**Quarter 1**

--------------------------------------------------------------------------------------------------------------------------------------------------

**A. Making Sense of Data**

* I can identify the individuals and variables in a set of data.
* I can classify variables as quantitative or categorical and identify the unit of measure when appropriate.

**B. Categorical Data**

* I can create graphical displays of categorical data (bar graph, segmented bar graph, pie chart).
* I can calculate and display marginal and conditional distributions in a two-way table.
* I can describe the association between two categorical variables by comparing appropriate conditional distributions.

**C. Displaying Quantitative Data**

* I can create graphical displays for quantitative data (histograms, stem plots, dot plots, and boxplots).

**D. Describing Quantitative Data**

* I can calculate measures of central tendency (mean, median).
* I can calculate measures of spread (range, IQR, standard deviation).
* I can identify outliers using the rule of 1.5\*IQR below Q1 and above Q3.
* I can select a suitable measure of center and spread for a variable based on information about its distribution.
* I can describe the distribution of quantitative data in context with a description of shape, a numerical measure of center, and a numerical measure of spread, noting any unusual features including outliers.
* I can compare the distributions of quantitative data in context with a description of shape, a numerical measure of center, and a numerical measure of spread, noting any unusual features including outliers.

**E. Location in a Distribution**

* I can find and interpret the percentile of an individual value within a distribution of data.
* I can find and interpret z-scores, and use them to compare values within and between distributions.
* I can describe how adding a constant or multiplying by a constant changes the center and spread of a distribution.

**F. Normal Model**

* I can use the Empirical Rule to estimate areas in a Normal distribution.
* I can find (I) the percentage of observations in a specified interval and (II) a z-score from a percentile using technology or tables.
* I can use the percentages and z-scores from a Normal model to find parameters (values, means, and standard deviations) of the model using technology or tables.

**Quarter 2**

--------------------------------------------------------------------------------------------------------------------------------------------------

**G. Scatterplots and Correlation**

* I can identify explanatory and response variables.
* I can create scatterplots with appropriate variables (explanatory/response) and scales.
* I can describe the form, direction, strength, and unusual features of bivariate data in context.
* I can calculate and interpret correlation coefficients.
* I can explain why association does not imply causation.

**H. Regression**

* I can interpret the slope and y-intercept of a least-squares regression line.
* I can calculate and interpret predicted values using a least-squares regression line.
* I can calculate and interpret residuals.
* I can find the equation of a least-squares regression line from data using technology.

**I. Samplings and Surveys**

* I can identify the population and sample in a statistical study.
* I can identify sampling methods: SRS, stratified, cluster, convenience, multistage, systematic, and voluntary response.
* I can describe how to draw a random sample so that others can repeat my process.
* I can identify and describe the effects of bias in a sample: voluntary response, over/undercoverage, nonresponse, and response.

**J. Experimental Design**

* I can identify observational studies and experiments.
* I can describe the 4 principles of experimental design for an experiment (control, randomization, replication, and blocking) using appropriate terminology.
* I can identify the subjects, factors, treatments, and response variable in an experiment.
* I can design an appropriate experiment with a description sufficient for another researcher to replicate the study with the same methods.
* I can describe how placebos and blinding affect an experiment.

**Quarter 3**

--------------------------------------------------------------------------------------------------------------------------------------------------

**K. Basic Probability**

* I can describe events as a subset of a sample space, or as unions, intersections, or complements of other events.
* I can use permutations and combinations to compute probabilities of compound events and solve problems
* I can use the basic definitions and rules of probability including the Complement Rule, the Addition Rule, and the Multiplication Rule.

**L. Applied Probability**

* I can use a two-way table or a Venn diagram to model a chance process and calculate probabilities involving two events.
* I can use tree diagram to model a chance process and calculate probabilities involving three or more events.
* I can recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.

**M. Random Variables**

* I can create probability model for a discrete random variable and use it to compute and interpret probabilities in context.
* I can calculate and interpret the mean (expected value) and the standard deviation of a discrete random variable in context.

**N. Binomial Distributions**

* I can determine whether the conditions for using a binomial random variable are met.
* I can compute and interpret mean, standard deviation, and probabilities for binomial distributions.
* I can compute and interpret mean, standard deviation, and probabilities for geometric distributions.

**Quarter 4**

--------------------------------------------------------------------------------------------------------------------------------------------------

**O. Making Inferences**

* I can describe a simulation so that others can repeat it.
* I can accurately perform a simulation to estimate the likelihood of events, discuss the results, and draw conclusions about the question being investigated.
* I can describe sampling distributions for means and proportions.

**P. Confidence Intervals**

* I can construct and interpret a confidence interval for a population mean or proportion in context.
* I can determine the point estimate and margin of error from a confidence interval.
* I can determine the sample size required to obtain a CI for a population mean or proportion with a specified margin of error.

**Q. Hypothesis Testing**

* I can state the null and alternative hypothesis for a significance test about a population parameter.
* I can perform a significance test about a population mean or proportion.
* I can interpret a P-value in context.
* I can interpret a Type I and Type II Error in context and give a consequences of each.

**R. Chi-Square**

* I can perform a chi-square test for goodness of fit.
* I can perform a chi-square test for homogeneity.
* I can perform a chi-square test for independence.