

PREFACE

The world of parasites is becoming ever more fascinating. In *Parasitology: A Conceptual Approach*, we explore the absorbing and rapidly changing discipline of parasitology, and we do so by taking a distinctly different approach from other textbook treatments of the subject. We focus on the exciting ideas and concepts of parasitology, rather than follow a taxon-by-taxon approach. The organisms we emphasize are those traditionally covered in parasitology courses—namely, eukaryotic parasites—but the themes and concepts we explore apply to all infectious agents. Furthermore, we include current discussions of parasitic fungi and plants that expands the usual coverage of parasitic protozoans, helminths, and arthropods. There are three reasons for our approach.

First, as instructors who have long taught the subject, we have often been frustrated to find that after completing the obligatory survey of different parasite groups and life cycles, there was little class time left to discuss all the marvelous aspects of parasite biology that somehow don't fit the traditional course mold.

Second, as observed by Clark Read in 1972 in *Animal Parasitism*, his prescient textbook built around core concepts, the study of parasitism has greatly profited by integration with many other biological disciplines, so much so that it has become a major contributor of new insights in fields such as immunology, ecology, and evolutionary biology. This body of accomplishment deserves to be highlighted. It will only increase in stature and importance with time.

Third, many texts provide the traditional approach to parasitology, an approach that is also found with ease on the Internet. What is much harder to find online is a more synthetic discussion covering major thematic areas within parasitology. For example, an Internet search for "*Ascaris*" will immediately yield an avalanche of data on this nematode parasite, which include details of its life cycle, morphology, epidemiology, and treatment of infections. It is far more difficult to locate a succinct summary on how parasites in general affect the evolution of their hosts or an explanation of the impact of parasites on conservation of endangered species. Our book is structured to emphasize concepts ranging from overviews of parasite diversity to transmission biology, pathology, immunology, ecology, evolutionary biology, conservation biology, and control.

We have not abandoned the traditional organization of parasitology textbooks. We have provided in an easy to use appendix called the *Rogues' Gallery of Parasites*, a concise overview of the basic biology of major parasite groups. This appendix is cross-referenced throughout the book's ten chapters.

This book is intended for courses in parasitology for upper-level undergraduate students and graduate students with interests in parasitology. Students of human or veterinary medicine or of public health will also find the book of interest because it provides succinct coverage of parasites and

their biology and discusses important topics such as pathology and control. Students interested more broadly in infectious diseases of all kinds will find that many of the examples, concepts, and ideas are valid even if the infectious disease is caused by a virus, bacterium, or tapeworm. Finally, for students interested primarily in immunology, ecology, evolutionary biology, or conservation biology, this book will provide more specific knowledge about a broad spectrum of parasites, giving them considerable perspective for integrating parasitology into their own specific disciplines.

We have deliberately kept the book of manageable length; with only ten chapters, instructors wishing to use the entire text should have no trouble doing so in a typical semester.

We begin with a chapter designed to delimit the field of parasitology and its relationships with other closely related and overlapping disciplines. The chapter also emphasizes some of the specialized vocabulary regarding parasites that is used throughout the book. Like all the chapters, it also features boxes that highlight topics requiring amplification or that are of particular interest or current relevance. Throughout this and the remaining chapters, the scientific names for those parasites we have identified as being of particular importance are designated in red type. This cue lets the reader know that the particular parasite in question is included in the *Rogues' Gallery* found at the end of the book. Here the reader can quickly find a concise summary of the parasite's taxonomic position, prevalence, distribution, mode of transmission, life cycle, pathological consequences, and means of diagnosis, treatment, and control. The *Rogues' Gallery* enables a parasitology instructor to provide students with traditional content on the basic features of parasite biology while focusing on major concepts. Additional features in the text include a summary that highlights the major points of each chapter and a set of questions to stimulate further student discussion and thought.

We hope that our text provides your students with an exciting and thought-provoking entry into the dynamic and endlessly intriguing study of parasites and their hosts. We are eager for specific and constructive comments regarding what works, what does not, and how we can improve it in the future.