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A GUIDE FOR PROPOSAL WRITING

NATIONAL SCIENCE FOUNDATION

DIRECTORATE FOR EDUCATION AND HUMAN RESOURCES

Division of Undergraduate Education

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The Foundation provides awards for research and education in the sciences and engineering. The awardee is wholly responsible for the conduct of such research and preparation of the results for publication. The Foundation, therefore, does not assume responsibility for the research findings or their interpretation.

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A GUIDE FOR PROPOSAL WRITING

Introduction

The staff of the Division of Undergraduate Education (DUE) at the National Science Foundation (NSF) often provide informal guidance to proposers. Staff members give workshops on proposal writing, answer questions by phone and e-mail, and talk to potential awardees at professional meetings and at NSF. The following is the essence of the advice often given to inquirers. These suggestions for improving proposals were collected from a variety of sources, including NSF Program Directors, panel reviewers, and successful grantees. Ultimately, proposals are peer reviewed in panels consisting of colleagues in science, mathematics, engineering, and technology disciplines or related fields, and the success in obtaining funding depends in great measure on reviewers' judgements and their written reviews.

"What makes a good proposal?" A good proposal stems from a good concept. The best proposals are those to which the reviewers respond, "Of course, I wish I had thought of that!"

The most important thing is a project that will benefit undergraduate education and directly improve student opportunities to learn. That said, however, the proposal must be written in sufficient detail to allow reviewers to understand:

- what the project hopes to accomplish;
- if the project personnel have the necessary expertise to accomplish the goals and objectives;
- the potential of the project to improve undergraduate education;
- the national impact and cost effectiveness of the project; and
- evaluation and dissemination plans.

Carefully read the *Program Announcement.* The ***Program Announcement*** gives the most current information available. It provides for all DUE programs: (a) a rationale, (b) an overview, (c) detailed program information, (d) facts about preparation and submission of both preliminary and formal proposals, (e) review criteria, (f) special forms that should be submitted with proposals, and (g) advice to proposal writers. This is the best possible guide for preparing proposals to DUE programs and should be read carefully and followed precisely. There are no hidden agendas. Proposals are funded in a competitive system based on merit and promise.

While this ***Guide*** may provide valuable information for proposal writing in general, it was specifically prepared for programs in the Division of Undergraduate Education (DUE). Because programs, priorities,

technologies, funding levels, and many other details change, advice in this ***Guide*** will also change with time. Following the advice given here certainly does not guarantee funding although we hope it will help applicants write better and more competitive proposals. Another factor that must be considered is that NSF receives many more proposals that are worthy of funding than there are funds to support. National priorities and the desire for a balanced portfolio of projects influence what is ultimately funded.

We hope that you find this ***Guide*** informative. NSF, together with creative partners, make an important difference in undergraduate science, mathematics, engineering, and technology education.

Program Information

Following is a list of grant publications with a short description. For those that are published annually, no NSF publication numbers are shown since they will change. The documents are available on the NSF Web page which can be accessed at http://www.nsf.gov.

- The ***Guide to Programs*** provides background information about all of the Foundation's activities in education and research as well as the instructions to obtain individual program announcements. This can be ordered by contacting the NSF Publication Clearinghouse, P.O. Box 218, Jessup, MD 20794-0218. Copies may be requested via voice mail: phone at (301) 947-2722, fax (301) 953-3848 or via e-mail (pubs@nsf.gov).

- Proposers also can consult the publication ***Grant Proposal Guide*** and DUE's ***Program Announcement and Guidelines*** (see below) for additional guidance. They are also available from the Forms and Publication Unit.

- The DUE publication ***Undergraduate Education Science, Mathematics, Engineering and Technology: Program Announcement and Guidelines*** (hereafter, ***Program Announcement***) describes each program and indicates the exact format for the preparation of the grant proposal and the criteria for evaluation. DUE also regularly publishes information about recently awarded grants.

  Information specific to undergraduate programs can be accessed by e-mail (undergrad@nsf.gov) or by phone at 703-306-1666. You can also get information fast via the World Wide Web (www.nsf.gov.)

- NSF has also published the ***User-Friendly Handbook for Project Evaluation*** (NSF 93-152), ***FOOTPRINTS: Strategies for Non-Traditional Program Evaluation*** (NSF 95-41), and ***User-Friendly Handbook for Mixed Method Evaluations*** (NSF 97-153) which proposers may wish to obtain.

Review Process

NSF awards grants on a competitive basis. In selecting proposals to be supported, NSF is assisted by reviewers who are scientists, engineers, mathematicians, technologists, and educators in related disciplines. These reviewers are drawn primarily from two- and four-year colleges and universities,

secondary schools, industry, foundations, and professional societies and associations, as appropriate for the program being reviewed. The reviewers are chosen based on their demonstrated ability to assess the merits of a proposal based on the criteria for evaluation shown in the next section. Faculty writing proposals are advised to contact NSF program officers to learn the general demographics of the reviewers for the program for which they are submitting proposals.

The majority of proposals submitted to DUE are considered by panels of peer reviewers. The purpose of the review is to provide NSF with a written critique and an individual rating from each reviewer as well as a summary analysis by the panel. Each panelist writes his or her own review for all proposals assigned to the panel. Reviewers are asked to provide a detailed evaluation of both the merits and the shortcomings of each proposal and to provide a rating. The Proposal Evaluation Form which is used for comments is attached. The panel then convenes as a group to discuss the proposals. This gives each reviewer the benefit of an informed discussion upon which to base a decision. Following these discussions, panelists complete their individual reviews and one panel member writes a summary of the discussion for each proposal. Reviews are used by NSF Program Directors to inform funding decisions; and anonymous copies are sent to all proposers.

Reviewers are charged with safeguarding the confidentiality of proposals and are asked not to copy, quote, or otherwise use material from any proposal. Reviews are not disclosed to persons outside NSF except to the principal investigator. At the end of the review process, the principal investigator is sent the written verbatim reviews with the reviewers' names and affiliations omitted. Reviews are forwarded whether the proposal is funded or not. All reviews are confidential. NSF releases abstracts and other information about funded proposals only.

Criteria for Evaluation

Proposals to NSF are evaluated for merit on the basis of two general criteria. The criteria are described in Chapter III, Section A, of the ***Grant Proposal Guide*** and are printed on the NSF Proposal Evaluation Form (NSF Form 1). These criteria, as they relate to education, are defined below. In addition to the suggestions listed in the "Advice for Proposal Writers" section, special attention should be paid to the criteria and questions specified below. These criteria are given to the review panels as guidance for evaluating program proposals. Some programs include additional criteria for their programs. See the DUE ***Program Announcement*** for this information about DUE programs.

I. Intellectual Merit

What is the intellectual merit of the proposed activity? This criterion is used to assess the importance of the proposed activity to advancing knowledge and understanding within the context of undergraduate science, mathematics, engineering, and technology (SMET) education. This criterion also relates to the quality, currency, and significance of the scientific/technical content and related instructional activity, the capability of the Principal Investigator(s), the extent to which the proposed activity applies innovative approaches or explores creative concepts, the technical soundness and organization of the proposed approach, and the adequacy of the institutional resources available. Typical questions raised in the review process include:

- Does the project address a major challenge facing SMET undergraduate education?
- Are the goals and objectives, and the plans and procedures for achieving them, innovative, well-

developed, worthwhile, and realistic?

- Does the project have potential for improving student learning of important principles of science, mathematics, engineering, or technology?
- Is the project informed by research in teaching and learning, current pedagogical issues, what others have done, and relevant literature?
- Does the project provide for effective assessment of student learning, which reflects the proposed educational objectives and practices?
- Does the project design consider the background, preparation, and experience of the target audience?
- Does the project have the potential to provide fundamental improvements in teaching and learning through effective uses of technology?
- Is the project led by and supported by the involvement of capable faculty (and where appropriate, practicing scientists, mathematicians, engineers, technicians, teachers, and student assistants), who have recent and relevant experience in education, in research, or in the workplace?
- Is the project supported by adequate facilities and resources, and by an institutional and departmental commitment?

II. Broader Impacts

What are the broader impacts of the proposed activity? This criterion relates to the extent to which the activity advances discovery and understanding while promoting teaching and learning, how well it broadens participation of underrepresented groups (e.g., based on gender, ethnicity, disability, geography, etc.), the extent to which it enhances the infrastructure for research and education (e.g., facilities, instrumentation, networks, partnerships), the degree to which it plans broad dissemination to enhance scientific and technological understanding, and the benefits of the activity to society. Typical questions raised in the review process include:

- To what extent will the results of the project contribute to the knowledge base of activities that enhance student learning?
- Are the proposed course, curriculum, faculty or teacher professional development, experiential learning, or laboratory activities integrated into the institution’s academic program?
- Are plans for evaluation of the project appropriate and adequate for the project’s size and scope?
- Are the results of the project likely to be useful at similar institutions?
- What is the potential for the project to produce widely used products which can be disseminated through commercial or other channels? Are plans for producing, marketing and distributing these products and communication of results appropriate and adequate?

- For ATE projects, does the project address the current and future needs of industry for technicians? Does the project enhance the current status of technician education?

- Will the project result in solid content and pedagogical preparation of faculty and teachers of science, mathematics, engineering, and technology?

- Does the project effectively address one or more of the following objectives:
    - ensure the highest quality education for those students planning to pursue SMET careers?
    - increase the participation of women, underrepresented minorities, and persons with disabilities?
    - provide a foundation for scientific, technological, and workplace literacy?
    - develop multi- and interdisciplinary courses and curricula, that are aligned with SMET standards, as appropriate?

Additional Questions Relevant to NSF Collaboratives for Excellence in Teacher Preparation (CETP):

I. Intellectual Merit

- Is the rationale for selecting particular activities or components for development or adaptation clearly articulated?

- As appropriate, is there evidence of collaboration among faculty and departments in the sciences, mathematics, technology, education, and/or engineering?

- For multi-institutional projects, is there significant evidence of participation and commitment by the member institutions including school personnel (teachers, supervisors, administrators) in proposal preparation and in the planning and implementation of the project?

- Is there demonstrated leadership from the science, mathematics, and/or engineering faculty in close collaboration with the science and mathematics education faculty? Does the institutional structure and culture promote the requisite collaboration between the institutions, departments and faculties involved?

- Is there integration of mathematics and science, use of advanced technologies, applications to engineering and technology, and/or new methods of student assessment appropriate to the teaching methodologies?

- Does the project contain exemplary mentoring and field experiences (e.g., student teaching, laboratory research opportunities, support for novice teachers)?

- Are there strategies for recruiting, supporting, and graduating high-quality prospective mathematics and science teachers, particularly from underrepresented groups including persons with disabilities?

- Are there creative plans to maintain continuing relationships with graduates of the proposed Collaborative program to encourage their retention in science and mathematics teaching?

II. Broader Impacts

- Is the evidence for institutional support clear and compelling?
- Will the project contribute to the preparation of preK-12 teachers who are: knowledgeable in, and comfortable with science, mathematics, and technology; confident in their abilities in these disciplines; and able to effectively use a variety of pedagogical approaches and technology to improve student learning?
- Does the proposal indicate how the project relates to a teacher preparation program? Is there significant redesign of activities, including discipline courses, which serve prospective teachers as part of the audience, and are these activities integrated into the curriculum and institutional requirements?
- Will the project result in increased involvement of mathematics, science and, as appropriate, engineering and technology departments and their faculty in the preparation of prospective teachers?
- Is there evidence that programs initiated by the collaborative entity will become established within the participating science, mathematics, education and/or engineering departments and the sponsoring institution or institutions? Are there effective mechanisms included to promote the incorporation of successful models or results into statewide practice and policy?
- Is there significant cost sharing by the institution or each of the institutions within the Collaborative?
- Is there cognizance of and cooperation with other programs in the region (Local Systemic Change [LSC], State Systemic Initiative [SSI], Urban Systemic Initiative [USI], Rural Systemic Initiative [RSI], Alliances for Minority Participation [AMP], and large systemic efforts in preK-12 curriculum reform) designed to improve the teaching of math and science?
- Are adequate systems provided to facilitate the collection of baseline and subsequent data to measure program impact?

ADVICE TO PROPOSAL WRITERS

The following steps are provided to help the proposal writer understand the steps that go into preparing a proposal and to share some advice that others have found useful.

Step 1 - Before You Write

Getting Started

NSF grants provide funds based on merit, not on need.

A good proposal begins with a clear idea of the goals and objectives of the project—for example, creating a course or curriculum, improving a laboratory by teaching new concepts directly, teaching new material to undergraduate faculty, or preparing future technicians or K-12 teachers in a more effective way.

In addition, a good project begins with a sense of why it will be a significant improvement over current practice.

Envision what improvements your project will make, and then ask yourself what activities and course(s) must be developed, what instruments will be needed, or what coalitions must be formed to make the desired improvements. Focusing first on the goals and objectives helps ensure that the activities are designed to reach those goals.

After the goals and associated activities are well defined, consider what resources (e.g., people, time, equipment, technical support) will be necessary as part of the request to NSF. A better proposal is likely to result if the goals and activities are clear before resources are considered.

Your project should be innovative within its context. It should not be designed merely to bring your institution up to the level of other similar institutions, nor should it be used to fill program deficiencies that have been caused by changing student registration patterns.

Projects should explore teaching and learning methods that use equipment, scientific knowledge, or teaching techniques in effective ways; perhaps by adapting techniques to a new context or by teaching in a novel or attractive way.

In addition, more extensive projects, such as Advanced Technological Education (ATE) Centers and Collaboratives for Excellence in Teacher Preparation (CETP), must show clearly that they can initiate important changes in the teaching of undergraduate science, mathematics, engineering, or technology for a significant segment of the community.

Mention what work has been done in preparation for the project, and describe specific attempts that have been made to try the proposed improvement on a small scale. Evidence of preliminary work demonstrates planning and commitment to the project and often indicates the project's potential for success.

When the proposal requests significant funds for equipment, it is helpful to consider alternatives and explain why the instruments chosen are particularly suitable for the project and why others, especially less expensive ones, are less suitable.

Get advice from people who have been successful in the proposal process. (See the Getting Advice Section listed in Step 3 and consider these activities early in the process.)

Gathering Background Information

When writing a proposal, look for previously awarded NSF projects or work supported in other ways that are similar. The relationship of the proposed project to work of others should be described. In addition, the proposal must give appropriate attention to the existing relevant knowledge base, including awareness of current literature. Results of previous projects may have been presented at professional meetings or published in journals, and

NSF regularly publishes abstracts of its recently awarded grants. Information can also be obtained from NSF's World Wide Web site, <http://www.nsf.gov/>.

When you find a funded project that is similar, call the principal investigator, discuss his/her project, and ask him/her to send or e-mail you a copy of the grant proposal. You will then be better able to see how that project is outlined and developed and how it meets certain needs on that particular campus and in the broader community. Clearly you will wish to use this only as guidance and should not copy the project. There will be differences in what is needed in each new project.

Feel free to call a DUE Program Director (current number 703-306-1666) when unsure about any details or procedure.

Looking at the Program Announcement

Identify the program or programs that best fit what you hope to accomplish.

Read the ***Program Announcement*** guidelines carefully and consider what is requested. Each program's section of that announcement specifies requirements for that program and information that is used to review the proposal.

The ***Program Announcement*** clearly spells out requirements, including format requirements. All parts of the proposal should conform to the requirements, i.e., target dates, font size, page limits, program objectives, budget limits, matching funds, etc. The proposal should be concise and not exceed any text restrictions.

The review criteria are particularly important to consider in writing the proposal. Keep in mind that different programs may have special emphases for review. These will be mentioned in the ***Program Announcement***. You should consider, if appropriate, how your project might address these areas.

In some cases, programs have specific requirements that differ from the general requirements. When there are differences, the guidelines closest to the program should be followed (i.e., follow the program guidelines provided in the DUE ***Program Announcement***). For example, the DUE ***Program Announcement*** calls for double line spacing while the NSF ***Grant Proposal Guide*** leaves line spacing to the discretion of the proposer. In that case, you should use double line spacing.

Thinking About the Target Audience

The target audience of the grant should be clearly explained in terms of demographic characteristics, size, and special characteristics or problems/challenges faced by the group. The project design should be developed in a manner which will effectively assist the target group in addressing those special problems or challenges. The disparity between the educational sophistication of the project and the educational naiveté of the audience (e.g., a software package which is primarily being used for research that is proposed to be used in a developmental mathematics class) is usually noted by the reviewers and can be one reason for declination of funding.

One of the goals of the Foundation is to increase the participation in science, mathematics,

engineering, and technology of women, underrepresented minorities, and persons with disabilities. If your project is going to provide learning opportunities for women, underrepresented minorities, and persons with disabilities, explain exactly how this is going to be done. The proposal should explicitly identify components that will result in increased participation by and/or success of these groups. There must be a focused plan, explaining in detail how your project will accomplish this.

Building Coalitions

When several departments, several institutions, or constituencies outside the academic community are involved in the project, it is important to have these groups involved in the planning and to obtain letters of commitment to the project.

When faculty or teacher enhancement activities or industry partners are included, involve these potential participants in the planning of project activities.

Where appropriate in terms of the project's size and its potential for national impact, consider designing the project with an advisory board of outside experts to provide additional levels of expertise and experience and to help widely disseminate the project results.

Even in smaller projects, an advisory board of outside experts from the college or local community can provide additional levels of expertise and experience.

Build consensus on your idea within your own department and institution. If the courses are taught by different faculty members, reviewers may be more receptive if the proposal is submitted jointly by several members of the department or institution rather than by a single faculty member. It is often valuable to include a letter of support from the department chair or other individuals to establish institutional support.

Include information about where the project fits in the context of the institution's academic program. As appropriate, show how your project is part of an overall plan to improve education by your institution and other institutions.

Discuss involving other institutions in your proposal either as partners in the endeavor or as test sites.

Other Considerations

Organize a good working team. Distribute duties and develop a firm schedule of activities needed to prepare the proposal in time to meet the proposal deadline.

Schedule proposal writing and information gathering activities over a reasonable time and carefully manage the schedule. Consider scheduling the writing in small, regular amounts of time. The effort needed to write a proposal might, at first sight, seem insurmountable. By proceeding a step at a time, you will be able to accomplish the task.

Remember to allow enough time to have the proposal revised by a third party if needed and to obtain all the necessary internal and external support letters and permissions. Consider having one person write the final proposal to assure consistency.

Typically a final version of a proposal will have gone through several drafts and revisions. Don't plan on writing a final version in a first draft.

Invest time running a pilot program and preparing preliminary versions of curricular materials prior to the actual writing of the proposal.

The proposal should be written so that, if funded, it can serve as a blueprint for executing the plan.

Step 2 - Writing the Proposal

Writing the Proposal Narrative

A good proposal is always readable, well-organized, grammatically correct, and understandable.

Be explicit in your narrative about how the program will make an improvement. This narrative must contain specifics including details of experiments and/or applications, both to show that planning has been done and to help reviewers understand why the particular application you propose is better than other ideas. You and your colleagues should think through several iterations of the definition of the project.

The narrative should be specific about the proposed activities. Reviewers want details of the project's organization, the course content, laboratory and other inquiry-based experiments, and participant activities, both to show that groundwork has been laid and to help them understand why the particular ideas you propose are better than others.

Careful writing should allow you to describe, in the limited space available, enough about your project to give the reviewers a clear idea of exactly what you plan to do and why your plan is a good one. How would the project improve education at your institution and how might it be emulated at other similar institutions? How will your plan ultimately improve students' understanding of concepts in science, mathematics, engineering, or technology? How will you know it has been done?

You must demonstrate in the narrative that you have a broad knowledge of current scholarship and activities in your field and how this is relevant to your project's design. This knowledge should include current research in teaching and learning practices. However, do not focus entirely on this aspect and fail to adequately describe the components of your project.

The project description/narrative of the proposal should be written by the person or persons in the science, engineering, or mathematics departments who will be the principal investigator(s). The submitting institution's sponsored research office or grant administration expert can assist in some areas of the proposal writing, e.g., with budgets or grammar, but usually do not have the scientific qualifications or classroom experience to describe the project in an appropriately technical or pedagogical manner.

It is helpful to reviewers to see that you have devised a time frame. This will show that you have done adequate planning and are realistic about the program's implementation.

Include examples that illustrate, for example, the innovative activities or exercises that students will be doing. Reviewers usually respond to projects that include an emphasis on active learning and student directed inquiry.

In most cases, it is well to describe your plans to continue the project and institutionalize courses and curriculum beyond the funding period.

Including Budget Information

The budget request should be realistic for the project and reflect the goals of the project. It must also be consistent with the requirements of the particular NSF program. It should request sufficient resources needed to carry out the project, but it should not be excessively high.

Budget information should be complete and unambiguous. Carefully review your budget to ensure that ineligible items do not appear in the budget and that adequate attention has been given to cost sharing. Consult the ***Program Announcement*** for eligible and ineligible items. Most reviewers and all Program Directors look carefully at the proposed budgets to find evidence of careful reflection and realistic project planning.

Institutional and other leveraged commitments toward the budget is one way to demonstrate institutional support of the project. Institutional and other contributions in terms of matching funds or released time are usually looked upon by reviewers as a positive sign of institutional commitment.

Some programs require specific cost-sharing. For example, for proposals in the Adaptation and Implementation track of DUE's Course, Curriculum, and Laboratory Improvement program, cost-sharing from non-Federal sources equal to or greater than the requested NSF funds is required for the entire budget. In addition, a specific 1:1 or greater match is required on equipment requests. Cost-sharing information must be included on line M of the budget form, and if the proposal is awarded becomes a condition of the award. Remember that cost-sharing is subject to audit. (For more information, see the ***Grant Proposal Guide*** and the DUE ***Program Announcement***.)

Make sure that your budget narrative reflects both your official NSF budget pages and the needs of the project.

Cost of the project must be realistic. Many budget requests are out-of-line with others submitted to the program. Look at the ***Program Announcement*** for average size of awards and the award range.

Budgets are often negotiated as a proposal is being considered; but a clear, realistic budget request strengthens a proposal.

Writing the Credentials of the PI and Other Staff

When writing up the credentials of faculty for the grant proposal, each biographical sketch

should be written with the proposal in mind and should display the unique background of the principal investigator(s) which will be valuable in working on the proposed project.

Carefully follow program guidelines about format and length of biographical sketches.

Be sure that the roles of all personnel, especially the principal investigators, are described in the proposal itself. Having the roles of the principal investigators and other personnel discussed within the narrative is important so that reviewers can understand their involvement, leadership, and commitment to the project.

If your project involves industry, consider having a co-principal investigator representing industry.

Including Evaluation and Dissemination Information

A good evaluation plan appropriate to the scale of the project will provide information as the project is developing and will determine how effectively the project has achieved its goals. The effects of formative evaluation should be described. Also include how you intend to evaluate the final project and how you will determine whether this project met your scientific and pedagogical expectations.

Discuss how you plan to collect and analyze data on the project's impact (i.e., number of students or faculty affected.)

Describe why the proposed project is a good way to improve education at your institution and how it might be emulated at other similar institutions.

Explain in detail how you will disseminate information on the success and content of your project to other scientists and educators. In general, setting up a Web page about the project is not considered sufficient.

For projects which are creating instructional materials, include information on potential commercial publication. What products—text, software, CD ROMS, manuals, or other publications—might result, and what plans are in place to distribute them effectively?

Projects which include plans for commercial publication are encouraged by NSF. Authors who submit such proposals should demonstrate that NSF funding is necessary to create the work, make the product available earlier, or better serve the community.

When extensive utilization of educational technology is expected, how will the student learning outcomes be evaluated? What are the plans to ensure that electronic dissemination will lead to broad implementation of material so provided, and that such material will be subjected to continued scrutiny for editorial quality and currency of content?

Consider the value that an outside evaluator may add to your project.

Letters of Commitment

Include letters of commitment from your department chair and other appropriate administrators.

If your project involves other people or groups not on your campus (e.g., K-12 teachers, consultants, or other colleges), include letters of commitment and support from appropriate individuals.

Include letters of commitment with specific contributions from the participants' supporting institutions. These should make specific commitments and not just be generic support of good will. Uniquely phrased letters of commitment from different institutions are better than nearly identical letters from the institutions to be served.

Project Summary and Project Data Form

The project summary (abstract) is the first thing that reviewers and NSF staff read. It should be written clearly and concisely. In the space allotted, it should outline the problem, the objectives and the expected outcomes, project activities, and the audience to be addressed. Project directors use the summary to choose reviewers for the proposal. It is also the reviewers' introduction to the project. NSF publishes an abstract of the project (both in hard copy and electronically) should it be funded. Considerable effort and thought should be spent in preparing a well-written summary.

The numbers given on the Project Data Form concerning student impact should be as accurate as possible. Reviewers look for discrepancies in enrollment data and the projected numbers of students. They look for reasonable expectations in those numbers.

Step 3 - Before Sending Your Proposal to NSF

Learning More About the Review Process

To gain expertise in NSF's proposal review system, volunteer to serve on a program review panel yourself. Each Division compiles names of appropriate individuals who can serve as reviewers. Contact the pertinent division for a form to fill out to volunteer for reviewer status.

Encourage your professional organization to form a committee to help members review their proposals before submitting them to NSF.

Getting Advice

Consider asking someone who has served on an NSF program review panel to assess your proposal.

If possible, have someone not connected with the proposal read and comment on a draft of your proposal—with sufficient time allowed for changes prior to the submission of your proposal. This person can help identify omissions or inconsistent logic before reviewers see the proposal.

Some programs require a preliminary proposal. Check the ***Program Announcement*** and with NSF staff.

When working on a proposal or award for several years, you may be transferred from one Program Director to another. Many Program Directors come to NSF from colleges and universities for one or two-year assignments and then return to their schools at the end of their rotational assignments.

Before Finishing the Proposal

When a checklist is provided in the ***Program Announcement***, use it to ensure that all needed information, signatures, and/or administrative details are included.

Look again at the goals and objectives and at your written plans and procedures for achieving the goals. Check to see that the goals are well-developed and realistic and that your plans are innovative and appropriate.

Consider using graphics to make your point stronger and clearer.

A time line to show when different components of your project are to take place can be particularly effective.

Include a table of contents. This makes it easy for reviewers to locate important sections of your proposal.

Little Things That Can Make a Difference

Use a spell checker before submitting the proposal.

Proofread carefully.

Be sure to follow the directions given in the ***Program Announcement***. In particular, follow any specific requirements such as page limitations.

In general avoid abbreviations. For example, use laboratory, not lab and mathematics, not math.

The first time you use an acronym, write out what it stands for and put the acronym in parentheses. For example, American Mathematical Association of Two-Year Colleges (AMATYC). After that you can use the acronym.

Make sure all your references are correct.

Step 4 - Awards and Declinations

If The Grant is Awarded

If the proposal is successful, make the best possible use of the funds awarded. Situations may arise that require changes in your plans to accomplish the goals of the project. Within broad limits described in the grant conditions (reference GC-1, FDP III, and NSF's Grant Policy Manual) and within the overall budget, such changes may be possible. Consult your institution's sponsored research office or grant administration office for guidance.

In addition, let others know about your project. This may include providing advice or assistance to faculty developing similar projects. It clearly includes disseminating products and results. Make sure that other scientists and educators learn about your activities through correspondence, telephone conversations, presentations, and publications. Finally, reference the National Science Foundation as well as the sponsoring Division and/or program in all presentations and publications.

If Your Proposal is Not Funded

If the proposal is not funded, consider the reviews of the panel and the comments from NSF staff objectively and seriously. Consult NSF staff if necessary and, unless the feedback indicates otherwise, submit a revised or new proposal the following year. Many awards made in the programs have been for proposals that were revised thoughtfully and resubmitted after having been declined initially.

Your institution may have a strong enough commitment to the project to provide funding. You may also discover other funding avenues open to you. If you have contacts with business and industry in your community, a company in the private sector may be interested in helping fund your project. Often, institution grant officers have directories that include the names of other foundations and their funding priorities.

A Final Note

The National Science Foundation is looking for proposals of programs that will improve the quality of education in science, mathematics, engineering, and technology at all levels. It seeks to support the best science, mathematics, engineering, and technology education activities that meet the needs of target audiences. It is in our mutual best interest to have your proposal be of the highest quality.

We hope that you have found this ***Guide*** helpful and encourage you to contact a Program Director at NSF for additional information.

Proposal Evaluation Form

(Form Not Available)

NSF 98-91
(Replaces NSF 97-83)