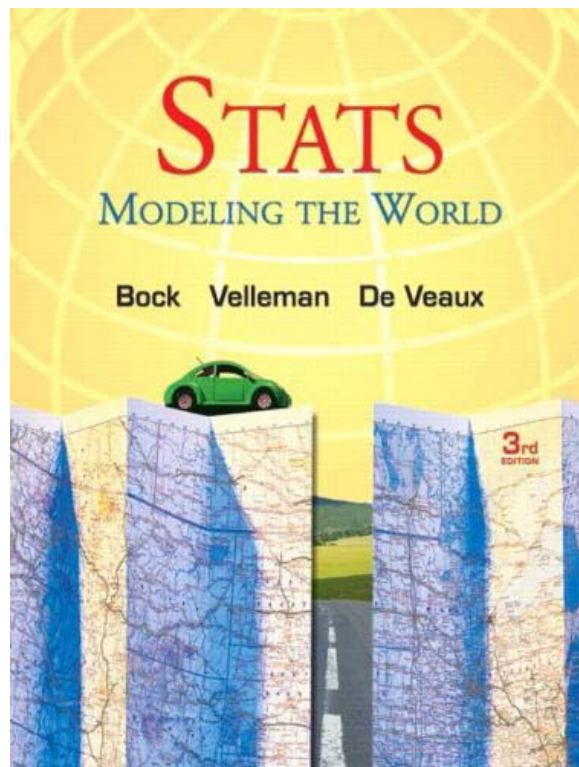


A Correlation of

Stats: Modeling the World

AP Edition © 2010



To the

Standards for Advanced Placement Statistics

**Stats: Modeling the World, AP Edition © 2010
to the Standards for Advanced Placement Statistics**

Introduction

The following correlation demonstrates the alignment of content between **Stats: Modeling the World, AP Edition** and the *Standards for Advanced Placement Statistics*. This document contains references from the Student and Teacher's Editions.

By leading with practical data analysis and graphics, **Stats: Modeling the World, AP Edition**, engages students and gets them to do statistics and think statistically from the start. With the authors' signature **Think, Show, Tell** problem-solving method, students learn what we can find in data, why we find it interesting and how to report it to others.

Benefits and features of **Stats: Modeling the World, AP Edition**:

- **Just Checking** exercises within each chapter allow students to pause and confirm their understanding of key concepts before moving on. These questions provide a quick check and most involve very little calculation. The answers are the end of each chapter so students can easily check their work.
- **What Have We Learned?** sections at the end of each chapter highlight new concepts, define the new terms introduced in the chapter, and list the skills that the student should have acquired. This practical study guide ensures that students are fully prepared for exams.
- **ActivStats Pointers** highlight concept videos, teaching applets, and animations in ActivStats that enhance the discussions in the book. ActivStats with Data Desk statistical software is included with every new copy of the text.
- **Math Boxes** give students easy-to-follow discussions of the underlying mathematics behind statistics. While the authors don't bury students in proofs and derivations, they do show that the formulas and procedures that they use stand on solid ground.
- **What Can Go Wrong?** sections in each chapter illustrate the most common misuses and misconceptions of statistical thinking to arm students with the ability to detect statistical errors and offer practice in debunking misuses of statistics.
- **Easy-to-read TI Tips** show students how to use the calculator's statistics functions as they are needed.
- **By Hand** boxes appear occasionally throughout the text to show students how to do a calculation by hand.
- **Reality Checks** ask students to check that their results make sense in the context of the problem before interpreting the results, reminding them that statistics is about understanding the world with data.
- **End-of-chapter features** test students' understanding of the material and help them prepare for exams. A review of **Key Concepts** and essential **Skills** helps students check their own understanding, and **Connections** sections tie current material to concepts covered in previous chapters.

This document demonstrates the high degree of success students will achieve by using **Stats: Modeling the World, AP Edition**.

**Stats: Modeling the World, AP Edition © 2010
to the Standards for Advanced Placement Statistics**

Advanced Placement Statistics	Stats: Modeling the World, AP Edition © 2010
I. Exploring Data: Describing patterns and departures from patterns	
A. Constructing and interpreting graphical displays of distributions of univariate data (dotplot, stemplot, histogram, cumulative frequency plot)	
1. Center and spread	SE/TE: 53-64, 68-69, 72-78, 81-86, 90-91, 93, 95-103
2. Clusters and gaps	SE/TE: 45, 52, 69, 72-78
3. Outliers and other unusual features	SE/TE: 51-52, 57-60, 63-64, 69, 72-78, 81-84, 86-88, 90-93, 95-103
4. Shape	SE/TE: 45-52, 57, 59-62, 64, 69, 72-78
B. Summarizing distributions of univariate data	
1. Measuring center: median, mean	SE/TE: 53-60, 64-65, 69, 72-78
2. Measuring spread: range, interquartile range, standard deviation	SE/TE: 54-58, 60-65, 69-70, 72-78
3. Measuring position: quartiles, percentiles, standardized scores (z-scores)	SE/TE: 54-58, 64-65, 69, 72-78, 105-112, 116-123, 128, 129-133
4. Using boxplots	SE/TE: 81-86, 88, 90-91, 93, 95-103
5. The effect of changing units on summary measures	SE/TE: 105-106, 108-109, 128-130
C. Comparing distributions of univariate data (dotplots, back-to back stemplots, parallel boxplots)	
1. Comparing center and spread: within group, between group variation	SE/TE: 53-60, 60-65, 69-70, 72-78, 82-86, 88, 90-93, 95-103
2. Comparing clusters and gaps	SE/TE: 82-86, 88, 90-91, 95-103
3. Comparing outliers and other unusual features	SE/TE: 81-84, 86, 88, 90-93, 95-103
4. Comparing shapes	SE/TE: 82-93, 95-103
D. Exploring bivariate data	
1. Analyzing patterns in scatterplots	SE/TE: 146-148, 150-156, 159-162, 164-170
2. Correlation and linearity	SE/TE: 150-156, 158-161, 163-170
3. Least-squares regression line	SE/TE: 172-180, 192-199
4. Residual plots, outliers, and influential points	SE/TE: 172, 180-188, 190, 192-199, 201-203, 205-208, 210-211, 213-221
5. Transformations to achieve linearity: logarithmic and power transformations	SE/TE: 224-236, 238-224
E. Exploring categorical data	
1. Frequency tables and bar charts	SE/TE: 21-23, 28-32, 36, 37-43
2. Marginal and joint frequencies for two-way tables	SE/TE: 24-27, 29-31, 36, 38-43
3. Conditional relative frequencies and association	SE/TE: 26-32, 36, 38-43
4. Comparing distributions using bar charts	SE/TE: 22-23, 28-32, 36, 38-43
II. Sampling and Experimentation: Planning and conducting a study	
A. Overview of methods of data collection	
1. Census	SE/TE: 271-272, 286
2. Sample survey	SE/TE: 268-271, 273-280, 282-291
3. Experiment	SE/TE: 294-316
4. Observational study	SE/TE: 292-293, 310, 312-316
B. Planning and conducting surveys	
1. Characteristics of a well-designed and well-conducted survey	SE/TE: 268-271, 273-291
2. Populations, samples, and random selection	SE/TE: 268-273, 277-280, 282-283, 285-286, 288-291

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Advanced Placement Statistics	Stats: Modeling the World, AP Edition © 2010
3. Sources of bias in surveys	SE/TE: 269, 280-284, 286-291
4. Sampling methods, including simple random sampling, stratified random sampling, and cluster sampling	SE/TE: 273-279, 286, 288-291
C. Planning and conducting experiments	
1. Characteristics of a well-designed and well-conducted experiment	SE/TE: 295-298, 300-306, 309-316
2. Treatments, control groups, experimental units, random assignments, and replication	SE/TE: 294-299, 301, 305, 309-316
3. Sources of bias and confounding, including placebo effect and blinding	SE/TE: 301-303, 306-316
4. Completely randomized design	SE/TE: 298, 305, 311, 313-316
5. Randomized block design, including matched pairs design	SE/TE: 304-305, 312-316
D. Generalizability of results and types of conclusions that can be drawn from observational studies, experiments, and surveys	SE/TE: 268-291, 292-316
III. Anticipating Patterns: Exploring random phenomena using probability and simulation	
A. Probability	
1. Interpreting probability, including long-run relative frequency interpretation	SE/TE: 326-341
2. "Law of large numbers" concept	SE/TE: 326-327, 336, 338
3. Addition rule, multiplication rule, conditional probability, and independence	SE/TE: 328-332, 334-341, 342-365
4. Discrete random variables and their probability distributions, including binomial and geometric	SE/TE: 366-367, 371, 382-386, 389-396, 400-404
5. Simulation of random behavior and probability distributions	SE/TE: 286-267, 366-367, 371, 377-386, 389-404
6. Mean (expected value) and standard deviation of a random variable, and linear transformation of a random variable	SE/TE: 367-386
B. Combining independent random variables	
1. Notion of independence versus dependence	SE/TE: 373-381, 383-386
2. Mean and standard deviation for sums and differences of independent random variables	SE/TE: 373-380, 382-386
C. The normal distribution	
1. Properties of the normal distribution	SE/TE: 112-133
2. Using tables of the normal distribution	SE/TE: 112-133
3. The normal distribution as a model for measurements	SE/TE: 114-133
D. Sampling distributions	
1. Sampling distribution of a sample proportion	SE/TE: 413-414, 416-419, 429-438
2. Sampling distribution of a sample mean	SE/TE: 420-426, 429-438
3. Central Limit Theorem	SE/TE: 421-426, 429-438
4. Sampling distribution of a difference between two independent sample proportions	SE/TE: 507-516, 518, 519-522
5. Sampling distribution of a difference between two independent sample means	SE/TE: 561-576, 578, 586
6. Simulation of sampling distributions	SE/TE: 258-262, 264-267, 412-414, 416-417, 429, 432-438
7. <i>t</i> -distribution	SE/TE: 533-536, 538-540, 542-546, 552-559
8. Chi-square distribution	SE/TE: 621-648

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Advanced Placement Statistics	Stats: Modeling the World, AP Edition © 2010
IV. Statistical Inference: Estimating population parameters and testing hypotheses	
A. Estimation (point estimators and confidence intervals)	
1. Estimating population parameters and margins of error	SE/TE: 440-458, 504-522, 530-559, 560-586, 587-608, 649-682
2. Properties of point estimators, including unbiasedness and variability	SE/TE: 412-438, 439-458, 530-559
3. Logic of confidence intervals, meaning of confidence level and confidence intervals, and properties of confidence intervals	SE/TE: 440-458
4. Large sample confidence interval for a proportion	SE/TE: 440-443, 446-451, 453, 455-458
5. Large sample confidence interval for a difference between two proportions	SE/TE: 507-510, 519-522
6. Confidence interval for a mean	SE/TE: 533-542, 547-549, 552, 554-559
7. Confidence interval for a difference between two means (unpaired and paired)	SE/TE: 562, 564-568, 578-586, 594-598, 602-608
8. Confidence interval for the slope of a least-squares regression line	SE/TE: 660-668, 671-682
B. Tests of significance	
1. Logic of significance testing, null and alternative hypotheses; p -values; one- and two-sided tests; concepts of Type I and Type II errors; concept of power	SE/TE: 459-479, 480-503
2. Large sample test for a proportion	SE/TE: 463-473, 475-479
3. Large sample test for a difference between two proportions	SE/TE: 513-516, 519-522
4. Test for a mean	SE/TE: 542-549, 552, 554-559
5. Test for a difference between two means (unpaired and paired)	SE/TE: 569-576, 578-586, 591-594, 600, 602-608
6. Chi-square test for goodness of fit, homogeneity of proportions, and independence (one- and two-way tables)	SE/TE: 621-648
7. Test for the slope of a least-squares regression line	SE/TE: 658-659, 661-665, 671-682