



The NSF Merit Review Process

NSF Workshop for Sponsored Project Administrators
at Hispanic Serving Institutions

April 13, 2007 - Miami, FL

April 20, 2007 – Albuquerque, NM



Ask Early, Ask Often!!

Name	Title	Contact
Thomas Brady	Division Director, Division of Integrative Organismal Systems (BIO)	tbrady@nsf.gov (703) 292-8420
Lloyd Douglas	Program Director, Division of Mathematical Sciences (MPS)	ldouglas@nsf.gov (703) 292-4862
Jolene Jesse	Program Director, Division of Human Resource Development (EHR)	jjesse@nsf.gov (703) 292-7303
Elizabeth Teles	Program Director, Division of Undergraduate Education (EHR)	ejteles@nsf.gov (703) 292-8670



Outline

- Proposal review criteria.
- NSF peer review process.
- Avoiding common omissions and mistakes.
- NSF peer reviewers



Proposal Review Criteria

- National Science Board Approved Merit Review Criteria:
 - What is the **intellectual merit** of the proposed activity?
 - What are the **broader impacts** of the proposed activity?
 - You must address both merit review criteria in your project summary and in the proposal text.
- Program specific criteria as stated in the program solicitation.



Intellectual Merit

- Potential considerations include:
 - How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields?
 - How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.)
 - To what extent does the proposed activity suggest and explore creative and original concepts?
 - How well conceived and organized is the proposed activity?
 - Is there sufficient access to resources?



Broader Impacts

- Potential considerations include:
 - How well does the activity advance discovery and understanding while promoting teaching, training and learning?
 - How well does the activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)?
 - To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks and partnerships?



Broader Impacts (cont'd)

- Potential considerations include:
 - Will the results be disseminated broadly to enhance scientific and technological understanding?
 - What may be the benefits of the proposed activity to society?
- Examples of Broader Impacts
 - <http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>



Examples of Broader Impacts

- Advance Discovery and Understanding While Promoting Teaching, Training and Learning
 - Integrate research activities into the teaching of science, math and engineering at all educational levels (e.g., K-12, undergraduate science majors, non-science majors, and graduate students).
 - Include students (e.g., K-12, undergraduate science majors, non-science majors, and /or graduate students) as participants in the proposed activities as appropriate.
 - Participate in the recruitment, training, and/or professional development of K-12 science and math teachers.
 - Further examples at:
<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>



Examples of Broader Impacts

- Broaden Participation of Underrepresented Groups
 - Establish research and education collaborations with students and/or faculty who are members of underrepresented groups.
 - Include students from underrepresented groups as participants in the proposed research and education activities.
 - Establish research and education collaborations with students and faculty from non-Ph.D.-granting institutions and those serving underrepresented groups.
 - Make campus visits and presentations at institutions that serve underrepresented groups.
 - Further examples at:
<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>



Examples of Broader Impacts

- Enhance Infrastructure for Research and Education
 - Identify and establish collaborations between disciplines and institutions, among the U.S. academic institutions, industry and government and with international partners.
 - Stimulate and support the development and dissemination of next-generation instrumentation, multi-user facilities, and other shared research and education platforms.
 - Maintain, operate and modernize shared research and education infrastructure, including facilities and science and technology centers and engineering research centers.
 - Further examples at:
<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>



Examples of Broader Impacts

- Broad Dissemination to Enhance Scientific and Technological Understanding
 - Partner with museums, nature centers, science centers, and similar institutions to develop exhibits in science, math, and engineering.
 - Involve the public or industry, where possible, in research and education activities.
 - Give science and engineering presentations to the broader community (e.g., at museums and libraries, on radio shows, and in other such venues.).
 - Make data available in a timely manner by means of databases, digital libraries, or other venues such as CD-ROMs.
 - Further examples at:
<http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf>



Examples of Broader Impacts

- Benefits to Society
 - Demonstrate the linkage between discovery and societal benefit by providing specific examples and explanations regarding the potential application of research and education results.
 - Partner with academic scientists, staff at federal agencies and with the private sector on both technological and scientific projects to integrate research into broader programs and activities of national interest.
 - Analyze, interpret, and synthesize research and education results in formats understandable and useful for non-scientists.
 - Provide information for policy formulation by Federal, State or local agencies.



Intellectual Merit and Broader Impacts (cont'd)

- **The listed considerations are examples and may not apply to all proposals.**
- **There may be additional ways to address each criterion.**
- **You must address both merit review criteria in your project summary and in the proposal text.**



Program Specific Review Criteria

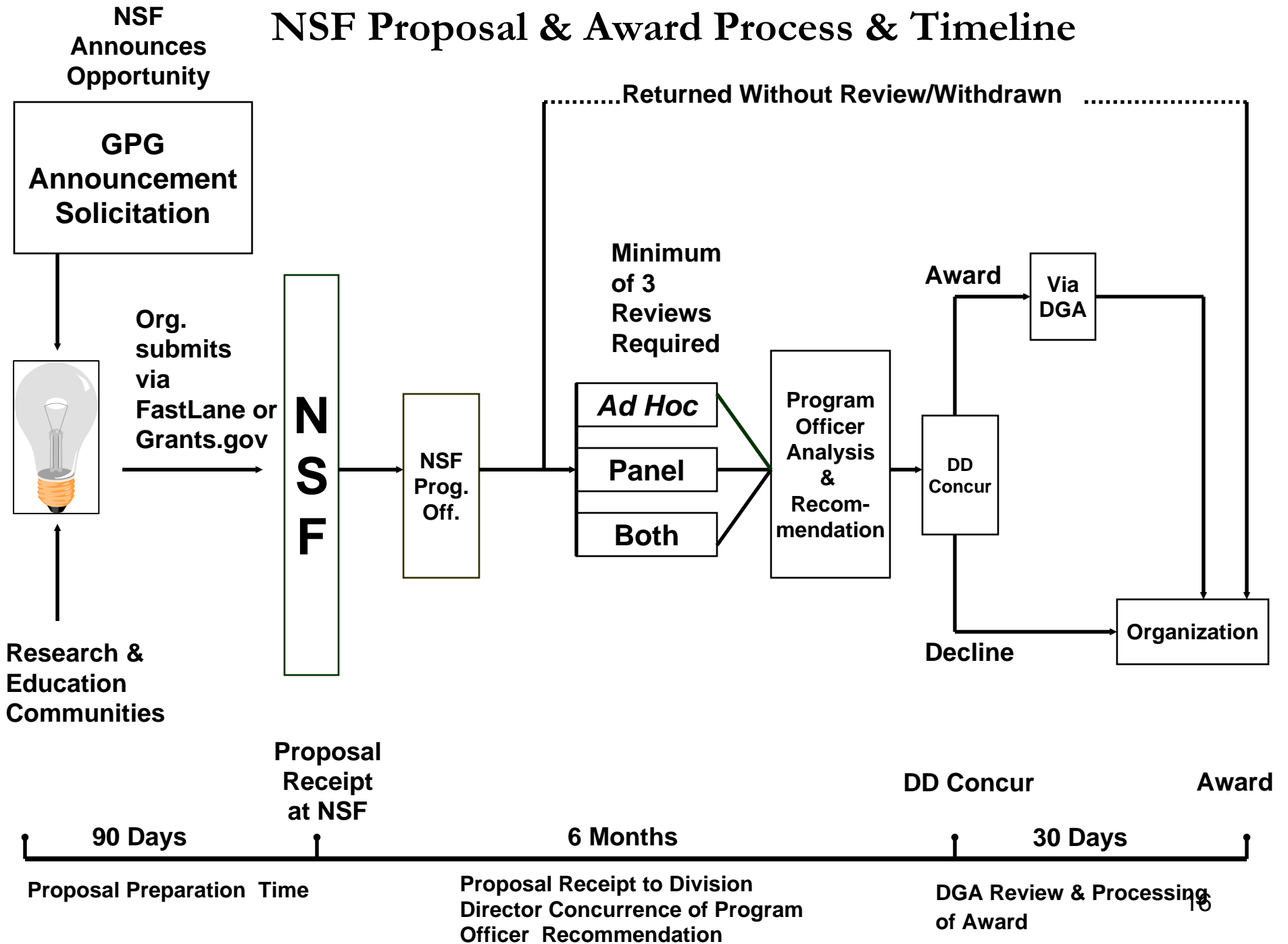
- Review the program solicitation for additional selection criteria.
- These are specific and unique to the individual program for which you are preparing the proposal.
- Address each program specific criterion in your proposal.
 - These do not need to be addressed in your project summary like the two NSF selection criteria.
- Call the program officer to:
 - Clarify the additional criteria if needed.
 - Talk about your ideas to address the criteria to get their feedback.



Overview of the Peer Review Process

- Timeline
- Return without review
- Role of the peer reviewer
- Reviewer selection
- Role of the peer review panel
- Conflict of interest
- Funding decisions
 - Reasons for making awards
 - Reasons for declines

NSF Proposal & Award Process & Timeline





Return Without Review

- Per Important Notice 127, *“Implementation of new Grant Proposal Guide Requirements related to the Broader Impacts Criterion”* --
 - Proposals that do not separately address both criteria within the one-page Project Summary **will be** returned without review.
- You do not have to use headers but it is one way to ensure that both criteria are addressed in your Project Summary.



Return Without Review

The Proposal:

- is inappropriate for funding by the National Science Foundation;
- is submitted with insufficient lead-time before the activity is scheduled to begin;
- is a full proposal that was submitted by a proposer that has received a "not invited" response to the submission of a preliminary proposal;
- is a duplicate of, or substantially similar to, a proposal already under consideration by NSF from the same submitter;



Return Without Review

The Proposal:

- does not meet NSF proposal preparation requirements, such as page limitations, formatting instructions, and electronic submission, as specified in the Grant Proposal Guide or program solicitation;)
- is not responsive to the GPG or program announcement/solicitation;
- does not meet an announced proposal deadline date (and time, where specified); or
- was previously reviewed and declined and has not been substantially revised.



Reviewer Selection

- Types of reviewers recruited:
 - Reviewers with specific content expertise
 - Reviewers with general science or education expertise
- Sources of reviewers:
 - Program Officer's knowledge of the research area
 - References listed in proposal
 - Recent professional society programs
 - Computer searches of S&E journal articles related to the proposal
 - Reviewer recommendations included in proposal or sent by email - proposers are invited to either:
 - Suggest persons they believe are especially well qualified to review the proposal.
 - Identify persons they would prefer not review the proposal.



Role of the Peer Reviewer

- Review all proposal materials and consider:
 - The two NSF merit review criteria and any program specific criteria.
 - The adequacy of the proposed project plan including the budget, resources, & timeline.
 - The priorities of the NSF program & in the field.
 - The potential risks and benefits of the project.
- Make independent written comments on the quality of the proposal content.
- Each proposal gets *at least* three individual peer reviews (exceptions mentioned later).



Role of the Peer Review Panel

- Discuss the merits of the proposal with other panelists who reviewed the proposal.
- Write a summary proposal review based on discussion.
- *Some panels may be supplemented with ad hoc reviewers if additional expertise is needed.*



Reviewer Conflicts of Interests

- **Procedures:**
 - Reviewers are required to disclose potential conflict of interests with a proposal as soon as possible.
 - Reviewers with COIs do not participate in the discussion of the proposal and their individual comments are not considered in funding decisions.
- **NSF's COI rules serve to:**
 - Remove or limit the influence of ties to an applicant institution or investigator.
 - Preserve the trust of the scientific community, Congress, and the public in the integrity, effectiveness, and evenhandedness of NSF's peer review process.



Examples of Affiliations with Applicant Institutions

- Current employment at the institution as a professor or similar position
- Other employment with the institution such as consultant
- Being considered for employment or any formal or informal reemployment arrangement at the institution
- Any office, governing board membership or relevant committee membership at the institution



Examples of Relationships with Investigator or Project Director

- Known family or marriage relationship
- Business partner
- Past or present thesis advisor or thesis student
- Collaboration on a project or book, article, or paper within the last 48 months
- Co-edited a journal, compendium, or conference proceedings within the last 24 months



Funding Decisions

- The peer review panel summary provides:
 - Review of the proposal and a recommendation to the program.
 - Feedback (strengths and weaknesses) to the proposers.
- NSF Program Officers make funding recommendations guided by program goals and portfolio considerations.
- NSF Division Directors either concur or reject the program officer's funding recommendations.
- NSF's grants and agreements officers make the official award - as long as:
 - The institution has an adequate grant management capacity.
 - The institution/PI do not have overdue annual or final reports.
 - There are no other outstanding issues with the institution or PI.



Feedback to PI Information from Merit Review

- Reviewer ratings (E, VG, G, F, P)
- Analysis of how well proposal addresses both review criteria: Intellectual Merit and Broader Impacts
- Proposal strengths and weaknesses
- Reasons for a declination

If questions, contact the cognizant program officer.



Feedback to PI Documentation from Merit Review

- Verbatim copies of individual reviews, excluding reviewer identities
- Panel Summary (if panel reviewed)
- Context Statement
- PO to PI Comments (written or verbal) as necessary to explain a declination



Considerations for Funding a Competitive Proposal

- Addresses all review criteria
- Likely high impact
- PI Career Point (tenured/established/young)
- Place in Program Portfolio
- Other Support for PI
- Impact on Institution/State
- Special Programmatic Considerations (CAREER/RUI/EPSCoR)
- Broadening Participation
- Educational Impact
- “Launching” versus “Maintaining”



Reasons for Declines

- The proposal was not considered competitive by the peer review panel and the program office concurred.
- The proposal had flaws or issues identified by the program office.
- The program funds were not adequate to fund all competitive proposals.
- *Peer reviews, panel summaries, and program officer comments are available via FastLane once funding decisions are final for proposers to review.*
- *Use all of this information to improve your proposal competitiveness.*



If a proposal is declined, should you revise and resubmit?

- Do the reviewers and NSF program officer identify significant strengths of your proposal?
- Can you address the weaknesses that reviewers and program officer identified? If questions, contact the cognizant program officer.
- Are there other ways you or colleagues think you can strengthen a resubmission?
- Data shows that your chances of funding goes up with the number of times a proposal is *revised* and resubmitted.



Why Faculty Should Serve as a Peer Reviewers:

- Gain first hand knowledge of the peer review process.
- Learn about common problems with proposals.
- Discover strategies to write strong proposals.
- Meet colleagues who may review your proposals in the future.
- Meet the NSF program officers managing the programs related to your research.



How to Become a Peer Reviewer

- Contact the NSF program officer(s) of the program(s) that fit your expertise:
 - Introduce yourself and your research and education experience.
 - Tell them you want to become a peer reviewer for their program.
 - Ask them when the next panel will be held.
 - Offer to send a 2-page CV with current contact information.
 - Stay in touch if you don't hear back right away.



Pilot: On-line Sign-up for Chemistry Peer Reviewers

- The Chemistry Division is running a pilot program which allows you to sign up via the Internet. Currently, the system only is for Chemistry Divisions programs.

http://www.nsf.gov/mps/che/reviewer/reviewer_info.jsp