

Stat 201: Statistics I

Midterm Review



October 16, 2017

About the midterm exam

- Available on MyStatLab following class on 10/9
- Due by end of day on 10/16
- 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 if 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