

## Statistics Syllabus OCCHS Statistics

### Fall

Demonstrate knowledge of statistical terms.

Identify types of data.

Identify the measurement level of a variable.

Identify four basic sampling techniques.

Explain the difference between an observational and an experimental study.

Organize data using frequency distributions.

Represent data in frequency distributions using histograms, frequency polygons and ogives.

Be able to recognize and interpret data from Pareto charts, time series graphs, box plots and pie charts.

Summarize data using the measures of central tendency such as mean, median, mode and midrange.

Describe data using the measures of variation such as range, variance, and standard deviation.

Identify the position of a data value in a data set using various measures of position such as percentiles, deciles and quartiles.

Develop a Five-Number Summary for a data set and analyze the summary.

Determine the number of outcomes of a sequence of events using a tree diagram and/or the multiplication rule.

Determine the number of permutations, combinations, or "r" objects selected from "n" objects.

Use the permutation and combination rules to solve practical application problems.

Determine sample spaces and use classical and probability rules.

Determine probability of compound events.

Determine conditional probability.

Construct a probability distribution for a random variable.

Find the mean, variance and expected value for a discrete random event.

Find the mean, variance and standard deviation of a binomial distribution.

Identify the properties of the normal distribution.

Find the area under the standard normal distribution given various z values.

Find the probabilities for a normally distributed variable by transforming it into a standard normal variable.

Find specific data values for given percentages using the standard normal distribution.

Use the central limit theorem to solve problems involving sample means for large and small samples.

Use the normal approximation to compute probabilities for a binomial variable.

Spring

Determine confidence intervals for the mean

Determine confidence intervals for proportions

Determine minimum sample size for finding a confidence interval

Perform tests of hypotheses for large samples using the z test

Perform tests of hypotheses for small samples using the t test

Test proportions using the z test

Test variances or standard deviations using the chi-square test

Explain the relationship between Type I and Type II errors

Test the difference between variances using the F-test

Compute correlation coefficients, coefficient of determination, and standard error of estimate

Test a distribution for goodness of fit

Test two variables for independence using chi-square

Test proportions for homogeneity using chi-square

Perform one-way ANOVA

Perform two-way ANOVA

Be familiar with the concept of linear regression

### **Major Assignments**

Chapter Quizzes

Unit Tests

Midterm

Final

Procedures for Parental Access

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Parent Vue link available on [www.obioncountyschools.com](http://www.obioncountyschools.com)

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