MAA

MATHEMATICAL ASSOCIATION OF AMERICA

Successful Grant Proposal Writing

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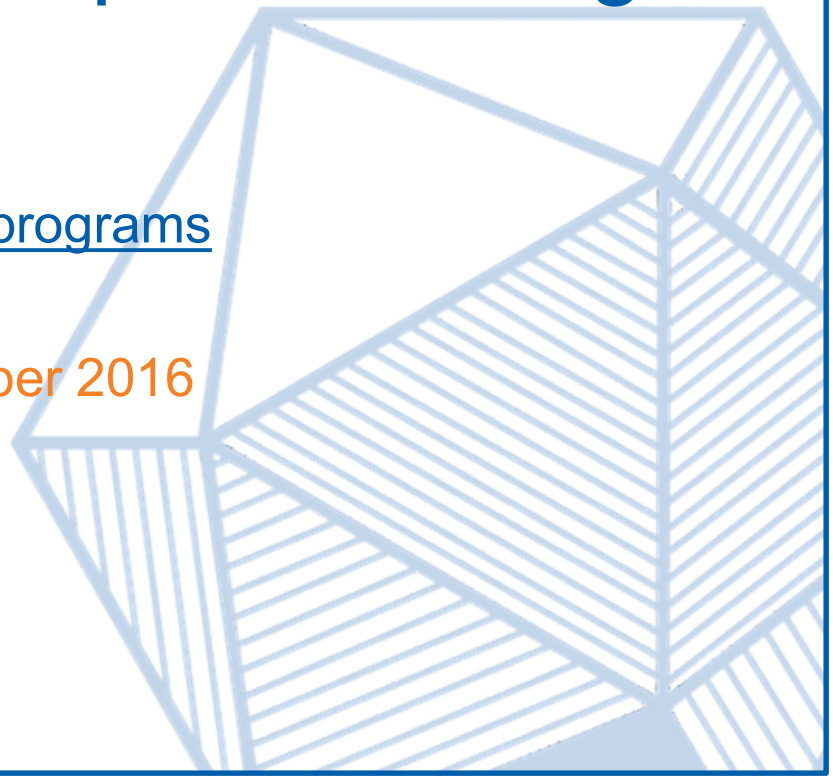

Preliminaries

- Determine your reasons for writing a proposal
- Identify the problem
- Research the literature: the background of the issue or problem to be addressed; other similar projects; and other related results
- Develop a draft of your ideas; describe the heart of the project concisely (a short paragraph)
- Research funding agencies for solicitations that your project fits

Good Reasons for Writing a Proposal

- You believe in the project.
- You believe that you can make a significant contribution to the issue, the body of knowledge, society.
- You believe you have the expertise, ability, time, and other resources necessary to do the project.

Bad Reasons for Writing a Proposal

- You feel you have to do something
- You found a program and are looking for an idea to fit it
- You want release time from teaching
- You need external funding for career advancement

RFP (Request for Proposals)

- Program Announcement/Solicitation
- Identify the program or programs that best fit what you hope to accomplish
- Read the Program Announcement carefully
- Read the review criteria
- Read all guidelines, requirements, format directives carefully

Choosing a Program

- Your project must be in the scope of the RFP
- Target proposal to grant-makers appropriate to your field and project
- Send proposals to multiple funding sources
- Check the granting agency's website for guidelines and help on proposal writing
- Contact the Program Officer
  - Be sure you understand the guidelines
  - Make sure your proposal fits the scope of the program
  - The agency wants good proposals so tweak to fit
- Some solicitations require a letter of inquiry or intent and invite proposals from those
- Some require a pre-proposal and invite from those
- Write a pre-proposal if allowed
- Get advice from people who have been successful
- Contact previous awardees

Getting Started

- A good proposal begins with a clear idea of the goals and objectives
- Your project should be innovative within its context
- Answer:
  - Why?
  - How?
  - What?
  - Where?
  - Who?
  - When?
- NSF grants provide funds based on merit, no on need

The Problem

- Clearly defined and focused
- Referenced from the literature
- Significant need or problem
- Solution will have important impacts

Your Solution

- A good idea: the WOW factor
- Innovation in concept, methodology, approach
  - Show how this is different from what has been done before
- A likely solution to the problem
- Focused: Describe the whole project in a short paragraph
- NSF proposals must address
  - Intellectual merit
  - Broader impacts

Intellectual Merit

- Addresses a major challenge, issue, or problem
- Advances knowledge and understanding in the field or across different fields
- Proposer or team is qualified to conduct the project
- The proposed activity suggests and explores creative, original, or potentially transformative concepts
- Improves student learning
- Rationale and vision clearly articulated
- Activity is well-conceived and organized
- Informed by other projects and results
- Effective evaluation and dissemination

Capability of People and Institution

- Principal Investigator (PI) or team is qualified; has experience and expertise necessary
- Awareness of current research, research practices, pedagogical issues, societal issues, etc.
- PI has done previous or preliminary work on similar projects
- Adequate facilities and resources
- Institutional and Departmental commitment

Broader Impacts: Educational Projects

- Integrated into the institution's academic programs
- Useful to other institutions
- Widely used products which can be disseminated through commercial and other channels
- Improved content and pedagogy for faculty and teachers
- Increased participation by women, underrepresented minorities, and persons with disabilities
- Ensures high quality STEM education for people pursuing careers in STEM fields or as teachers or technicians

Impact on National Infrastructure

- Is there potential for impact on broad national audience?
- Are there good dissemination plans?
- Does it meet any special needs of the nation?
  - Faculty/teacher preparation
  - Multidisciplinary or interdisciplinary approaches
  - Increase in participation of underrepresented groups

NSF Criteria for all Proposals: Broader Impact

- Advance discovery and understanding while promoting teaching, training, and learning
- Broaden participation of underrepresented groups
- Enhance infrastructure for research and education
  - Facilities
  - Instrumentation
  - Networks
  - Partnerships
- Broaden dissemination to enhance scientific and technological understanding
- Benefits to society

For Any Foundation or Agency

- State your organization's needs and objectives
- Be clear about why you are seeking the grant and what you will do with the money
- Show why you are a good fit with the funder's priorities
- NSF Guidelines on merit and impact can be used

Writing the Proposal: Background

- State the problem clearly
- Make a case for its significance
  - Support your case with references from the literature
- Discuss prior results and other similar projects; how is yours different, unique, or a next step?
- Discuss what you have already done
  - NSF proposals require results of prior funding
- Always address:
  - Who you are
  - How you qualify
  - What you want
  - Who will benefit and how

Plan of Work

- Goals must be clear, realistic, and attainable
- Plan of work must be easy to understand, follow, and picture what you are going to do
- Timeline must be realistic
- Methodologies must be appropriate and have reasonable probability of success
- Build on your own and others' previous work

Items to Stress

- What you feel is most important
- Unique and innovative features of proposals
- Preliminary results of work already done
- Enough details to give the reader a good picture of what you will do and what will happen
- Examples
- Qualifications of the team
- Readiness to do the project

Qualifications

- You have the expertise and can build upon your preliminary work and the work of others
- You have the right team
- You and your institution have the resources and commitment
- The time, place, and target population is right for this project
- You have the management capability for the project

Well-Written Proposal

- Follow the guidelines
- Must convince the reviewers
- A good proposal is readable, clearly written, well-organized, grammatically correct, and understandable
- Use spell checker and grammar checker
- Get someone else to read, edit, and critique
- Be explicit and specific in your narrative
- Cover the important criteria in the solicitation
- Do not use acronyms until you have written out the whole name
- Limit the use of jargon
  - Assume the reviewer is not in your narrow area, possibly not even your field
- Do not waste words
- You must show that you have broad knowledge of current scholarship and activities
- Show how the work solves the problem

Focus

- Don’t try to do too much – more is not better
- Concentrate on the heart of the problem
- Be able to describe the central idea in a short paragraph

Evaluation and Dissemination

- Assessment of most NSF projects is required
- All proposals must show how you will measure results
- For major projects, an assessment expert should be involved at the planning stage
- Get an outside evaluator
- Explain your dissemination plan in detail
- Commercial publication and products are encouraged (NSF)
- Dissemination may be part of plans for broader impact
- Evaluation
  - Formative review: ongoing, improve project, make corrections
  - Summative: evaluates results, impact, success, conduct of project

The Budget

- The budget request should be realistic and within program guidelines
- Budget information should be complete and unambiguous
- Institutional and other contributions in terms of matching funds or released time should be clearly stated
- Cost of the project must be reasonable

PI and Other Staff Credentials

- Each bio sketch should be written with the proposal in mind and should display the unique backgrounds of the PIs
- Follow program guidelines
- Be sure that the roles of all major personnel, especially the Pis, are described in the project description

Letters of Support

- Include letters of commitment from appropriate administrators or consultants

- The letters should make specific commitments and not just be generic support of good will and approval of the project

What makes a project good?

- Innovative
- Realistic
- Worthwhile
- Well-planned

Little Things that can Make a Difference

- Use a spell checker right before submitting the proposal
- Proofread carefully and have someone else read it
- Avoid abbreviations
- The first time you use an acronym, write what it stands for
- Make sure references are correct
- Do not submit if your ideas do not fit the program guidelines
- Formulate your ideas and clearly state what you want to do

Follow the Guidelines

- Follow page and font size limits
- Consult the program solicitation and the NSF Grant Proposal Guide or other agency/foundation guidelines
- Look at other proposals to the same agency or foundation
- Budget should directly reflect work plan

Ways to Participate

- Grant Holder
  - Principal Investigator
  - Member of the Project Team
  - Member of a Coalition
  - Member of an Advisory Board
  - Test Site
- Use of Products
- Participant in workshops or symposium
- Reviewer of proposals
  - Not open to everyone

Reviewing

- Some agencies have standing review panels
- Some organizations and foundations have Program Officers review proposals
- Some agencies (NSF) form new panels for each program and each solicitation

NSF Review Panels

- Panelists selected for expertise in a particular discipline or across disciplines
- Distribution sought with regard to
  - Type of institution for those employed in academia
  - Rank and tenure status
  - Years of teaching, administrative, or industrial experience
  - Experience as a review panelist
  - Experience as a grant holder
- Diversity
  - Gender
  - Race/ethnicity

Panel Review

- Each panelist writes a review
- Panel discusses each proposal
- Panel writes a summary review
- Sometimes panels rank proposals, sometimes not
- Sometimes panels recommend which proposals are to be funded, sometimes not

Good News and Bad News

- Good News: You are funded. Bad News: You are funded.
  - A funded project can be a very big commitment; you have limited time to accomplish what you proposed and you need to be ready to start immediately

- Bad News: You are not funded. Good News: You are not funded.
  - Your proposal had major flaws. You can use this time to correct those flaws and apply again with a better proposal. Most people have multiple declines. It is not a major setback.

Reading the Reviews

- If funded, the comments can help you in your project
- If not funded, the comments can help you in revising your project and your proposal

Reviewing

- Cannot have conflict of interest
  - Institution
  - Collaborator
  - Close Relative

- Confidentiality
  - Never discuss proposals
  - Never tell anyone which proposals you reviewed

Instructions to Individual Reviewers

- Read proposal
- Note strengths and weaknesses
- Write a one-page review
- Address intellectual merits, broader impacts, and write a summary
- Fixable deficiencies vs. fatal flaws
- Rate can be based upon correcting fixable deficiencies
- Do not rewrite the proposal to fix significant flaws
- Remember that reviews go to PI
  - Be tactful
  - Be helpful
  - Be honest

Ratings

- Excellent - 5
  - Great idea
  - Few, if any, minor flaws
  - Definitely fund
- Very Good - 4
  - Good idea
  - Some fixable flaws
  - Fund if possible
- Good - 3
  - Some positive aspects
  - Several flaws or near fatal flaws
  - Could be funded, but not recommended
- Fair - 2
  - Few positive aspects
  - Many flaws or fatal flaws
  - Recommended not funding
- Poor - 1
  - No positive aspects
  - Many flaws and fatal flaws
  - Not a good faith effort
  - Should not be funded under any circumstances

Panel Review

- Review must address intellectual merit and broader impacts
- Panel discusses each proposal and individual panelists reviews
- Addressees intellectual merits, broader impacts, and a summary
- Consensus is not necessary

Proposal Funded

- Good news, bad news
- Learn quickly how to administer and deal with funding at your institution
- Review the timeline
- Start quickly
- Put evaluation in place early
- Have fun!

Proposal Not Funded

- Reviews are valuable for revising
- Everyone has been turned down, often many times
- Make significant improvements and further the projects
- Resubmit!
- No guarantee of funding even if you respond to the reviews

References

- National Science Foundation
  - www.nsf.gov
- Corporation for Public Broadcasting
  - www.cpb.org
- Non-Profit Guides
  - www.npguides.org
- National Institutes of Health
  - www.nih.gov