Class Review

Statistics

- Population, samples and processes
- Measures
  - Mean
  - Median
  - Standard deviation
- Visualization of statistics
  - Histograms
  - Boxplots

Probability

- Sample
- Event
- Set relationships
  - Union
  - Intersection
  - Complement

Probability

- Interpreting probability
- Permutations, Combinations
- Conditional probability
- Bayes' Theorem
- Independence

Discrete Random Variables

- pmf
- cdf
- E(X), V(X)
- Binomial probability distribution
- Poisson Probability Distribution

Continuous Random Variables

- pdf, cdf
- E(X), V(X), Percentiles
- Uniform distribution
- Normal distribution
- Lognormal distribution
- Exponential distribution
- Gamma distribution
- CLT

Joint probability

- Joint pmf/pdf
- Marginal probability
- Independent rvs
- Conditional distribution
- Expected values
- Covariance
- Correlation

Sample Distribution Confidence Interval

- Point Estimate
- Confidence Interval
  - Normal, STD known
  - Normal, STD Unknown
  - Large Sample, Not Normal, STD known
  - Large Sample, Not Normal, STD unknown

Hypothesis Testing

- Test procedures
  1. Establish hypotheses: null & alternative
  2. Determine appropriate statistical test and sampling distribution
  3. Choose the Type I error rate (α)
  4. State the decision rule
  5. Gather sample data
  6. Calculate test statistics
  7. State statistical conclusion
- p-Value