

Statistics Course Competencies:

Upon successful completion of this course the student should be able to:

1. Recognize basic concepts about the nature of data.
2. Have fluency and the ability to correctly use the language and vocabulary associated with statistics.
3. Identify the elements of good experimental design.
4. Visually display the nature of a distribution (make a frequency table, make a histogram).
5. Calculate measures of center for a set of data (mean, median, mode, harmonic mean, quadratic mean).
6. Calculate measures of variation for a set of data (range, standard deviation, variance, semi-interquartile range).
7. Find z-scores (standard scores) and percentages for items in a data set.
8. Find and represent in correct notation probabilities/odds of simple events.
9. Calculate probability combining two or more simple events [$P(A \text{ and } B)$, $P(A \text{ or } B)$].
10. Be able to find a factorial, combination value and permutation value (counting values).
11. Calculate measures of center and variation for a probability distribution.
12. Calculate measures of center and variation for a binomial distribution.
13. Apply basic methods for working with normal distribution (be able to work with a standard normal distribution table).
14. Find z-scores given a probability (normal distribution table).
15. State and use properties of the Central Limit Theorem.
16. Construct and interpret a critical value, margin or error, and a confidence interval of/for a population mean.
17. Construct and interpret a critical value, margin or error, and a confidence interval of/for a population proportion.
18. Test claims about population means.
19. Test claims about population proportions.
20. Calculate the strength of a linear relationship (Pearson Correlation Coefficient).
21. Construct a regression line.
22. Test a claimed distribution fits a data set's distribution.