

Stat 201: Statistics I

Midterm Review



date



About the midterm 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

Week 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

- Calculate probabilities:
 - From a 2×2 contingency table
 - Complements
 - Addition rule
 - Multiplication rule
- Identify disjoint events
- Identify independent and dependent events

- Calculate conditional probabilities
- Understand false positive and false negative
- Find the sensitivity and specificity of a screening test
- Identify sampling method
 - Simple random sample
 - Convenience sample
 - Cluster sample
- Identify type of study
 - Experimental
 - Observational

- Create a histogram
- From histogram, identify skewed distributions and outliers
- From a set of data, find (with proper units):
 - Mean
 - Median
 - Variance
 - Standard deviation
- Identify when to use mean/median

- Calculate z -scores from mean and standard deviation
- Identify unusual values as more than two SDs from mean
- 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