IE 3301– 002
Engineering Probability/ Spring 2022

Professor: Aera Kim LeBoulluec, Ph.D.

Office: 325E Woolf Hall

Contact: mailto:aeral@uta.edu

Faculty Profile: https://www.uta.edu/profiles/leboulluec-aera

Office Hours: Thursday 3:00 – 4:00 pm or by appointment via Microsoft Teams

Classes: M/W 2:30 – 3:50 pm via Microsoft Teams, WH 208

Teaching Assistant: Ranjith Rajagopalan < mailto:rxr0672@mavs.uta>

TA Office Hours: T/Th 1:00–2:30 pm or by appointment via Microsoft Teams

Required Textbooks and Other Course Materials: *Probability and Statistics for Engineers and Scientists*, 9th edition by Walpole, Myers, Myers and Ye.

Prerequisites: Math 2425 or concurrent enrollment.

Course Description: Topics in engineering that involve random processes. Applications and backgrounds for topics in reliability, inventory systems, and queuing problems, including absolute and conditional probabilities, discrete and continuous random variables, parameter estimation, hypothesis testing, and an introduction to linear regression.

Student Learning Outcomes: At the end of this course students should be able to (1) understand the basic concepts of probability theory and hypothesis testing, (2) apply those concepts to solving numerical problems, especially those relating to probability distributions, and (3) collect data and perform descriptive and inferential statistical analyses.

Technology Requirements: Students will need to access course content via Canvas and Microsoft Teams. Students are advised to print handouts prior to Microsoft Teams meetings in order to work problems by hand. Assignments will be submitted electronically on Canvas.

Format of the Class: With the high COVID-19 infection rates recently, we will have online lectures on Microsoft Teams (live streaming) which will be recorded.

Course Schedule: Chapter sections listed below are from Walpole et al. (2012). Approximate number of class lectures, including review periods, is given in parentheses.

Chapter 1: Descriptive Statistics (3.5 class lectures)
Chapter 2: Probability (4 class lectures)
Chapter 3: Random Variables (2.5 class lectures)
Chapter 4: Expectation (2 class periods)
Chapter 5: Discrete Distributions (3.5 class lectures)
Chapter 6: Continuous Distributions (3.5 class lectures)
Chapter 8: Sampling (2.5 class lectures)
Chapter 9: Estimation (4.5 class lectures)
Chapter 10: Hypothesis Testing (4.5 class lectures)
Chapter 11: Simple Linear Regression (3.5 class lectures)

Grading (tentative):

- Homework: 10%
- Projects: 15%
- Exam 1: 25%
- Exam 2: 25%
- Exam 3 (Final): 25%

Letter grades correspond to the following score system:
A = 90–100; B = 80–89; C = 70–79; D = 60–69; F = below 60.

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

Test Policy: All exams will use LockDown Brower and Respondus Monitor. Exam instructions will sent to you via MavMail.

Makeup Policy: A makeup test will be given if the student provides legitimate written documentation proving an illness or emergency. If necessary, I may request additional information to verify the validity of your documentation. If you cannot attend an exam, you should make every effort to contact me beforehand.

Project: For the project, additional handouts will be given with detailed instructions. Each student must submit a typewritten report, written in his/her own words. Any form of copying will have severe consequences.

Regrading Policy: If you would like a test or project regraded, you must submit a written statement which clearly explains the reason you would like a regrade. Note that the entire test/project will be regraded.

Homework: Homework will be posted on Canvas under Assignments and should be submitted via Canvas. **Late homework will not be accepted**. To receive full credit for your homework, show all of your work. Any form of copying will have severe consequences.

Attendance: At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator of student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, attendance will be taken during each of Class meeting during the semester and each recorded attendance will be added on the final as an extra credit. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report must the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients.

Expectations for Out-of-Class Study: Beyond the time required to attend Teams class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reviewing lecture content, reading required materials, completing assignments, etc.

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog.

Face Coverings: While the use of face coverings on campus is no longer mandatory, all students and instructional staff are strongly encouraged to wear face coverings while they are on campus. This is particularly true inside buildings and within classrooms and labs where social distancing is not possible due to limited space. If a student needs

accommodations to ensure social distancing in the classroom due to being at high risk they are encouraged to work directly with the Student Access and Resource Center to assist in these accommodations. If students need masks, they may obtain them at the Central Library, the E.H. Hereford University Center's front desk or in their department.

Institution Information: UT Arlington students are encouraged to review the below institutional policies and informational sections and reach out to the specific office with any questions. To view this institutional information, please visit the Institutional Information page (https://resources.uta.edu/provost/course-related-info/institutional-policies.php) which includes the following policies among others:

- Drop Policy
- Disability Accommodations
- Title IX Policy
- Academic Integrity
- Student Feedback Survey
- Final Exam Schedule

Student Success Programs: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring by appointment, drop-in tutoring, etutoring, supplemental instruction, mentoring (time management, study skills, etc.), success coaching, TRIO Student Support Services, and student success workshops.
For additional information, please email resources@uta.edu, or view the Maverick Resources website at https://www.uta.edu/studentsuccess/success-programs/programs/resource-hotline.php.

IDEAS Center (2nd fl. LIBR): This center offers FREE tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. Students can drop in, or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

English Writing Center (411LIBR): The Writing Center offers FREE tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at https://uta.mywconline.com. Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see www.uta.edu/owl for detailed information on all our programs and services.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals. This procedure is not relevant for the online class.

Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911. Non-emergency number 817-272-3381.