Syllabus: AP Statistics

Unit 1 – Exploring and Understanding Data (25 Days)

Number of Days	Chapter/Topic/Activity/Assignments	AP Statistics Course Topic Outline
1 day	*Chapter 1 – Stats Starts Here* Topics covered: • Introduction to Statistics, Data, and Variation. Assignments: ☐ Read: Read Chapter 1 pgs 2-6 ☐ Sign and have parents sign a copy of the syllabus Activity: students will write a sentence describing statistics. Then we analyze the distribution for the number of words in the sentences.	
1 day	*Chapter 2 – Data* Topics covered: • Analyzing Data – Who, What, When, Where, Why, How • Categorical vs. Quantitative Variables • TI: Entering data and working with data lists Assignments: ☐ Read Chapter 2 pgs 7-16 ☐ Pg 16-17 #1, 3, 7, 8, 13-26	

3 days	*Chapter 3 – Displaying and Describing Categorical Data*
	Topics covered:
	• Frequency and Relative Frequency Tables
	• Distributions of Categorical Variables
	• Importance of the Area Principle
	• Bar and Pie Charts
	• Contingency Tables
	• Marginal and Conditional Distributions
	• Independence of Categorical Variables
		I. Exploring Data
		    E. Exploring categorical data
		        1.Frequency tables and bar charts
		        2.Marginal and joint frequencies for two-way tables
		        3.Conditional relative frequencies and

	- Segmented Bar Charts - Simpson's Paradox Project #1: - Analyzing Bad Graphs - Find a graph in a newspaper, magazine, or on the internet that is an example of a violation of the area principle. Explain how the graph is misleading and what should be changed to improve it. Assignments: ☐ Read Chapter 3 pgs 20-37 ☐ Pg 37-43 # 5-39		association 4.Comparing distributions using bar charts
3 days	*Chapter 4 – Displaying Quantitative Data* Topics covered: - Distributions of Quantitative Variables - Frequency and Relative Frequency Histograms - Stem-and-Leaf Displays - Dotplots - Describing a Distribution in terms of shape, outliers, center, and spread (SOCS) - Shape: Modality, Uniformity, Symmetry, Skewness, Unusual Observations, Gaps, and Clusters - Center and Spread in General Terms - Comparing Distributions - Timeplots - TI: Creating a Histogram Assignments: ☐ Read Chapter 4 pgs 44-71 ☐ Pg 72-78 #5-48	I. of	Exploring Data A. Constructing and interpreting graphical displays of distributions of univariate data (boxplot, stemplot, histogram, cumulative frequency plot) 1.Center and spread 2.Clusters and gaps 3.Outliers and other unusual features 4.Shape C. Comparing distributions univariate data (dotplots, back-to-back stemplots, parallel boxplots) 1.Comparing center and spread within group,

			between group variation 2.Comparing clusters and gaps 3.Comparing outliers and other unusual features 4.Comparing shapes

5 days	*Chapter 5 – Summary Statistics*
	Topics covered:
	• Measures of Central Tendency (Mean, Median, Mode, and Midrange)
	• Measures of Spread (Range, IQR, Variance, Standard Deviation)
	• Five Number Summary
	• Quartiles/Percentiles
	• Calculating Outlier "Fences"
	• Boxplots
	• Comparing Multiple Datasets
	• Resistance vs. Non-resistance to Extreme Values
	• Cumulative Frequency Graphs
	• TI: Creating a Boxplot, Finding the Five Number Summary, Calculating the Mean and Standard Deviation
	
	Assignments:
	☐ Read Chapter 5 pgs 80-94
	☐ Pg 95-103 #5-42
		I.	Exploring Data
			  A. Constructing and interpreting graphical displays of distributions of univariate data (boxplot, stemplot, histogram, cumulative frequency plot)
			    1.Center and spread
			    2.Clusters and gaps
			    3.Outliers and other unusual features
			    4.Shape
			  B. Summarizing distributions of univariate data
			    1.Measuring center: median and mean
			    2.Measuring spread: range, interquartile range, standard deviation
			    3.Measuring position: quartiles, percentiles, standardized scores (z-scores)

			4.Using boxplots
		C.	Comparing distributions of univariate data (dotplots, back-to-back stemplots, parallel boxplots)
			1.Comparing center and spread within group, between group variation
			2.Comparing clusters and gaps
			3.Comparing outliers and other unusual features
			4.Comparing shapes
6 days	*Chapter 6 – The Standard Deviation as a Ruler and the Normal Model* Topics covered: • Introduction to Standardized Scores (z-scores) • Shifting Data by Adding or Subtracting a Constant Value • Rescaling Data by Multiplying or Dividing by a Constant Value • Normal Models • Parameters vs. Statistics • Standard Normal Model • Empirical Rule (68-95-99.7 Rule) • Tables of Normal percentiles to calculate probabilities for a Normal Model and to find z-scores for a given percentile. • Assessing Normality • Normal Probability Plots • TI: Finding Normal Probabilities, Finding z-scores for a given percentile, Creating a Normal Probability Plot Assignments:	I. III.	Exploring Data B. Summarizing distributions of univariate data 3.Measuring position: quartiles, percentiles, standardized scores (z-scores) 5.The effect of changing units on summary measures Anticipating Patterns C. The normal distribution 1.Properties of the normal distribution 2.Using tables of the normal distribution

	☐ Read Chapter 6 pgs 104-133 ☐ Pgs 129-103 #1-48	3.The normal distribution as a model for measurements
5 days	*Unit Assessments* • Quiz – Chapter 2/3 • Quiz – Chapter 4/5 • Unit 1 Review • Unit 1 Multiple Choice Test • Unit 1 Free Response Test	

Unit 2A – Exploring Relationships Between Variables (11 days)

Number of Days	Chapter/Topic/Activity/Assignments	AP Statistics Course Topic Outline

2 days	*Chapter 7 – Scatterplots, Association, and Correlation*
	Topics covered:
	• Introduction to Bivariate Data
	• Creating a Scatterplot
	• Describing a Scatterplot in terms of Direction, Form, Strength, and Unusual Observations
	• Explanatory vs. Response Variables
	• Calculating Correlation
	• Conditions Required for Correlation
	• Properties for Correlation
	• Correlation Tables
	• Correlation vs. Association
	• Lurking Variables and Causation
	• TI: Creating a Scatterplot, Calculating Correlation
	
	Activity: Guess the Correlation Game http://guessthecorrelation.com/
		I. Exploring Data
		    D. Exploring bivariate data
		        1.Analyzing patterns in scatterplots
		        2.Correlation and linearity

	Assignments: □ Read Chapter 7 pgs 145-163 □ Pgs 164-170 #1-42		

5 days	*Chapter 8 – Linear Regression*
	Topics covered:
	• Linear Models
	• Predicted Values
	• Line of Best Fit
	• Regression to the Mean
	• Least Squares Regression Line (LSRL)
	• Finding the Slope and Y-intercept of the LSRL using Summary Statistics
	• Interpreting the Slope and Y-Intercept of the LSRL
	• Calculating and Interpreting Residual Values
	• Creating and Interpreting a Residual Plot
	• Understanding and Interpreting the Coefficient of Determination
	• Assumptions and Conditions for the Linear Regression Model
	• Reading Computer Output for Regression
	• TI: Finding the LSRL, Adding a Line to a Graph of Datapoints, Creating a Residual Plot
	
	Lab Activities:
	• Height vs. Hand Width Lab – Students will gather data about the class heights and hand widths in order to analyze and interpret the data as a review of the chapter's content.
	• Importance of Graphing Data – Students will explore 'Anscombe Data Sets' to see why you should never trust summary data without a graph.
	
	Assignments:
	□ Read Chapter 8 pgs 171-191
	□ Pgs 192-199 #1-54
		I.	Exploring Data
			D. Exploring bivariate data
			    1.Analyzing patterns in
			     scatterplots
			    2.Correlation and linearity
			    3.Least-squares regression
			     lines
			    4.Residual plots, outliers,
			     and influential points

4 days	*Unit Assessments* • Quiz – Chapter 7		

	• Unit 2A Review • Unit 2A Multiple Choice Test • Unit 2A Free Response Test	

Unit 2B – Exploring Relationships Between Variables (8 Days)

Number of Days	Chapter/Topic/Activity/Assignments	AP Statistics Course Topic Outline

2 days	*Chapter 9 – Regression Wisdom*
	Topics covered:
	• Abuses of Regression
	• Exploring Subsets of Data
	• Non-linear datasets
	• Dangers of Extrapolation
	• Examining Outliers in Regression Models
	• Lurking Variables and Causation
	• Working with Summary Values
	
	Activity: Correlation does no equal causation. Comparing yearly lemon imports from Mexico to highway accidents in the US.
	
	Articles:
	• Women may outsprint men by 2156 – Article illustrating extrapolation in the news http://news.bbc.co.uk/1/hi/uk/3702650.stm
	
	Assignments:
	☐ Read Chapter 9 pgs 201-213
	☐ Pgs 214-221 #1-34
		I. Exploring Data
		    D. Exploring bivariate data
		
		        3.Least-squares regression lines
		        4.Residual plots, outliers, and influential points

4 days	*Chapter 10 – Re-expressing Data: It's Easier Than You Think*
	Topics covered:
	• Linear vs. Non-linear growth
	• Re-expressing data sets
	• Using the Ladder of Powers
		I. Exploring Data
		    D. Exploring bivariate data
		
		        3.Least-squares regression

	• Using logarithms to straighten scatterplots, including the Exponential, Logarithmic, and Power models. • TI: Using logarithms to re-express data, Creating residual plots Lab Activity: • Growth and Decay of M&Ms – Students will gather data for the exponential growth and decay of M&Ms candies, then analyze the data using logarithms to re-express the data in linear form. Assignments: ☐ Read Chapter 10 pgs 222-238 ☐ Pgs 239-244 #1-30	lines 4.Residual plots, outliers, and influential points 5.Transformations to achieve linearity: logarithmic and power transformations
2 days	_Unit Assessments_ • Unit 2B Review • Unit 2B Test	

43 days

Unit 3 – Gathering Data (18 Days)

Number of Days	Chapter/Topic/Activity/Assignments	AP Statistics Course Topic Outline

3 days	_Chapter 11 – Understanding Randomness_
	Topics covered:
	• Understanding the Concept of Randomness
	• How the Mind is Not Random
	• Pseudorandom Numbers
	• Tables of Random Digits
	• Conducting a Simulation
	• Components of a Simulation (outcomes, trials, response variables)
	• TI: Seeding the Random Number Generator, Generating Random Numbers
	
	Lab Activity:
		III. Anticipating Patterns
		  A. Probability
		    5.Simulation of random behavior and
		probability
		    distributions

	• Streaky Behavior Lab – Students will explore real randomness vs. perceived randomness by examining coin flips to determine the length of a "streak" of heads in a real coin flip sequence. Video: • Numbers Episode 101 video clip – Charlie discusses how the human mind tries to simulate randomness and instead creates a pattern by being too evenly spaced. Assignments: ☐ Read Chapter 11 pgs 255-264 ☐ Pg 265-267 #1-40	

4 days	*Chapter 12 –Sample Surveys*
	Topics covered:
	 • Sample Statistics vs. Population Parameters
	 • The Good and the Bad of Polling
	 • Why Randomization is Important in Sampling
	 • How Sample Size Plays a Role in Sampling
	 • Taking a Census
	 • Sampling Frame
	 • Sampling Variability
	 • Statistical Sampling Methods: Simple Random Sampling, Stratified Random Sampling, Cluster Sampling, Multistage Sampling, Systematic Sampling
	 • Nonstatistical Sampling Methods – Voluntary Response Sampling, Convenience Sampling
	 • Bias in Sampling – Voluntary Response Bias, Sampling from a Bad Sampling Frame, Undercoverage, Overcoverage, Nonresponse Bias, Response Bias, Poorly Worded Questions
	
	Project on how biases can affect survey results. Students will conduct a survey with and without bias; then compare the results.
		II. Sampling and Experimentation: Planning and conducting a study
		    A. Overview of methods of data
		
		        collection
		        1.Census
		        2.Sample survey
		    B. Planning and conducting surveys
		        1.Characteristics of a well-
		           designed and well-
		           conducted survey
		        2.Populations, samples, and
		           random selection
		        3.Sources of bias in sampling
		           and surveys
		        4.Sampling methods,

	Assignments:
	☐ Read Chapter 12 pgs 268-287
	☐ Pg 243-245 #1-36
				including simple random
				    sampling, stratified
				    random sampling, and
				    cluster sampling.
				D. Generalizability of
				    results and types of
				    conclusions that can be
				    drawn from
				    observational studies,
				    experiments and surveys

6 days	*Chapter 13 – Experiments*
	Topics covered:
	   • Observational Studies vs. Experiments
	   • Types of Observational Studies – Retrospective vs. Prospective
	   • Elements of an Experiment
	   • Experimental Units, Subjects, and Participants
	   • Explanatory Variables, Factors, Levels, and Treatments
	   • Response Variables
	   • Principles of Experimental Design (Control, Randomization, Replication, and Blocking)
	   • Completely Randomized Experimental Designs
	   • Idea of Statistical Significance
	   • Control Treatments and Control Groups
	   • Blinding (Single and Double Blind)
	   • Placebo and Placebo Effect
	   • Randomized Block Experimental Designs
	   • Matched Pairs Designs
	   • Idea of Confounded Variables
	
	Assignments:
			II.
			
			data
				Sampling and Experimentation: Planning and conducting a study
				A. Overview of methods of
				
				    collection
				    3.Experiment
				    4.Observational study
				C. Planning and conducting
				    experiments
				    1.Characteristics of a well-
				    designed and well-
				    conducted experiment
				    2.Treatments, control groups,
				    experimental units,
				    random
				    assignments and
				    replication
				    3.Sources of bias and

	☐ Read Chapter 13 pgs 292-311
	☐ Pgs 312-316 #1-47
		confounding, including
		   placebo effect and blinding
		4.Completely randomized
		   design
		5.Randomized block design,
		   including matched pairs
		   design
		D. Generalizability of results and types of conclusions that can be drawn from observational studies, experiments and surveys

5 days	*Unit Assessments*
	  ● Quiz – Chapter 11
	  ● Quiz – Chapter 12
	  ● Unit 3 Review
	  ● Unit 3 Multiple Choice Test
	  ● Unit 3 Free Response Test	

Unit 4A – Randomness and Probability (12 days)

Number of Days	Chapter/Topic/Activity/Assignments	AP Statistics Course Topic Outline

3 days	*Chapter 14 – From Randomness to Probability*
	Topics covered:
	  ● Difference between randomness and chaos
		III. Anticipating Patterns
		   A. Probability

	• Probability as a Long Run Relative Frequency • Language of Probability – Trials, Outcomes, and Events, Sample Space • Fundamental Counting Rule • General Idea of Independence • Law of Large Numbers • Basic Rules of Probability • Complement Rule • Addition Rule for Disjoint Events • Multiplication Rule for Independent Events • Union and Intersection of Two Events • Introduction to Venn Diagrams Assignments: ☐ Read Chapter 14 pgs 324-337 ☐ Pgs 338-341 #1-44	1.Interpreting probability, including long-run relative frequency interpretations. 2."Law of Large Numbers" concept 3.Addition rule, multiplication rule, conditional probability, and independence
5 days	*Chapter 15 – Probability Rules* Topics covered: • Probability for Equally Likely Events • General Addition Rule • Conditional Probability • General Multiplication Rule • Formal Idea of Independence • Independent Events vs. Disjoint Events (Revisited) • Drawing with and without Replacement • Making a Picture – Venn Diagrams, Probability Tables, and Tree Diagrams • Introduction to Bayes' Rule Assignments: ☐ Read Chapter 15 pgs 342-361 ☐ Pgs 361-365 #1-46	III. Anticipating Patterns A. Probability 1.Interpreting probability, including long-run relative frequency interpretations. 2."Law of Large Numbers" concept 3.Addition rule, multiplication rule, conditional probability, and independence
4 days	*Unit Assessments*	

	- Quiz – Chapter 14 - Quiz – Chapter 15 - Unit 4A Review - Unit 4A Test	
3 days	*Semester Review and Exam*	

Unit 4B –Randomness and Probability (13 days)

Number of Days	Chapter/Topic/Activity/Assignments	AP Statistics Course Topic Outline

4 days	*Chapter 16 – Random Variables*
	Topics covered:
	   - Random Variables - Discrete and Continuous Random Variables - Creating a Probability Model for Discrete Variables - Expected Values of Random Variables - Variance and Standard Deviation of Random Variables - Linear Transformations of Random Variables - Combining Independent Random Variables - Combining Normal Random Variables - TI: Calculating Mean and Standard Deviation for Probability Models
	Activity:
	- Student will play catch with a globe and record whether their pointer finger points to land or water. Then they will compare their results with the actual percentage of water covering the Earth.
	
	Assignments:
	☐ Read Chapter 16 pgs 366-382
	☐ Pg 383-386 #1-46
		III. Anticipating Patterns
		    A. Probability
		        4.Discrete random variables and their probability distribution, including binomial and geometric
		        6.Mean (expected value) and standard deviation of a random variable, and linear transformation of a random variable
		    B. Combining independent random variables

		1.Notion of independence versus dependence 2.Mean and standard deviation for sums and differences of independent random variables.
5 days	**_Chapter 17 – Probability Models_** Topics covered: • Properties of Bernoulli Trials • Properties of the Geometric Model • Calculating Geometric Probabilities • Calculating the Expected Value and Standard Deviation for a Geometric Model • Properties of the Binomial Model • Calculating Binomial Probabilities • Calculating the Expected Value and Standard Deviation for a Binomial Model • Simulating Binomial and Geometric Probability Models • Normal Approximation to the Binomial Model • TI: Calculating Geometric Probabilities, Calculating Binomial Probabilities Project: students will examine the odds of winning at various casino games. Assignments: ☐ Read Chapter 17 pgs 388-400 ☐ Pgs 401-410 #1-42	III. Anticipating Patterns A. Probability 4.Discrete random variables and their probability distribution, including binomial and geometric 5.Simulation of random behavior and probability distributions 6.Mean (expected value) and standard deviation of a random variable, and

		linear transformation of a random variable B. Combining independent random variables 1.Notion of independence versus dependence 2.Mean and standard deviation for sums and differences of independent random variables.
4 days	*Unit Assessments* • Quiz – Chapter 16 • Unit 4B Review Activity – Probability Around the World • Unit 4B Test	

Unit 5 – From the Data at Hand to the World at Large (32 days)

Number of Days	Chapter/Topic/Activity/Assignments	AP Statistics Course Topic Outline
6 days	*Chapter 18 – Sampling Distribution Models* Topics covered: • Simulating a Sampling Distribution Model • Sampling Variability • Describing the Sampling Distribution Models for Sample Proportions in terms of Center, Spread, and Shape	III. Anticipating Patterns. . D. Sampling distributions 1.Sampling distribution of a sample proportion 2.Sampling distribution of a

	• Assumptions and Conditions for the Sampling Distribution Model of Sample Proportions • Calculating Probabilities Based on the Sampling Distribution Model of Sample Proportions • Describing the Sampling Distribution Models for Sample Means in terms of Center, Spread, and Shape • Central Limit Theorem • Assumptions and Conditions for the Sampling Distribution Model of Sample Means • Calculating Probabilities Based on the Sampling Distribution Model of Sample Means • Law of Diminishing Returns • Standard Error of the Sampling Distribution Model Assignments: ☐ Read Chapter 18 pgs 412-431 ☐ Pgs 432-438 #1-54	sample mean 3.Central Limit Theorem 6.Simulation of sampling distributions
5 days	*Chapter 19 – Confidence Intervals for Proportions* Topics covered: • Sampling Variability • Estimating Population Parameters • Point Estimates • Margin of Error • Interpreting Confidence Levels • Critical Values of z* • Creating a One-Proportion Z-Interval • Interpreting Confidence Intervals • Assumptions and Conditions for a One-Proportion Z-Interval • Calculating Minimum Sample Size for a given Margin of Error • TI: Calculating a One-Proportion Z-Interval Lab Activities:	IV. Statistical Inference 　A. Estimation (point estimators and confidence intervals) 　　1.Estimating population parameters and margins of error 　　2.Properties of point estimators, including unbiasedness and variability 　　3.Logic of confidence

	• Skittles Lab – Using a bag of Skittles, students will sample with replacement, recording the proportion of red skittles in 30 draws, and create a confidence interval to estimate the proportion of red skittles. Students will graph their CI on the chart paper on the board to illustrate the concepts of sampling variability and confidence level. Assignments: ☐ Read Chapter 19 pgs 439-454 ☐ Pgs 455-458 #1-36		intervals, meaning of confidence level and confidence intervals, and properties of confidence intervals. 4.Large sample confidence interval for a proportion
5 days	*Chapter 20 – Testing Hypotheses About Proportions* Topics covered: • Logic of a Hypothesis Test • Null vs. Alternate Hypotheses • Idea of Rejecting vs. Retaining the Null Hypothesis • Conducting a One-Proportion Z-Test • Calculating a Probability Value (P-Value) • Assumptions and Conditions for a One-Proportion Z-Test • One-sided vs. Two-sided Hypothesis Tests • Drawing Conclusions from our Data • How Hypothesis Tests and Confidence Intervals are Related • TI: Calculating a One-Proportion Z-Test Assignments: ☐ Read Chapter 20 pgs 459-475 ☐ Pgs 476-479 #1-32		IV.　　Statistical Inference 　　　B.　　Test of significance 　　　　　1.Logic of significance 　　　　　testing, null and 　　　　　alternative hypotheses; 　　　　　p-values; one- and two- 　　　　　sided tests 　　　　　3.Large sample test for a 　　　　　proportion
4 days	*Chapter 21 – More About Tests* Topics covered: • P-values as a Conditional Probability • Making a Decision based on an Alpha Level		IV.　　Statistical Inference 　　　B.　　Test of significance 　　　　　1.Logic of significance

	• Critical Values for a Hypothesis Test
	• Comparing a Hypothesis Test to a Confidence Interval
	• Type I and Type II Errors
	• Power of the Test
	• The Relationship between Alpha, Beta, and Power
	• Effect Size
	
	Project:
	• Making a Decision Project – Students will create an original scenario, identifying the null and alternate hypotheses and then describing the Type I error, Type II error and Power of the test in the context of their scenario.
	
	Assignments:
	   ☐ Read Chapter 21 pgs 480-498
	   ☐ Pgs 499-503 #1-34
		testing, null and
		    alternative
		hypotheses;
		
		    p-values; one- and
		two-
		
		    sided tests
		2.Concepts of Type I
		   and
		    Type II errors and
		    concept of power

4 days	*Chapter 22 – Comparing Two Proportions*
	Topics covered:
	• Sampling Distribution Model for the Difference Between Two Independent Proportions
	• Assumptions and Conditions for Two-Proportion Inference
	• Creating a Two-Proportion Z-Interval
	• Idea of Pooling
	• Conducting a Two-Proportion Z-Test
	• Relationship between an Interval and a Test
	• TI: Calculating a Two-Proportion Z-Interval, Calculating a Two-Proportion Z-Test
	
	Assignments:
	   ☐ Read Chapter 22 pgs 504-518
	   ☐ Pgs 519-522 #1-32
		III. Anticipating Patterns. .
		    D. Sampling distributions
		        4.Sampling
		distribution of a
		        difference between
		two
		        independent sample
		        proportions
		
		IV. Statistical Inference
		    A. Estimation (point
		        estimators and
		confidence
		        intervals)
		        5.Large sample
		confidence

		interval for a
		difference
		between two
	proportions	
		B. Test of significance
		4.Large sample test
	for a	
		difference between
	two	
		proportions

8 days	_Unit Assessments_ • Quiz – Chapter 18 • Quiz – Chapter 19 • Quiz – Chapter 20 • Quiz – Chapter 22 • Unit 5 Lab Activity – Pass the Pigs Lab – Students will gather data using the game "Pass the Pigs", then analyze the data, using all of the inference techniques from Unit 5. • Unit 5 Review • Unit 5 Multiple Choice Test • Unit 5 Free Response Test	

Unit 6 –Learning About the World (10 days)

Number of Days	Chapter/Topic/Activity/Assignments	AP Statistics Course Topic Outline

3 days	_Chapter 23 – Inferences About Means_
	Topics covered:
	• Standard Error of the Sample Mean
	• T-distribution
	• Degrees of Freedom
		III. Anticipating Patterns. .
		    D. Sampling distributions
		        7.t-distribution
		
		IV. Statistical Inference

	- When to Use the Z-distribution vs. the T-distribution - Assumptions and Conditions for Inference for Means - Calculating a One-Sample T-Interval for Means - Interpreting a Confidence Interval for Means - Normal Probability Plots Revisited - Conducting a One-Sample T-Test for Means - Drawing a Conclusion Based on a Test for Means - Relationships between Intervals and Tests - Calculating a Minimum Sample Size for a Given Margin of Error - TI: Calculating probabilities for the T-distribution, Calculating a One-Sample T-Interval, Calculating a One-Sample T-Test .
	
	Assignments:
	    ☐ Read Chapter 23 pgs 530-553
	    ☐ Pgs 554-559 #1-40
		A. Estimation (point estimators and confidence intervals)
		1.Estimating population parameters and margins of error
		2.Properties of point estimators, including unbiasedness and variability
		6.Confidence interval for a mean
		B. Test of significance 5.Test for a mean

2 days	*Chapter 24 – Comparing Means* Topics covered: - Sampling Distribution Model for the Difference Between Two Independent Means - When to Use the Z-distribution vs. the T-distribution - Assumptions and Conditions for Two-Sample Inference for Unpaired Means - Creating a Two-Sample T-Interval for Unpaired Means - Idea of Pooling - Conducting a Two-Sample T-Test for Unpaired Means - Relationship between an Interval and a Test - TI: Calculating a Two-Sample T-Interval for Unpaired Means, Calculating a Two-Sample T-Test for Unpaired Means	III. Anticipating Patterns. . D. Sampling distributions 5.Sampling distribution of a difference between two independent sample means IV. Statistical Inference A. Estimation (point estimators and confidence

				intervals)
	Assignments: ☐ Read Chapter 24 pgs 560-578 ☐ Pgs 579-586 #1-38		for a two	7.Confidence interval difference between means (unpaired and paired)
			B.	Test of significance 6.Test for a difference between two means (unpaired and paired)
3 days	*Chapter 25 – Paired Samples and Blocks* Topics covered: • Paired Data vs. Independent Samples • Assumptions and Conditions for Inference for Paired Means • Creating a Matched-Pairs T-Interval for Means • Conducting a Matched-Pairs T-Test for Means • TI: Creating a Matched-Pairs T-Interval for Means, Conducting a Matched-Pairs T-Test for Means Lab Activities: • Timing Your Reaction Lab – Students will gather data using a Reaction Timer for their dominant and non-dominant hands and analyze the data using 2-sample inference methods for independent samples (males vs. females) and dependent samples (dominant vs. non-dominant) Assignments: ☐ Read Chapter 25 pgs 587-601 ☐ Pg 602-608 #1-28	IV. confidence for a two	Statistical Inference A.	Estimation (point estimators and intervals) 7.Confidence interval difference between means (unpaired and paired)
			B.	Test of significance 6.Test for a difference between two means (unpaired and paired)
2 days	*Unit Assessments* • Unit 6 Review			

	• Unit 6 Test	

Unit 7 –Inference When Variables Are Related (10 days)

Number of Days	Chapter/Topic/Activity/Assignments	AP Statistics Course Topic Outline

5 days	*Chapter 26 – Comparing Counts*
	Topics covered:
	• Chi-Square Distribution
	• Chi-Square Test of Goodness of Fit
	• Assumptions and Conditions for Chi-Square Tests
	• Expected Counts vs. Observed Counts
	• Chi-Square Test of Homogeneity
	• Chi-Square Test of Independence
	• TI: Calculating a Chi-Square Test for Goodness of Fit, Calculating a Chi-Square Test for a Table
	
	Lab Activities:
	• Chi Square M&Ms Lab – Students will gather data on the color distribution of M&Ms and compare these results the actual numbers claimed by Mars Candy.
	
	Assignments:
	☐ Read Chapter 26 pgs 618-642
	☐ Pgs 642-648 #1-42
		III. Anticipating Patterns. .
		    D. Sampling distributions
		        8.Chi-square
		        distribution
		
		IV. Statistical Inference
		    B. Test of significance
		        7.Chi-square test for
		        goodness of fit,
		        homogeneity of
		        proportions and
		        independence (one-
		and
		        two-way tables)

3 days	*Chapter 27 – Inferences for Regression*
	Topics covered:
	• Idealized Regression Model
	• Assumptions and Conditions for Inference for Regression
	• Sampling Distribution Model for the Slope of the Regression Line
	• Constructing a T-Interval for the Slope of the LSRL
	• Conducting a T-Test for the Slope of the LSRL
	• Reading Computer Output
		IV. Statistical Inference
		    A. Estimation (point
		        estimators and
		confidence
		        intervals)
		        8.Confidence interval
		for
		        the slope of a least-

	• TI: Calculating a T-Interval for the Slope, Calculating a T-Test for the Slope
	
	Assignments:
	   ☐ Read Chapter 27 pgs 649-672
	   ☐ Pgs 672-682 #1-42
		squares regression line
		
		   B. Test of significance
		     8.Test for the slope of a
		
		     least-squares regression
		
		     line

2 days	*Unit Assessments* • Unit 7 Review • Unit 7 Test	

Unit 8 –AP Exam Review (12 days)

Number of Days	Chapter/Topic/Activity/Assignments	AP Statistics Course Topic Outline
12 days	*Review for AP Exam* Topics covered: • Mock AP Exam using 2007 Released Multiple Choice and most recently released Free Response • Practice Multiple Choice Questions from AP Review Books • Practice Multiple Choice Questions from Acorn Book • Item Analysis of Practice Exams • Practice Investigative Tasks from previously released Free Response • Review sessions after school for each unit of material covered • Topic Outline with detailed review	
1 day	AP Exam!!	