

# Stat 201: Statistics I

## Midterm Review



# About the midterm exam

- Available on MyStatLab following class on 10/21
- Due by end of day on 10/28
- 26 questions, 100 points, covering weeks 1 - 6
- Every question on exam has been a homework question, though the details will likely be different
- Time limit: 4 hours, must be completed in one sitting
- Can use any resource (book, notes, internet), except other people

# Week 1

- Understand the potential for bias in studies
- Be able to calculate and understand percentages
- Know the difference between a parameter and a statistic
- Identify type of variable
  - Quantitative: Discrete or continuous
  - Categorical (Qualitative)
- Identify levels of measurement
  - Nominal
  - Ordinal
  - Interval
  - Ratio

- Calculate probabilities:
  - From a proportion (i.e. 3 in 12)
  - From a contingency table
  - Complements
  - Addition rule
  - Multiplication rule
- Identify disjoint events
- Identify independent and dependent events
- Know how to identify and calculate probabilities of false positives and false negatives

- Calculate conditional probabilities
- Identify type of study
  - Experimental
  - Observational

# Week 4

- Create a frequency table
- Create a histogram
- From histogram, identify normal or skewed distributions and outliers
- From a set of data, find (with proper units):
  - Mean
  - Median
  - Mode
  - Midrange
  - Variance
  - Standard deviation
  - Range
- Identify when to use mean/median
- Identify proper graphs from data

- Calculate 5 number summary and create corresponding boxplot
- Find the mean and standard deviation for an arbitrary probability distribution
- Find probabilities from an arbitrary probability distribution

- Find probability of event from a binomial distribution
- Find probability from standard normal,  $z$ , distribution
- Find  $z$ -score which corresponds to given probability
- Find probability of event from a non-standard normal distribution
- Find value from non-standard normal distribution which corresponds to given probability