"Writing a Successful Grant Proposal: How I learned to Stop Worrying and Love Rejection"

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Selected Resources

- NASA ROSES Program AO URL:
  - http://solicitation.nasaprs.com/ROSES2017
- NASA proposer's guides/manuals
  - https://www.hq.nasa.gov/office/procurement/nraguidebook/
  - How To Guide (sic): https://science.nasa.gov/researchers/sara/how-to-guide
- NSF Mathematical & Physical Sciences (MPS) program URLs
  - https://www.nsf.gov/funding/programs.jsp?org=MPS
- NSF proposer's guide/manual
  - https://www.nsf.gov/pubs/policydocs/pappg17_1/index.jsp
- Read carefully! Many have "fine print" requirements

The Sobering Truth…

- Very few proposals are chosen by NASA and even less by NSF
  - Over submissions and competing proposals
    - No funding or full funding
  - NSF funding is declining steadily
- Start small and build up! NSF funding is very difficult to obtain

Proposal Elements

- Scientific motivations
  - What is the specific problem you intend to address?
  - How does it answer fundamental questions?
- Methodology
  - How do you go about solving the problem?
- Feasibility
  - Will it work with the time frame and money allotted?
- Anticipated results

    - Reiterate your goals – consider reviewer fatigue
        - "Tell them what you told them"
- Budget
    - What resources/people do you need?
    - Can you get supplemental funding/collaboration?

General Tips

- Know your strengths and build on what you do well
    - Seek collaborators to supplement weaknesses
- Start small and work up "Practice before performing"
    - Applies to money and scope of grant
    - Exploit minor proposal opportunities
- FOCUS
    - Keep your proposal sharply focused on ONE goal
    - Yet don't lose sight of Big science pictures and goals
- Search for calls for proposals
- Analyze successful proposals (NASA publishes these)
- Don't get emotionally attached to concepts or wording/syntax
    - Your final will not resemble the draft and that is a good thing
    - Avoid referencing your proposed research as critical
- Include pilot study if possible/proof of concept
    - Just enough to prove feasibility
    - Not enough to make them think you don't need the money to get data
- Take advantage of opportunities to serve on review committees
- Reference work that has been done and how your work will supplement it
    - Reviewers probably worked on similar work
- Show some of the data
    - For multi-year project it's fine to have no data or show little, but explain how and why you think you can get it and why you are confident you can get it in the time allotted
- For "Broader Impacts" on proposal:
    - For NSF – just ask, because it changes
    - Call reviewer board to see what is expected/needed
- Look up "Grant program guides" NASA and NSF publish and update these
- Proposal must be DOABLE

Anatomy of a Successful Proposal

1 Scientific justification and methodology
    a. Impacts and relevance
    b. Elements of proposed program
    c. Etc.

2 Programmatic
    a. Personnel and their role
    b. Time line
    c. Synergies
    d. Etc.

3 References

- Then include small bio, budget, and endorsements or collaborators
    - Include a summary of anticipated results and how that ties into the organizations wider reaching goals (NASA publishes this)
    - A clear and specific table of contents so reviewer can quickly and easily reference aspects of your proposal
- Make it easy to read and review: **CONSIDER REVIEWER FATIGUE**
- Make your goals clear by page 1

Notes by Casey Leffue
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