

# AP<sup>®</sup> Statistics

## Syllabus 4

### Pedagogy

The primary text provides the general layout of the course. Students are required to read the chapters in the textbook before the topics are discussed in class so that class time can be devoted to more discussion, investigation, and activities with less time spent lecturing.

Students will gain proficiency on accuracy and communication of statistical concepts throughout the course, to include effectively communicating how methods, results and interpretations of data for any given experiment are valid. They learn that writing complete responses using appropriate justifications is a critical aspect of gaining statistical proficiency. [C3] [C4]

This is emphasized on all homework assignments, write-ups from activities, investigations and experiments, and especially on student assessments. One method that has been successful in enhancing these skills is having students review each other's responses on AP<sup>®</sup> Statistics released free-response questions. Working in groups of three, they use rubrics to score responses. Some class time is spent discussing any differences in their scores, helping students learn what constitutes an effective response.

On most assignments, quizzes, and exams, students are expected to use an appropriate graphing calculator. I use a graphing calculator with an overhead display as well as a projection unit for class demonstrations. Each chapter in the main text has a section on calculator use to give students instruction and practice using the statistical capabilities of their calculators. On some assignments and activities, students use Minitab to analyze data. Every networked computer throughout our building (in the IMC, computer labs, and classrooms) has access to Minitab. [C5]

It is important to note that approximately two weeks (10 to 14 days) of every trimester is spent in the computer lab.

**C3**—The course draws connections between all aspects of the statistical process, including design, analysis, and conclusions.

**C4**—The course teaches students how to communicate methods, results, and interpretations using the vocabulary of statistics.

**C5**—The courses teaches students how to use graphing calculators and demonstrates the use of computers and/or computer output to enhance the development of statistical understanding through exploring and analyzing data, assessing models, and performing simulations.

### Course Projects

Course projects are in the form of extended *formal* writing assignments. As a consequence, form and technical adequacy are enforced. These assignments are given throughout the year. The main purpose of these course projects is for students to gain strong experiences in developing statistical studies and making sound connections and judgments

between the design and the results of an experiment. Two examples are given below:

## Example 1

Chapter 2 (data collection and experimental design): In small groups, students write up the helicopter experiment in the second chapter. The point of the experiment is that students are clearly able to describe their experimental design process from design to collection of data to descriptive report of their results. [C3] [C4]

The design, execution, and writing is a group project. Exemplary reports are discussed in class.

**C3**—The course draws connections between all aspects of the statistical process, including design, analysis, and conclusions.

**C4**—The course teaches students how to communicate methods, results, and interpretations using the vocabulary of statistics.

## Example 2

Chapter 3 (graphical methods of describing data): Students produce graphical displays using data that they have collected or existing data they have located. This activity usually produces interesting examples that can be referenced throughout the chapter. These data are used to introduce Minitab's data entry and graphing capability.

Later in the year, as we progress through inference, students are responsible for increasingly longer (individual) projects involving data collection and analysis. Their writing is evaluated with increasing rigor as their skills are honed, and more attention is given to the necessity of putting their project in a larger scientific context.

# Course Materials

## Primary Text

Peck, Olsen, and Devore. *Introduction to Statistics and Data Analysis, Second Edition*. Belmont, Calif.: Brooks/Cole, 2005. ISBN 0-534-46710-5.

## References and Resource Materials

ABS Scheaffer, Watkins, Witmer, and Gnanadesikan. *Activity-Based Statistics: Instructor Resources, Second Edition*. Emeryville, Calif.: Key College, 2004. ISBN 1-930190-73-5.

B Bohan. *Amsco's AP Statistics: Preparing for the Advanced Placement Examination*. New York: Amsco, 2000. ISBN 1-56765-527-0.

FF Erickson. *Fifty Fathoms: Statistics Demonstrations for Deeper Understanding*. Oakland, Calif.: EEPS Media, 2002. ISBN0-9648496-2-3.

FR Selected AP Statistics Exam free-response questions are used throughout the course.

H Hinders. *5 Steps to a 5: AP Statistics*. New York: McGraw-Hill, 2004. ISBN 0-07-141278-6.

GCE Graphing calculator exercises

OTH Other resource materials: newspapers, select journals, and the World Wide Web (including NCSSM Statistics Leadership Institute material). Students often use data sets they have collected.

RJC Ryan, Joiner, and Cryer. *Minitab Handbook, Fifth Edition*. Belmont, Calif.: Brooks/Cole, 2005. ISBN 0-534-49600-8.

SGU Peck, et. al. *Statistics: A Guide to the Unknown*. Duxbury. 2006. Belmont, Calif.

**C2a:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on exploring data.

## Fall Trimester (approximately 60 days)

### Chapter 1: The Role of Statistics

### Chapter 2: The Data Analysis Process and Collecting Data Sensibly [C2a] [C2b]

Approx # of days	Topics	AP Statistics Course Topic Outline	Assignments
1	<ul style="list-style-type: none"> <li>Course Overview</li> <li>Policies and Expectations</li> </ul>		<b>Chapter 1</b> Section 1: Three Reasons to Study Statistics Section 2: The Nature and Role of Variability Section 3: Statistics and Data Analysis Section 4: Types of Data and Some Simple Graphical Displays OTH: A current newspaper article is assigned in class to illustrate the pervasive nature of the course's content.
1	<ul style="list-style-type: none"> <li>Variability</li> <li>Data Analysis</li> </ul>	I A. 1. Center and spread 2. Clusters and gaps	
1	<ul style="list-style-type: none"> <li>Bar Charts</li> <li>Dotplots</li> </ul>		
2	<ul style="list-style-type: none"> <li>Planning and Conducting a Study</li> <li>Sampling</li> </ul>		
1	<ul style="list-style-type: none"> <li>Quiz</li> <li>Random</li> </ul>		
			<b>Chapter 2</b>

**C2b:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on sampling and experimentation.

	Rectangles Activity		Section 1: The Data Analysis Process
3	<ul style="list-style-type: none"> <li>Observation and Experimentation</li> </ul>	II A. Overview of methods of data collection II B. Planning and conducting surveys	Section 2: Sampling GCE: Generating random integers Section 3: Statistics Studies: Observation and Experimentation
1	<ul style="list-style-type: none"> <li>Quiz: 2.1–2.2</li> </ul>	II C. Planning and conducting experiments II D. Generalizability of results and types of conclusions that can be drawn	GCE: Randomization Section 4: Simple Comparative Experiments Section 5: More on Experimental Design Section 6: More on Observational Studies: Designing Surveys
2	<ul style="list-style-type: none"> <li>Designing Surveys</li> </ul>		Section 7: Communicating and Interpreting the Results of Statistical Analyses
3	<ul style="list-style-type: none"> <li>Helicopter Experiment</li> </ul>		ABS: Random Rectangles Activity
1	<ul style="list-style-type: none"> <li>Chapter 1–2 Review</li> </ul>		SGU: The Anatomy of a Pre-election Poll, Evaluating School Choice Programs
1	<ul style="list-style-type: none"> <li>Chapter 1–2 Test</li> </ul>		OTH: Paper Helicopter Experimental Design Activity (adapted from NCSSM Statistics Leadership Institute materials) FR: 1999 FR#3, 2000 FR#5, 2001 #4, 2002 #2, 2002(B) #3, 2003 #4, 2004 #2, 2006 #1, #2006 #5, 2006(B) #5

### Chapter 3: Graphical Methods for Describing Data

[C2a]

Approx # of days	Topics	AP Statistics Course Description Topic	Assignments
1	<ul style="list-style-type: none"> <li>Bar Charts and Pie Charts</li> </ul>		<b>Chapter 3</b> Section 1: Displaying Categorical Data: Comparative Bar Charts and Pie Charts GCE: Using lists on the calculator Section 2: Displaying Numerical Data: Stem-and-Leaf Displays
1	<ul style="list-style-type: none"> <li>Stem-and-Leaf Displays</li> </ul>	I A. 1. Center and spread 2. Clusters and gaps	
2	<ul style="list-style-type: none"> <li>Frequency Distribution and Histograms</li> </ul>		
1	<ul style="list-style-type: none"> <li>Displaying</li> </ul>	I A. Cumulative	

**C2a:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on exploring data.

	Bivariate Numerical Data	frequency plot	GCE: Setting the window on the calculator FR: 1997 FR#2
1	<ul style="list-style-type: none"> <li>Communicating and Interpreting the Results of Statistical Analyses</li> </ul>		Section 3: Displaying Numerical Data: Frequency Distributions and Histograms GCE: Scaling and drawing histograms
1	<ul style="list-style-type: none"> <li>Chapter 3 Test</li> </ul>		Section 4: Displaying Bivariate Numerical Data Section 5: Communicating and Interpreting the Results of Statistical Analyses FR: 1997 FR#2, 2000 #1 LAB: introduction to Minitab (RJC) FR: 2002(B) #5

**C2a:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on exploring data.

## Chapter 4: Numerical Models for Describing Data

[C2a] [C4]

Approx # of days	Topics	AP Statistics Course Description Topic	Assignments
2	<ul style="list-style-type: none"> <li>Describing Variability in a Data Set</li> </ul>		Chapter 4 Section 1: Describing the Center of a Data Set Section 2: Describing Variability in a Data Set GCE: Quartiles
1	<ul style="list-style-type: none"> <li>Summarizing a Data Set: Boxplots</li> </ul>	I B 4. Using boxplots	Section 3: Summarizing a Data Set: Boxplots (five number summary) GCE: Boxplots
2	<ul style="list-style-type: none"> <li>Interpreting Center and Variability</li> </ul>	I A 3. Outliers and other unusual features 4. Shape  I B 1. Measuring center: median, mean 2. Measuring spread: range, interquartile range, standard deviation 3. Measuring position 5. The effect of changing units	Section 4: Interpreting Center and Variability: Chebyshev's Rule, the Empirical Rule, and z Scores GCE: z-scores Section 5: Communicating and Interpreting the Results of Statistical Analyses OTH: Students graph, find measures of center, and measures of variability for data sets

**C4**—The course teaches students how to communicate methods, results, and interpretations using the vocabulary of statistics.

		I C. Comparing distributions of univariate data	that they have collected OTH: Students match boxplots, histograms, and summary statistics in an activity adapted from ABS FR: 2004 #1, 2005 #1, 2005(B) #1
1	<ul style="list-style-type: none"> <li>Quiz</li> </ul>		
1	<ul style="list-style-type: none"> <li>Communicating and Interpreting the Results of Statistical Analyses</li> </ul>	I E 1. Frequency tables and bar charts 4. Comparing distributions using bar charts	
1	<ul style="list-style-type: none"> <li>Chapter 4 Review</li> </ul>		
1	<ul style="list-style-type: none"> <li>Chapter 4 Test</li> </ul>		

## Chapter 5: Summarizing Bivariate Data [C2a]

Approx # of days	Topics	AP Statistics Course Description Topic	Assignments
2	Correlation	I D 1. Analyzing patterns in scatterplots 2. Correlation and linearity 3. Least squares regression line	Chapter 5 Section 1: Correlation GCE: Linear regression on the calculator Section 2: Linear Regression: Fitting a Line to Bivariate Data Section 3: Assessing the Fit of a Line GCE: Residuals Section 4: Nonlinear Relationships and Transformations FR: 1999 FR#1, 2000 FR#1 Section 5: Communicating and Interpreting the Results of Statistical Analyses OTH: Students play the "correlation game," a Web applet on matching correlation coefficients and scatterplots. FF: Students use a Fathom demonstration for fitting a line to bivariate data. SGU: Monitoring tiger
1	<ul style="list-style-type: none"> <li>Review: Correlation Game <a href="http://www.stat.uiuc.edu/~stat100/java/guess/GCApplet.html">http://www.stat.uiuc.edu/~stat100/java/guess/GCApplet.html</a></li> </ul>		
1	Using Fathom to Find the Line of Best Fit		
2	<ul style="list-style-type: none"> <li>Fitting a Line to Bivariate Data</li> </ul>		
1	<ul style="list-style-type: none"> <li>Exercise for Understanding the Meaning of <math>r^2</math></li> </ul>		
1	<ul style="list-style-type: none"> <li>Quiz</li> </ul>		
1	<ul style="list-style-type: none"> <li>Assessing the Fit of a Line</li> <li>(Anscombe Activity)</li> </ul>	I D 4. Residual plots, outliers, and influential points	

**C2a:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on exploring data.

2	Nonlinear Relationships and Transformations	I D 5. Transformations to achieve linearity	prey abundance in the Russian Far East OTH: Students complete a worksheet for “understanding the meaning of $r^2$ ” WSC: Students complete a worksheet adapted from this text using the Anscombe data sets FR: 2000 FR#1, 2999 FR#1 LAB: More on Minitab (RJC)
1	Quiz		
1	Chapter 5 Review		
1	Chapter 5 Test		

## Chapter 6: Probability [C2a] [C2c]

Appro x # of days	Topics	AP Statistics Course Description Topic	Assignments
2	<ul style="list-style-type: none"> <li>Chance Experiments and Events</li> </ul>		<b>Chapter 6</b> Section 1: Chance Experiments and Events Section 2: Definition of Probability GCE: Simulating Independent Events Section 3: Basic Properties of Probability Section 4: Conditional Probability Section 5: Independence Section 6: Some General Probability Rules Section 7: Estimating Probabilities Empirically and Using Simulation OTH: Students complete an activity derived from the game “Pass the Pigs,” using dice that are small plastic pigs (empirical probability) and then compare their results to a Web applet simulating the game. OTH: Students
2	<ul style="list-style-type: none"> <li>Definition of Probability</li> </ul>	III A 1. Interpreting probability 2. Law of Large Numbers	
2	<ul style="list-style-type: none"> <li>Basic Properties of Probability</li> </ul>	III A 3. Addition rule, multiplication rule	
1	<ul style="list-style-type: none"> <li>Review</li> </ul>		
1	<ul style="list-style-type: none"> <li>Quiz</li> </ul>		
2	<ul style="list-style-type: none"> <li>Conditional Probability</li> </ul>	I E 2. Marginal and joint frequencies 3. Conditional relative frequencies and association  III A 3. Conditional probability	
2	<ul style="list-style-type: none"> <li>Independence</li> </ul>	III A 3. Independence	
2	<ul style="list-style-type: none"> <li>General Probability</li> </ul>		

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**C2c:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on anticipating patterns.

	Rules		complete some activities using playing cards adapted from a presentation at the 2006 Annual NCTM Conference. FR: 1999 #4, 2001 #3
1	• Review		
1	• Quiz		
3	• Estimating Probabilities Empirically/Using Simulation	III A 5. Simulation of random behavior	
1	• Quiz		
1	• Chapter 6 Review		
1	• Chapter 6 Test		

Winter Trimester (approximately 60 days)

## Chapter 7: Random Variables and Probability Distributions [C2c]

Appro x # of days	Topics	AP Statistics Course Description Topic	Assignments
1	• Random Variables		Chapter 7 Section 1: Random Variables GCE: Discrete probability distributions
2	• Probability Distributions for Discrete Random Variables • Probability Distributions for Continuous Random Variables	III A 4. Discrete random variables	Section 2: Probability Distributions for Discrete Random Variables GCE: Binomial probability calculations Section 3: Probability Distributions for Continuous Random Variables GCE: Geometric probability calculations
1	• Quiz		Section 4: Mean and Standard Deviation of a Random Variable FR: 2005 #2, 2005(B) #2, 2006 #3
3	• Mean and Standard Deviation of a Random Variable (RV)	III A 6. Mean and standard deviation of RV, and linear transformation of an RV  III B. Combining independent RVs	Section 5: The Binomial and Geometric Distributions Section 6: Normal Distributions
2	• Binomial and	III A	

**C2c:** The course provides instruction in each of the following for broad conceptual themes outlined in the Course Description with appropriate emphasis on anticipating patterns.



	Geometric Distributions	4. Binomial and geometric RVs	GCE: The normal approximation to the binomial Section 7: Checking for Normality and Normalizing Transformations Section 8: Using the Normal Distribution to Approximate a Discrete Distribution FF: Demonstrations on normally-distributed data, transforming the mean and standard deviation, adding uniform random variables, and binomial distributions FR: 2001 #2, 2002 #3, 2002(B) #2, 2003 #3, 2004 #3, 2004 #4
2	• Normal Distributions	III C. The normal distribution	
1	• Checking for Normality and Normalizing Transformations		
1	• Using the Normal Distribution to Approximate a Discrete Distribution		
1	• Quiz • Chapter 7 Review		
1	• Chapter 7 Test		

## Chapter 8: Sampling Variability and Sampling Distributions

## Chapter 9: Estimation Using a Single Sample [c2c] [c2d]

Appro x # of days	Topics	AP Statistics Course Description Topic	Assignments
2	• Statistics and Sampling Variability		Chapter 8 Section 1: Statistics and Sampling Variability Section 2: The Sampling Distribution of a Sample Mean
1	• The Sampling Distribution of a Sample Mean	III D 2. Sampling distribution of the sample mean 3. The Central Limit Theorem	GCE: The sampling distribution of the mean Section 3: The Sampling Distribution of a Sample Proportion FF: Demonstrations on sampling distributions and sample size, the central limit theorem, standard error and standard deviation, what is standard error, and the distribution of sample proportions
1	• The Sampling Distribution of a Sample Proportion	III D 1. Sampling distribution of the sample proportion	
1	• Quiz		
2	• Simulation of sampling	III D 6. Simulation of	

**C2c:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on anticipating patterns.

**C2d:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on statistical inferences.

	distributions	sampling distributions	FR: 1998 #1
1	• Quiz		<b>Chapter 9</b> Section 1: Point Estimation Section 2: Large-Sample confidence Interval for a Population Proportion GCE: Confidence interval for a population proportion Section 3: Confidence Interval for a Population Mean GCE: Confidence interval for a population mean Section 4: Communicating and Interpreting the Results of Statistical Analyses FF: Demonstrations on confidence intervals of proportions, capturing with confidence intervals, where does that root $(p(1-p))$ come from, why $np > 10$ is a good rule of thumb, how the width of the confidence interval depends on $N$ , exploring confidence intervals, and capturing the mean with confidence intervals OTH: Students use a Web applet to further explore confidence intervals. FR: 2002(B) #4, 2004(B) # 2 2005 #5
1	• Test		
1	• Point Estimation	III D 7. <i>t</i> -distribution	
2	• Large-Sample Confidence Interval for a Population Proportion	IV A. 1.-4.; 6. Estimation (point estimators and confidence intervals)	
1	• Quiz		
2	• Confidence Interval for a Population Mean		
1	• Quiz		
1	• Communicating and Interpreting the Results of Statistical Analyses		
1	• Chapter 9 Review		
1	• Chapter 9 Test		

## Chapter 10: Hypothesis Testing Using a Single Sample

[C2d]

Approx # of days	Topics	AP Statistics Course Description Topic	Assignments
			Chapter 10 Section 1: Hypotheses

**C2d:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on statistical inferences.

1	<ul style="list-style-type: none"> <li>Hypotheses and Test Procedures</li> </ul>	IV B 1. Logic of hypothesis testing	and Test Procedures Section 2: Errors in Hypothesis Testing Section 3: Large-Sample Hypothesis Tests for a Population Proportion GCE: Hypothesis test for a population proportion Section 4: Hypothesis Tests for a Population Mean GCE: Hypothesis test for a population mean Section 5: Power and the Probability of Type II Error Section 6: Communicating and Interpreting the Results of Statistical Analyses FF: Demonstration on equivalence of tests and estimates, distribution of $p$ values, power, and power and sample size LAB: More Minitab (RJC) FR: 2003 #2, 2004(B) #3, 2005 #4
1	<ul style="list-style-type: none"> <li>Errors in Hypothesis Testing</li> </ul>		
2	<ul style="list-style-type: none"> <li>Large-Sample Hypothesis Tests for a Population Proportion</li> </ul>	IV B 2. Large sample test for a proportion	
1	<ul style="list-style-type: none"> <li>Quiz</li> </ul>		
2	<ul style="list-style-type: none"> <li>Hypothesis Tests for a Population Mean</li> </ul>	IV B 4. Test for a mean	
2	<ul style="list-style-type: none"> <li>Power and Probability of Type II Error</li> </ul>	IV B 1. Concepts of Type I and Type II Errors; concept of power	
1	<ul style="list-style-type: none"> <li>Quiz</li> </ul>		
1	<ul style="list-style-type: none"> <li>Communicating and Interpreting the Results of Statistical Analyses</li> </ul>		
1	<ul style="list-style-type: none"> <li>Chapter 10 Review</li> </ul>		
1	<ul style="list-style-type: none"> <li>Chapter 10 Test</li> </ul>		

Spring Trimester (approximately 60 days)

## Chapter 11: Comparing Two Populations or Treatments [C2c] [C2a]

Approx # of days	Topics	AP Statistics Course Description Topic	Assignments
1	<ul style="list-style-type: none"> <li>Inferences Concerning the Difference Between Means Using</li> </ul>	III D 5. Sampling distribution of a difference between two independent-sample means	Chapter 11 Section 1: Inferences Concerning the Difference Between Two Population or Treatment Means Using Independent Samples GCE: Inferences about differences in

**C2c:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on anticipating patterns.

**C2d:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on statistical inferences.

	Independent Samples	IV A 7. Large-sample confidence interval for a difference between two means  IV B 5. Test for difference between two independent means	independent means FR: 2006 #4 Section 2: Inferences Concerning the difference Between Two Population or Treatment Means Using Paired Samples GCE: Inferences about differences in means with paired samples Section 3: Large-Sample Inferences Concerning a Difference Between Two Population or Treatment Proportions
1	<ul style="list-style-type: none"> <li>Inferences Concerning the Difference Between Means Using Paired Samples</li> </ul>	IV A 7. Large-sample confidence interval for a difference between two means (paired)  IV B 5. Test for difference between two means (paired)	GCE: Inferences for differences in proportions FR: 2006(B) #2 Section 4: Distribution-Free Procedures for Inferences Using Independent Samples Section 5: Communicating and Interpreting the Results of Statistical Analyses OTH: Students complete activities using independent samples and other activities using paired samples, adapted from various sources. LAB: More Minitab (RJC) FR: 1998 #4, 2000 #4, 2002 #5, 2003(B) #3, 2003(B) #4, 2004(B) #3, 2004(B) #4, 2005(B) #5, 2005(B) #4, 2006(B) #3, 2006(B) #4
1	<ul style="list-style-type: none"> <li>Quiz</li> </ul>		
	<ul style="list-style-type: none"> <li>Large-Sample Inferences Concerning a Difference Between Two Proportions</li> </ul>	III D 4. Sampling distribution of a difference between two independent-sample proportions.  IV A 5. Large-sample confidence interval for a difference between two proportions  IV B 3. Large-sample test for a difference between proportions	
1	<ul style="list-style-type: none"> <li>Quiz</li> </ul>		
1	<ul style="list-style-type: none"> <li>Distribution-Free Procedures for Inferences Using Independent Samples</li> </ul>		
1	<ul style="list-style-type: none"> <li>Chapter 11 Review</li> </ul>		

1	<ul style="list-style-type: none"> <li>Chapter 11 Test</li> </ul>		
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## Chapter 12: The Analysis of Categorical Data and Goodness-of-Fit Tests [C2c] [C2d]

Approx # of days	Topics	AP Statistics Course Description Topic	Assignments
2	<ul style="list-style-type: none"> <li>Chi-Square Tests for Univariate Categorical Data</li> </ul>	III D 8. Chi-square distribution  IV B 6. Chi-square test for goodness-of-fit	<b>Chapter 12</b> Section 1: Chi-Square Tests for Univariate Categorical Data GCE: The goodness-of-fit test Section 2: Tests for Homogeneity and Independence in a Two-Way Table GCE: Homogeneity and independence Section 3: Communicating and Interpreting the Results of Statistical Analyses OTH: Students complete activities (using M&Ms) to complete chi-square tests for univariate data, for homogeneity, and for independence. LAB: more Minitab (RJC) FR: 1998 #3, 1999 #2, 2003 #5, 2003(B) #5
1	<ul style="list-style-type: none"> <li>Quiz</li> </ul>		
4	<ul style="list-style-type: none"> <li>Tests for Homogeneity and Independence in a Two-Way Table</li> </ul>	IV B 6. Chi-square test for homogeneity of proportions and independence	
1	<ul style="list-style-type: none"> <li>Quiz</li> </ul>		
1	<ul style="list-style-type: none"> <li>Review</li> </ul>		
1	<ul style="list-style-type: none"> <li>Chapter 12 Test</li> </ul>		

**C2c:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on anticipating patterns.

**C2d:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on statistical inferences.

## Chapter 13: Simple Linear Regression and Correlation: Inferential Methods [C2d]

Approx # of days	Topics	AP Statistics Course Description Topic	Assignments
2	<ul style="list-style-type: none"> <li>Simple Linear Regression Model</li> </ul>		<b>Chapter 13</b> Section 1: The Simple Linear Regression Model Section 2: Inferences About the Slope of the Population Regression Line Section 3: Checking
1	<ul style="list-style-type: none"> <li>Quiz</li> </ul>		
2	<ul style="list-style-type: none"> <li>Inferences About the</li> </ul>	IV A 8. Confidence	

**C2d:** The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on statistical inferences.

	Slope of the Population Regression Line	interval for the slope of a least-squares regression line  IV B 7. Test for the slope of a least-squares regression line	Model Adequacy FR: 1999 #1, 2002(B) #1, 2002 #4, 2003(B) #2, 2004(B) #1, 2005 #3, 2005(B) #5, 2006 #2 Section 4: Inferences Based on the Estimated Regression Line Section 5: Inferences About the Population Correlation Coefficient Section 6: Communicating and Interpreting the Results of Statistical Analyses
2	<ul style="list-style-type: none"> <li>• Checking Model Adequacy</li> </ul>		
1	<ul style="list-style-type: none"> <li>• Quiz</li> </ul>		
1	<ul style="list-style-type: none"> <li>• Chapter 13 Review</li> </ul>		
1	<ul style="list-style-type: none"> <li>• Chapter 13 Test</li> </ul>		
As needed	<ul style="list-style-type: none"> <li>• Preparing for the AP Exam</li> </ul>		<p>Preparing for the AP Exam</p> <ul style="list-style-type: none"> <li>• Students complete a practice examination (H and/or B)</li> <li>• Scoring of the exam is discussed</li> </ul>

## After the AP Exam

### Chapter 14: Multiple Regression Analysis

- Section 1: Multiple Regression Models
- Section 2: Fitting a Model and Assessing its Utility
- Section 3: Inferences Based on an Estimated Model
- Section 4: Other Issues in Multiple Regression
- Section 5: Communicating and Interpreting the Results of Statistical Analyses

OTH: Students complete an activity adapted from ABS (gummi bears in space).

LAB: Students utilize Minitab (RJC) to analyze the data from their activity and then use Microsoft Office to produce the write-up