

Cambridge University Press

978-0-521-29055-5 - Principles of Statistical Techniques, Second Edition

P. G. Moore

Frontmatter

[More information](#)

**PRINCIPLES OF STATISTICAL
TECHNIQUES**

(SECOND EDITION)

Cambridge University Press
978-0-521-29055-5 - Principles of Statistical Techniques, Second Edition
P. G. Moore
Frontmatter
[More information](#)

PRINCIPLES OF STATISTICAL TECHNIQUES

*A First Course, from the
Beginnings, for Schools and
Universities*

WITH MANY EXAMPLES
AND SOLUTIONS

BY

P. G. MOORE

*Professor of Statistics and Operational Research
London Graduate School of Business Studies*

(SECOND EDITION)



CAMBRIDGE UNIVERSITY PRESS

CAMBRIDGE

LONDON NEW YORK NEW ROCHELLE

MELBOURNE SYDNEY

Cambridge University Press
978-0-521-29055-5 - Principles of Statistical Techniques, Second Edition
P. G. Moore
Frontmatter
[More information](#)

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo, Delhi

Cambridge University Press
The Edinburgh Building, Cambridge CB2 8RU, UK

Published in the United States of America by Cambridge University Press, New York

www.cambridge.org
Information on this title: www.cambridge.org/9780521076319

© Cambridge University Press 1958
This edition © Cambridge University Press 1969

This publication is in copyright. Subject to statutory exception
and to the provisions of relevant collective licensing agreements,
no reproduction of any part may take place without the written
permission of Cambridge University Press.

First published 1958
Reprinted (with solutions) 1964
Second edition 1969
Reprinted 1974
First paperback edition 1979
Reprinted 1980
Re-issued in this digitally printed version 2008

A catalogue record for this publication is available from the British Library

Library of Congress Catalogue Card Number: 70-85731

ISBN 978-0-521-07631-9 hardback
ISBN 978-0-521-29055-5 paperback

CONTENTS

<i>Preface</i>	<i>page</i> vii
1 The Scope of Statistics	1
2 The Collection of Data	9
3 The Tabulation of Data	24
4 The Pictorial Representation of Data	41
5 Frequency Distributions	64
6 Averages	78
7 Measures of Dispersion	95
8 Probability and Sampling	112
9 The Binomial Theorem	128
10 Further Probability Concepts	149
11 Tests of Significance	164
12 Further Tests of Significance	182
13 Sampling Techniques	200
14 Simulation	215
15 Time Series	228
16 Pairs of Characters	252
<i>Solutions to Exercises</i>	278
<i>Bibliography</i>	285
<i>Index</i>	286

Cambridge University Press

978-0-521-29055-5 - Principles of Statistical Techniques, Second Edition

P. G. Moore

Frontmatter

[More information](#)

PREFACE

During recent years the importance of the subject of statistics has become increasingly recognised and it is now studied not only by statistical specialists but by students from many different disciplines. It has also been recognised that the subject is a suitable one for all levels of educational activity in that it can provide, at quite an early stage, a unifying link between the theoretical and practical sides of many forms of scientific training. This book is an attempt to put across the main principles of statistical methods to those students who are fundamentally interested in the practical applications of the subject, but are not so much concerned with the philosophical bases of the concepts used.

The choice of what to include and what to omit has been difficult, and this second edition of the book includes some new material whilst omitting some of the earlier material. Primarily the aim has been to give a selection of the more commonly used tools and not to provide a complete set of statistical tools for use in each and every situation. The student is then left in the position where he should be able to appreciate what further tools are needed and he can usefully profit from a reading of the more advanced books on the subject that are available. To have included every technique in common use would have lengthened the present book very considerably and destroyed a greater part of its planned utility. Hence experienced readers must not be surprised if some of their trusted favourites are missing from the pages that follow.

To some extent the choice of topics has also been influenced by the desire to keep the standard, and the amount of mathematics down to a minimum. The basic mathematics required, with the exception of one or two symbols that are explained in the text, and small portions of some of the later chapters, is roughly that of Ordinary Level in the General Certificate of Education. Even this standard is not necessary for studying the earlier chapters and it is quite feasible for the book to be taken by schools in portions over a number of years. At a university it would most likely be a suitable basis for a one-year course of lectures to scientists or social studies students who are not mathematical specialists.

There are numerous examples in the text, most of them requir-

Cambridge University Press

978-0-521-29055-5 - Principles of Statistical Techniques, Second Edition

P. G. Moore

Frontmatter

[More information](#)

viii

PREFACE

ing a certain amount of calculation. One problem has been to decide the degree of accuracy to which these calculations should be carried. Readers will probably have a wide variety of computational aids at their command, ranging from slide-rules to electronic computers, and having very different accuracies. All results quoted in the text are accurate to the number of figures given, but this accuracy will not always be attained with four-figure logarithms and even less often with a slide-rule. The final chapter is the only one where serious difficulties are likely to occur. In this chapter the common form of slide-rule is definitely not accurate enough, although reasonable results should be obtained with four-figure logarithms.

The data given in the examples and exercises have been drawn from a wide range of reports, magazines, journals and books. In many cases the original data have been greatly tampered with, and reductions, groupings or simplifications have been made before using the data to illustrate a particular point. In these cases the source has not been given for fear of misrepresentation of the original author's intentions. Where the data are substantially in the original form, due acknowledgment has been made. Tables 9.4, 12.1 and 12.2, giving the normal, χ^2 , and t distributions, have been extracted from rather fuller tables in *Biometrika Tables for Statisticians* by kind permission of Professor E. S. Pearson, the editor of *Biometrika*.

It is a pleasure to acknowledge the great help received from many quarters in the preparation of this book. In particular, Dr C. L. Mallows kindly read and commented on the first edition, whilst Mr S. D. Hodges commented on the second edition. My wife has given me a great deal of help with both editions, particularly with the proof-reading. A number of suggestions from readers of the first edition have been incorporated in this new edition, and comments from readers of this second edition would likewise be welcomed.

P. G. M.

December 1968