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Topic

		probabilities for compound events; state and use the addition rule; define disjoint or mutually exclusive events; use complementary events to calculate probabilities; use tree diagrams to describe a sample space; define conditional probabilities; apply Bayes' Theorem; define independent and dependent events; use the multiplication rule for dependent and independent events; calculate conditional probabilities; test for independence of events; define simulations; and apply the fundamental counting rule, the factorial rule, the permutations rule with different items, the permutations rule when some items are the same, and the combinations rule.
Probability distributions: random variables; binomial distribution; mean, variance, and standard deviation for the binomial distribution; and Poisson distribution.	6	Define random variable, both discrete and continuous; define probability distribution; calculate the mean, variance, and standard deviation for a probability distribution; define and calculate the expected value of a discrete random variable; define the characteristics of a binomial probability distribution; use the binomial probability formula, calculate the mean, variance, and standard deviation for the binomial distribution; define the Poisson distribution, use the probability formula for the Poisson distribution; and approximate the binomial distribution with the Poisson distribution when the number of trials is large and the probability of a success is small.
Normal probability distributions: standard normal distribution, applications, sampling distributions, estimators; the Central Limit Theorem; normal distribution as an approximation to the binomial distribution; and determining normality.	6	Define and graph a normal distribution, a uniform distribution, and a standard normal distribution; define a probability density function; find probabilities when given z-scores; determine z-scores from probabilities; define the sampling distribution of the mean; state and apply the Central Limit Theorem to the sampling distribution of the means; determine the standard error of the mean; apply the correction for a finite population to the standard deviation of the sampling means; know the conditions in which a normal distribution is an approximation to the binomial distribution; know how to make continuity corrections when the normal distribution is used to approximate the binomial distribution; construct a normal quantile plot; and determine whether

		data have a normal distribution with the aid of a normal quantile plot.
Estimate and sample sizes: estimating a population proportion, a population mean, or a population variance; and Student t and chi-squared distributions.	6	State the assumptions used in estimating a population proportion, mean, or variance; give the best point estimate for a population proportion, mean, or variance; define and construct confidence intervals; define the confidence level, degree of confidence, or confidence coefficient; interpret a confidence interval; define and compute the margin of error; determine the sample size needed to estimate a population proportion, mean, or variance; and use the Student t-distribution in estimates.
Hypothesis testing: testing claims about proportions, means, standard deviations, or variances.	4	Define hypothesis, null hypothesis, and alternative hypothesis; calculate a test statistic; define and determine the critical region, significance level, critical value, and P value; define Type I and II errors; and restate the conclusion of the

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		contingency table; and perform a test of homogeneity.
Analysis of Variance (ANOVA): one-way ANOVA, two-way ANOVA.	6	Define analysis of variance (ANOVA); use the F Distribution in ANOVA; perform a one-way ANOVA (or single factor ANOVA) on three or more populations with equal or unequal sample sizes; define treatment or factor;