

MATH 3351
Probability and Statistics for Engineers and Scientists
Fall 2024

Professor: Dr. Christy Graves

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Office: RBN 4013

Office Hours: Tuesday and Thursday 8:00-9:20 and by appointment

Class Time: Tuesdays and Thursdays 9:30-10:50 (Section 1) or 11:00-12:20 (Section 2)

Class Location: Stewart Hall 127 (Section 1) or RBN 4027 (Section 2)

Text: *Probability and Statistics for Engineering and the Sciences, Ninth Edition*, Jay L. Devore, ISBN 978-1-305-25180-9.

Prerequisites: A grade of C or better in Calculus II.

Course Description: Fundamentals of probability and statistics with relevant engineering and science applications. Discrete and continuous random variables, statistical inference, parameter estimation, regression, experimental design, and model verification.

Student Learning Outcomes: By the end of the course, successful students should be able to:

- Determine probabilities for discrete random variables from probability mass functions and for continuous random variables from probability density functions, and use cumulative distribution functions in both cases;
- Calculate means and variances for discrete and continuous random variables;
- Select an appropriate probability distribution to calculate probabilities in specific applications;
- Understand statistics and the central limit theorem;
- Perform hypothesis tests and construct confidence intervals on the mean or variance of a normal distribution;
- Explain and use the relationship between confidence intervals and hypothesis tests;
- Perform hypothesis tests and construct confidence intervals involving two samples;
- Understand how the analysis of variance can be used in an experiment to compare several means; and
- Use simple linear or multiple linear regression for building empirical models of engineering and scientific data.

Canvas: A Canvas site has been set up for this course. All handouts and announcements will be posted here. All assignments must be uploaded to Canvas.

Attendance: Students are expected to attend every lecture, and are responsible for any announcements made during lecture. The course moves quickly, and any absence will be detrimental to the student's performance.

Exams

There will be 4 in-class exams. The exams are on the specific dates listed below:

Exam 1	Tuesday, September 17
Exam 2	Thursday, October 10
Exam 3	Tuesday, November 5
Exam 4	Thursday, December 5

- There are no make-up exams for any reason. Everyone has the opportunity of replacing their lowest exam score with their final exam score. (See the Grading section.) Thus, if you miss an exam, your final exam score will count for that missed exam.
- Certain calculators are allowed on exams. Any calculator that does not perform symbolic manipulations may be used. Examples of allowed calculators are: TI-83, TI-84, TI-Nspire CX, TI-85, and TI-86. **Calculators that perform symbolic manipulation are not allowed.** Thus the following calculators are not allowed: TI Nspire CX CAS, TI-89, and TI-92. Cell phone calculators are not allowed on exams.

Homework

Homework is vital to your success in this course. A significant amount of what you gain from this course will be learned through homework assignments. There will be a homework assignment on most non-exam days. Homework is generally due by midnight the class period after it is assigned. Thus, homework assigned on Tuesday is due Thursday by midnight, and homework assigned on Thursday is due the following Tuesday by midnight. There are a few homework rules to keep in mind:

- All homework must be uploaded to Canvas as a single pdf file.
- Due dates will be posted on Canvas.
- No late homework is accepted.

All homework assignments are out of 4 points and are graded based on completion and showing your work. There are 3 possible homework assignment grades:

- All or most of the homework is complete with work on every problem: 4/4
- About half of the homework is complete with work on every problem: 2/4
- Less than half of the homework is done or some problems have no work: 0/4

Lecture Notes

It is very important that you come to class, pay attention, and take notes. To this end, your lecture notes for each class period will be part of your course grade.

- All lecture notes must be uploaded to Canvas as a single pdf file.
- Due dates will be posted on Canvas
- No late uploaded lecture notes will be accepted.

All lecture notes assignments are out of 4 points and are graded on completion. To receive full credit, your notes must contain all of the things I write down during class along with all examples and all work. There are 3 possible lecture note assignment grades:

- Lecture notes contain 100% of the material from class: 4/4
- Lecture notes contain at least half of the material from class but not all: 2/4
- Lecture notes contain less than half of the material from class: 0/4

Academic Dishonesty

Lecture notes and homework must be written in your own handwriting. **Uploading another student's lecture notes or homework is an act of academic dishonesty and will result in a "0" grade on ALL Lecture Note grades or Homework grades in the course.** Any form of academic dishonesty will not be tolerated, and all cases will be reported to UT Tyler Judicial Affairs.

Final Exam

The final exam will be cumulative and will be held:

Thursday, December 12, 9:30-11:30 (Section 1)
Tuesday, December 10, 11:00-1:00 (Section 2)

Grading

Your final grade in this course will be based on your performance on lecture notes, homework, in-class exams, and the final exam. Your grade will be computed two different ways:

Method 1:		Method 2:	
Lecture Notes	5%	Lecture Notes	5%
Homework	5%	Homework	5%
Highest 4 Exam Scores	60%	Highest 3 Exam Scores	45%
Final Exam	30%	Final Exam	45%

Your final course grade will be the maximum of these.

The grading scale is as follows:

- A final course grade of 90% is at least an A;
- A final course grade of 80% is at least a B;
- A final course grade of 70% is at least a C;
- A final course grade of 60% is at least a D;
- Anything lower than a D is an F.

Late Work, Make-up Exams, and Extra Credit

There is no late work accepted for any reason. Your lowest 3 lecture note assignment grades are dropped. If you miss a lecture and can't get notes from someone, that will be one of your dropped scores.

There are no make-up exams. If you miss an exam, your final course grade will automatically be computed using Method 2 in the Grading section.

Extra credit: If you turn in all lecture note assignments, those additional points will be added on to your lecture assignment grade.

Important Dates: Exam dates are subject to change.

- September 9 - Census Date (Date to withdraw without penalty)
- September 17 - Exam 1
- October 10 - Exam 2
- November 4 - Withdraw Deadline
- November 5 - Exam 3
- December 5 - Exam 4
- December 10 & 12 - Final Exam

UNIVERSITY POLICIES AND ADDITIONAL INFORMATION THAT MUST APPEAR IN EACH COURSE SYLLABUS

UT Tyler Honor Code

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

Students Rights and Responsibilities

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link:

<http://www.uttyler.edu/wellness/rightsresponsibilities.php>

Campus Carry

We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at

<http://www.uttyler.edu/about/campus-carry/index.php>

UT Tyler a Tobacco-Free University

All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors.

Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit www.uttyler.edu/tobacco-free.

Grade Replacement/Forgiveness and Census Date Policies

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar.

Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date is the deadline for many forms and enrollment actions of which students need to be aware. These include:

- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

State-Mandated Course Drop Policy

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date).

Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

Disability/Accessibility Services

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University of Texas at Tyler offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment, you are encouraged to visit

<https://hood.accessiblelearning.com/UTTyler> and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with Cynthia Lowery, Assistant Director of Student Services/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at <http://www.uttyler.edu/disabilityservices>, the SAR office located in the University Center, # 3150 or call 903.566.7079.

Student Absence due to Religious Observance

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

Student Absence for University-Sponsored Events and Activities

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

Social Security and FERPA Statement

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

Emergency Exits and Evacuation

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

Student Standards of Academic Conduct

Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

- i. "Cheating" includes, but is not limited to:
 - copying from another student's test paper;
 - using, during a test, materials not authorized by the person giving the test;
 - failure to comply with instructions given by the person administering the test;
 - possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
 - using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
 - collaborating with or seeking aid from another student during a test or other assignment without authority;
 - discussing the contents of an examination with another student who will take the examination;
 - divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructors has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
 - substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
 - paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
 - falsifying research data, laboratory reports, and/or other academic work offered for credit;
 - taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
 - misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.
- ii. "Plagiarism" includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the submission of it as one's own academic work offered for credit.
- iii. "Collusion" includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.
- iv. All written work that is submitted will be subject to review by plagiarism software.

UT Tyler Resources for Students

- [UT Tyler Writing Center](mailto:writingcenter@uttyler.edu) (903.565.5995), writingcenter@uttyler.edu
- [UT Tyler Tutoring Center](mailto:tutoring@uttyler.edu) (903.565.5964), tutoring@uttyler.edu
- The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- [UT Tyler Counseling Center](tel:903.566.7254) (903.566.7254)