
ACKNOWLEDGEMENTS PREFACE

This book is aimed primarily at microbiologists who are undertaking research and who require a basic knowledge of statistics to analyze their experimental data. Computer software employing a wide range of data analysis methods is widely available to experimental scientists. The availability of this software, however, makes it essential that investigators understand the basic principles of statistics. Statistical analysis of data can be complex with many different methods of approach, each of which applies in a particular experimental circumstance. Hence, it is possible to apply an incorrect statistical method to data and to draw the wrong conclusions from an experiment. The purpose of this book, which has its origin in a series of articles published in the Society for Applied Microbiology journal *The Microbiologist*, is an attempt to present the basic logic of statistics as clearly as possible and, therefore, to dispel some of the myths that often surround the subject. The 28 *statnotes* deal with various topics that are likely to be encountered, including the nature of variables, the comparison of means of two or more groups, nonparametric statistics, analysis of variance, correlating variables, and more complex methods such as multiple linear regression and principal components analysis. In each case, the relevant statistical method is illustrated with examples drawn from experiments in microbiological research. The text incorporates a glossary of the most commonly used statistical terms, and there are two appendices designed to aid the investigator in the selection of the most appropriate test.

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