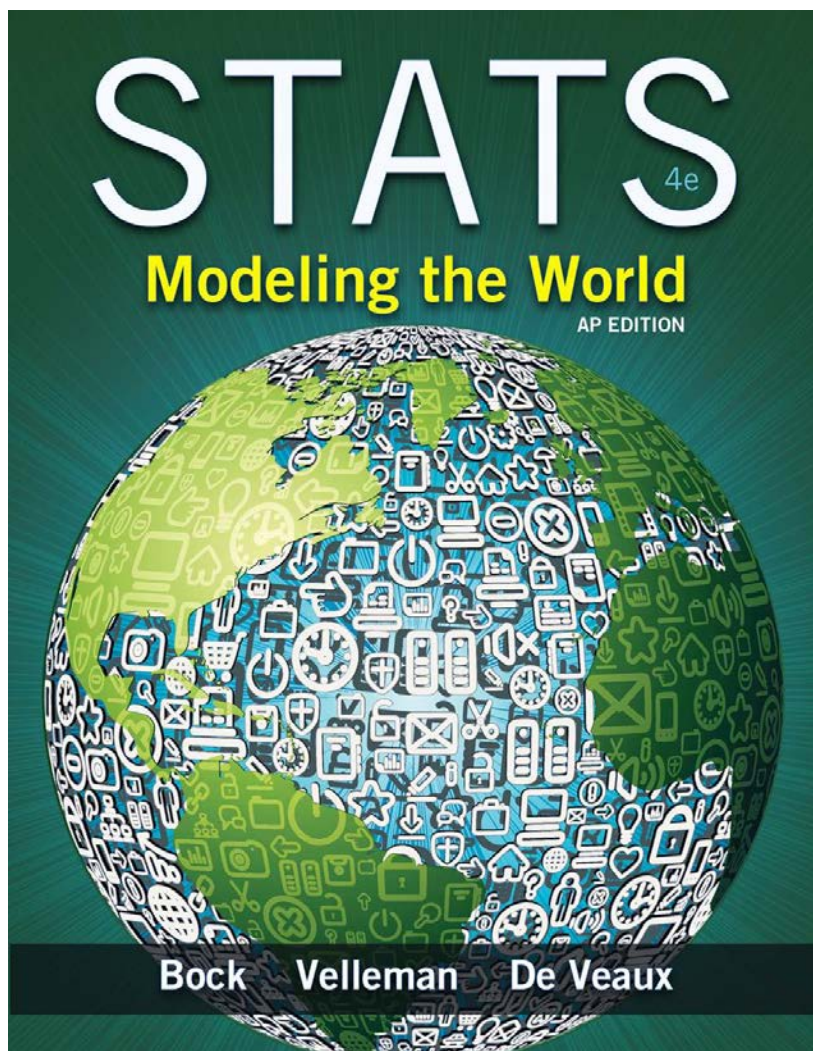


A Correlation of

Stats Modeling the World

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to the

Advanced Placement Statistics Standards

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Advanced Placement Statistics	Stats: Modeling the World AP Edition, ©2015
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: 1.3: 48, 51-53, 58
2. Clusters and gaps	SE/TE: 1.3 44, 51, 3.11: 287
3. Outliers and other unusual features	SE/TE: 1.4: 88-89
4. Shape	SE/TE: 1.3: 48, 50, 58
B. Summarizing distributions of univariate data	
1. Measuring center: median, mean	SE/TE: 1.3: 51-53, 58-60
2. Measuring spread: range, interquartile range, standard deviation	SE/TE: 1.3: 53-54, 56, 60-61, 1.5: 111
3. Measuring position: quartiles, percentiles, standardized scores (z-scores)	SE/TE: 1.3 53-54
4. Using boxplots	SE/TE: 1.3: 55-56, 58
5. The effect of changing units on summary measures	SE/TE: 1.5: 111-112
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: 1.4: 84-88, 2.9: 234-235, 6.23: 606, 622
2. Comparing clusters and gaps	SE/TE: 1.4: 44
3. Comparing outliers and other unusual features	SE/TE: 1.3: 50, 56, 1.4: 89
4. Comparing shapes	SE/TE: 1.3: 48-51
D. Exploring bivariate data	
1. Analyzing patterns in scatterplots	SE/TE: 2.6: 151, 155, 2.9: 236
2. Correlation and linearity	SE/TE: 2.6: 154-156, 2.7: 178-179
3. Least-squares regression line	SE/TE: 2.9: 255, 7.26: 708
4. Residual plots, outliers, and influential points	SE/TE: 1.4: 88-89
5. Transformations to achieve linearity: logarithmic and power transformations	SE/TE: 2.9: 241-242

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E. Exploring categorical data	
1. Frequency tables and bar charts	SE/TE: 1.2: 16-17, 22-26, 31-42
2. Marginal and joint frequencies for two-way tables	SE/TE: 1.2: 18-20, 25, 31
3. Conditional relative frequencies and association	SE/TE: 1.2: 16-17, 20-23, 26, 31
4. Comparing distributions using bar charts	SE/TE: 1.2: 17, 22-24, 31
II. Sampling and Experimentation: Planning and conducting a study	
A. Overview of methods of data collection	
1. Census	SE/TE: 1.1: 5, 283-284, 582, 585
2. Sample survey	SE/TE: 3.11: 280-297, 331
3. Experiment	SE/TE: 3.12: 305-325, 331
4. Observational study	SE/TE: 1.2: 27, 3.12: 305-306, 331
B. Planning and conducting surveys	
1. Characteristics of a well-designed and well-conducted survey	SE/TE: 3.11: 291-293, 296-297
2. Populations, samples, and random selection	SE/TE: 3.11: 282, 313-314
3. Sources of bias in surveys	SE/TE: 3.11: 281-282, 5.18: 487
4. Sampling methods, including simple random sampling, stratified random sampling, and cluster sampling	SE/TE: 3.11: 285-288, 296-297, 3.12: 311
C. Planning and conducting experiments	
1. Characteristics of a well-designed and well-conducted experiment	SE/TE: 3.12: 308-312
2. Treatments, control groups, experimental units, random assignments, and replication	SE/TE: 1.1: 4, 3.12: 307, 308-310, 312-313, 314
3. Sources of bias and confounding, including placebo effect and blinding	SE/TE: 3.12: 314-315, 316
4. Completely randomized design	SE/TE: 3.12: 311, 318, 320
5. Randomized block design, including matched pairs design	SE/TE: 3.12: 317-318

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D. Generalizability of results and types of conclusions that can be drawn from observational studies, experiments, and surveys	SE/TE: 3.11: 296-297, 3.12: 306
III. Anticipating Patterns: Exploring random phenomena using probability and simulation	
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1. Interpreting probability, including long-run relative frequency interpretation	SE/TE: 1.2: 16-17, 1.3: 44
2. "Law of large numbers" concept	SE/TE: 4.13: 345, 354-355
3. Addition rule, multiplication rule, conditional probability, and independence	SE/TE: 4.13: 345, 350-351, 4.14: 368-371, 4.15: 396, 5.20: 518
4. Discrete random variables and their probability distributions, including binomial and geometric	SE/TE: 4.15: 389-390, 393-394, 405, 4.16: 415-422, 428
5. Simulation of random behavior and probability distributions	SE/TE: 3.10: 269-275, 4.15: 389-390, 405
6. Mean (expected value) and standard deviation of a random variable, and linear transformation of a random variable	SE/TE: 4.15: 394-400
B. Combining independent random variables	
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2. Mean and standard deviation for sums and differences of independent random variables	SE/TE: 4.15: 394-400
C. The normal distribution	
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2. Using tables of the normal distribution	SE/TE: 1.5: 119
3. The normal distribution as a model for measurements	SE/TE: 1.5: 114, 116, 4.16: 423-425, 428
D. Sampling distributions	
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2. Sampling distribution of a sample mean	SE/TE: 5.17: 456, 457-458
3. Central Limit Theorem	SE/TE: 5.17: 454-455, 459-460

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4. Sampling distribution of a difference between two independent sample proportions	SE/TE: 5.17: 445-448, 449-452
5. Sampling distribution of a difference between two independent sample means	SE/TE: 5.17: 456, 457-458
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7. <i>t</i> -distribution	SE/TE: 6.22: 578, 596, 7.26: 716, 720
8. Chi-square distribution	SE/TE: 7.25: 675, 695
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: 3.11: 284-285, 5.18: 477-478
2. Properties of point estimators, including unbiasedness and variability	SE/TE: 5.17: 465, 5.21: 561, 7.26: 726
3. Logic of confidence intervals, meaning of confidence level and confidence intervals, and properties of confidence intervals	SE/TE: 5.18: 473-488
4. Large sample confidence interval for a proportion	SE/TE: 5.21: 544-545
5. Large sample confidence interval for a difference between two proportions	SE/TE: 5.21: 544-545
6. Confidence interval for a mean	SE/TE: 6.22: 578-579
7. Confidence interval for a difference between two means (unpaired and paired)	SE/TE: 6.22: 578-579, 6.24: 641-642
8. Confidence interval for the slope of a least-squares regression line	SE/TE: 7.26: 706-707, 724, 728
B. Tests of significance	
1. Logic of significance testing, null and alternative hypotheses; <i>p</i> -values; one- and two-sided tests; concepts of Type I and Type II errors; concept of power	SE/TE: 5.19: 494-496, 498-499, 500-501, 503-504, 5.20: 518-524, 527-535

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2. Large sample test for a proportion	SE/TE: 5.21: 555
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5. Test for a difference between two means (unpaired and paired)	SE/TE: 6.23: 617
6. Chi-square test for goodness of fit, homogeneity of proportions, and independence (one- and two-way tables)	SE/TE: 7.25: 676-678, 682, 687-693, 697
7. Test for the slope of a least-squares regression line	SE/TE: 7.26: 718-721