

Preface

This book, now in its sixth edition, provides a rounded introduction to viruses and the infections that they cause, and is aimed at undergraduate students at all levels and postgraduates wishing to learn about virology for the first time. It approaches the subject on a concept by concept basis, rather than considering each virus in turn. In this way, the important parallels and contrasts between different viruses and their infections are emphasized. Previous editions have underpinned our own teaching of virology at the University of Warwick for many years and have been widely adopted for undergraduate courses elsewhere. Our aim in writing this new edition has been to cover the breadth of this fascinating and important subject while keeping the text concise and approachable. It is thus suitable for students who may be studying virology as just one among many facets of biology or medicine, as well as for those who intend to focus on the subject in depth. A basic knowledge of cell and molecular biology is assumed, but other topics are introduced progressively in the text and explained as needed. An introduction to immunology is provided as a separate chapter because of its crucial relevance to the understanding of viral disease.

The pace at which information in the field of virology is accumulating has shown no signs of abating since the last revision of this volume. When incorporating these advances into the book, we have aimed to maintain a broad coverage of virology while emphasizing human and animal virus systems, although inevitably this has constrained our consideration of other viruses. Despite the relentless quest for knowledge, much still remains to be learned. In particular, the intimate interaction of viruses with their hosts at the molecular level is poorly understood. We have tried to indicate where such gaps in knowledge exist, and where future research is likely to be focused.

The public perception of viruses as significant threats to humans and animals, already heightened by the ongoing epidemic of HIV infection, has been brought into sharp relief with recent concerns over emerging viruses, such as the avian influenza viruses that have the potential to become pandemic strains of human influenza. It has never been more important than now to understand viruses and to spread that understanding

as widely as possible. Although the discipline of virology is often considered to be highly specialized, we hope that readers will see the tremendous range of systems and technologies that virologists bring to bear in order to elucidate their subject and thus pick up some of the excitement of working in this field. Virology is a vibrant area and its study, far from being constraining, opens up a vista in which virus infections can be understood in the context of the biology of their hosts.

NEW TO THIS EDITION

This edition contains a number of important changes and innovations. The text has been reorganized to create four thematic sections on the fundamental nature of viruses, their growth in cells, their interactions with the host organism, and their role as agents of human disease. This clearer organization makes information more immediately available. We have added a new chapter on viral disease, and thoroughly revised and updated material in other chapters, adding sections on viruses as gene therapy vectors and emerging virus infections such as Ebola and SARS.

The presentation too has been comprehensively reorganized. The book is now illustrated in full color throughout and three types of text boxes have been included. Text features now comprise:

- Highlight boxes – draw attention to important points (pink, unnumbered boxes).
- Evidence boxes – provide experimental evidence for certain key facts and give additional detail (yellow, numbered boxes).
- Detail boxes – for in-depth study (green, numbered boxes).
- Integrated questions at the end of chapters – prompt students to digest and synthesize the information they have been reading about.
- Summaries at the end of chapters – review the key messages from the chapter.
- Additional readings – include suggestions for more information for the interested student or for research projects.

We hope all of these will be of use to students and teachers alike.

SUPPLEMENTS AVAILABLE

Website – With this edition, for the first time, we provide a website for instructors and students that includes:

- Artwork in high resolution for download.
- Animations that will illustrate some of the key processes in virology.

Artwork CD – Artwork from the book is available to instructors at www.blackwellpublishing.com/dinmock and by request on CD-ROM from this email address: artworkcd@bos.blackwellpublishing.com

We are grateful to the staff at Blackwell Publishing for their support for this new edition, and for their extensive input to it. We also acknowledge the contribution of the reviewers, Margo A. Brinton (Georgia State University), Julian A. Hiscox (Leeds University), Judy Kandel (California State University, Fullerton), Brian Martin (University of Birmingham), Nancy McQueen (California State University, Los Angeles), Andrew J. Morgan (University of Bristol), Jay Louise Nadeau (McGill University), Michael Roner (University of Texas at Arlington), A. C. R. Samson (University of Newcastle upon Tyne), and Juliet V. Spencer (University of San Francisco), who showed us many ways in which to improve our text.

Nigel Dimmock, Andrew Easton, and Keith Leppard
University of Warwick, July 2006

Advance Praise

"I have consistently used this book as a teaching resource. Concepts are explained clearly and background information is provided without excess detail. This book also contains some excellent figures."

Margo Brinton, Georgia State University

"The text is written in a style that undergraduate and graduate students alike will find appealing. The case examples and evidence boxes represent the applied side of virology, and should help to keep students interested in the material."

Michael Roner, University of Texas, Arlington