

Advanced Quality Management and Engineering for Business Processes

EIN 6176

Location: Online lectures and Zoom Meetings

Academic Term: Fall 2020

Class setting

Online recorded lectures to be watched by students

Zoom live meetings: On Sundays (Aug 9, Sep 13, Oct 11, Nov 8), 1-5pm.

Instructor

Mostafa Reisi

Email: mreisigahrooei@ufl.edu

Office Hours: Wednesdays, 8pm-10pm (or by appointment), Zoom

Teaching Assistants

- Yuanbo Wang, Email: wangyuanbo@ufl.edu, office hours: Tue and Thu, 7:30-8:30pm (or by appointment).
- Juan Beltran, Email: juanjo97@ufl.edu, office hours: Mon, 7:00-8:30pm

Please contact through the Canvas website

Course Description and objectives

This course provides an introduction to statistical techniques used in the design, control and improvement of quality in processes with observable output variation. Emphasis is made on implementation of a variety of techniques including control charts, process capability analysis, and design of experiments.

By the end of the semester you will be able to:

- Perform preliminary data analysis and suggest improvement plans
- Develop control charts for monitoring continuous and discrete quality characteristics
- Assess statistical process capability
- Assess product specifications and tolerances
- Implement CUSUM and EWMA charts
- Examine multivariate process control charts
- Design and analyze of factorial experiments

Course Pre-Requisites / Co-Requisites

Introductory statistics or consent of instructor

Materials and Supply Fees

Not applicable

Required Textbooks and Software

- "Introduction to Statistical Quality Control," Wiley (2012) 6th or 7th Edition, D. Montgomery, ISBN: 978-1-118-14681-1.
- Lecture notes, tutorials and sample problems (posted online)
- RStudio (a free and open-source integrated development environment (IDE) for R, which is a programming language for statistical computing and graphics)

Course Schedule

The course Schedule is offered as a guide. This means that it is subject to change, depending on the pace of the class. The instructor might choose to cover parts of the curriculum more extensively, or give extensions to deadlines. The dates of the exams might be subject to change depending on the progress of the class.

Sessions	Date	Topics	Chapters	HW
1	August 9, 2020	Course overview + Introduction Review of Modeling Process Quality Review of Inference about Quality	1,3,4	HW1 (09/07)
2,3	September 12-13, 2020	Review of Inference about Quality Methods and Philosophy of SPC Control Charts for Variables	4 2+5 6	HW2 (10/05) Quiz 1 (09/13)
4,5	October 10-11, 2020	Control Charts for Variables Control Charts for Attributes CUSUM and EWMA Charts	7 7+9 13	HW3 (11/02) Quiz 2 (10/11)
6,7	November 7-8, 2020	Process Capability Analysis Gauge R&R Design of Experiments	8 8	HW4 (11/30) Quiz 3 (11/08)
8	December 5, 2020	Exam		

Attendance Policy, Class Expectations, and Make-Up Policy

Attendance Policy

Lectures are recorded and the link to the lectures are provided on canvas. The students are responsible to carefully watch the assigned lectures.

Live lectures will be held on Sundays, during which

- lectures will be reviewed
- Several examples will be solved using R.
- A quiz will take place

Attendance is not required; however, it is strongly recommended for Sunday classes. It will be to your benefit to attend all lectures. Students will be responsible for all material covered in the class. Lectures are there to facilitate efficient learning. You should be focused on the course material and the exercises assigned.

HW policy

Your first 7 late days for homework are “free” without penalty. Once a student has used up all of his or her late days, late homework will receive 50% of the points. No submissions are allowed after the solution key is posted.

Exam and quiz policy

There will be no make-up exams or quizzes. The lowest quiz grade will be dropped.

Medical emergencies are of course excluded if accompanied by a doctor's note. A note indicating that you were seen at the health center the day of the exam is not sufficient documentation of a medically excused absence from an exam. The note must say that you were medically unable to take the exam.

If you fail to take the exam on the assigned day(s) and do not have a valid excuse, there will be no make-up exam and you will be given a zero (0) on the exam. Employment interviews, employer events, weddings, vacations, etc. are not excused absences.

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Homework Sets	100 each	40%
Quizzes	100	30%
Exam 2	100	30%

Exam/Homework grade disputes/inquiries must be made to the instructor within one week after grades are posted. Any grade dispute/inquiry after the specified period will not be considered.

Grading Policy

Percent	Grade	Grade Points
90.0 - 100.0	A	4.00
87.0 - 89.9	A-	3.67
84.0 - 86.9	B+	3.33
80.0 - 83.9	B	3.00
77.0 - 79.9	B-	2.67
74.0 - 76.9	C+	2.33
70.0 - 73.9	C	2.00
68.0 - 69.9	C-	1.67
64.0 - 67.9	D+	1.33
60.0 - 63.9	D	1.00
57.0 - 59.9	D-	0.67
0 - 56.9	E	0.00

More information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.