Statistical Design—Chemometrics, R.E. Bruns, I.S. Scarminio, B. De Barros Neto. Elsevier B.V., Amsterdam, The Netherlands (2006). 422 pp., US$ 145.00, ISBN: 0-444-52181-X

In the preface, the authors quote William Smellie who edited the first edition of Encyclopedia Britannica in 1768. He wrote: "Utility ought to be the principal intention of every publication. Wherever this intention does not plainly appear, neither the books nor their authors have the smallest claim to the approbation of mankind." Over the years, that publication indeed was useful, being the standard reference of several generations of students and scholars. While this book will not reach as many people as the Britannica, the scientists it does reach will appreciate its content.

The authors wrote the book (originally published in Portuguese) for ". . .readers who wish – or need – to do experiments."

The product of their efforts in found in the following eight chapters:

1. How statistics can help.
2. When the situation is normal.
3. Changing everything at the same time.
4. When there are many variables.
5. Empirical model building.
6. Exploring the response surface.
7. Mixture modeling.
8. Simplex optimization.

The authors sum up their philosophy in the first lines of the book, as follows: "This is a book about good sense. More specifically, about good sense in performing experiments and in analyzing their results." Later, on the same page, they note: "In the following chapters we will discuss some relatively simple and easy to use experimental methods. These techniques might even appear obvious after you think a little about them, but this does not retract from their merit or effectiveness."

To the extent my limited knowledge of statistics allows me to understand the material presented, it is my conclusion that the authors have written a very useful text, well based in science and well documented. For student use, I note that they include numerous exercises (problems) with the answers provided in the appendix.

Gary F. Bennett *
Department of Chemical and Environmental Engineering, The University of Toledo, Mail Stop 305, Toledo, OH 43606-3390, United States

* Tel.: +1 419 531 1322; fax: +1 419 530 8086.
E-mail address: gbennett@eng.utoledo.edu

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Biotreatment of Industrial Effluents, M. Doble, A. Kumar. Elsevier/Butterworth, Heinemann/Burlington, MA (2006). 336 pp., Price: US$ 79.95, ISBN 0-7506-7838-0

There are no more important waste treatment processes than those which employ bacteria to oxidize organics. From treatment of municipal wastewater to industrial wastewater treatment, bacteria are the key to cleanup.

This book focuses on bacterial treatment processes in a wide-ranging series of chapters, with many chapters devoted to a specific industry, i.e., pulp and paper, paint, alcohol fermentation, etc., but there are also chapters dealing with specific wastes such as garbage, cyanides, etc. Other chapters deal with process technologies such as denitrification and biodesulfurization. In all, the book has 30 relatively short chapters.

"This book is intended for practicing environmental engineers and technologists from any industry as well as researchers and professors." While, in my opinion, the book provides useful information to the aforementioned groups, the information supplied in each of the short chapters, although informative, is too sparse and incomplete. Each topic covered would require a great number more pages to thoroughly discuss the information available in the literature. So as a reference source, the book is too short.

Another suggested potential use of the book (by the authors) is as a student text. In this case, the information provided probably is enough, but for a text I would want student problems provided. None are given.

The book also suffers in the writing with the authors not consistently employing parallel structure in the chapter titles. Additional material I would not have included is the short discussions of the Chernobyl and Bhopal events. Neither topic was relevant to the book's major purpose, i.e., biotreatment.

There are two very interesting chapters entitled: (1) Aerobic and Anaerobic Bioreactors and (2) Mathematical Models. The first of these two chapters reviewed aerobic and anaerobic treatment processes. Included were diagrams of numerous bioreactors. Also included were design parameters for the processes in question.

In the second of these two chapters, the authors describe the ". . . mathematical models for the design of basic batch and continuous reactors; the design of aerobic activated-sludge process; the mass transfer and diffusion correlations needed for design; diffusion through landfill; and diffusion of airborne pollutants." In the chapter, the authors discuss treatment system models and the equations related thereto in a reasonably complete fashion except that they provide no worked examples to illustrate their use. This was an omission I found troubling.

In summary, while the book does examine a wide range of biotreatment processes, its coverage of each topic is limited. Consequently, I would predict that the book's use is limited and its adoption as course textbook is not highly likely.