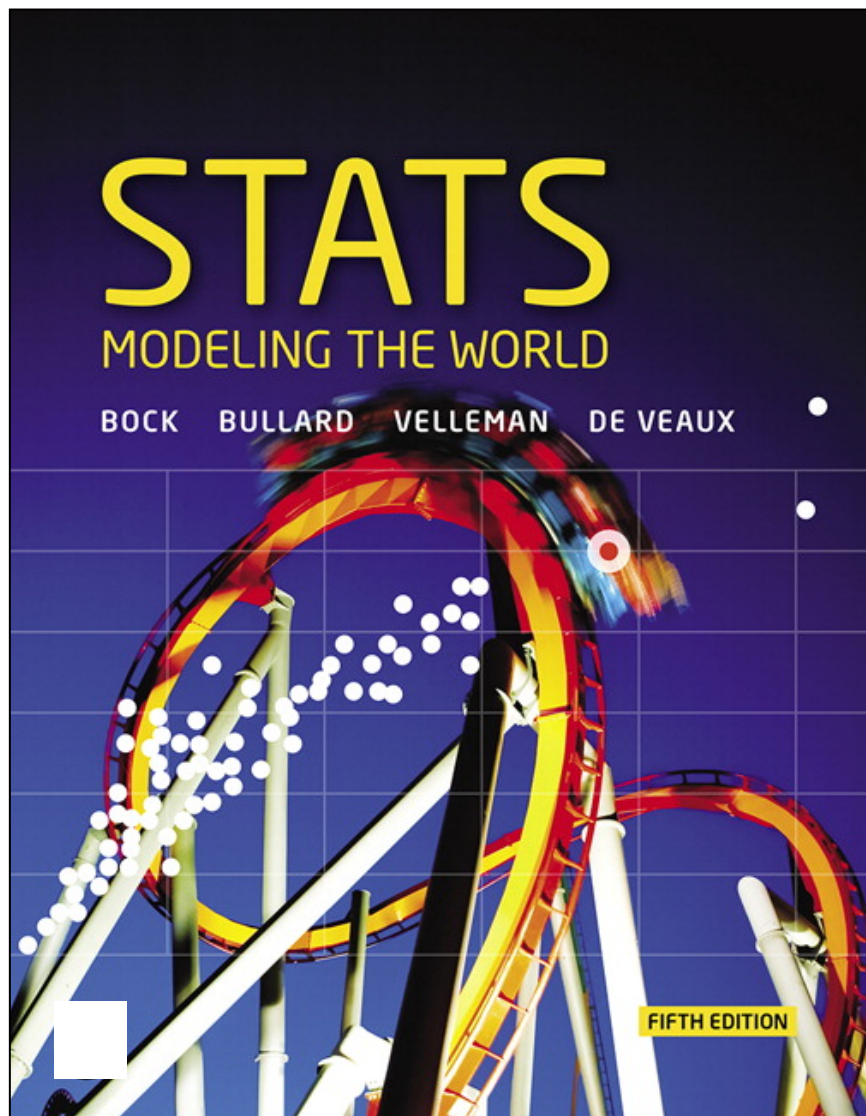


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A Correlation of

**Stats Modeling the World
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to the

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Advanced Placement Statistics	Stats: Modeling the World 5th Edition, ©2019
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: 41, 43-45, 49-52, 54-55
2. Clusters and gaps	SE/TE: 41, 66
3. Outliers and other unusual features	SE/TE: 47, 59
4. Shape	SE/TE: 46-48, 54-55
B. Summarizing distributions of univariate data	
1. Measuring center: median, mean	SE/TE: 49-50, 55-57, 60-61
2. Measuring spread: range, interquartile range, standard deviation	SE/TE: 50-53, 54-55, 58-59, 60-61
3. Measuring position: quartiles, percentiles, standardized scores (z-scores)	SE/TE: 50-51, 61, 103-105
4. Using boxplots	SE/TE: 53-54
5. The effect of changing units on summary measures	SE/TE: 58, 60, 103
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: 80-83, 88-89
2. Comparing clusters and gaps	SE/TE: 85
3. Comparing outliers and other unusual features	SE/TE: 84
4. Comparing shapes	SE/TE: 86-87
D. Exploring bivariate data	
1. Analyzing patterns in scatterplots	SE/TE: 148-150
2. Correlation and linearity	SE/TE: 152-160, 171-173, 174-175

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3. Least-squares regression line	SE/TE: 173-175
4. Residual plots, outliers, and influential points	SE/TE: 149, 162, 173-174, 180-181
5. Transformations to achieve linearity: logarithmic and power transformations	SE/TE: 228, 231-232, 233-237, 238-240
E. Exploring categorical data	
1. Frequency tables and bar charts	SE/TE: 15-17
2. Marginal and joint frequencies for two-way tables	SE/TE: 18-20
3. Conditional relative frequencies and association	SE/TE: 20-23, 24-25
4. Comparing distributions using bar charts	SE/TE: 16-17, 20-21, 24-25, 26
II. Sampling and Experimentation: Planning and conducting a study	
A. Overview of methods of data collection	
1. Census	SE/TE: 281-283
2. Sample survey	SE/TE: 278-279, 290-292
3. Experiment	SE/TE: 305-321
4. Observational study	SE/TE: 303-304
B. Planning and conducting surveys	
1. Characteristics of a well-designed and well- conducted survey	SE/TE: 290-291
2. Populations, samples, and random selection	SE/TE: 278-283, 292-293
3. Sources of bias in surveys	SE/TE: 279, 293

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4. Sampling methods, including simple random sampling, stratified random sampling, and cluster sampling	SE/TE: 283-290
C. Planning and conducting experiments	
1. Characteristics of a well-designed and well-conducted experiment	SE/TE: 306-312
2. Treatments, control groups, experimental units, random assignments, and replication	SE/TE: 312-313
3. Sources of bias and confounding, including placebo effect and blinding	SE/TE: 313-320
4. Completely randomized design	SE/TE: 307, 309-310
5. Randomized block design, including matched pairs design	SE/TE: 308, 315-317
D. Generalizability of results and types of conclusions that can be drawn from observational studies, experiments, and surveys	SE/TE: 290-292, 303-304, 321-322
III. Anticipating Patterns: Exploring random phenomena using probability and simulation	
A. Probability	
1. Interpreting probability, including long-run relative frequency interpretation	SE/TE: 342-344, 347-348, 371-373
2. "Law of large numbers" concept	SE/TE: 344
3. Addition rule, multiplication rule, conditional probability, and independence	SE/TE: 348-355, 362-371, 373-374
4. Discrete random variables and their probability distributions, including binomial and geometric	SE/TE: 389, 392-393, 413-416, 416-420

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5. Simulation of random behavior and probability distributions	SE/TE: 267-273
6. Mean (expected value) and standard deviation of a random variable, and linear transformation of a random variable	SE/TE: 388-399, 399-403
B. Combining independent random variables	
1. Notion of independence versus dependence	SE/TE: 402-403
2. Mean and standard deviation for sums and differences of independent random variables	SE/TE: 394-397
C. The normal distribution	
1. Properties of the normal distribution	SE/TE: 399-402
2. Using tables of the normal distribution	SE/TE: 112-120, 130, 585-586
3. The normal distribution as a model for measurements	SE/TE: 399-402, 421-426, 443-448
D. Sampling distributions	
1. Sampling distribution of a sample proportion	SE/TE: 443-446, 447-450
2. Sampling distribution of a sample mean	SE/TE: 451-452, 454-458, 459-460
3. Central Limit Theorem	SE/TE: 452-458, 459-462
4. Sampling distribution of a difference between two independent sample proportions	SE/TE: 544-545, 545-549
5. Sampling distribution of a difference between two independent sample means	SE/TE: 606-608, 608-613, 613-618
6. Simulation of sampling distributions	SE/TE: 451-452
7. <i>t</i> -distribution	SE/TE: 607-608, 609-612, 613-618
8. Chi-square distribution	SE/TE: 672-677, 678-681, 683-689

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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: 476-478, 481-486
2. Properties of point estimators, including unbiasedness and variability	SE/TE: 471-476, 486, 533-534
3. Logic of confidence intervals, meaning of confidence level and confidence intervals, and properties of confidence intervals	SE/TE: 471-476, 477-485
4. Large sample confidence interval for a proportion	SE/TE: 453-457
5. Large sample confidence interval for a difference between two proportions	SE/TE: 544-550
6. Confidence interval for a mean	SE/TE: 579-580, 591-594
7. Confidence interval for a difference between two means (unpaired and paired)	SE/TE: 634-636, 636-641, 641-646
8. Confidence interval for the slope of a least-squares regression line	SE/TE: 712-713, 714-717
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: 494-498, 498-504, 504-508, 517-523, 523-526, 527-534
2. Large sample test for a proportion	SE/TE: 546, 548, 553, 555
3. Large sample test for a difference between two proportions	SE/TE: 544-546, 547-549
4. Test for a mean	SE/TE: 587-592
5. Test for a difference between two means (unpaired and paired)	SE/TE: 609-613, 613-618, 636-644

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6. Chi-square test for goodness of fit, homogeneity of proportions, and independence (one- and two-way tables)	SE/TE: 673-677
7. Test for the slope of a least-squares regression line	SE/TE: 711-720

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