

SIE 406/506 QUALITY ENGINEERING - Spring 2022
(Tuesday and Thursday 8:00am– 9:15pm, M. Pacheco ILC Rm130)

Instructor: Jian Liu

TA: James Clisset

Phone: 520-621-6548

Hours: Tue. 9:30 – 10:30PM and
Or by appointment

Hours: Tue./Wed. 2:15 – 3:15 pm
Or by appointment

Online Office Hours:

Tue. 7:00-8:00 pm

Online Office Hours:

Tue.: 5:00-6:00 pm

Wed.: 7:00-8:00 pm

Email: jianliu@email.arizona.edu

Email: jclisset@email.arizona.edu

Online office hours: D2L - > 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	Ch9-1
20	SPC with Autocorrelated Data	Ch9-4
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/Presentations	
	Project Preparation/Presentations	
	Project Preparation/Presentations	
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 the end of the class*. 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: TBD

Exam II: TBD

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. All students will take the exams through Examity (please refer to the section of "Introduction to Examity" for more information on using Examity).

Project:

Project requirements and guidance will be posted on **March 03, 2022**. 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.

Introduction to Examity

In this class, you will take your tests remotely and they will be proctored by a service called Examity. A Student Quick-Guide will be provided on how to use Examity.

Before you can begin proctored assessments, you must sign up for an Examity account. This requires two steps:

1. Access the Examity system through our class' D2L course site by clicking the Examity link found within your course content. This link will direct you to the Examity dashboard.
2. From your Examity dashboard, setup a profile. You will need to
 - 1) upload a CatCard or Government ID (State Driver's License or Identification Card) - you will need to bring this same ID with you each time you take a text with Examity
 - 2) answer three security questions
 - 3) enter a keystroke biometric signature
 - 4) select your time zone
 - 5) and confirm your name, email address, and phone number

Before scheduling and taking your assessment, please review these Examity System Requirements

- A testing space - one of Examity's standard rules requires students to test in room, by themselves and from a workspace cleared of all non-test materials, preferably at a clear desk or table workspace. If you choose to test in other environments such as the floor or bed, you may be subject to a more thorough search during the authentication process
- Desktop computer or laptop (not tablet or phone)
- Webcam and microphone (built-in or external)
- Connection to network with internet speed of at least 2Mbps (upload and download)
- Operating system of Windows XP – Windows 10, macOS X 10.5 or higher
- Browser with pop-up blocker disabled – Google Chrome v39 or later, Mozilla Firefox v34 or later, Internet Explorer v8 or later, Microsoft Edge, Apple Safari v6 or later

More information can be found at: <https://intech.arizona.edu/tools/examity>

If you have any questions or concerns, contact Examity's technical support team 24/7 via email at support@examity.com(link sends e-mail)or by phone at (855)-392-6489.

Attentions for COVID-19 Pandemic

Face coverings are required in our classroom: Per UArizona's **Administrative Directive**, face coverings that cover the nose, mouth, and chin are required to be worn in all learning spaces at the University of Arizona (e.g., in classrooms, laboratories and studios). Any student who violates this directive will be asked to immediately leave the learning space, and will be allowed to return only when they are wearing a face covering. Subsequent episodes of noncompliance will result in a Student Code of Conduct complaint being filed with the Dean of Students Office, which may result in sanctions being applied. The student will not be able to return to the learning space until the matter is resolved.

Physical distancing is required in our classroom: During our in-person class meetings, we will respect CDC guidelines, including restricted seating to increase physical distancing and appropriately-worn face coverings. Per UArizona's Administrative Directive, face coverings that cover the nose, mouth, and chin are required to be worn in all learning spaces at the University of Arizona (e.g., in classrooms, laboratories and studios). Any student who violates this directive will be asked to immediately leave the learning space, and will be allowed to return only when they are wearing a face covering. Subsequent episodes of noncompliance will result in a Student Code of Conduct complaint being filed with the Dean of Students Office, which may result in

sanctions being applied. The student will not be able to return to the learning space until the matter is resolved.

The Disability Resource Center is available to explore face coverings and accessibility considerations if you believe that your disability or medical condition precludes you from utilizing any face covering or mask option. DRC will explore the range of potential options as well as remote course offerings. Should DRC determine an accommodation to this directive is reasonable, DRC will communicate this accommodation with your instructor.

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.