

STAT 501 Introduction to Nonparametrics & Log-Linear Models Spring 2021

Instructor: Wei Wang

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Class hours: Tuesday and Thursday, 12:00 pm - 1:30 pm (EST).

Office hours: by appointment.

TA: Mauricio Daros Andrade

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Office hours: Monday, 1:30 pm - 2:30 pm (EST).

Course description:

The course covers commonly used nonparametric (semiparametric) statistical methods.

Topics include the Wilcoxon rank sum test, signed rank test, the Kruskal-Wallis test, two sample tests on proportions, smoothing methods, and so on.

References:

Nonparametric Statistical Methods, M. Hollander, D. A. Wolfe, and E. Chicken.

An Introduction to Categorical Data Analysis, A. Agresti.

Nonparametric Statistical Methods Using R, J. Kloeke and J. W. McKean.

Course Prerequisite: STAT 500.

Required Background:

Undergraduate level probability and statistics including random variables, distributions, mean and variance, multiple linear regression, point estimation, hypothesis testing, and confidence intervals.

R programming experience such as scatter plots, histograms, and basic data manipulation skills.

Helpful Background:

Linear algebra: vectors, matrices, matrix multiplication, matrix determinant and inverse.

Software: We will use the free statistical computing software R (<http://www.r-project.org/>) frequently in class. You will apply what you learned in class to solve your homework and final exam problems.

Homework: There will be biweekly homework assignments due on Thursdays at the beginning of class. Without a convincing reason, late homework will not be given full credit (10 points off every 24 hours). If you are not sure about your situation, ask the instructor in advance. No last minute notice unless it's an urgency.

Exam: There will be a take home final exam.

Format:

You are strongly advised to type your homework or exam solutions. Try your best to copy and paste everything including the relevant R code into a single file.

Grading: Grades will be based 60% on homework, and 40% on the take home final. You can study together for your homework, but no plagiarism. Independent work is expected for the final exam. No discussion or communication with other people. Otherwise, it will be considered cheating.

Note: No class on March 10th, 2020 (Spring break) or April. 12th (Engagement day).