National Science Foundation
WHERE DISCOVERIES BEGIN

NSF Grants Conference Revised NSF Merit Review Criteria

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Panelists

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Topics

- Merit Review at NSF – A Brief History
- Revised Merit Review Criteria
    - Three Principles
    - Two Criteria
    - Five Elements
- How Will Proposers and Reviewers be Impacted
- Resources

Merit Review at NSF

1951-1967

Single Criteria:
Scientific merit of the proposed research including the competence of the investigator

1967-1974

Multiple Criteria
Dependent upon whether institution was academic research (5 criteria), or a research institute or national center (7 criteria)

1974-1981

Multiple Criteria
Four categories - multiple criteria:

1. Ability of the researcher and adequacy of institutional base

2. Quality of the science with emphasis on possibility of impact on other disciplines

3. Utility or relevance of the research

4. Long-term scientific potential

1981-1997

Four Criteria
1. Researcher Performance Competence

2. Intrinsic Merit of the Research

3. Utility or Relevance of the Research

4. Effect on the Infrastructure of Science & Engineering

Merit Review at NSF

1997-2007

Two Criteria
1. Intellectual Merit

2. Broader Impacts

2007-2013

Emphasis Added
Potentially transformative research added as emphasis to Intellectual Merit and Broader Impacts

2013

Revision to Current Review Criteria
1. Three Review Principles

2. Two Review Criteria- Intellectual Merit and Broader Impacts

3. Five Review Elements

NSF Merit Review Criteria Revision

Background
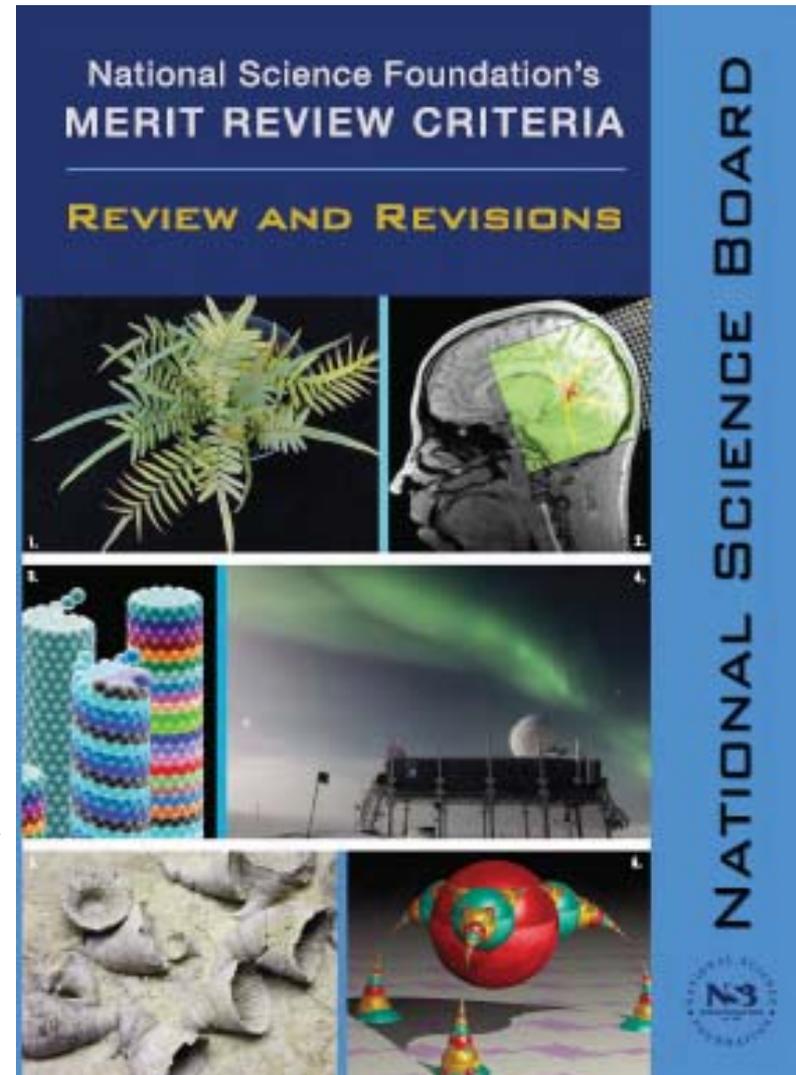
NSB Task Force on Merit Review

- Established Spring 2010
- Rationale:
  - More than 13 years since the last in-depth review and revision of the review criteria
  - Opportunity to align review criteria with NSF's new Strategic Plan
  - Persistent anecdotal reports about confusion related to the Broader Impacts criterion, and inconsistency in how the criterion was being applied.

Final Report

- Task Force used input from the community to revise the description of the review criteria and underlying principles

- Presented the final report to the National Science Board on December 13, 2011

Final Report: Conclusions

- The Intellectual Merit and Broader Impacts review criteria together capture the important elements that should guide the evaluation of NSF proposals.

- Revisions to the descriptions of the Broader Impacts criterion and how it is implemented are needed.

- Use of the review criteria should be informed by a guiding set of core principles.

Final Report: Recommendations

1. Three guiding review principles

2. Two review criteria

3. Five review elements

Merit Review Criteria Guiding Principles

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.

- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals.

- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects.

Merit Review Criteria

When evaluating NSF proposals, reviewers should consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits would accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers are asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The intellectual Merit criterion encompasses the potential to advance knowledge; and

- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

Five Review Elements

The following elements should be considered in the review for **both criteria**:

1. What is the potential for the proposed activity to:

   a. advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and

   b. benefit society or advance desired societal outcomes (Broader Impacts)?

2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?

3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?

4. How well qualified is the individual, team, or institution to conduct the proposed activities?

5. Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities?

PAPPG Revision Process

- Federal Register Notices issued in January 2011 and May 2012 to alert the public to NSF's intent to revise PAPPG

- Disseminated draft document with changes highlighted to research community

- Comments submitted to OMB/NSF (were due July 12th)

- Updated PAPPG released October 4, 2012; effective for proposals submitted or due on or after January 14, 2013

Merit Review Criteria
Funding Opportunities

- Boilerplate text has been developed and is being incorporated into Program Announcements and Solicitations

- Program websites have been updated with important revision notes

Merit Review Criteria

For Proposers

- Project Summary will require text boxes in FastLane not to exceed 4,600 characters and will include

  - Overview

  - Statement on Intellectual Merit

  - Statement on Broader Impacts

- Proposals with special characters may upload Project Summary as a PDF document

- Text boxes must be filled out or a project summary must be uploaded or FastLane will **<u>not</u>** accept the proposal.

Merit Review Criteria
For Proposers (Cont'd)

- Project Description
  - Must contain a separate section with a discussion of the broader impacts of the proposed activities
  - Results from Prior Support (if any) must address intellectual merit and broader impacts
- New certification regarding Organizational Support
  - Requires AOR certification that organizational support will be made available as described in the proposal to address the broader impacts and intellectual merit activities to be undertaken
- Annual and Final Project Reports
  - Must address activities intended to address the Broader Impacts criterion that are not intrinsic to the research
- FastLane help to be updated for proposers

Merit Review Criteria

Reviewers

- Guiding Principles, Revised Review Criteria, and five review elements incorporated into GPG Chapter III
- Reviewer and Panelist Letters
  - Give due diligence to the three Merit Review Principles
  - Evaluate against the two Merit Review Criteria
  - Consider the five review elements in the review of both criteria
- Panel and Proposal Review Form in FastLane
  - Updated to incorporate consideration of review elements in addressing the two criteria
  - Text box added for reviewers to address solicitation-specific criteria

Merit Review Criteria
Reviewers (Cont'd)

- Examples document has been deleted

- FastLane help to be updated for reviewers

Merit Review Criteria
Resources

- NSF Merit Review Website

  – www.nsf.gov/bfa/dias/policy/merit_review/

- Resources for the Proposer Community

  – www.nsf.gov/bfa/dias/policy/merit_review/resources.jsp

Merit Review Criteria
FAQ Development

- We need your assistance in development of Frequently Asked Questions (FAQs)!!

- Please submit questions to policy@nsf.gov.

For More Information

Ask Early, Ask Often!

nsf.gov/staff
nsf.gov/staff/orglist.jsp
nsf.gov/about/career_opps/rotators/index.jsp