

This inexpensive book could prove to be your best investment of the year. It is a step-by-step guide to the preparation of a high-quality research proposal in the natural sciences. Because the authors teach a course on this subject at Dartmouth College, their suggestions have been honed not only by trial and error but also by feedback from graduate students and colleagues. Graduate students know that expertise in proposal writing is one of the requirements of a career in science and that it is a skill that must be developed. They often list such courses among their most highly valued experiences.

Seasoned veterans of grantsmanship will already know the mechanics of how to apply for funds from the National Science Foundation (NSF), National Institutes of Health (NIH), Environmental Protection Agency (EPA), US Forest Service (USFS), and other funding agencies, but mastering these technicalities and the acronyms is only a small part of the process. All applicants could probably benefit from reading and critiquing successful proposals and from working harder on their own proposals' conceptual frameworks. I think the most valuable sections of *Writing Successful Science Proposals* were those that offered suggestions about the ways to be more creative and to develop ideas more thoughtfully.

Four formal exercises are proposed to help the writer avoid pitfalls such as being too ambitious or repetitive, providing too much detail, and not establishing strong links between the project and its general significance. In the course, students give oral presentations for each of the four exercises and write short summaries, all before drafting sections of a proposal. The first exercise is to state the conceptual framework of the subject without reference to the particular system of interest; the second to state the significance and objectives of the proposed work; the third to relate the work to previous research adding quantitative, theoretical, and functional relations to the proposed works; and the fourth to summarize a comparable system, regardless of whether it is generally applicable to the system proposed for study. As in the NSF's Grant Proposal Guide (NSF 01-02, October 2000), which advocates four precepts for effective communication, the writer is urged to organize, highlight, funnel, and focus, thereby making the case that the proposed research is the most logical and innovative approach to answering the question. The project summary has to be "clear, concise, accurate, and exciting, all in fewer than 300 words!"

Andrew J. Friedland and Carol L. Folt want the entire process to be interactive. The writer should plan to draft sections of the exercises and of the proposal, get appraisals from colleagues and collaborators, and then rethink and revise and take criticism as well, even in a resubmission. All this sounds like good advice.

The book provides a model that has worked for their authors and their colleagues. I hope that, as the only book specifically addressed to all the components of proposal writing in the natural sciences, it will stimulate more departments to offer courses on this subject. But even if this does not happen right away, the availability of *Writing Successful Science Proposals* can only improve the quality of individual applications and the general articulation of the scientific process.

James, F.C. 2000. Writing proposals. BioScience 50: 1023-1024.