

Statistics 111: Introductory Statistics

Syllabus, Summer 2014

Classes:	Mon/Tues/Wed/Thur/Fri 11:00 a.m.–12:45 p.m., in SHDH 213
Instructor:	Yang Jiang
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Office:	453 JMHH
Office hours:	Tues/Thur 1:30 p.m. – 3:00 pm
Course website:	TBA in Canvas

Course overview

This is an introductory statistics class for students primarily in other majors. The course will teach you how to understand the crucial role of data and data analysis in comprehending complex phenomena. It emphasizes statistical interpretations rather than mathematical computations. Statistical software will be used for analyzing practical data sets. You will also learn to do some simple calculations by hand, but calculus is not required. There are no prerequisites for this class.

The course is roughly divided into 4 parts.

1. Descriptive statistical tools: Method of Comparisons, Mean, Median, SD, Histograms, Box Plots, Mosaic Plots, Contingency Tables, Scatter Plots, Regression and Prediction.
2. Probability Theory Part I: Definitions, Events, Equally likely outcomes, Rules of Addition and Multiplication, Independence, Bayes Rule, Binomial Formula.
3. Probability Theory Part II: Law of Large Numbers, I.I.D random variables, Central Limit Theorem, Empirical Rule and Probability Histograms.
4. Inferential Statistics: Sampling, Confidence Intervals for Averages, Hypothesis Testing and the Scientific Method.

Required Materials

1. **Textbook:** *Statistics*, 4th Ed., D. Freeman, R. Pisani and R. Purves
2. **Software:** JMP software and manual to be downloaded. Wharton and Penn students can get a license by going here: <http://upenn.onthehub.com>. It costs \$30 for a 6 month license or \$50 for a year license. It is also available on every lab computer.

Grading policy

- Assignments (20%), due every Friday.
- Midterm project (30%) , due Friday, June 20th
- Final project (50%), due Friday, July 4th

The assignments are mostly about short statistical problems, usually you need to do some simple calculations and write down the process and the answer. For the two projects, students will analyze real data set with the statistical method learned from the class and write up a report in the end. The project will ask questions which guide you through the analysis. This is not an essay-writing project, the report can be very succinct, just like answering problems. Students have to work individually for the assignments and projects.