

Research Methodology in Zoology

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IN ZOOLOGY**

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Preface

The approach that guided the authors in preparing the manuscript of this volume has been pragmatic in every respect and our practical dilemma is a complex activity that it is not easy to provide the students/researchers with relevant procedural knowledge because acquiring research expertise is a continuous process and one cannot simply hold back with our first knowledge until we have learnt every detail for ourselves. The research methodology can be first taught effectively making the young scholars from their first investigation so that they should not violate the principles of scientific inquiry. It is our belief that a good researcher needs to master some knowledge of both qualitative and quantitative research and the ways to combine both of them, as a result of which they must be able to understand and appreciate the results. Thus the writing of this book has been motivated by our wish to go beyond by highlighting the strength of the approaches and by introducing all the chapters by which the student/researcher is benefited most.

This is a practical, down-to-earth text/reference book for those people who wish to carry out research and also who want to appear for their entrance examinations for M. Phil, and/or PhD, as no book exclusively dealing with *Research Methodology in Zoology* is available in the market. Practically speaking, we, ourselves are ignorant of different issues and the authors had a hectic time in collecting the literature about different topics going through different libraries, books and literature, approaching people in different colleges as well as the universities. The main aim of the book is to impart knowledge for making the appropriate methodological choice and to provide readers a practical guide to design and execute a research problem. The book is aimed at those who are new to research and have no prior knowledge of the issues covered herein. It will also provide more about the research methods that are available to those people who have already conducted some research and interested in finding out more. This book is more than a text on research methods in zoology, and it is an introduction to the theoretical concepts as well as the descriptive and analytical research methods that are used by different disciplines associated with research in zoology.

These days' people, students and teachers frequently talk of research, both in the academic institutions as well as outside. Many research studies are undertaken and accomplished year after year, but in most cases, very little attention has been paid to an important dimension research, that of research methodology. Thus, a great deal tends to be futile as the significance lies in its quality and not in its quantity. Therefore, an urgent need is to pay due attention to designing and adhering to appropriate methodology throughout for improving the quality of research. The methodology may always differ from problem to problem, yet the basic approach towards research remains the same.

Keeping all these points in view, the present book has been written with three clear objectives, namely, to enable the students as well as the researchers in zoology, to prepare well and to be successful in their entrance examination, irrespective of the branch/field; when once they get into research, in the development of an appropriate methodology for their research studies; and also to make them familiar with an art of using different methods and techniques. It is our

ambition that this humble effort in taking out this book will definitely assist the students and the researchers in the accomplishment of result-oriented studies.

Regarding the organization of the content, the structuring of chapter scheme of the book is designed to be more practical in nature. The content of the book is organized into seventeen chapters, well arranged in a coherent manner; *Research Methodology, Centrifugation, Electrophoresis, Spectrophotometry, Chromatography, Polymerase Chain Reaction, Chemical Analysis of Animal Tissues, Animal Culture Techniques, Water Pollution, Environmental Impact Assessment, Biostatistics and Animal Research, Computer Applications in Animal Science, Word Processing with a Computer, Word Processing Software, Internet Concepts, Electronic Mail, and File Transfer Protocol*. In addition, Appendices have also been included for the benefit of the reader. We sincerely hope that this book helps to fill up the lacuna and provides what all that is needed about the research methods required for a scholar/student in zoology to pursue their higher studies.

More details have been added keeping in mind the need of advanced techniques in animal research. The book provides the basic as well as advanced level discussion on research methodology so that the students and/or the researchers may become familiar with the art of different advanced methods and techniques. Thus, the book is primarily targeted to serve as a text/reference book at PG level in different disciplines of zoology in various universities. This book is also a useful source for those writing a thesis or dissertation. The key concepts have been explained so that they can be easily understood by those with little or no research experience. Though the book focuses specifically on issues of research methodology, we have included one chapter that focuses on biostatistics wherein we have provided only a simple overview of some of the basic concepts in the field, and for those who intend to conduct detailed analysis, expert consultation is recommended. For some of the chapters where necessary, early history has been added to enable the readers to follow the time line of development.

The preparation of the content of this book, *Research methodology in Zoology*, has been an enjoyable journey and the authors have been encouraged by the members of their families, several friends, colleagues, and students. We have done our best to take as many suggestions as possible to improve the manuscript. This has been a much bigger project than we originally anticipated, but we do hope that we have succeeded to incorporate all that is required for *Research Methodology in Animal Science*. We have done our best to incorporate all the details as far as possible and the book has run longer than we have expected. We wish to state that every care has been taken to bring out an error-free volume and some errors and omissions if any might have been crept in without our knowledge, and if any present, they will be rectified in future editions. Any suggestions for further improvement of the quality of this volume are warmly invited.

Our sincere thanks are due to the authors of Wikipedia, and various other sources of web, books, periodicals, monographs, bulletins, research reports/papers etc. Finally, we express our deep sense of gratitude to the members of our families for their continued cooperation, encouragement and best support in times of stress during the preparation of this volume. Last but not the least, we express our sincere thanks to our Publisher, Scientific Publishers, New Delhi, for their continued cooperation in bringing out this publication in a highly presentable form within a short time.

Anantapur

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P. Suresh Narayana
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