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| **Year** | **Question** | **Content** | **Chapter** |
| 2015 | 1 | * Describing a distribution
* Effect of changing a value on mean and median
 | 1 |
| 2015 | 1 | * Comparing boxplots
* Using boxplots to make decisions
 | 1 |
| 2011B | 1 | * Estimating medians of histograms
* Comparing histograms
* Relationship between mean and median
 | 1 |
| 2010B | 1 | * Comparing distributions (boxplots)
* Stemplots
* Comparing boxplots and stemplots
 | 1 |
| 2007B | 1 | * Constructing a stemplot
* Summarizing a distribution of univariate data (stemplot)
* Bimodal distribution
 | 1 |
| 2006 | 1 | * Comparing distributions of univariate data (dotplots)
* Comparing variability
* Measuring center
 | 1 |
| 2005B | 1 | * Describing shape of a stemplot
* Mean vs. Median
* Midrange
 | 1 |
| 2004 | 1 | * Constructing parallel boxplots
* Outliers
* Properties of boxplots
* Mean vs. Median
 | 1 |
| 2002B | 5 | * Constructing parallel boxplots
* Comparing distributions of univariate data (boxplots)
 | 1 |
| 2001 | 1 | * Identifying outliers and unusual values
 | 1 |
| 2000 | 3 | * Graphing and comparing two frequency distributions
 | 1 |
| 2011 | 1 | * Assessing normality from summary statistics
* Calculating and interpreting a *z*-score
* Using *z*-scores to make a comparison
 | 2 |
| 2009B | 1 | * Estimating median and *IQR* from a boxplot
* Linear transformations of data
 | 2 |
| 2008 | 1 | * Comparing distributions with boxplots
* Linear transformations of data
* Effect of shape on the relationship between mean and median
 | 2 |
| 2006B | 1 | * Interpreting cumulative relative frequency graphs
 | 2 |
| 1997 | 1 | * Interpreting cumulative relative frequency graphs
* Finding the median and IQR from a cumulative relative frequency graph
* Comparing center and spread
 | 2 |
| 2016 | 6 | * Describing scatterplots
* Interpreting slope from computer output
* Estimating medians from a scatterplot
* Accounting for a third variable
 | 3 |
| 2015 | 5 | * Describing a scatterplot
* Classifying observations
* Making a prediction
 | 3 |
| 2014 | 6 | * Calculate, interpret, and identify residuals
* Comparing associations
* Multiple regression and variable selection
 | 3 |
| 2013 | 6 | * Comparing distributions
* Describing trends in a scatterplot (timeplot)
* Moving averages
 | 3 |
| 2012 | 1 | * Describing a scatterplot with non-linear association
* Influential points
* Determining which points meet a consumer’s criterion
 | 3 |
| 2007B | 4 | * Graphing a least-squares regression line
* Calculating a residual
* Influential points
 | 3 |
| 2005 | 3 | * Assessing linearity with residual plots
* Understanding and interpreting slope
* Interpreting r2
* Extrapolation
 | 3 |
| 2003B | 1 | * Influential points
 | 3 |
| 2002B | 1 | * Making a scatterplot
* Interpreting correlation
* Assessing Linearity
* Interpreting r2
 | 3 |
| 2002 | 4 | * Using regression output to state the equation of a least-squares regression line
* Finding and interpreting the correlation from computer output
* Clusters and influential points
 | 3 |
| 2000 | 1 | * Describing scatterplots
 | 3 |
| 1999 | 1 | * Using a residual plot to assess linearity
* Identifying slope and y-intercept from computer output
* Interpreting slope and y-intercept
* Making a prediction using a least-squares regression line
* Using residuals to estimate actual values
 | 3 |
| 1998 | 2 | * Making a histogram of one variable from a scatterplot
* Describing a histogram
* Describing a scatterplot
 | 3 |
| 1998 | 4 | * Using regression output to state the equation of a least-squares regression line
* Analyzing patterns in a residual plot (Note: the residual plot uses predicted values on the horizontal axis instead of the values of the explanatory variable
 | 3 |
| 2016 | 3 | * Explanatory/response variables
* Experiment vs. observational study
* Confounding
 | 4 |
| 2014 | 4 | * Mean vs. median
* Sampling methods and bias
 | 4 |
| 2013 | 2 | * Convenience sampling and bias
* Selecting an SRS with a random number generator
* Stratified sampling
 | 4 |
| 2011B | 2 | * Observational study vs. experiment
* Scope of inference
* Purpose of random assignment
 | 4 |
| 2011 | 3 | * Cluster sampling
* Stratified sampling
 | 4 |
| 2010 | 1 | * Treatments
* Experimental units
* Response variable
* Scatterplots and linearity
 | 4 |
| 2010B | 2 | * Simple random sampling
* Stratified random sampling
 | 4 |
| 2009 | 3 | * Random assignment
* Non-random assignment
 | 4 |
| 2008 | 2 | * Non-response bias
 | 4 |
| 2007 | 2 | * Control groups
* Random assignment
* Blocking
 | 4 |
| 2007B | 3 | * Blocking
* Randomization
 | 4 |
| 2006 | 5 | * Treatments
* Randomization
* Sources of variability
* Generalizibility
 | 4 |
| 2006B | 5 | * Response variable
* Treatments
* Experimental units
* Randomization
* Replication
* Confounding
 | 4 |
| 2005 | 1 | * Comparing distributions (stemplots)
* Generalizability of results
* Sampling variability
 | 4 |
| 2004 | 2 | * Blocking
* Random assignment within blocks
 | 4 |
| 2004B | 2 | * Selection and response bias
 | 4 |
| 2003 | 4 | * Random assignment
* Control groups
* Generalizibility
 | 4 |
| 2002 | 2 | * Matched pairs experiment
* Double-blind
 | 4 |
| 2002B | 3 | * Designing experiment
* Blocking
 | 4 |
| 2001 | 4 | * Blocking
* Purpose of randomization
 | 4 |
| 2000 | 5 | * Designing experiment
* Blocking
* Double-blind
 | 4 |
| 1999 | 3 | * Experiment vs. observational study
* Confounding
* Cause and effect
 | 4 |
| 1997 | 2 | * Designing experiment
* Blocking
 | 4 |
| 2014 | 2 | * General multiplication rule
* Informal inference
* Simulation design
 | 5 |
| 2011 | 2 | * Conditional probability from a two-way table
* Independence of two events
* Segmented bar charts and independence
 | 5 |
| 2009B | 2 | * Conditional probability
* Multiplication rule
 | 5 |
| 2003B | 2 | * Two-way tables
* Conditional probability
* Independence
 | 5 |
| 2001 | 3 | * Simulation
 | 5 |
| 1997 | 3 | * Conditional probability
 | 5 |
| 2016 | 4 | * Multiplication rule
* Geometric probability calculation
* Informal p-value and conclusion
 | 6 |
| 2015 | 3 | * Discrete probability distributions
* Expected value
* Conditional probability
* Conditional expected value
 | 6 |
| 2013 | 3 | * Normal probability calculation
* Mean and standard deviation of a sum of random variables
 | 6 |
| 2012 | 2 | * Discrete probability distributions
* Expected value of a discrete random variable
* Application of expected value
* Normal probability calculation
 | 6 |
| 2011B | 3 | * Geometric probability
* Binomial probability
* Cumulative binomial probability
 | 6 |
| 2010B | 3 | * Binomial distribution
* Expected value
* Binomial calculations
 | 6 |
| 2010 | 4 | * Mean and standard deviation of a binomial distribution
* Binomial calculations
* Stratified sampling
 | 6 |
| 2008 | 3 | * Expected value
* Basic probability rules
 | 6 |
| 2008B | 5 | * Combining normal random variables
* Normal calculations
 | 6 |
| 2006B | 3 | * Normal calculations
* Binomial calculations
* Inverse normal calculations
 | 6 |
| 2005 | 2 | * Expected value
* Median of a discrete random variable
* Relationship of mean and median
 | 6 |
| 2005B | 2 | * Mean and standard deviation of a discrete random variable
* Combining independent random variables
* Linear transformations of a random variable
 | 6 |
| 2004 | 3 | * Binomial conditions
* Multiplication rule
* Interpreting probability
* Generalizability
 | 6 |
| 2004 | 4 | * Conditional probability
* Expected value
 | 6 |
| 2003 | 3 | * Normal calculations
* Binomial calculations
 | 6 |
| 2002B | 2 | * Addition rule
* Expected value
* Conditional probability
 | 6 |
| 2002 | 3 | * Normal calculations
* Combining independent random variables
 | 6 |
| 2001 | 2 | * Expected value
 | 6 |
| 1999 | 4 | * Normal calculations
* Binomial calculations
* Outlier rules
 | 6 |
| 1999 | 5 | * Sample space
* Expected value
 | 6 |
| 1998 | 6 | * Normal calculations
* Simulation
* Expected value
 | 6 |
| 2015 | 6 | * Choosing a sampling method
* Describing distribution of a sample
* Describing distribution of a sample mean
* Comparing variability of sampling distributions
 | 7 |
| 2014 | 3 | * Normal probability calculation
* Sampling distribution of
* Probability rules
 | 7 |
| 2012 | 6 | * Selecting a SRS
* Standard error of the mean for a simple random sample
* Standard error of the mean for a stratified random sample
* How stratified random sampling reduces variability
 | 7 |
| 2010 | 2 | * Sampling distribution of the sample mean
* Probability calculation for a total
 | 7 |
| 2009 | 2 | * Inverse Normal calculation
* Binomial probability calculation
* Probability calculation for the sample mean
 | 7 |
| 2008B | 2 | * Properties of estimators: bias and variability
 | 7 |
| 2007B | 2 | * Addition rule
* Binomial probability calculation
* Sampling distribution of the sample mean
 | 7 |
| 2007 | 3 | * Sampling distribution of the sample mean
* Probability calculation for the sample mean
* Central Limit Theorem
 | 7 |
| 2006 | 3 | * Normal probability calculation
* Binomial probability calculation
* Probability calculation for a sample mean
 | 7 |
| 2004B | 3 | * Normal probability calculation and interpretation
* Probability calculation and interpretation for a sample mean
 | 7 |
| 1998 | 1 | * Sampling distribution of the sample mean
* Effect of sample size on shape of sampling distribution
 | 7 |
| 2015 | 2 | * Using confidence intervals to make decisions
* Effect of quadrupling sample size on margin of error
 | 8 |
| 2013 | 1 | * Interpreting stemplots
* One sample *t* interval for a population mean
 | 8 |
| 2011B | 5 | * One-sample *z* interval for a proportion
* Using a CI to assess a claim
* Determining sample size
 | 8 |
| 2011 | 6 | * 1 sample *z* interval for a proportion
* Tree diagrams
* Using information from tree diagram to create a new confidence interval
 | 8 |
| 2010 | 3 | * Interpreting confidence level
* Using confidence intervals to make decisions
* Determining sample size (CI for a proportion)
 | 8 |
| 2010B | 4 | * One sample *z*-interval for a population proportion
* Effect of sampling without replacement
 | 8 |
| 2008B | 3 | * Determining sample size (CI for a mean)
* Practical constraints
 | 8 |
| 2005 | 5 | * Sources of bias in a survey
* Determining sample size (CI for a proportion)
* Stratified random sampling
 | 8 |
| 2003 | 6 | * Interpreting a graph
* One-sample *z*-interval for a population proportion
* Using confidence intervals to make decisions
 | 8 |
| 2003B | 6 | * One-sample *z*-interval for a population proportion
* Interpreting confidence level
* Determining sample sizes for different sub-groups (CI for a proportion)
 | 8 |
| 2002 | 1 | * Precision of interval estimates
* Using confidence intervals to make decisions
 | 8 |
| 2002B | 4 | * One-sample *z*-interval for a population proportion
* Interpreting confidence level
* Using confidence intervals to make decisions
 | 8 |
| 2000 | 2 | * Conditions for a one-sample *t*-interval for a population mean
 | 8 |
| 2000 | 6 | * One-sample *z*-interval for a population proportion
* Combining Normal random variables
* Independence
* Anticipating patterns in a scatterplot
 | 8 |
| 2014 | 5 | * Paired *t* test
 | 9 |
| 2012 | 5 | * Type II error and consequence
* Conclusion to a significance test for a single proportion
* Voluntary response bias
 | 9 |
| 2009B | 4 | * Random assignment in blocks
* Increasing the power of a test
 | 9 |
| 2009B | 5 | * One sample *t* test for a mean
* Using simulation to test a standard deviation
 | 9 |
| 2009 | 6 | * Stating hypotheses
* Relationship between mean and median
* Testing for skewness
* Creating a test statistic
 | 9 |
| 2008B | 4 | * Experimental design
* Type I and II errors and consequences
 | 9 |
| 2008B | 6 | * Interpreting scatterplots
* Paired *t* test
* Creating a classification rule
 | 9 |
| 2007 | 4 | * Paired *t* test
 | 9 |
| 2006B | 4 | * Paired *t* test
 | 9 |
| 2006B | 6 | * Stating hypotheses
* Conditions for a one sample *z* test for a proportion
* Binomial probability calculations
* Significance levels
* Calculating *p*-values and drawing conclusions
* Improving a study
 | 9 |
| 2005 | 4 | * One sample *z* test for a proportion
 | 9 |
| 2005B | 4 | * Paired *t* interval
* Using a confidence interval to assess significance
 | 9 |
| 2005B | 6 | * One sample *t* test for a mean
* Normal probability calculation
* Multiplication rule for independent events
* Using simulation to estimate a probability
 | 9 |
| 2004 | 6 | * One sample *t* interval for a mean
* Relationship between confidence intervals and significance tests
* One-sided confidence intervals
 | 9 |
| 2003 | 1 | * Constructing boxplots
* Using boxplots to compare variability
* Stating hypotheses
 | 9 |
| 2003 | 2 | * Stating hypotheses
* Type I and II errors and consequences
 | 9 |
| 2001 | 5 | * Paired *t* test
 | 9 |
| 1999 | 6 | * One sample *t* test for a mean
* Paired *t* test
* Displaying relationships with scatterplots
 | 9 |
| 1998 | 5 | * One sample z test for a proportion
* Effect of nonresponse
 | 9 |
| 1997 | 5 | * Paired t test
 | 9 |
| 2016 | 5 | * One sample z interval for a proportions
* Reasons for the large counts condition
* Why a 2 sample *z* interval is not OK
 | 10 |
| 2015 | 4 | * Two sample z test for a difference in proportions (experiment)
 | 10 |
| 2013 | 5 | * Scope of inference
* Conditions for a two-sample *z* test for a difference in proportions
* Logic of inference, simulation of sampling distribution
 | 10 |
| 2012 | 3 | * Comparing histograms
* Conditions for two-sample *t* procedures
 | 10 |
| 2012 | 4 | * Two-sample *z* test for a difference in proportions
 | 10 |
| 2011 | 4 | * Two-sample *t* test for the difference between two means
 | 10 |
| 2010 | 5 | * Two-sample *t* test for the difference between two means
 | 10 |
| 2009B | 3 | * Two-sample *z* test for the difference between two proportions
 | 10 |
| 2009 | 4 | * Two-sample *t* interval for the difference between two means
* Using a confidence interval to test hypotheses
 | 10 |
| 2009 | 5 | * Interpreting a *P-*value for a two-sample *z* test for the difference between two proportions
* Using a *P-*value to make a conclusion
* Type I and Type II errors and consequence
 | 10 |
| 2009B | 6 | * Double-blind experiments
* Two-sample *z* interval for the difference between two proportions
* Relative risk
 | 10 |
| 2008B | 1 | * Constructing and comparing dotplots
* Logic of hypothesis tests
 | 10 |
| 2008 | 4 | * Constructing and interpreting scatterplots
* Standard error of the average of two proportions
 | 10 |
| 2007 | 1 | * Interpreting standard deviation
* Comparing center
* Using a confidence interval to test hypotheses
 | 10 |
| 2007 | 5 | * Experiment versus observational study
* Stating hypotheses
* Two-sample *z* test for the difference between two proportions (conditions only)
* Interpreting a *P-*value and making a conclusion
 | 10 |
| 2007B | 5 | * Two-sample *t* test for the difference between two means
 | 10 |
| 2006B | 2 | * Two-sample *z* interval for the difference between two proportions
* Using a confidence interval to test hypotheses
 | 10 |
| 2006 | 4 | * Two-sample *t* interval for the difference between two means
* Using a confidence interval to test hypotheses
 | 10 |
| 2005B | 3 | * Completely randomized design versus matched pairs design
* Two-sample *t* test versus paired *t* test
 | 10 |
| 2005 | 6 | * Two-sample *t* interval for the difference between two means
* Constructing and interpreting an interaction plot
 | 10 |
| 2004B | 4 | * Two-sample *t* interval for the difference between two means
* Two-sample versus paired *t* interval
 | 10 |
| 2004B | 5 | * Boxplots
* One-sample *t* interval for a mean (conditions only)
* Two-sample *t* test for the difference between two means (conditions only)
 | 10 |
| 2004B | 6 | * Two-sample *z* test for the difference between two proportions
* Estimating a total
* Random condition
 | 10 |
| 2003B | 3 | * Experiment versus observational study
* Two-sample *z* test for the difference between two proportions (identification and hypotheses only)
 | 10 |
| 2003B | 4 | * Random assignment
* Control groups
* Choosing a correct inference procedure
* Sources of variability
 | 10 |
| 2002 | 5 | * Stating hypotheses
* Two-sample *t* test for the difference between two means
 | 10 |
| 2002 | 6 | * One-sample *z* interval for a proportion
* Interpreting confidence level
* Two-sample *z* test for the difference between two proportions
* Pooling
 | 10 |
| 2000 | 4 | * Two-sample t test for the difference between two means
* Inference about cause and effect
 | 10 |
| 1997 | 4 | * Two-sample z test for the difference between two proportions
 | 10 |
| 2016 | 2 | * Chi-square test for homogeneity
* Follow-up analysis
 | 11 |
| 2014 | 1 | * Conditional relative frequency
* Association between categorical variables
* Chi-square test of independence
 | 11 |
| 2013 | 4 | * Chi-square test for independence
 | 11 |
| 2011B | 4 | * Chi-square test for independence
* Type I and Type II errors
 | 11 |
| 2010B | 5 | * General addition rule
* Conditional probability
* Independence
* Chi-square test for independence
 | 11 |
| 2010 | 6 | * Graphing and comparing distributions
* Evaluating and using an unfamiliar test statistic
 | 11 |
| 2009 | 1 | * Graphing categorical data
* Describing an association between categorical variables
* Choosing a correct inference procedure
* Stating hypotheses
 | 11 |
| 2008 | 5 | * Chi-square test for goodness-of-fit
* Follow-up analysis
 | 11 |
| 2006 | 6 | * Stating hypotheses
* Calculating a test statistic and *p-*value
* Rejection regions
* Identifying simulated distributions of a test statistic
 | 11 |
| 2004 | 5 | * Chi-square test for independence
* Scope of inference
 | 11 |
| 2003 | 5 | * Chi-square test for independence
 | 11 |
| 2003B | 5 | * Multiplication rule for independent events
* Expected value
* Chi-square goodness-of-fit test
 | 11 |
| 2002B | 6 | * Two-sample *t* test
* Chi-square test for homogeneity
* Comparing distributions using graphs
 | 11 |
| 1999 | 2 | * Chi-square test for independence
 | 11 |
| 1998 | 3 | * Methods of random assignment
* Choosing the correct inference procedure
 | 11 |
| 2011 | 5 | * Regression output
* Interpreting slope
* Meaning of
* *t* test for slope (conclusion only)
 | 12 |
| 2011B | 6 | * Interpreting slope
* Extrapolation
* Sampling distribution of  in a regression context
* Optimal design for estimating slope
 | 12 |
| 2010B | 6 | * Interpreting the slope of a least-squares regression line
* Interpreting a residual
* Using the residuals to estimate an effect
* Testing for a difference between two slopes using a confidence interval
* Using two different least-squares regression lines to estimate an effect
 | 12 |
| 2008 | 6 | * Two-sample *t* test for a difference in means
* Stating the equation of a least-squares regression line from computer output
* Interpreting the slope of a least-squares regression line
* *t* test for a slope
* Comparing inference methods
 | 12 |
| 2007 | 6 | * Interpreting the slope of a least-squares regression line
* Using a model with no constant term
* *t* test for slope with :  = 1
* Graphing a multiple regression model with an indicator variable
* Interpreting the coefficients of a multiple regression model
 | 12 |
| 2007B | 6 | * Two-sample *z* test for a difference of proportions
* Confidence interval for slope
* Using a confidence interval to make a decision
* Using transformed data and a least-squares regression line to make predictions
 | 12 |
| 2006 | 2 | * Stating the equation of a least-squares regression line from computer output
* Interpreting the standard deviation of the residuals
* Interpreting the standard error of the slope
 | 12 |
| 2005B | 5 | * Stating the equation of a least-squares regression line from computer output
* Interpreting the slope and *y* intercept
* Confidence interval for slope
 | 12 |
| 2004B | 1 | * Describing a scatterplot
* Interpreting *r2*
* Interpreting a residual plot for a least-squares regression line using transformed data
 | 12 |
| 2001 | 6 | * Making graphs and comparing two distributions
* *t* test for slope
* Classifying a new observation
 | 12 |
| 1997 | 6 | * Making predictions using least-squares regression lines, including transformed data
* Determining if models are appropriate
* Creating a better model
 | 12 |