Probability, Regression, and Discrimination

The University of Austin

Summer Honors Program

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Course description and objectives

This course focuses on the statistical and quantitative concepts used to measure discrimination. We will broadly discuss three main topics: (1) Probability, (2) Building and validating predictive models for applications in social science and beyond, (3) Specialized regression models for measuring discrimination. We will start from the beginning (probability) and build toward the ending (regression's use in expert witness testimony) where these techniques uncovered and dismantled longstanding affirmative action programs.

Readings

There is no course pack. All lecture notes and course materials will be available on the course webpage in advance of our meetings. *Naked Statistics* by Charles Wheelan is a wonderful primer for addressing some–but not all–topics we cover.

Outline

This course will cover the following topics:

1. Probability
    - → definition and measure of uncertainty
    - → conditional probability and Bayes Law
    - → aggregation paradoxes
2. Regression
    - → least squares
    - → multiple linear regression and confounding
    - → categorical variables and variable interactions
3. Specialized regression models and discrimination
    - → logistic regression
    - → debate: The gender wage gap
    - → case study: SFFA v. Harvard/UNC and beyond

The topics and ordering are subject to change as we work our way through the seminars!