

Instructor/Email: Dr. Linda Chattin [linda.chattin@asu.edu](mailto:linda.chattin@asu.edu)  
Office/Phone: 526 BYENG 480-965-3811  
Office Hours: See our Canvas page for my office hours and for our teaching assistant office hours

Text (required): ***Applied Statistics and Probability for Engineers***, Douglas C. Montgomery and George Runger, 6<sup>th</sup> Ed. Online text at Wiley Plus registration

This online textbook and site also contains homework assignments that will be auto-graded.

1. Go to our Canvas page, General Information, Text. Follow the directions there.

*If you have completed some or all of IEE 380 before here at ASU you already have an account at Wiley Plus and you do not have to purchase this text again. You must register using the code from Dr. Chattin on Wiley Plus. Use your old login information. Log in using that account.*

2. Create a Wiley Plus account. Use your first and last name and your ASU email address.
3. Select the \$119 purchase option. If you are unsure if you are keeping the course, or if funds are low, you can opt to do the grace period before purchasing. You will need to purchase the text before the grace period is up, however, if you plan to keep IEE 380 this fall semester.

### Enrollment Requirements

Prerequisite(s): Fulton Engineering undergraduate student, Engineering Management minor, or Mathematical Concepts of Engineering certificate student; MAT 266 or 271 with C or better OR Industrial Engineering graduate student

### Course Delivery Mode

We will never meet in person on campus. The entire course will be online. You will watch pre-recorded lectures. You will take every quiz through Canvas over a 2-day period. You will take each exam through Canvas using the Lockdown Browser in one of two possible exam windows on the same day, depending upon your time zone.

### Technology Requirements

- Computer with webcam
- TI-83 or TI-84 or TI-89 or equivalent. **You may not use a TI-Nspire during exams in this course. If you do, you will receive a score of zero on that exam for a rules violation.**
- Excel (Excel can be accessed on myASU Apps if you do not have it on your computer)

## **Course Description**

Applications-oriented course with computer-based experience using statistical software for formulating and solving engineering problems.

## **Learning Outcomes**

Students will:

- understand the differences between probability and statistics
- be able to recognize and use common discrete and continuous probability functions
- use sample statistics to draw inferences about a population of interest through hypothesis testing of means, variances, and proportions
- build simple and multiple linear regression empirical models from data
- understand and apply basic statistical process control charts and analyses

## **Canvas**

You have all been enrolled in our Canvas page. All lecture slides, reading assignments, homework assignments, class schedules, and other items will be posted there. You will have access to the Canvas page on August 17, 2020.

## **Material**

We will cover all or portions of each of these chapters:

- Chapter 1: The Role of Statistics in Engineering
- Chapter 2: Probability: independence, addition rule, intersection, union, complement
- Chapter 3: Discrete Random Variables: general, Discrete Uniform, Poisson, Bernoulli, Binomial, expected value, variance, pmf, CDF
- Chapter 4: Continuous Random Variables: general, Continuous Uniform, Normal, Standard Normal, Exponential, expected value, variance, pdf, CDF
- Chapter 6: Descriptive Statistics: histograms, Pareto charts
- Chapter 7: Point Estimation and Sampling Distributions: sample mean, sample variance, Central Limit Theorem
- Chapter 8: Statistical Intervals for a Single Sample: mean, variance, proportion
- Chapter 9: Tests of Hypothesis for a Single Sample: mean, variance, proportion
- Chapter 10: Statistical Inference for Two Samples: confidence intervals and hypothesis tests for difference between means, equality of variances, paired T-test, the difference between proportions
- Chapter 11: Simple Linear Regression and Correlation
- Chapter 12: Multiple Linear Regression
- Chapter 15: Statistical Process Control:  $\bar{X}$  and R charts

## **Expectations**

You are expected to watch every video lecture and take notes on the accompanying slides. The slides presented in the class have missing words, missing formulas and missing graphs \*deliberately\* to help you be an active note taker.

Much of what is presented in class shows up on exams. When you are viewing the lectures, it is expected that you will

- have copies of the slides out and take notes on them
- have statistical tables when needed
- have your calculator out
- refrain from texting and other online activities

When you are not viewing the lectures, it is expected that you spend at least an hour a day, 5-6 days a week, reviewing course slides, re-writing your class notes, doing homework and reading the text and text examples to be successful (i.e., earning a C or better) in this course.

### Schedule

See the weekly “To-Do” pages posted to Canvas.

You are expected to keep up with the To-Do lists, check the schedule, and be responsible for the reading and homework assignments detailed therein. It is your responsibility to watch lectures and keep track of what is due and when.

### Extra Credit

There is no extra credit in this course at all. No extra credit after the final exam is over, either.

### Email and Internet

ASU email is an [official means of communication](#) among students, faculty, and staff. Students are expected to read and act upon an email in a timely fashion. Students bear the responsibility of missed messages and should check their ASU-assigned email regularly.

*All instructor correspondence will be sent to your ASU email account. If you have it forwarded elsewhere, you may miss important information. I suggest unforwarding your ASU email.*

### Grading

Two averages will be computed for each student. You will receive the higher of the two averages to determine your final course grade.

#### Average 1:

*Exams 1 and Exam 2	39%
Homework (lowest one dropped)	10%
Quizzes (lowest one dropped)	9%
Project	7%
Final Exam	35%

\*Your lowest of Exam 1 and Exam 2 will be weighted at 9%. The other exam will be weighted at 30%.

Average 2:

Exam 1	24%
Exam 2	24%
Homework (lowest one dropped)	10%
Quizzes (lowest one dropped)	9%
Project	7%
Final Exam	26%

There is no curve in this class; one is not needed. You are guaranteed a final grade per below.

<u>Final Average (X)</u>	<u>Course grade</u>
$X \geq 90$	A
$80 \leq X < 89$	B
$70 \leq X < 79$	C
$60 \leq X < 69$	D
$X < 60$	E

The +/- system may be used for those students whose averages are truly borderline at the end of the session. The +/- cut-offs are never published.

**Important Note:** To earn a C grade in the course, your exam average, (Exam 1 + Exam 2 + Final Exam)/3, must be a 60% or better. If this average is < 60%, even if your aggregate average is 70%, you cannot earn a C in the course.

Quizzes

Quizzes are online through our Canvas page. Quizzes are 30 minutes long and comprised of 5-10 questions based upon the previous week's lectures and reading assignments. The purpose of the quizzes is to encourage students to

- (a) watch the lectures
- (b) take good notes on the slides
- (c) review class notes regularly
- (d) read the text and text examples

Quizzes are open for just under 48 hours, open every Friday at 12:01 am AZ time and close at 11:59 pm AZ time on Saturday. If you in the quiz at 11:59 on a Saturday, the remaining unanswered questions are scored at zero. After the quiz closes, you will be able to see your questions and the ones you missed.

You may not take photos or screenshots of the quiz. Ever. Even if you want to send the shot to me (Dr. C.)

You may not post the quiz questions online or send them via text to anyone

You may not reproduce the quiz questions in any way.

Failure to abide by the restrictions noted above in red will result in you being reported for an academic integrity violation, a score of zero on the quiz, and the recommendation that your course grade be lowered by a full letter grade at semester's end. Additionally, you may be suspended or expelled from ASU for such violations.

## Exams

There are two midterms, Exam 1 and Exam 2, and a Final Exam in this course. The Final Exam is cumulative, meaning that it covers all of the material from the entire session.

All exams will be online and available to you in one of two time windows on one day. A detailed email and video about how to take your exams will be made available as we get closer to Exam 1. The Respondus Lockdown Browser will be used, and you will need to keep both of your hands on camera throughout the exam. I will show you how to do this effectively and with little disruption to your view of the exam.

Exam rules:

- **Cell phones must be put out of reach.** If your cell phone is used at all during an exam, you will be given a zero on the exam.
- Your hands must be on camera at all times
- You may use as many hand-written paper notes or paper printouts of slides that you want during an exam.
- You must provide your own copies of any tables to Exam 2 and the Final Exam.
- You must bring a calculator to each exam, but **it cannot be a TI Nspire.**
- You may not use a TI-Nspire on any exam in this course. If you do, you will receive a zero on that exam.
- You must bring a photo ID for each exam. Get an ASU Sun Card if you don't have one: <https://cfo.asu.edu/cardservices-suncard>
- You may not be on-line during any exam except to take the exam
- You may not use any other devices (e.g., iPad, tablets, etc.) during the exams
- You must remove any watch you are wearing and have your sleeves rolled to your elbows during each exam.
- No bathroom breaks
- No headphones
- No hats or hoodies
- No sunglasses

## Make-Up Exams

The opportunity for a make-up exam will be available only in the following situations:

1. Required class absence due to university-sanctioned events/activities (refer to ACD 304-02)
2. Religious observance recognized by ASU (refer to ACD 304-04)
3. Death of an immediate family member (spouse, domestic partner, child, parent, sibling, or grandparent)
4. Your hospitalization

You must provide verifiable documentation for 1, 2, and 4 above. For 1 and 2, it is your responsibility to notify me at the beginning of the session. For 3, please work with Student Advocacy and Assistance for documentation; this will simplify communication with all your faculty.

If you are unable to take an exam for any other reason, you must

- (a) inform me in email ([linda.chattin@asu.edu](mailto:linda.chattin@asu.edu)) before the exam begins
- (b) also inform me with a voice mail to my office phone (480-965-3811) before the exam begins.
- (c) produce an authorized, verifiable doctor's excuse.

If (a), (b), and (c) comply, your final exam score will replace the missed exam score.

To be clear, here are example situations and outcomes:

**Situation 1:** You become ill before an exam. You email me to let me know before the exam begins, requesting an email "read" receipt from me AND you call my office phone (480-965-3811) and leave a voice mail telling me you are ill. You then go to the doctor's to be evaluated and to get a medical excuse. You present the doctor's medical excuse to me within 5 days of the missed exam when you return. I call the clinic and verify your doctor's appointment there on that day.

**Outcome 1:** Your final exam will be the grade given to the missed exam due to illness.

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**Situation 2:** You become ill a day or so before an exam. You do not email me and do not phone my office number and leave a voice mail letting me know you are ill. You do not show up to the exam. After the exam has begun or is over, your email/phone/tell me in person you were sick and present a doctor's note to me within 5 days of the missed exam.

**Outcome 2:** You will receive a zero on the missed exam because you did not let me know before the exam started with an email and voice mail that you were ill.

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**Situation 3:** You become ill a day or so before an exam. You email me to let me know before the exam begins, requesting an email "read" receipt AND you call my office phone (480-965-3811) and leave a voice mail telling me you are ill. You then go to the doctor's to be evaluated and to get a medical excuse. You present the doctor's medical excuse to me within 5 days of the missed exam when you return. I call the clinic but no one answers, the phone number is no longer in service, or no one calls me back if I leave a voice mail there.

**Outcome 3:** You will receive a zero on the missed exam because your doctor's note cannot be verified.

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## Piazza

Piazza is an online discussion site that has a nice phone app that is easy to use. By the first day of class, you will be enrolled in our Piazza page. We will use Piazza for students to help each other and for TAs and UGTAs to help students with their homework and other questions. I will not answer

homework questions in an email. Instead, you will post your questions to Piazza and I will answer them there so others can benefit from your question.

The Piazza link is on the Canvas menu for our class and you may wish to add the app to your phone.

Go to Piazza FIRST and post your question before emailing a TA, UGTA, or me. While there, help someone else with their question. If you are unable to resolve your issue there, see a TA, UGTA, or instructor during office hours for help.

## **Homework**

Each homework is due on the appointed day **no later than 11 pm AZ time.**

There will be **no extensions** on the homework, but the lowest score is dropped. Each homework is worth the same weight regardless of how many problems are on it. For example, a score of 4 out of 5 problems is 80% and a score of 28/35 is also 80%.

The online homework, along with your text, is located along with your textbook at the Wiley PLUS site detailed on the first page of this syllabus.

You need to work on the homework with other students and to do some problems every day so that you can retain these challenging concepts. You are not to simply copy each others' answers. Your ability to do the homework problems on your own is the best predictor of how you will do on the exams.

Most of the homework sets have a few problems from previous chapters in addition to the primary chapter that is covered. For example, Ch 6 homework contains review problems from Chapters 3 and 4. This review is intentional and meant to help keep you in a constant review cycle so that the material is not a stranger to you at the end of the session.

You may NOT use Chegg.com, CourseHero.com, or any other sites to find homework answers or solutions. If you do, you will be reported to the dean's office for an Academic Integrity Violation, you will receive a zero on the homework assignment, and there will be a recommendation that your course grade be lowered by a full letter grade.

## **Academic Integrity**

Students in this class must adhere to ASU's academic integrity policy, which can be found at <https://provost.asu.edu/academic-integrity/policy>). Students are responsible for reviewing this policy and understanding each of the areas in which academic dishonesty can occur. In addition, all engineering students are expected to adhere to both the ASU Academic Integrity Honor Code and the Fulton Schools of Engineering Honor Code. All academic integrity violations will be reported to the Fulton Schools of Engineering Academic Integrity Office (AIO). The AIO maintains a record of all violations and has access to academic integrity violations committed in all other ASU colleges/schools.

Here is a portion of the policy that details the student responsibilities:



*Each student must act with honesty and integrity and must respect the rights of others in carrying out all academic assignments. A student may be found to have engaged in academic dishonesty if, in connection with any Academic Evaluation or academic or research assignment (including a paid research position), he or she:*

1. *Engages in any form of academic deceit;*
2. *Refers to materials or sources or uses devices (e.g., computer disks, audio recorders, camera phones, text messages, crib sheets, calculators, solution manuals, materials from previous classes, or commercial research services) **not authorized by the instructor** for use during the Academic Evaluation or assignment;*
3. *Possesses, reviews, buys, sells, obtains, or uses, without appropriate authorization, any materials intended to be used for an Academic Evaluation or assignment in advance of its administration;*
4. *Acts as a substitute for another person in any Academic Evaluation or assignment;*
5. *Uses a substitute in any Academic Evaluation or assignment;*
6. *Depends on the aid of others, including other students or tutors, in connection with any Academic Evaluation or assignment to the extent that the work is not representative of the student's abilities;*
7. *Provides inappropriate aid to another person in connection with any Academic Evaluation or assignment, including the unauthorized use of camera phones, text messages, photocopies, notes or other means to copy or photograph materials used or intended for Academic Evaluation;*
8. *Engages in Plagiarism;*
9. *Uses materials from the Internet or any other source without full and appropriate attribution;*
10. *Permits his or her work to be submitted by another person in connection with any Academic Evaluation or assignment, without authorization;*
11. *Claims credit for or submits work done by another;*
12. *Signs an attendance sheet for another student, allows another student to sign on the student's behalf, or otherwise participates in gaining credit for attendance for oneself or another without actually attending;*
13. *Falsifying or misrepresenting hours or activities in relation to an internship, externship, field experience, clinical activity or similar activity;*
14. *Attempts to influence or change any Academic Evaluation, assignment, or academic record for reasons having no relevance to academic achievement.*

Here are a couple of things you may not realize are violations of the Academic Integrity Policy that can get you into trouble:

- You may not provide old notes, reports, assignments, homework solutions, or exams/quizzes to friends or others who take a class after you do unless your instructor says that you CAN.
- You may not post, sell or provide notes, reports, assignments, homework solutions, or exams/quizzes to online sites such as Chegg.com or CourseHero.com.

**If you are not sure if something you are doing is in violation or not, ASK THE INSTRUCTOR.**

At Arizona State, the governing phrase about what is allowed and is not allowed during a course is as follows: **Everything is forbidden until the teacher says it is permitted.**

That said, I will detail here what is and is not permitted concerning homework and quizzes. Specific exam permissions will be detailed before each exam in an announcement and an email sent to you.



### **Permitted in IEE 380 regarding homework and quizzes:**

1. You may and should work with other students in person and on Piazza to do the homework problems
2. You may post your homework problem statement on Piazza at any time, even before the homework is due
3. You may answer other students' homework questions on Piazza at any time, even before the homework is due

### **Forbidden in IEE 380 regarding homework and quizzes:**

1. You may not post any homework or quiz questions to online sites such as Chegg.com, etc.
2. You may not answer quiz questions on Piazza while the quiz is open
3. You may not copy your friends' answers to homework or quiz problems
4. You may not have another person take your quiz or do your homework
5. You may not sell your notes to a third party. StudySoup.com may solicit you via email to do this; it is expressly forbidden per ASU policies.
6. You may not take pictures or screenshots of quiz questions at any time during a quiz or after a quiz closes. Even if you want to send a shot to me, you may not take a photo. I can see every question on every quiz and exam you take. I do not want any photos of questions on your computer or on your phone. Ever.

Violations of any of the above "may nots" will be reported to the dean's office for an academic integrity violation and the following penalties may occur:

- Your final course grade may be demoted (dropped down) by one full letter grade
- You may be assigned a failing grade of E in the course
- You may be suspended or expelled from ASU

### **Disability Accommodations**

Suitable accommodations will be made for students having disabilities and students should notify the instructor as early as possible if they will require the same. Such students must be registered with the Disability Resource Center and provide documentation to that effect.

## **Copyright**

All contents of these lectures, including written materials distributed to the class, are under copyright protection. Notes based on these materials may not be sold or commercialized without the express permission of the instructor. [Note: Based on [ACD 304-06](#).]

**Quiz and exam questions are the property of ASU and Dr. Chattin. They are Dr. Chattin's intellectual property and may not be copied, posted, or reproduced in any way without permission.**

Course content, including lectures, are copyrighted materials and students may not share outside the class, upload to online websites not approved by the instructor, sell, or distribute course content or notes taken during the conduct of the course (see ACD 304–06, “Commercial Note Taking Services” and ABOR Policy 5-308 F.14 for more information).

You must refrain from uploading to any course shell, discussion board, or website used by the course instructor or another course forum, material that is not the student's original work, unless the students first comply with all applicable copyright laws; faculty members reserve the right to delete materials on the grounds of suspected copyright infringement.

## **Drop and Add Dates/Withdrawals**

This course adheres to a compressed schedule and may be part of a sequenced program, therefore, there is a limited timeline to [drop or add the course](#). Consult with your advisor and notify your instructor to add or drop this course. If you are considering withdrawal, review the following ASU policies: [Withdrawal from Classes](#), [Medical/Compassionate Withdrawal](#), and a [Grade of Incomplete](#).

## **Grade Appeals**

Grade disputes must first be addressed by discussing the situation with the instructor. If the dispute is not resolved with the instructor, the student may appeal to the department chair per the [University Policy for Student Appeal Procedures on Grades](#).

## **Prohibition of Commercial Note-Taking Services**

Per [ACD 304-06 Commercial Note Taking Services](#), written permission must be secured from the official instructor of the class to sell the instructor's oral communication in the form of notes. Notes must have the note taker's name as well as the instructor's name, the course number, and the date.

## **Course Evaluation**

Students are expected to complete the course evaluation. The feedback provides valuable information to the instructor and the college and is used to improve student learning. Students are notified when the online evaluation form is available.

## **Syllabus Disclaimer**

The syllabus is a statement of intent and serves as an implicit agreement between the instructor and the student. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. Please remember to check your ASU email and the course site often.

## **Accessibility Statement**

In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act as amended (ADAAA) of 2008, professional disability specialists and support staff at the Disability Resource Center (DRC) facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities. [Qualified students with disabilities may be eligible to receive academic support services and accommodations.](#) Eligibility is based on qualifying disability documentation and assessment of individual needs. Students who believe they have a current and essential need for disability accommodations are [responsible for requesting accommodations and providing qualifying documentation](#) to the DRC. Every effort is made to provide reasonable accommodations for qualified students with disabilities.

Qualified students who wish to request accommodation for a disability should contact the DRC by going to <https://eoss.asu.edu/drc>, calling (480) 965-1234 or emailing DRC@asu.edu. To speak with a specific office, please use the following information:

<b>ASU Online and Downtown Phoenix Campus</b>	<b>Polytechnic Campus</b>
University Center Building, Suite 160	480-727-1165 (Voice)
602-496-4321 (Voice)	
<b>West Campus</b>	<b>Tempe Campus</b>
University Center Building (UCB), Room 130	480-965-1234 (Voice)
602-543-8145 (Voice)	

## **Harassment and Sexual Discrimination**

Arizona State University is committed to providing an environment free of discrimination, harassment, or retaliation for the entire university community, including all students, faculty members, staff employees, and guests. ASU expressly prohibits discrimination, harassment, and retaliation by employees, students, contractors, or agents of the university based on any protected status: race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, and genetic information.

Title IX is a federal law that provides that no person be excluded based on sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed based on sex can seek support, including counseling and academic support, from the university. If you or

someone you know has been harassed based on sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>.

Mandated sexual harassment reporter: As an employee of the University, I am considered a mandated reporter and therefore obligated to report any information regarding alleged acts of sexual discrimination that I am informed of or have a reasonable basis to believe occurred.

ASU Counseling Services, <https://eoss.asu.edu/counseling>, is available if you wish to discuss any concerns confidentially and privately.

### **Policy Against Threatening Behavior**

Students, faculty, staff, and other individuals do not have an unqualified right of access to university grounds, property, or services. Interfering with the peaceful conduct of university-related business or activities or remaining on campus grounds after a request to leave may be considered a crime. All incidents and allegations of violent or threatening conduct by an ASU student (whether on- or off-campus) must be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students.