BOOK REVIEW: Statistical Methods

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follows the outline of this text is taught at Iowa State University for advanced undergraduate and graduate level engineers. This sequence has a laboratory associated with it in which the students can apply the statistical methods to problems in their particular area of engineering. For these problems, the students have access to a computer to perform most of the routine computations. This is particularly true for regression analysis and analysis of variance computations. This, I believe, is another shortcoming of this book; namely, very little mention is mode of the availability of a computer to do much of the calculations. Most of the methods of regression analysis and analysis of variance are based on hand or desk calculator computations. These methods should be discussed with the use of a computer in mind.

Finally, as an introductory book for engineers, the important topics of (i) goodness of fit tests, (ii) propagation of errors and (iii) nonparametric methods are ignored or only treated briefly. The latter two topics are not covered while the chi-square goodness of fit test is used to test the parameter p of a binomial distribution and then it is mentioned that it can also be used for continuous distributions.

The authors do an excellent job of using examples to illustrate the statistical methods discussed. Most of the examples are related to chemical engineering. Also, each chapter contains many problems which should be interesting to the students (answers for selected problems are included).

In summary, the authors point out in the Introduction that "There are no statistical procedures which are applicable only to specific fields of study. Instead, there are general statistical procedures which are applicable to any branch of knowledge in which observations are made." This book introduces a subset of these procedures which are illustrated by examples taken from engineering. As such, there are several texts in this area which anyone considering a book for adoption might look at along with this book. □

BLOCK AND GRAFT COPOLYMERIZATION, VOLUME 2

Edited by R. J. Ceresa
John Wiley and Sons, 1976.

Reviewed by R. E. Cohen,
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The title of this book is misleading. Only about 75 of the more than 365 pages deal directly with block and graft *copolymerization* (polymer synthesis). The remainder focuses on interesting and rather informative material regarding properties and engineering applications of certain block and graft copolymers. This particular volume (evidently the second of a series, although neither the contents of volume 1 nor of forthcoming volumes could be found) treats only two varieties of copolymers . . . Chapters 1 and 2 on Block Copolymer Polyol Surfactants . . . Chapters 3 and 4 on Block and Graft Copolymers of Poly (vinyl chloride).

The two chapters on polyol surfactants (by L.G. Lundsted and I.R. Schmolka) suffer from the shopping-list approach for presenting properties and potential applications. There is little attempt to provide any basic connection between copolymer synthesis, resulting molecular structure, and the properties observed. The excessive use of (bold face, capitalized) trade name acronyms tends to detract the reader. However, it should be noted that the authors and editor have organized the physical properties data into easily used tables and data-grids.

Chapter 3 on PVC blocks and grafts (by R. J. Ceresa) is without question the most satisfying in terms of technical content and adherence to the title of the book. In brief fashion (30 pages) the many possible synthesis techniques are reviewed and the resulting copolymer structures described. Chapter 4 (by D. Hardt) on properties and applications of PVC copolymers follows logically from the synthesis material presented earlier. There is better balance between structure-property relations and applications in this chapter than in the first two chapters of the book.

In addition to his work in Chapter 3, the editor is to be congratulated for a fine organizational job with the overall volume. Tables and figures are conveniently located in the text, the table of contents and appendices are very complete and detailed, and there is a novel "addendum" section put together just prior to publication in order to bring the reader up to date in a fast-moving area of polymer technology. In summary, this is a well organized book which should be of great value to readers with very *specific* interests in the two classes of polymers described; however, the level of general interest among polymer scientists and technologists will no doubt be minimal. □