stated on the assignment if there is a non-flexible due date. For assignments that will not be discussed in class, we will likely be flexible with the due dates. It is your responsibility to email the TAs to request an extension, and the TAs have full discretion to grant or not to grant an extension.

You can work with other students on the reading responses and the homework assignments, but you must turn in your own work. If there is a written response to a reading, you must not use the same exact sentences as another student. If we find that multiple sentences that are the same between two students, we will assume that one student simply copied from another student. Both students will receive a 0 for that assignment. The prerequisite assignments have special rules about when students can work together (which will be explained). Some of the case studies may have certain requirements that you cannot talk or work with other students. In those cases, it will be clearly stated on the case study assignment. You never should directly copy from the Internet or from journal articles! That is plagiarism and will result in a 0 for the assignment.

Since there is no final exam (or any other type of proctored exam), there will be a case study or longer written assignment due during finals week.

Grading:

Prerequisite assignments	10%
Readings and responses	25%
Homework on statistical quality control	25%
Case studies, presentations, longer written assignments	40%

Grading scale:

Grade	Percent range	Grade	Percent range
A	94 – 100	C	73 – 76
A-	90 – 93	C-	70 – 72
B+	87 – 89	D+	67 – 69
B	83 – 86	D	63 – 66
B-	80 – 82	D-	60 – 62
C+	77 – 79	F	< 60

This scale represents the worst possible grading scale I will use, and the grades may be rounded up to benefit the students.

Since the goal of taking classes is for students to learn the material, ideally students should have the ability to learn from their mistakes. Thus, there may be opportunities for extra credit to replace assignments in which you performed poorly. It is your responsibility to ask me for that opportunity. It is my discretion to grant you the extra credit. It is not very likely that you will receive extra credit for the case studies and longer written assignments.

Use of Canvas: I will be using Canvas to make announcements about the class and post examples and assignments. If you are a distance-learning student, you should submit your homework via Canvas, and the TAs will grade it and post your grade on Canvas. If you are an in-class student, you can either submit your homework in person or via Canvas.

If you have a question that is appropriate for the entire class (e.g., questions about homework or lectures), please post that question on Canvas in the discussion section, and either the TAs or I will answer it there. If you have a question that is private (e.g., questions about grading an assignment), please email the TAs or me. You can always ask me any type of question in person or via phone.

Our commitment to you: We will do our best to respond to your questions quickly, whether you email us, post a question on Canvas, or leave a phone message. You are welcome to contact me by any of these methods, and you can come to my office or call me at any time (not just during office hours). I will also come to class prepared and work to give stimulating lectures and generate thoughtful class discussion. I will keep you updated on the course schedule verbally and via Canvas.

I will assign readings and homework at least a week in advance. We will strive to grade homework within two weeks and provide feedback. In summary, I am committed to helping you learn the material and improve your critical thinking and communication skills.

Academic Dishonesty: The class will follow Iowa State University's policy on academic dishonesty. Anyone suspected of academic dishonesty will be reported to the Dean of Students Office. <http://www.dso.iastate.edu/ja/academic/misconduct.html>

Disability Accommodation: Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. Students requesting accommodations for a documented disability are required to meet with staff in Student Accessibility Services (SAS) to establish eligibility and learn about related processes. Eligible students will be provided with a Notification Letter for each course and reasonable accommodations will be arranged after timely delivery of the Notification Letter to the instructor. Students are encouraged to deliver Notification Letters as early in the semester as possible. SAS, a unit in the Dean of Students Office, is located in room 1076 Student Services Building or online at www.sas.dso.iastate.edu. Contact SAS by email at accessibility@iastate.edu or by phone at 515-294-7220 for additional information.

Dead Week: This class follows the Iowa State University Dead Week policy as noted in section 10.6.4 of the Faculty Handbook <http://www.provost.iastate.edu/resources/faculty-handbook>.

Harassment and Discrimination: Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment. Any student who has concerns about such behavior should contact me, [Student Assistance](#) at 515-294-1020 or email dso-sas@iastate.edu, or the [Office of Equal Opportunity and Compliance](#) at 515-294-7612.

Religious Accommodation: If an academic or work requirement conflicts with your religious practices and/or observances, you may request reasonable accommodations. Your request must be in writing, and I will review the request. You may also seek assistance from the [Dean of Students Office](#) or the [Office of Equal Opportunity and Compliance](#).

Contact Information: If you are experiencing, or have experienced, a problem with any of the above issues, email academicissues@iastate.edu.