New Book Proposal Guidelines

IN CONFIDENCE

These guidelines are designed to help you provide us with a complete description of the book you aim to write and the audience you aim to reach. A good proposal will take time and thought to complete and you may wonder why it is necessary. In practical terms, it provides us with the information we need in order to be able to carry out a thorough market assessment and a project costing. Many authors also find the process of preparing a proposal invaluable in helping to focus their ideas and clarify their vision for the book. A good proposal will provide the framework for the entire book, helping to direct and structure the writing and, in the end, forming the basis of the preface you will need to write. So your time will not be wasted.

TITLE AND AUTHOR(S)

1. Tentative book title, and subtitle if appropriate:
   PRACTICAL STATISTICS FOR MANAGERS: Making Better Decisions
   PRACTICAL STATISTICS FOR PROFESSIONAL: Making Better Decisions
   PRACTICAL STATISTICS FOR DECISION MAKERS

2. Author/Editor's full name(s), **in the order they should appear in the book**:
   MILO SCHIELD

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7. Date this proposal was completed:
   August 23, 2015

I. YOUR VISION FOR THE BOOK

8. Please provide a short summary of your vision for the book which includes the following:

a) A detailed description of the book … including the topics it will cover.

This is an introductory statistics textbook for professionals: anyone who needs to read and interpret data in order to make better decisions. They are not interested in calculations, derivations or mathematical symbols. They are interested in using tables, ratios and comparisons to control for related factors. They want to use statistical associations as evidence for causal connections or as measures of the effects of interventions. They need help in evaluating statistics obtained from observational data ranging from small samples to big data.

To help professionals make better decisions using statistics, this textbook covers most of the traditional topics but features seven new topics: confounding, control, "conditional probability", context, coincidence, causation and critical thinking.

- *Critical thinking – analyzing the strength of an argument – is what good professionals must do to separate the statistical wheat from the chaff. Critical thinking involves inductive reasoning about statistics as evidence for causation. Teaching this isn't easy, but I've taught it for over 10 years, so I have some ideas on what works.*
- *Causation is typically the reason professionals are concerned with statistics. Yet most textbooks simply present the abstinence approach: Association is not causation. Professionals need something better. They need to evaluate how strongly a statistical association provides support for a causal connection. A key skill is asking good questions and thinking hypothetically about how statistics were constructed.*
- *Coincidence is a major problem in big data. Big data is very big today – and it will get even bigger. In big data, most associations are statistically significant, but a new form of coincidence emerges: unlikely patterns and "hot spots". Professionals must be familiar with all this to avoid overreacting when dealing with big data.*
- *Context is another big idea for this textbook: where do statistics come from, how are they assembled or defined, what kind of study produced them and what is the relation between the target population and the sampled population? These are important issues for professionals in evaluating the strength that a statistic provides in an argument.*
- *Confounding is a central topic of this textbook. Confounders are related factors that when taken into account can influence a statistic, associations and statistical significance. Confounding is a major problem for professionals since they deal with quasi-experiments and observational data. Using a simple graphical technique, students work problems involving confounding – problems that have right-wrong answers.*
- *Control is used to block confounding. This text studies the simplest methods: tables, ratios, conditional probabilities, matching, and study design. It shows how random assignment statistically controls for pre-existing confounders and presents this as one of statistics' greatest contributions to human knowledge.*

- *"Conditional probability" is presented using ordinary English. Professionals must decide whether "percentage of A who are B" is the same as "the percentage of A among B". They must be able to tell if "A is X times as likely among B as among C" is the same as "A is X times as likely to B as [it is] to C." This continuing focus on ordinary English is extremely helpful for ESL students.*

This textbook shows how controlling for a confounder can transform a statistically-significant association into one that is not statistically significant – or vice versa. This critically-important topic is not found in any other introductory statistics textbook. .

Excel is featured. All the Excel exercises have been field tested on hundreds of students – many of them in totally online classes. Approximations are used to demonstrate logistic regression and classification analysis using Excel.

This textbook is designed for data-consuming professionals: those who need to read and interpret data. The goal is statistical literacy. This textbook focuses broadly on all the influences on a statistic with a major emphasis on confounding. The ultimate goal is to help them evaluate the statistical strength of causal claims.

Critical thinking involves testing assumptions and evaluating results. Yes, deduction can be helpful. For example, statisticians can prove with 100% certainty that of the 95% confidence intervals generated by random samples from a population, 95% of these intervals are expected to include the population parameter. But this deduction is far less useful to a manager than hints on how to see if the sample is truly random.

This book provides hundreds of student-tested right-wrong exercises that help students develop their critical thinking skills in ways that math-based faculty can deal with.

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b) An explanation of why you feel the book should be published. How will it benefit the reader?

This textbook is based on my business experience as a manager and as a consultant to other executives. I worked with probability and various distributions, but I never saw a p-value or a test of hypothesis. Most business statistics books cover the same topics as an applied general statistics textbook with a strong focus on hypothesis testing. In this text, the focus on hypothesis tests is abbreviated and illustrated using Excel. This frees up space and time to take on topics that professionals need.

Professionals need to be trained as data processors and consumers – not as data producers. Since random assignment, double-blind experiments are often either impossible or unethical, they need to evaluate the influence of context on statistics based on observational studies.

Today's business challenge is big data where almost every association is statistically significant. Coincidence – runs and clusters – becomes more likely, while confounding is unchanged. This text prepares future professionals to deal with big data.

This book focuses on critical thinking and strength of argument. As institutions place more emphasis on critical thinking, this approach will be in supportive alignment.

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c) An indication of the level at which your book is aimed: academic or practitioner, postgraduate or undergraduate students? If practitioners, what roles/jobs will your readers perform? How core will the information contained in your book be to their function? Would you describe it as introductory, advanced or specialist?

Academic: Undergraduate, business introductory; Executive MBA and management training programs. Also useable by educators in Economics, Sociology, Nursing and Education.

The main sections of this book are slightly different from traditional texts. They are:

1. *Introduction*
2. *Descriptive statistics: measurements*
3. *Descriptive statistics: counts*
4. *Predictive statistics*
5. *Explanatory statistics*
6. *Randomness, sampling and coincidence*
7. *Margin of Error, Confidence intervals and statistical significance*
8. *Observationally-Based Decisions: Confounding and Study Design*
9. *Observationally-Based Decisions: Effect sizes, Standardizing & Nullification*
10. *Conclusion*

The appendix is very different. It contains material that is not part of the main chapters. Some instructors may not see the value in some of this material. But after dealing with the material in the chapters, they may find these appendices very helpful.

For example, Appendix A contains materials that should have been taught at the school level and need to be learned by students for whom English is not their native language. These materials have been student-tested by over a thousand students over more than a dozen years.

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d) A list of the kinds of pedagogical features (tables, illustrations, photographs, problems/ solutions, case studies, tutorials, examples, etc.) you propose to include. Will your book feature any supplementary material, e.g. a supporting Website, teacher's guide, or solutions manual? Please give details.

- *Visual orientation with illustrations, graphs and tables.*
- *Exercises: over 100 student-tested multiple-choice exercises (5-10 problems @)*
- *Writing/thinking: Uses 'Odyssey': a specially-designed web forum for this task.*
- *Proprietary web site with programs to tutor students in using ordinary English to describe and compare percentages, rates and probabilities Field tested by ESL students at the Univ. Texas, El Paso.*
- *Excel worksheets: Schield's worksheet on creating a log-normal has been downloaded over 40,000 times. These step-by-step guides have been field tested in hybrid and online classes.*

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e) A preliminary table of contents (including subsections within chapters) showing the scope and sequence of the topics you propose to cover. A brief description of what each chapter will cover and how, is also very helpful.

Note: New (non-standard) topics are italicized.

Practical Statistics for Professionals

1. **Introduction: Professionals and Statistics**

Why do professionals need statistics? What kinds of statistics will they deal with?
What do they need to know to be able "to read and interpret statistics"?
Focus on quasi-experiments and observational data (administrative/big data)
Statistical illiteracy: willingness to believe arguments framed using numbers since arithmetic is always valid – even if it is not true. Kaplan (2010)
First big idea: Statistics are numbers in context – where the context matters.
Second big idea: Association is not causation.
Third big idea: Context includes Comparisons/confounding, Assembly, Randomness and Error/bias. Admonition: Take CARE.

Part 1: Descriptive Statistics

Standard introduction on types of data but connected to appropriate type of graph.
Using ordinary English to compare numbers, percentages and percentiles
Tip: Never mix units "Increased from 20% to one-third."
Tip: Show all forms of common units (Weight: 150# or 22 KG)

2. **Descriptive Statistics: Counts and Ratios (Conditional Probability)**

Use of pie-charts to display all part-whole ratios.
Uses ordinary English to describe and compare count ratios.
Introduce percent, percentage, rate, chance and likely grammars.
How to read rate and percentage tables: 100%, half tables and tables w/o margins
How to read bar graphs involving part-whole percentages found in USA Today
Using Excel to create percentage tables: 100%, one-way and two-way half tables.
Using Excel to create pie charts and bar & line graphs of rates and percentages

3. **Descriptive Statistics: Measurements (Conditional Probability)**

Ranks and social construction; comparing percentiles (
Measures of center, spread, the coefficient of variation and z-scores
Statistical significance of sample means via visual comparisons (Wild et al, 2010)
Common distributions: symmetric (normal) and skewed (exponential, log-normal)
Conditional probability as an area.
Interpreting histograms and cumulative distribution functions.
Analyzing process (stream) flows:
Describing and comparing measurements in tables and graphs
Describing and comparing measurements in time-series. (Walgren 2010)
Using Excel to create line graphs, XY scatter plots and histograms.

Part 2: Predictive and Explanatory Statistics

4. **Predictive Statistics**

OLS regression using Excel XY plots with Trendline, equation and R^2.
Correlation and modeling for time series data
Multivariate regression using Excel Toolpak. Generate prediction intervals.
Using multivariate regression to show confounder influence on predictions
Credit Dependence: Logistic regression using OLS in Excel.
Lognormal distribution, income inequality and Gini coefficient using Excel
Financial simulations with correlation using Excel
Classification analysis using Excel

5. Explanatory Statistics (Ignores causation) Applying Conditional Probability

Confusion of the inverse as a major problem in interpreting conditional probability
Medical tests, the base-rate fallacy and *a simple rule for evaluating such tests*
Disparate impact and the 80% rule. Success may mean bigger differences.
Simpson's paradox *and the Cornfield necessary conditions for such a reversal*
Comparing three-factor percentages, P(A|BC) vs. P(AB|C), via ordinary English
Percentage and cases attributable as spotty or speculative statistics
Bayes' lift comparisons: P(Y|X) . P(Y) = P(X/Y) / P(X) using ordinary English

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Part 3: Inferential Statistics

6. Randomness, sampling and coincidence

Why do professionals sample? Why is a random sample better than representative?
Distinguish random from haphazard. Radioactive decay,
evolution; natural selection, speciation and genetic drift.
Introduce systematic error/.bias: sampling bias, subject bias and measurement bias.
Target population vs. sampled population. Population drift.
Introduce random sampling methods; *relate to presence/absence of list of subjects*
Develop a model of chance in order to estimate expected sampling variation.
Illustrate independence in gambling and in tables of counts and ratios.
What is the Gambler's fallacy and when is it not a fallacy?
Use Richard von Mises' empirical approach to explain basic rules of probability
Use Excel to explore binomial, hypergeometric, Poisson and Normal distributions
Identify outcomes in these distributions that are statistically significant
Law of Very Large Numbers. The unlikely is almost certain given enough tries
Use EV = P*N to estimate coincidence: a major problem in big data
Applications of coincidence: runs, hot spots and regression to the mean.
Applications of randomness: sensitive question surveys and estimating group size

7. Margin of Error, Confidence intervals and statistical significance

Start with intuitive understanding of Margin of Error. Shape: Unknown.
* Right: Decreases as sample size increases. Increases as pop. Stdev increases
* Wrong: Increases as confidence increases. Requires 5-10% of population.

Sampling distribution for proportions: Binomial with large N generates Normal
Sampling distribution for means: The Central Limit theorem.
Margin of error: The amount of error we "expect" with probability P.
*Introduce one-group margin of error as [Z * sample-std-deviation / sqrt(n)]*
This is overly conservative for proportions, but it simplifies things
Use Excel to calculate margin of error and generate 95% confidence intervals
Statistical significance: lack of overlapping 95% confidence intervals
This is overly conservative, but it is accessible and more memorable
Hypothesis tests are discussed to illustrate Type 1 and Type 2 error
Minimal focus on calculation of p-values or on one versus two tails
Bayesian criteria: reject null if p-value is LT chance the alternate is true
Discussion of the concept of power [?] Magnitude – not just direction.
Provide shortcuts for statistical significance involving percentage changes, relative risks, correlations, R-squared and chi-squared.
Causation using random assignment: controls for all pre-existing confounders.
How causal heterogeneity can influence statistical significance in clinical trials

Part 4: Causal Statistics

8. **Observationally-Based Decisions: Confounding (Causation-based)**
   Review of causation: deterministic versus probabilistic
   Abstinence-based approach to causation; no causation without experimentation
   Hill criteria for epidemiological causation. Kaplan (2010).
   Confounding in quasi-experiment and observational studies (numerous examples)
   Study designs and their ability to control certain kinds of confounders
   Most studies in journals and almost all of big data are observational.
   Assign letter grades to various study designs based on their relative strengths

9. **Observationally-Based Decisions: Effect Sizes, Standardizing & Nullification**
   Effect sizes: review of various measures.
   Standardizing as a simple way of controlling for a binary confounders
   Show how controlling for confounders can influence statistical associations
   Review Cornfield conditions for nullifying or reversing an association.
   The larger the effect size, the greater the resistance to reversal by confounders.
   Controlling for a confounder can influence statistical significance.
   This is the point of this book – a point not made in any other intro text.

10. **Conclusion:**
    When is statistical significance necessary?
    Inductive strength of evidence vs deductive validity.
    Learning to ask good questions

Teacher advice: First time teachers should start with the traditional chapters (2-4, 6 and 7). This gives them plenty of time to add their own materials and for students to work projects. Once teachers are comfortable with the presentation of these traditional topics, then they can add some of the newer chapters (1 and 5). Learning how to present these newer topics takes time. It is much simpler to use Algebra than it is to use ordinary English – especially with non-native speakers. But using correct English is essential to be an effective professional. Once teachers have mastered teaching chapters 1-7 smoothly, they can add the causation-related chapters (8 and 9).

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Appendix A: School-level materials

A1 Arithmetic comparisons
A2 Mean, median and mode
A3 Percent grammar
A4 Reading 100% tables
A5 Percentage Grammar
A6 Rate grammar
A7 Chance grammar
A8 Comparisons using Percentage, Rate and Chance grammars
A9 Comparisons using Likely grammar
A10 Distinct-part vs. common-part comparisons using likely grammar

Appendix B: Reading and interpreting graphs

B1 Reading pie charts and bar graphs
B2: Interpreting time-based graphs

B3 Interpreting unambiguous graphs
B4 Interpreting ambiguous graphs

Appendix C: Grammar of Quantity, Association and Causation
C1 Non-quantity words that indicate quantity
C2 Association-Causation Grammars

Appendix D: Descriptive Summaries using Excel
D1 Count tables to 100% row and 100% column tables
D2 Pivot tables including 100% row and 100% column
D3 Histograms
D4 Medical tests
D5 RR, OR and correlation

Appendix E: Discrete Distributions using Excel
E1 Geometric distribution
E2 Hypergeometric
E3 Poisson distribution

Appendix F: Continuous Distributions using Excel
F1 Rectangular
F2 Exponential Decay
F3 Log-Normal Distribution
F4 Logistic Distribution (S-Curve)
F5 Two Normals
F6 Two exponentials
F7 Normal frequency; Log-normal severity

Appendix G: Regression using Excel
G1 OLS regression using Trend (Single and multiple predictors)
G2 OLS regression using Toolpak (Single and multiple predictors)
G3 Logistic Regression using MLE
G4 Logistic Regression using OLS

Appendix H: Statistical Inference using Excel
H1 Margin of Error & Confidence Intervals
H2 Significance tests

Appendix I: Simulations using Excel
I1 Generating normal distributions empirically
I2 Generating lognormal distributions empirically
I3 Generating exponential decay distributions empirically

Sources: 20 Tips for interpreting scientific claims Nature Nov 2013

THE MARKET FOR YOUR BOOK

9. Please outline the primary and secondary markets for your book (e.g. academics, or practitioners, and in what subject area).

PRIMARY MARKET (the people who will find the book a must-have)
Academic: Those college teachers (2-year and 4-year) who teach introductory statistics to business majors or to professionals dealing primarily with observational data.

SECONDARY MARKET (the people who will find this book a nice-to-have)
Academic: Those college teachers (2-year and 4-year) who teach introductory statistics to decision makers and consumer (students in non-quantitative majors) and to those teaching MBA or Executive MBA courses.

MARKET RESEARCH SUPPORTING THIS TEXTBOOK:
Of those undergraduates taking statistics at four-year colleges, about 40% major in business or economics. Half of these are estimated to be in non-quantitative majors: management, marketing and MIS. Thus this book is written for at least 20% of the total market – a larger share than all of those that take Psychology. It is even larger if MBA classes are included.

Less than 1% of those taking Stat I go on to take Stat II. This textbook includes features from Stat II that are relevant to professionals such as confounding.

Textbooks with a substantial difference are often unsuccessful. In some cases, the material was too idiosyncratic – too author dependent. This textbook is based on more than ten years of classroom testing and market research. All the topics have been examined in conference papers and posted on the StatLit.org website. During 2014, this website had over 260,000 visits and 360,000 downloads. By tabulating the number of downloads and citations, there is evidence of interest and acceptability among statistical educators.

For example, my 2006 paper on Graphs in USA Today has been downloaded over 100,000 times and my 2011 SJIAOS paper, Statistical Literacy: A New Mission for Data Producers, has been downloaded over 10,000 times. Citations represent what academics think is important – in relation to their ideas. Downloads represent what educators at all levels think is important.

This textbook features three topics of major interest in Business: confounding, Simpson's Paradox, standardization and Big Data.

- *Confounding was claimed to be the biggest problem in statistics in 2013 by leading statistical educators: Chance, Cobb, Rossman, etc. See Tintle et al. This is a sea-change in statistics education since confounding was not even mentioned in McKenzie's 2004 survey of important topics in statistics education.*
- *Exploring Simpson's Paradox, Larry Lesser's 2000 paper, has been downloaded over 9,000 times. Simpson's paradox is why decision-makers care about confounding.*
- *Standardization was featured in Schield's 2006 paper, published in STATS magazine. This article has been downloaded over 18,000 times. Schield has field tested Howard Wainer's 2002 graphical technique for solving simple confounder problems on more than a thousand Augsburg students during the past 10 years.*

- *Big data was featured in Schield's 2014 paper "Two Big Ideas on Teaching Big Data". This paper has been downloaded over 6,000 times it was first posted.*

I believe these four topics are the wedge issues that will separate future statistics textbooks into two groups: those that focus on these topics and those that don't. This book may be the first in the "Yes" group. These are topics that cannot just be added in a short section to an existing text. Adding these will require a major rewrite. Once adopted, Schield's textbook should have several years to penetrate – and perhaps dominate the market – before a competing textbook can be introduced. With enough marketing, this textbook – and its offspring – could dominate statistical education for the next decade.

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10. Please list any professional organisations, societies, companies, or other groups which might purchase your book in quantity. Do you have access to, or are you aware of, any other membership lists that would be a potential audience for your book?

Organizations making bulk purchases: None
Access to potential buyers: www.StatLit.org website. Over 260,000 visits in 2014. My website may prove to be a most efficient and effective way to publicize this textbook.
Organizations that might support your book: MSMESB, DSI.

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11. If your book is aimed at, or based on, an existing lecture course, please give details of the level of the course and the number of participants.

Augsburg College: MIS 264: Statistical Literacy for Managers.
Day school: 4 sections per year; 20 students per section.
Augsburg MBA program: 1 or 2 sections per year; 10-20 students per section.

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12. List titles of key journals in the subject area and give details of related societies and any regular major conferences.

Journals:

Significance: RSS and American Statistical Association
Chance Magazine, American Statistical Association
Journal of Statistical Education (JSE), American Statistical Association

Societies/conferences

Decision Sciences Institute (DSI)
International Statistical Literacy Project (ISLP): Schield is US Director
US Conference on Teaching Statistics (USCOTS)
International Conference on Teaching Statistics (ICOTS)
National Numeracy Network (NNN). Schield was (will be) vice-President.
International Association of Statistical Educators (IASE) society
Making Statistics More Effective in Schools and Business (MSMESB)
American Statistical Association (ASA) and Joint Statistical Meetings (JSM)
International statistical Institute (ISI): Schield is an elected member

INFORMATION ON RELATED BOOKS

13. What books relate to, or are similar to, the book you propose? Please indicate the titles of these works, the author(s), publisher, number of pages, and year of publication if available. What are their strengths and weaknesses? In what ways will your book be different to each competitor in terms of benefits to the reader?

A. Sharpe, DeVeaux and Velleman: *Business Statistics: A First Course*. (Addison-Wesley)
33% Exploring and Collecting Data; 49% Understanding Data and Distributions, 11%: Building models for decision making.
Strengths: This is one of the best new text books for business majors. It devotes more space to descriptive statistics and modelling. It presents sampling distribution of proportions and the central limit theorem in less than seven pages. It addresses multivariate modeling. It goes about as far as one can within the traditional model.
Weaknesses: It is inference centered (three chapters; 50 pages); it doesn't mention confounding ('confounding' is not listed in the index). It doesn't address many – if not most – of the statistical needs of today's business managers. It devoted six indexed pages to causation, three to lurking variables and one to Simpson's paradox. Confounding, control variables, covariates, case-control and standardization are not mentioned in the index.

The proposed textbook is confounder centered: less than a third will involve statistical inference. This a substantial difference.

B. *Even You Can Learn Statistics and Analytics* by Levine and Stephan (Pearson Publishing)
1) Fundamentals. 2) Presenting Data in Tables and Charts. 3) Descriptive statistics. 4) Probability. 5) Probability Distributions. 6) Sampling & Confidence Intervals. 7) Hypothesis testing. 8) Z and T tests. 9) Chi-sq & ANOVA. 10) Linear Regression 11) Multiple Regression. 12) Fundamentals of Analytics: (Vocabulary, Software) 13) Descriptive Analytics (Dashboards, common descriptive-analytics visualizations) 14) Predictive Analytics (Classification/regression trees; cluster analysis, MD scaling)

Plus: Short (360 pages), includes analytics (3 chapters). Cluster analysis; classification trees.
At least half on statistical inference: 7 chapters (3-9) out of 14.

Minus: Longer: almost 600 pages. Index has no listings for causation, coincidence, confounding or lurking variable/
The multivariate approach involves the full set of assumptions.
This approach can obscure the influence of confounders on an association.

C. Jessica Utts: *Seeing Through Statistics*. The fourth edition (2014) is radically different from the first three. The first three are closer to a Quantitative Reasoning textbook. The fourth is arguably the best choice currently available for a statistical literacy course.

Part 1: Finding Data in Life: (1) Benefits and Risks of using Statistics. (2) Reading the News. (3) Measures, Mistakes and Misunderstandings. (4) How to get a good sample. (5) Experiments and Observational Studies (6) Getting the Big Picture.

Part 2: Finding Life in Data: (7) Summarizing and Displaying Measurement Data. (8) Bell-shaped Curves and Other shapes (9) Pies, Graphs and Pictures. (10) Relationships between Measurement Variables (11) Relationships can be deceiving. (12) Relationships between categorical variables (13) Statistical Significance for 2x2 tables

Part 3: Understanding Uncertainty in Life: (14) Understanding probability and long-term expectations. (15) Understanding uncertainty through simulation. (16) Psychological Influences on Personal Probability. (17) When intuition differs from relative frequency. (18) Understanding the Economic news

Part 4: Making Judgments from Surveys and Experiments: (19) Diversity of Samples from the same population (20) Estimating proportions with confidence (21) Role of confidence intervals in research (22)

Rejecting change – Testing hypotheses in research (23) Hypotheses testing – examples and case studies (24) Significance, Importance and undetected differences (25) Meta-analysis: Resolving inconsistencies across studies (26) Ethics in statistical studies (27) Putting what you learned to the test

Plus: Includes causation, coincidence and confounding variables in the index.
Minus: Long (almost 600 pages). Traditional emphasis on statistical tests (chi-square). No indication of how to show that controlling for a confounder can influence statistical significance. Lacks a good integrating structure. Too many tangents and loose ends.
Wiley needs to have a competitor text to go against Cengage.

Danny Kaplan (2010) did a study of the indexed pages associated with confounding-related terms for six of the leading introductory statistics textbooks. His data is shown below along with another topic (standardizing) and another textbook (Schield 2011: *Statistical Literacy*).

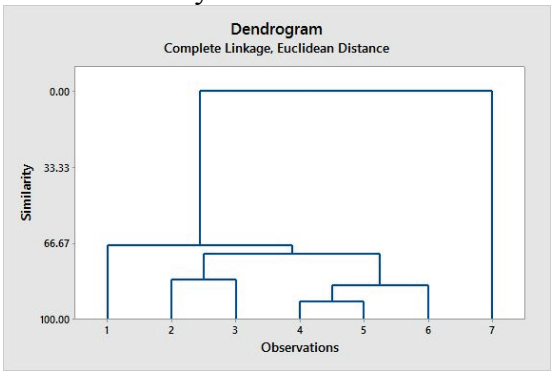
Indexed pages on confounding-related topics by textbook

Topic	A	B	C	D	E	F	G	Sum
Causation	14	13	6	4	1	6	3	47
Confounding	13	6	5	4	4	0	50	82
Lurking variable	2	10	12	4	3	0	0	31
Case-control	4	1	5	0	0	0	0	10
Simpson's paradox	2	2	4	0	2	0	7	17
Control variables	0	0	1	0	0	0	2	3
Covariate	0	0	0	0	0	0	0	0
Standardizing	0	0	0	0	0	0	22	22
Sum	35	32	33	12	10	6	84	165

Textbook	
A	Utts & Heckard, *Mind on Statistic*
B	Moore & McCabe. *Introduction to the Practice of Statistics* 4/e
C	Agresti & Franklin. *Statistics: The Art & Science of Learning from Data*
D	Watkins, Scheaffer & Cobb. *Statistics in Action: Understanding .. Data*
E	Deveaux, Vellerman & Bock. *Stats: Data and Models*
F	McClave, Benson & Sincich. *Statistics for Business and Economics 9/e*
G	Schield (20011). *Statistical Literacy*. Range based on 1st pages in index.

Kaplan (2010). Our Abstinence-Based Curriculum. Slides at www.statlit.org/pdf/2010KaplanASA-MN6up.pdf

Schield's 2011 textbook has twice the number of indexed pages on these confounder-related topics as any of these other textbooks. The difference between Schield's textbook (#7) and the rest is clearly shown in a cluster analysis of these seven textbooks:



This difference is attributable to Schield's coverage of confounding and standardization.

If Schield (2011) is any indication of this proposed textbook, confounding, standardization and coincidence are what will distinguish this new textbook from all other textbooks.

Big changes in textbooks are seldom successful – unless they are needed because of an external change in the discipline. I believe that big data is what will justify this big change for those teaching business statistics from an inference-centered textbook to a confounder-inference textbook, from a 'one-note' textbook to a balanced textbook.

MANUSCRIPT INFORMATION

14. Approximately how many printed book pages do you expect your book to contain (including figures, tables, images, etc)? How many words?
400-500 pages; 120K-180K words.

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15. Approximately how many figures, tables, images, etc. will be included?
150-200 figures; 100-150 tables, 40-60 equations,

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16. How long do you estimate it will take to complete the manuscript? When do you propose to deliver the final draft?
Summer 2016.

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17. Which software package will you use for the manuscript – Latex, Word, other? Which file format for the figures – eps, tiff, jpg, other?
MS Word for text; JPG for figures.

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18. To what extent do you anticipate the use of 3rd party copyrighted material in the book?
Minimal.

Please provide details of persons qualified to give an opinion on the proposal; if possible please suggest one or two people from each of the USA, UK, Europe and Asia (Please include email addresses).

USA: Danny Kaplan, Macalester College. kaplan@macalester.edu
Lawrence Lesser, Mathematical Science, UTEP. Lesser@UTEP.edu

USA: Business-School Related:

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And finally…..

V. YOU, THE AUTHOR

a). Please provide us with a brief biography/ abridged CV including details that explain why you are the ideal person to write this book. What are your qualifications and what experience do you have that is relevant to the writing of this book? What are your areas of expertise? How long have you been working in this area? Have you written any other books? Have you ever presented or taught the material to students or other professionals?

Dr. Schield is a tenured professor in Business Administration at Augsburg College and an elected member of the International Statistical Institute. He is the US Representative of the International Statistical Literacy Project and has served as the President of the local chapter of the ASA. He has a PhD in Space Physics from Rice University.

Dr. Schield has worked in business for 20 years. He was the founder/President of two startup companies. He has worked in every area of business. He worked as a consultant at a national CPA firm and as a Senior Operations Research Analyst at a national property-casualty insurance company. He earned a Certified Management Accounting (CMA) certificate.

Academically, he has taught traditional statistics for 30 years including critical thinking for 10 and statistical literacy for 20. He has taught courses in every area of business. He founded the MIS department at Augsburg.

He has written more than 60 papers on various aspects of statistical literacy. His papers have been cited over 400 times. He organized sessions on statistical literacy at 16 national meetings of the American Statistical Association and at ISI (Dublin and Hong Kong). He received a $500K grant from the W. M. Keck Foundation to promote statistical literacy.

He wrote "Statistical Literacy: The Story behind the Story" for students in non-quantitative majors. He has used this textbook in face to face, hybrid and totally online classes.

He is editor and webmaster of www.StatLit.org: the world's largest website dedicated to statistical literacy. In 2014, his website had more than 240,000 visitors and more than 360,000 downloads.

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b). Please list similar details for co-author(s) or tentative contributors.
Not applicable.

WHAT HAPPENS NEXT?

Planning

Having read through and discussed your proposal with you, we will then send it out for review. At this stage we are looking for information about the potential market for the book. We will send it to people we know, and to people you suggest, who are experts in the field and can vouch for the quality of the proposal and the marketability of your plans. We will also send it to typical 'end-users', asking the question: 'would you buy this book'? Assuming their feedback is positive and that we agree Wiley would be a suitable Publisher for the book, any changes or amendments they suggest will be discussed with you and incorporated into a final proposal as appropriate. It is important to remember that you can't always keep a tight focus for the book *and* keep everybody happy! The final proposal is incorporated with the reviews and the publisher's financial, sales and marketing plans and presented as an investment opportunity to a committee of representatives from editorial, marketing, sales and finance departments within the company. If this panel accepts the proposal, then a publishing agreement is issued, and the terms agreed. At this stage a target delivery date for the manuscript is agreed.

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The time it takes to write a book is as long as the proverbial piece of string. It can take anything from a few months to a few years depending on the scale of the project and the time the author has to dedicate to the book. Your publisher can provide help and support along the way in the form of encouraging phone calls at strategic intervals, reviewing and commenting on draft material, or advice on incorporating special features. Please discuss what is appropriate for you. You will be put in touch with a production editor who will be responsible for managing the day-to-day issues associated with getting the book into print. He/she will be able to give you guidance on the practical aspects of delivering your manuscript – the print and electronic files required, formats, layouts, etc. You should also receive a copy of a booklet called 'Author Guidelines: Preparing your material for publication'.

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