

IE 5317: Introduction to Statistics
Fall 2016

Instructor: Shouyi Wang

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Office Hours: Woolf 420-H,
Tuesday 3:00 PM - 4:30 PM, Thursday 3:00 PM - 4:30 PM

Section Information: This Syllabus applies to IE 5317-001, IE 5317-002, IE 5317-003, and IE 5317-004

Time and Place of Class Meetings:

Session 001, 002, 003: TT 12:30 PM - 1:50 PM, GACB 105

Session 004: TT 2:00 PM - 3:20 PM, NH 109

GTA:

Azam Boskabadi, azam.boskabadi@mavs.uta.edu

Li Zhang, 371zhangli@gmail.com

GTA Office Hours:

Session 001/002/003: Azam Boskabadi, Monday/Wednesday 4:00PM – 5:30PM, Woolf Hall 401

Session 004: Li Zhang, Monday/Wednesday 3:30PM – 5:00PM, Woolf Hall 401

Required Textbooks and Other Course Materials: [*Probability and Statistics for Engineers and Scientists, 8th or 9th edition by Walpole, Myers, Myers and Ye*](#). A calculator with simple functions (ONLY +, −, /, ×, √), advanced calculators are not required.

Prerequisites: Math 2326 or equivalent and permission of advisor.

Description of Course Content: Topics include descriptive statistics, random variables, set theory, probability distributions, mathematical expectation, confidence interval estimation, hypotheses testing, simple linear regression, design and analysis of computer experiments, multiple linear regression.

Student Learning Outcomes: At the end of this course students should be able to (1) understand the basic concepts of probability theory, hypothesis testing, and linear regression, (2) apply those concepts to solve numerical problems, (3) perform descriptive and inferential statistical analyses of data, and (4) solve simple and multiple linear regression problems.

Descriptions of major assignments and examinations: This course has three exams, the last one taking place during Final Exam Week. Exam #1 covers descriptive statistics and probability (Chapters 1–4). Exam #2 covers statistical estimation and hypothesis testing (Chapters 5–10). Exam #3 covers regression and one-factor design of experiments (Chapters 11–13). Exams are closed book. A set of formula sheets and tables will be provided to students with each exam. Calculators with simple functions (ONLY +, −, /, ×, √) may be used during exams (no other calculators permitted). Please bring your UTA ID card to all exams. Students must sign an academic honesty statement on the exam. Mobile phones, computers, and other communication devices must be turned off. Mobile phones that ring or vibrate

during the exam will be collected by the instructor. Students should keep their eyes on their own exams. Use the restroom before the exam, students need ask instructor's permission to leave the exam room (e.g., need go to restroom) and return to take the exam. All the students are encouraged to report any observed cheating to instructor.

During an Exam: Students are only allowed to use pens, pencils, erasers, simple calculators, and provided notes. Students are not allowed to share these materials during the exam. Mobile phones, computers, and other communication devices must be turned off. Mobile phones that ring or vibrate during the exam will be collected by the instructor. Students should keep their eyes on their own exams. Students are not allowed to leave the exam room and return to take the test. Exams are to be opened and closed at the times announced in class (or by the proctor). Anyone opening an exam early or closing an exam late will be deducted 5 points for each minute outside the exam period. All suspicious behavior during the exam will be noted by the instructor. In certain circumstances, students will be confronted by the instructor.

After an Exam: When all of the exams have been graded, the GTA will email scores to the students. The exams will be reviewed in class. Students who wish to see their graded exams must come to office hours. Students who wish to keep a copy of their exams must come to office hours and remove the exam staple, so the exam can be copied. The instructor highly encourages students who perform poorly on exams to come during office hours to determine how they can perform better on future exams.

Attendance: At The University of Texas at Arlington, taking attendance is required since 2015 spring. As the instructor of this section, I will take attendance every week as required. If you cannot attend a lecture, let the instructor know in advance.

Course Evaluation & Grading: Grading Format: A = 90, B = 80, C = 70, D = 60, F = below 60. Exams are curved as described below, but projects and other work are not curved. The grade weights are as follows:

- Midterm exam 1 is 25%
- Midterm exam 2 is 25%
- Final exam is 25%
- Homework is 25%
- Attendance records are 3%

Observe that there is 103% available with attendance considered. The students are encouraged to attend all the lectures.

Each exam receives a raw score based upon performance on problems and the point allocations described on the exam. Usually these points total 100 but sometimes there are bonus points. Using the average and standard deviation of the raw scores, each exam receives a preliminary curved score based upon a predetermined bell curve. Usually, the predetermined bell curve has a mean of 83 and a standard deviation of 7. Finally, each exam receives a curved score that is the maximum of the raw score and the preliminary curved score. An exam's curved score is what is used to determine the final class grade. The GTA will upload exam scores to Blackboard as soon as the exams have been graded. Students can check exam scores online through Blackboard. Students must come to office hours to discuss their graded exams with the instructor or GRA.

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.

Late Submissions: Due dates and times represent the LAST minute that you can receive full credit for your project and lecture certifications. Late homework or project assignments that come in during the class will have a minimum of 20% docked. Late homework will not be accepted one week after past the due date.

Class Policies: Homework assignments will be done individually: each student must hand in their own answers. It is acceptable, however, for students to collaborate in helping each other to solve the problems. We will be assuming that, as participants in a graduate course, you will be taking the responsibility to make sure you personally understand the solution to any work arising from such collaboration. Working together is encouraged, BUT all programming and analysis are to be done all by yourself. A good rule of thumb is that you should never copy anything other than class notes from another student.

Lecture Mastery: All students are required to master the materials presented in class. To ensure students are paying attention to the lectures, the instructor will announce a lecture code during each class. For each homework, each student is asked to submit the following statement in homework:

I certify that I have either attended class or watched the video for the lecture on [date of lecture] and have mastered the material. Without assistance, I could summarize the lecture content and reproduce the example problems. The lecture code is [lecture code].

Hardcopy Teacher Evaluations: There is one class period in which students submit hardcopy teacher evaluations. The date of the teacher evaluation lecture will be determined later in the semester. Students who do not attend the teacher evaluation lecture may visit the GTA in office hours.

Class Courtesy: The instructor insists on a quiet classroom. This includes silencing cell phones before class and no whispering during class. Texting in class is fine but not during exams. Students who come late to class should try to enter the classroom as discreetly as possible. Due to noise in the hallway, the hallway door, which is may be locked, may be shut 10 minutes after class begins. Students who do not come to class within the first 10 minutes of the start of class may not be able to attend class. In this case, the student should watch the recorded video. *Do not knock on the door if it has already been shut. Students who are disruptive in class will be asked to leave.*

Expectations for Out-of-Class Study: Beyond the time required to attend each 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 reading required materials, completing assignments, preparing for exams, etc.

Make-up Exams: Makeup tests will only be given for documented illnesses or emergencies. If you cannot attend a test for any reason, you should make every effort to contact me beforehand.

Grade Grievances: If you would like a test regraded, you must submit a written statement that clearly explains the reason you would like a regrade. If a test is submitted for regrading, the entire test is regraded, and it is possible your score could go down.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao/>).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any

student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

Academic Integrity: All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

Instructors may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Student Support Services: 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, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research

problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

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, which is located across the hallway through the double doors on the right. 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.

Website: Blackboard (<http://elearn.uta.edu>)

Blackboard Help: Richard Zercher; Email: zercher@uta.edu

Distance Student Test Policies: Exams must be taken with 24 hours of the regularly scheduled exam. Students who live within 50 miles of campus must come to campus to take all exams. Students should make every effort to take exams on-campus during the regularly scheduled time. If this is not possible, alternate exam times will be scheduled. Usually, the GTA will proctor an alternate exam on the evening of the day of the in-class exam. Students living more than 50 miles from campus may take the exam with an approved proctor. Students will be responsible for identifying a proctor. Proctors must be approved by the faculty at least two weeks before the first exam. The proctor should be associated with the testing facility of a community college, a library, a university, or a professional testing center such as a Sylvan Learning Center. Students are responsible for any fees charged by the testing facility. Students who choose to use the Sylvan Learning Center should call 1-888-EDUCATE to find the nearest testing center and set up appointments to take exams.

Distance Student Contact and Assignment Policies: Distance students are required to communicate with the faculty before the second-class period. Distance students are expected to complete all of the regular requirements for a class. This includes submission of exams, homework, and projects within 24 hours of the in-class students. These materials may be submitted electronically.

Course Content: Chapters based on Walpole et al. (2012)

Chapter 1. Introduction to Statistics and Data Analytics
Chapter 2. Probability
Chapter 3. Random Variables and Probability Distributions
Chapter 4. Mathematical Expectation
Chapter 5. Discrete Probability Distributions
Chapter 6. Continuous Probability Distributions
Chapter 8. Fundamental Sampling Distributions and Data Descriptions
Chapters 9. One and Two-Sample Estimate Problems
Chapters 10. One and Two-Sample Tests of Hypotheses
Chapter 11. Simple Linear Regression
Chapter 12. Multiple Linear Regressions
Chapter 13. One Factor Experiments

Course Schedule: Exam times and due dates of projects are as follows:

Exam #1 on Chapters 1–4. Thursday, October 6th.
Exam #2 on Chapters 5–6 and 8–10. Tuesday, November 8th.
Exam #3 on Chapters 11–13. Tuesday, December 13th.

The instructor for this course reserves the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

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.