Mathematical Statistics (MATH 5352)

Meeting Times: 1:25-2:20 am MWF in RBN 4039

Last day to withdraw: Thursday, March 23, 2023.

Instructor: Nathan Smith

Office: RBN 4007

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Office Hours: Tentatively 2:30-3:30 MWF

Text: Introduction to Mathematical Statistics by Hogg, Craig, and McKean, as well as supplemental materials that will be posted on canvas.

Course Topics: Mathematical stats continuing from the fall, through the Lehman-Schefée and Neyman-Pearson Theorems, then statistical modeling, emphasizing regression and classification models.

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

1. Fit explanatory models appropriate to a data set and draw conclusions from the model produced.
2. Fit predictive models appropriate to a data set and make predictions from the model produced.
3. Analyze models for violation of assumptions, make appropriate necessary transformations, and compare and contrast competing models.

Computing: Statistics today is done on a computer. We will be using the statistical package/programming language R, which is an implementation of the S programming language designed at Bell Labs. R is available for free from http://www.r-project.org/ for windows, mac, and unix platforms, and is available for your use in the computer lab in RBN 4021. R is the lingua franca of modern statistics. If you have a laptop or a computer available to you for use at home, you are encouraged to obtain and install R for use in this course.

Grading: Two thirds of your grade will be based on homework, graded either by file submission of an assignment or by grading a presentation made by you in class. The remaining third will be determined by a take-home midterm (which I know is really just a glorified homework assignment) and final exam or some sort of project. I want to leave some leeway here due to uncertainty as to how the semester is going to unfold.

Missed work policy: Don't.

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: We will follow all University policies concerning Withdrawing from Class, Final Exmas, Incomplete Grades, Grade Appeals, Disability/Accessibility Services, Military Affiliated Students, Academic Honesty and Academic Misconduct, FERPA, Covid, Absences, and Campus Carry. See canvas for details (https://uttyler.instructure.com/courses/34488/pages/university-policies-and-information).