STAT 270-3
Introduction to Probability and Statistics

Instructor: Ari Belenkiy
Lab Instructor: Robin Insley

Prerequisite:

Corequisite: MATH 152 or 155 or 158. Students wishing an intuitive appreciation of a broad range of statistical strategies may wish to take STAT 100 first.

Textbook:

Title: *Introduction to Probability and Statistics*, by Tim Swartz, STAT 270 Course Notes, publisher Pearson.

Calendar Description:

Basic laws of probability, sample distributions. Introduction to statistical inference and applications. **Quantitative.**

Outline:

1. Introduction to graphical and numerical descriptive statistics including histogram, boxplot, scatterplot, sample mean, sample median, sample standard deviation and sample correlation coefficient.
2. Elementary probability rules, basic combinatorial formulae, conditional probability and independence.
3. Introduction to discrete distributions including probability mass function, expectation, binomial distribution and Poisson distribution.
4. Introduction to continuous distributions including probability density function, expectation, cumulative distribution function, uniform distribution, gamma distribution, exponential distribution, normal distribution, normal approximation to the binomial distribution, jointly distributed random variables, statistics and their distributions, Central Limit Theorem.
5. Single sample inference including estimation and testing for proportions and means.
6. Two sample inference including estimation and testing for differences in proportions and differences in means, paired data.

Grading Scheme:

3 Midterms   15 pts each
Final Exam   55 pts
Additional bonuses for solving special problems indicated in the course