

SIE 406/506 QUALITY ENGINEERING - FALL 2022
(Tuesday and Thursday 12:30 – 1:45 PM, AME S212)

Instructor: Jian Liu

TA: TBD

Phone: 520-621-6548

Office Hours: Tue. 3:30 – 4:30 PM
 Or by appointment

Office Hours: TBD
 Or by appointment

Office Hours for ONLINE students:
 Tue. 8:00-9:00 PM

Office Hours for ONLINE students:
 TBD
 TBD

Email: jianliu@arizona.edu

Email:

This class is scheduled to be taught in the **IN-PERSON** modality and available for distance learning sections. All the students have access to Panopto lecture recordings.

All office hours held via Zoom: D2L → UA Tools → Zoom Meetings

Text: “Introduction to Statistical Quality Control,” D. Montgomery, 7th edition.

Website: <http://d2l.arizona.edu/>

Course videos: D2L → UA Tools → Panopto

Temporary Lecture Schedule:

Lecture	Topics	References
1	Course overview + Introduction	Ch 1
2	Modeling Process Quality (MPQ)	Ch 2
3	MPQ + Inferences About Quality	Ch 2/3
4	Inferences About Quality	Ch 3
5	Inferences About Quality	Ch 3
6	Inferences About Quality	Ch 3
7	Methods and Philosophies	Ch 4
8	Methods and Philosophies	Ch 4
9	Quality Control Philosophies & Applications	Ch 4
10	Charting Variables	Ch 5
11	Charting Variables	Ch 5
12	Charting Variables	Ch 5
13	Implementing Charts + Charting Attribute	Ch 5+6
14	Review Session for Exam I	
15	Exam I (in class)	
16	Group project discussion and Exam I Review	
17	CUSUM	Ch 8
18	CUSUM + EWMA + MA	Ch 8
19	Short Production Runs	Ch 9-1
20	SPC with Autocorrelated Data	Ch 9-4
21	Process Capability	Ch 7
22	Project Preparation	

23	Gage R&R	Ch 7
24	Specification/Tolerances	Ch 7
25	Acceptance Sampling	Ch 14
	Acceptance Sampling	Ch 14
	Project Preparation	
	Project Preparation	
	Project Preparation	
26	Review Session for Exam II	
	Exam II	

The above topics and schedule are subject to change. Revisions in the syllabus may occur as the semester progresses.

Homework:

The homework will be assigned on Thursdays and due on the following Thursday, *before 11:59 PM*. NO late submission is allowed unless it is requested and approved by the instructor in advance (e-mail or phone-call received *before* the date the assignment is due). You are encouraged to discuss homework problems with fellow students. But your final product should be based on your own understanding. Copying other's work is not acceptable.

Examinations:

Exam I: October 19, 12:30-1:45 PM for on-campus students (AME, S212), any 75-min time slot for distance learning students

Exam II: December 13, 1-2:30 PM for on-campus students (AME, S212), any 90-min time slot for distance learning students

Makeup examinations **MUST** be requested at least one week prior to the date the exam is held. In case of medical or other personal/family emergencies, a formal excuse (doctor's note, etc.) is required.

Project:

Project requirements and guidance will be posted on **October 01, 2023**. Teamwork, individual contribution, group presentation and group report will be required and evaluated.

Grading:

Homework	15%
Exam I	30%
Exam II	35%
Project	20%

There is no extra credit for any student

Course Outcomes:

- 1 Develop a control chart for monitoring continuous and discrete quality characteristics.
- 2 Design acceptance-sampling plans.
- 3 Assess statistical process capability.
- 4 Implement CUSUM and EWMA charts.
- 5 Establish specific plan for short production run.
- 6 Assess product specifications and tolerances.

Classroom attendance:

- If you feel sick, or may have been in contact with someone who is infectious, stay home. Except for seeking medical care, avoid contact with others and do not travel.
- Notify your instructors if you will be missing an in person or online course meeting, or you will miss an assignment deadline.
- Non-attendance for any reason does not guarantee an automatic extension of due date or rescheduling of examinations.
 - Please communicate and coordinate any request directly with your instructor
- Campus Health is testing for COVID-19. Please call (520) 621-9202 before you visit in person.
- Visit the UArizona COVID-19 page for regular updates.

Academic advising: If you have questions about your academic progress this semester, or your chosen degree program, please note that advisors at the Advising Resource Center can guide you toward university resources to help you succeed.

Life challenges: If you are experiencing unexpected barriers to your success in your courses, please note the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office can be reached at 520-621-2057 or DOS-deanofstudents@email.arizona.edu.

Physical and mental-health challenges: If you are facing physical or mental health challenges this semester, please note that Campus Health provides quality medical and mental health care. For medical appointments, call (520-621-9202. For After Hours care, call (520) 570-7898. For the Counseling & Psych Services (CAPS) 24/7 hotline, call (520) 621-3334.

Remain flexible: If pandemic conditions warrant, the University may require that we return to remote operations. If that is the case, we will notify you by D2L Announcement and email that we are moving to remote operations.

Class Recordings: Course recordings will be made for every lecture. If you do not wish to be identified by name, please contact the instructor immediately and solutions will be discussed according to FERPA Privacy Protection guide. For lecture recordings, which are used at the discretion of the instructor, students must access content in D2L only. Students may not modify content or re-use content for any purpose other than personal educational reasons. All recordings are subject to government and university regulations. Therefore, students accessing unauthorized recordings or using them in a manner inconsistent with UArizona values and educational policies are subject to suspension or civil action.

Inclusive Excellence Statements

This course supports elective gender pronoun use and self-identification; rosters indicating such choices will be updated throughout the semester, upon student request. As the course includes group work and in-class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. (NOTE: You can download your class roster from UAccess)

Inclusive Excellence is a fundamental part of the University of Arizona's strategic plan and culture. As part of this initiative, the institution embraces and practices diversity and inclusiveness. These values are expected, respected and welcomed in this course.