

MATH 130.05 - Elements of Statistics
Final Exam Review Sheet

Your final exam will take place on Tuesday, December 15th, 2009, from 8:00am - 10:00am. You may bring a single sheet of paper containing formulas, and you may use your textbook for the tables.

DON'T FORGET YOUR CALCULATOR!!!

For this exam you need to be able to:

- Chapter 1
 - Distinguish between qualitative and quantitative, and discrete and continuous variables.
 - Identify whether a sample was obtained using simple random sampling, stratified sampling, systematic or cluster sampling.
- Chapter 2
 - Organize data into a frequency or relative frequency distribution.
 - Construct a bar graph, histogram and stem-and-leaf plot.
 - Interpret a bar graph, histogram, and stem-and-leaf plot.
 - Identify the shape of a distribution.
- Chapter 3
 - Determine the mean, median and mode of a data set.
 - Use the mean and median to identify the shape of a distribution.
 - Compute the range, variance and standard deviation of a data set.
- Chapter 6
 - Determine whether an experiment is a binomial experiment.
 - Compute probabilities of binomial experiment.
 - Compute the mean and standard deviation of a binomial random variable.
- Chapter 7
 - Understand the uniform probability distribution.
 - Understand the role of area in the normal density function.
 - Understand the relation between a normal random variable and a standard normal random variable.
 - Determine and interpret Z -scores.
 - Find the area under the standard normal curve.
 - Find the Z -scores for a given area.
 - Interpret the area under a standard normal curve as a probability.
 - Find and interpret the area under a normal curve.
 - Find the value of a normal random variable.

- Chapter 8
 - Find the mean and standard deviation of the distribution of the sample mean.
- Chapter 9
 - Compute a point estimate of the population mean and population proportion.
 - Construct and interpret a confidence interval about a population mean if σ is known.
 - Determine the sample size necessary for estimating the population mean within a specified margin of error.
 - Determine t -values in Student's t -distribution.
 - Construct and interpret a confidence interval about a population mean if σ is unknown.
 - Construct and interpret a confidence interval about a population proportion.
 - Determine the sample size necessary for estimating a population proportion within a specified margin of error.
- Chapter 10
 - Determine the null and alternative hypothesis.
 - Understand Type I and Type II errors.
 - State conclusions to hypothesis tests.
 - Perform a hypothesis test for μ with σ known. (You may use either the classical or p-approach.)
 - Perform a hypothesis test for μ with σ unknown. (You may use either the classical or p-approach.)
 - Perform a hypothesis test for p . (You may use either the classical or p-approach.)