

Preface

The good news is that colleges and universities across the country are reaffirming the importance of writing skills by requiring that students write "across the curriculum," as the latest wave of pedagogical newspeak grandly describes it. What could be better? Students will develop their communication skills in the courses closest to their hearts and minds—those that are central to their intellectual interests. No longer will writing instruction rest entirely on the shoulders of the English Department. Everybody will share in the joys and tribulations of helping students learn to write more effectively.

The bad news for a lot of biologists is that they now have to teach something with which they may not feel completely comfortable, using exercises that don't seem quite appropriate, to students who are somewhat skeptical about the whole process. The problem is that there are two basic plans for teaching writing in a science class, and both of these have flaws. Plan A is to have the students write up the results of their laboratory exercises, either as a detailed report, or more formally, as a manuscript. Plan B is to have them prepare a term paper. The frustrations with both approaches become apparent to anyone who has tried them. "Manuscripts" often become exercises in inflation, both verbal and intellectual, as students struggle to discuss results that are either awkward to explain if the experiment didn't work, or simple reaffirmations of textbook material if it did. Term papers are no better. Plagiarism becomes an enormous temptation for some students, fueled no doubt by the availability of mail order "Term Paper Assistance" companies which, for a fee (MasterCard and Visa accepted, of course), are willing to provide access to thousands of term papers. As the ads in the back pages of *National Lampoon* proclaim: If you've got the "term paper blues," help is only a phone call away!

This book is about alternatives, about Plans C and D, about ways to help students learn to write and at the same time teach them about biology. The conceptual organization of the book is apparent enough from the table of contents and the introductory comments that precede each unit. The first three units ask students to write personal essays that convey their views and opinions on topics ranging from the nature of scientific thought to the performance of steroid-dependent athletes. Our hope is that student effort

will be inspired by focusing on subjects that are both topical and controversial. Ultimately, the success or failure of these essays depend on the degree of personal involvement by the student. The more we engage them in these topics, the more we ask for their personal interpretation of complex issues, then the greater will be their growth as writers and as independent intellects, capable of critically analyzing demanding problems for which there are no easy answers.

The ultimate writing challenge to students in a biology curriculum is the preparation of a scientific manuscript. The final unit instructs students in the entire process of preparing a manuscript, from formulating the initial hypothesis to dotting the final "i." The skills required to prepare such a document are the same as those developed in the essays that emerge from the preceding three units: critical thinking coupled with careful, precise use of language. In fact, we regard the scientific manuscript as the natural culmination of the intellectual process set in motion in the first chapter of this book.

We thank many people for their help in writing this book. Jan Taigen has contributed significantly to every aspect of development. Lisa Prince, Lad Hanka, Jane O'Donnell, Mary Jane Spring, and Libby Walker Davidson skillfully transformed our ideas into the illustrations and figures that grace each chapter. Robert Vinopal, R. Jack Schultz, and Tyler Taigen critically evaluated portions of the manuscript. Dotty Smarsik, Andy Moiseff, Tom Terry, Janine Caira, and Alice Mace Nakanishi helped with various aspects of formatting the manuscript. We have benefited from the inspiration, insights, and experience of our friends, graduate students, and undergraduates in the development of these ideas, especially Tom Polman, Steve Ressel, Judy Kucharski, Bill Mautz, Simone Nadeau, and Al Bennett. Finally, we express our deep appreciation for the many ways that our editor, Mary Eshelman, has contributed to the successful completion of this project.