

# Stat 201: Statistics I

## Final Review



# About the final exam

- The exam will be in two parts
- The written part will consist of short answer and calculation questions
- The computational part will consist of a Rmarkdown file to be downloaded from D2L
- Can use any resource (book, notes, internet), except other people

- Calculate probabilities:
  - From a contingency table
  - Addition rule
  - Multiplication rule
- Find probability from normal distribution (critical values)
- Find probability from binomial distribution

- Identify parameters of sampling distributions
- Construct confidence intervals for means or proportions
- Correctly interpret a confidence interval

- Calculate sample sizes for given scenarios
- Hypothesis testing:
  - Identify the null and alternative hypotheses
  - Calculate a test statistic and p-value
  - Make a decision based on p-value and significance level
  - State conclusion in terms of research question
- Understand type I and type II errors

- Test a claim about a population mean
- Test a claim about two population means using two independent samples
- Test a claim about the difference between populations using samples of paired data

- Test a claim about two population proportions
- Test a claim about population proportion
- Test the fit of a sample frequency distribution to an expected distribution
- Test independence of two factors using a sample contingency table

- Plot paired data in a scatterplot
- Calculate correlation coefficient of a sample
- Test whether population correlation parameter  $\rho$  is zero or not
- Calculate regression equation from sample
- Make predictions for the response variable given a predictor value and regression results