Stat 201: Statistics I
Midterm Review

Metropolitan State University

About the midterm exam

- Available on MyStatLab following class on 6/26
- Due by end of day on 7/3
- 23 questions, 100 points, covering chapters 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

Chapter 1

- 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
- Identify type of study
  - Experimental
  - Observational

Chapter 2

- Identify a normal distribution from a frequency table
- Build a frequency table from data
- Build a cumulative frequency table from a frequency table
- Identify a histogram from a frequency table and assess normality
- Types of graphs, identify proper graph
  - Scatterplot
  - Time series
  - Dotplot
  - Stem-and-leaf plot
  - Bar chart
  - Pie chart
  - Pareto chart

Chapter 3

- From a set of data, find (with proper units):
  - Mean
  - Median
  - Mode
  - Midrange
  - Range
  - Variance
  - Standard deviation
- Calculate z-scores from mean and standard deviation
- Identify unusual values as more than two SDs from mean
- Calculate 5 number summary and identify corresponding boxplot

Chapter 4

- Calculate probabilities:
  - From proportions (3 in 12)
  - From a 2×2 contingency table
  - Complements
  - Addition rule
  - Multiplication rule
  - Complex events ("At least one...")
  - Conditional events
- Understand false positive and false negative
- Identify disjoint events
- Identify independent and dependent events

Chapter 5

- Find the mean and standard deviation for an arbitrary probability distribution
- Find probability of event from a binomial distribution
- Find the mean, standard deviation and boundaries for unusual values
- Determine of a given value is unusual

Chapter 6

- Find probability of event from uniform 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
- Find probability of event from sampling distribution, using the Central Limit Theorem