

Instructor/Email: Dr. Linda Chattin (linda.chattin@asu.edu)

Office Hours: By Zoom appointment. Just email me for just-in-time service!

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

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

1. Go to www.wileyplus.com/go/coursefinder. In the gray window, type in the code **799002** in the Text section of General Information on Canvas.

If you have completed some or all of IEE 380 before here at ASU after August 2019, you already have an account at Wiley Plus and you do not have to purchase this text again. However, you must register for 799002 on Wiley Plus. Use your old login information.

2. Create a Wiley Plus account if necessary. Use your first and last name and your ASU email address.

Course Description

Conditional probability, common probability models, Goodness-of-fit tests and reliability models.

Enrollment Requirements

Prerequisite(s): Fulton Engineering undergraduate student, Engineering Management minor, or Mathematical Concepts of Engineering certificate student; IEE 380 with C or better OR Industrial Engineering graduate student

Learning Outcomes

Students will:

- Compute combinations and permutations for diverse applications
- Apply fundamental conditional probability concepts including Bayes' Theorem
- Develop and apply joint probability mass functions and probability density functions
- Develop, derive and apply marginal probability functions
- Develop and use moment generating functions and probability generating functions
- Recognize and use important discrete and continuous probability functions such as the Bernoulli, Binomial, Geometric, Erlang, Binomial, Poisson, Multinomial, Uniform, Discrete Uniform, Exponential, Poisson, Normal and Gamma distributions
- Develop maximum likelihood estimators for probability distribution parameters
- Analyze data to determine its underlying distribution using the Chi-Square Goodness of Fit test
- Understand and apply reliability modeling concepts such as series systems and redundant systems

Canvas

You have all been enrolled in our Canvas page which will be available on January 8. All lecture videos, slides, readings, homework, class schedules, and other items will be posted there.

Material

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

Chapter 1:	The Role of Statistics in Engineering
Chapter 2:	Probability
Chapter 3:	Discrete Random Variables and Probability
Chapter 4:	Continuous Random Variables and Probability
Chapter 5:	Joint Probability Distributions
Chapter 6:	Descriptive Statistics
Chapter 7:	Point Estimation of Parameters and Sampling Distributions
Chapter 9:	Tests of Hypothesis for a Single Sample
Reliability:	**Not in text

Calculators

We will be doing probability and statistical computations using calculator functions. Most students use a TI-83, -84, -89. Casio and HP make equivalently good models. You will need one that does probability and statistics functions. You are responsible for learning how to use your own calculator via its manual or online videos.

You may not use a TI-Nspire during exams in this course.

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 90 minutes 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.

This is a labor-intensive applied engineering course. If you are taking more than two courses at any given time during Session A, B or C (including this one), this may not be the best time for you to be taking IEE 385. I encourage you to Zoom with me about this ASAP.

Schedule

See the weekly schedule posted to Canvas as modules.

You are expected to 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.

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. There will not be any Y grades offered in this course.

Average 1:

*Exams 1 and Exam 2	37%
Homework (lowest dropped)	10%
Quizzes (lowest dropped)	20%
Final Exam	33%

*Your lowest of Exam 1 and Exam 2 will be weighted at 10%. The other exam will be weighted at 27%.

Average 2:

Exam 1	23%
Exam 2	23%
Homework (lowest dropped)	10%
Quizzes (lowest dropped)	20%
Final Exam	24%

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.

Quizzes

Quizzes are online through our Canvas page. Quizzes are 30 minutes long and comprised of 5-10 questions based upon the 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, even if you want to just send it to me. No photos or screenshots ever.

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; Exams 1 and 2 are available over a 48-hour window like the quizzes. The Final Exam has a 3-day window. We will be using the online proctoring service, RPNOW from PSI Services, an external proctoring service. More information about RPNOW and how to use it will be provided in the weekly modules on Canvas as we approach Exam 1.

Exam rules:

- **Cell phones must be put out of reach.** If your cell phone is used at all, you will be given a zero.
- **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.
- You must have a calculator, but **it cannot be a TI Nspire.**
- You may not use a TI-Nspire. If you do, you will receive a zero.
- You must show a photo ID for each exam, but not a debit or credit card. 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, tablet, etc.)
- You must remove any watch you are wearing and have your sleeves rolled to your elbows.
- No earbuds or headphones
- No bathroom breaks
- 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) 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.

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 take 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.

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.

Yellowdig

Yellowdig is a Canvas tool where you will post your homework questions and receive help from me (Dr. Chattin) and your classmates. The link is located on the left menu of our Canvas page.

I will not answer homework questions in an email, only on Yellowdig.

Homework

Each homework is due on the appointed day **no later than 11:59 pm AZ time.**

There are **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 5 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 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.

If you are not sure if something you are doing is in violation or not, ask me.

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 for homework and quizzes. Specific exam permissions will be detailed before each exam in an announcement and in an email sent to you.

Permitted in IEE 385 regarding homework and quizzes:

1. You may and should work with other students on Yellowdig or Zoom to do the homework problems
2. You may post your homework problem statement on Yellowdig at any time, before or after homework is due.

Forbidden in IEE 385 regarding homework and quizzes:

1. You may not post quiz or homework questions to any online sites. You may not use any online sites to find the answers or for help in how to do problems. The authors of the quiz (me) and homework (Dr. Montgomery) have a copyright on those questions.
2. You may not have another person take your quiz or do any part of your homework
3. 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.

4. You may not take a screen shot of photo of any question ever. If you need me to review a question, just tell me which one to look at. I can see everything.

If you violate ASU's Academic Integrity Policy in any way, you will be reported to the dean's office for an academic integrity violation and any combination of the following penalties may occur:

- Your grade on the homework or quiz will be a zero
- Your final course grade will be demoted (dropped down) by one full letter grade
- You will be suspended or expelled from ASU

Copyright

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.

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.

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:

ASU Online and Downtown Phoenix Campus

University Center Building, Suite 160
602-496-4321 (Voice)

West Campus

University Center Building (UCB), Room 130
602-543-8145 (Voice)

Polytechnic Campus

480-727-1165 (Voice)

Tempe Campus

480-965-1234 (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.