

Probability

Meeting Times: 9:05-10:00 am MWF in RBN 4021

Last day to withdraw: Monday, October 30, 2023.

Instructor: Nathan Smith

Office: RBN 4007

Contact: nsmith@uttyler.edu

Office Hours: Tentatively 10:10-11:05 MWF, with other times available by appointment.

Text: An online text *Introduction to Probability* by Grinstead and Snell, is available in Canvas in the Files section. If you want to purchase a hardcopy version, you can do so from amazon.

Course Topics: While probability, like algebra or geometry, is an object of mathematical interest and study in its own right, our interest in probability in this course is mainly in its role as a foundation to statistics. We will cover the standard topics for an introductory probability course, discrete and continuous random variables, conditional probability, multivariate distributions, moment generating functions, and the Central Limit Theorem. After successfully completing this course you should be mostly prepared to take exam **P** in the series of actuary exams.

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

1. Define and use the basic concepts from probability theory, including random variables, distribution and density functions, conditional probability, moments, expectations, generating functions, and the central limit theorem.
2. Identify, give density functions for, and apply the standard discrete random variables.
3. Identify, give density functions for, and apply the standard continuous random variables.

Computing: We will make mild use of the **R** programming language this semester, mostly drawing graphs and running a simulation or two. You won't be expected to do any programming. We will be using **R** in Statistics in the Spring and it won't hurt to get a little bit familiar with it this fall. You can download **R** for free from www.r-project.org. If you like snazzy modern IDE type things you might want to look at the RStudio IDE, available for free at www.rstudio.com.

Grading: There will be two tests as well as a final exam. Each will count one fifth of your final grade. The remaining two fifths of your final grade will be based on homework, quizzes, and other assignments.

The tests will be roughly late September and late November. Our final is scheduled for Monday, December 4, from 8 - 10am.

Missed work: It is not expected that you will miss the tests. If an emergency situation or university-sanctioned event forces your absence on test day and if you have discussed the situation in advance with the instructor your final exam grade will be used to replace your test grade. I am not responsible enough to handle late work (getting it on the same pile as other papers from the same assignment, grading it, recording the grade, etc.).

Student Academic Conduct: It is your responsibility to learn the material in this course for your own benefit. You should not let this discourage you from working together on your homework but in the end what you turn in should reflect your understanding, not just be copied from someone else. *During the midterm exams and the final exam, a code of honor will apply under which students are to work alone and neither give help to others nor receive help from any sources.* Students are also expected to help enforce this code. Students are encouraged to obtain a copy of *A Student Guide to Conduct and Discipline at UT Tyler*, available in the Office of Student Affairs.

University Policies: For University policies concerning Students' Rights and Responsibilities, Grade Replacement/Forgiveness, State-Mandated Course Drop Policy, Disability Services, Student Absence due to Religious Observance, Student Absence for University-Sponsored Events and Activities, and the Social Security and FERPA Statement please see: <http://www.uttyler.edu/academicaffairs/syllabuspolicies.pdf>.