Know the definition of the terms statistics, descriptive statistics, and statistical inference.

Understand the common misuses of statistics, including bias, faulty generalizations, faulty
deduction, non-comparable data, error in semantics, oversimplification, and spurious accuracy.

Understand the difference between qualitative and quantitative variables as well as discrete
and continuous variables.

Understand the basic algebra of summation.

Understand the different ways of presenting data.

Know how to histograms, frequency polygons, relative frequency polygons, and the less-than
and more-than cumulative frequency distributions.

Understand the measures of central tendency of data, including arithmetic mean, midrange,
median, and mode (questions will mostly focus on ungrouped data) as well as how these
compare for symmetrical and skewed distributions.

Know how to utilize measures of dispersion, including range, quartile deviation, absolute mean
deviation, and standard deviation.

Have a basic understanding of MS Excel (as covered in the class).

Understand the need for probability and its potential application in statistical inference.

Know how relative frequency can be applied in establishing probabilities.

Understand the difference among experiment, outcome, and event.

Have a basic understanding of sets and subsets as well as Venn diagrams.

Understand the three basic rules of probability.

Understand the similarities between frequency distributions and probability distributions.

Understand how to work with the covered discrete and continuous probability distributions.

Know how to use the binomial, Poisson, and normal probability distributions to solve problems.

Understand how to transform normally-distributed data to benefit from the standard normal
distribution curve.

Understand the difference between different sampling methods.

Understand the meaning of the sampling error of the mean and to calculate it.

Understand the value and importance of a sampling distribution.

Know the meaning of the Central Limit theorem and how it is applied in estimating population
mean and standard error of the mean.

Understand the meaning of margin of error.

Know how to define a confidence interval from a sample for a population with an unknown
mean and a known or unknown standard deviation.

Know how to define a confidence interval for population variance and standard deviation.

Know how to define a confidence interval for proportions under different sample sizes.

Understand the difference between the null and alternative hypothesis.
● Know the two general procedures followed in hypothesis testing and that probabilities are used to evaluate statistical significance.
● Know how to conduct a single sample hypothesis test where the population standard deviation is known.
● Know how to conduct a single sample hypothesis test where the population standard deviation is unknown.
● Know how to conduct a hypothesis test for two related samples.
● Know how to conduct a hypothesis test for two independent samples.
● Understand the concept of correlation analysis as well as how to calculate, use, and test the significance of the correlation coefficient.
● Know how to use scatter diagrams to graphically display the correlation between two variables (including how to add a trend line to a scatter diagram in MS Excel).
● Understand the basic concepts of simple and multiple linear regression.
● Know how to use correlation and regression functions in MS Excel to solve problems.
● Be able to test the significance of the slope of a simple linear regression line.
● Understand the value of the coefficient of determination in regression analysis.
● Be able to solve a variety of problems (similar to those completed in the class as well as problems included on homework assignments), both using tables and MS Excel.

Note: Once again, the final exam in AGSC 137 will include two parts. The first is closed book with multiple choice questions where answers need to be marked with a pencil on the provided scantron. The second part is an open-book exam which generally includes short problems (or questions) that may be solved (answered) using your textbook, notes, class manual, or MS Excel. Still, you will have to mark your answers with a pencil on the provided scantron for this part as well. The final exam for AGSC 137 is scheduled for 8:00 a.m. on Wednesday - May 8th in 202 Charlton Hall. Please remember to bring your laptop along for the open-book part of the final!