(Chapter 5), the design of experiments (Chapters 6 and 7) and regression analysis (Chapter 8). Everybody who has ever browsed a 'six sigma black belt' training curriculum will agree that these topics are a need, at least in the field of quality improvement, and probably one of the more important application areas in engineering.

Personally, I liked the blend of good exposition of mathematical concepts, motivating real world applications and anecdotes ('... one of us (Hogg) took a quality fact-finding tour to more than 20 companies...', page 331), the latter showing the authors' deep involvement in questions outside the pure academic world. The book has found its place in my hand library—and I have already recommended it to more than one of the colleagues from engineering initially quoted.

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Applied Statistics for Business and Economics
R. M. Leekley, 2010
Boca Raton, CRC Press
xx+476 pp., £49.99
ISBN 978-1-439-80568-8

In this excellent textbook Professor Leekley takes the reader, as if they were his students, through every detail of examples working all steps with great patience. This generous approach is even extended to explaining how mathematical and statistical notation and symbols are read; a very rare and valuable education.

The text includes 14 chapters that take a typical social science student through the basics of descriptive statistics, standard probability distributions, hypothesis testing, regression analysis and time series. Mathematical statistics and derivations of probability distributions are not included as these are not usually required for business-related disciplines. But the highlight of this book is its treatment of hypothesis testing which is explored in four chapters. The text covers one and two-sample tests, contingency tables, goodness of fit, analysis of variance and homogeneity of variances. Classical hypothesis testing, which was the norm in older texts, is explained and contrasted with current practice of using p-values and operating characteristics in calculating type I and II errors.

The use of spreadsheet computer programs is used in most applications throughout the book. This is very useful for students learning statistics and spreadsheet manipulations at the same time. Often students do not know how to tackle a given statistical problem and here they are encouraged to get into the habit of organizing solutions in a clear and methodical manner.

Figures and graphs are very accessible and plentiful in all chapters. Data files of examples and exercises are included in an appendix, allowing students to gain practical knowledge. In addition, one can download data from the author's Web page at `http://iwu.edu/~bleekley`. All odd-numbered exercises are fully worked out with figures presented in an extensive appendix. These solutions are certainly very helpful for students of statistics and encouraging for instructors. This book is highly recommended as a textbook for business statistics and it can also be used as a manual for self-study.

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Statistical Methods for Disease Clustering
T. Tango, 2010
New York, Springer
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ISBN 978-1-441-91571-9

This is an updated book that provides statistical methods for detecting disease clustering and localized clusters. The methods provided are very useful in epidemiology where it is important to evaluate whether a disease is randomly distributed across space, time or both, as this may give clues on the disease aetiology.

This concise monograph is structured in nine chapters. Chapter 1 just gives an introduction on the subject and presents the organization of the following chapters. Chapter 2 provides insight into the definition of clustering or clusters showing several spatial patterns in a hypothetical squared area. Chapter 3 deals with statistical techniques for disease mapping. The maps show the spatial variation in risks, providing a visual summary of complex geographical patterns, and could also highlight areas with apparent high risks. The author recommends use of smoothed map risks (estimated by Bayesian models based on Markov chain Monte Carlo techniques) together with statistical tests for disease clustering (that are described in the rest of the chapters) because the maps could help the interpretation of the test results. Although I agree with the author on suggesting both procedures for detecting clustering, I do not necessarily agree on the necessity to smooth the maps by using Markov chain Monte Carlo methods, as there are also

computationally simpler approaches such as penalized quasi-likelihood that behave very well when analysing count data (see, for example, Ugarte *et al.* (2009)).

The rest of the chapters (Chapters 4–9) have the same structure. They start with a data section describing the data and the notation used. The next section states the null and alternative hypothesis of the statistical tests proposed. A historical overview of some methods existing in the literature is given in the next section. The 'Selected methods' section is useful as it discusses the methods which the author thinks are widely known or widely used. In the next section real data are analysed by using these selected methods. A 'power comparison' and a discussion section follow to compare the various methods.

The particular content of these six chapters is briefly described in what follows. Chapter 4 deals with the problem of detecting disease clustering in time. The problem of detecting disease clustering in space on the basis of regional count data is treated in Chapter 5. General tests for detecting disease clustering in space but now based on case–control data are discussed in Chapter 6. Space–time clustering is the topic of Chapter 7. The tests for space–time clustering that are described in this chapter are designed for evaluating whether cases tend to come in groups or are located close to each other no matter where they occur.

Focused tests designed to examine a raised risk of disease around putative sources are explained in Chapter 8. The last chapter deals with space–time scan statistics designed for both detecting localized clusters and evaluating their significance. One of the methods selected in this chapter called the cylindrical space–time scan statistic (Kulldorff, 2001) has been implemented in surveillance systems as a major tool for the detection of outbreaks. Readers will find it useful to know that the book also contains information on the existing software for implementing the procedures.

The topics presented in this book constitute an important part of the area known as spatial epidemiology. Although I found the content of the book very useful for epidemiologists and public health researchers, I think that the author could have included a detailed discussion to clarify the distinction between clustering, cluster detection and spatial variation in risk. The distinction between these three topics is often fuzzy. I recommend Elliot *et al.* (2000) as a companion book that will help to clarify this distinction and to enlarge interesting discussions on this fascinating field.

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Statistics in Plain English

T. C. Urdan, 2010
New York, Routledge
xii + 212 pp., £19.95
ISBN 978-0-415-87291-1

Statistics in Plain English opens with some anecdotes from Dr Urdan's life, corroborating the idea that

> 'many people have a general distrust of statistics, believing that crafty statisticians can make statistics say whatever they want'

(page ix) and with the suggestion that

> 'a better option is to gain an understanding of how statistics work and then use that understanding to interpret the statistics one sees and hear for oneself'

(page ix). This book tries to help the reader who is motivated to gain such an understanding by providing a simple and accessible discussion of the statistics that are most commonly employed in social science research.

Chapter 1 is a concise but effective introduction to research terminology and study designs. Chapters 2–5 discuss measures of central tendency and variability and the normal distribution. Chapter 6 is dedicated to the standard error, which is a concept that

> 'is often difficult to grasp the first time it is encountered (or the second or the third)'

(page 49). Chapter 7 explains the concept of 'statistical significance' and contrasts it with the concept of 'practical significance'. This leads to a superb discussion of effect size and confidence intervals. This chapter will offer to statistical novices a much needed immunization against the misuse of statistical significance which is so common in practice. (Subsequent chapters on statistical tests will improve the immunization rate by repeatedly making clear this concept with practical examples.) Chapters