

Writing grant proposals

Physics 601

10/15/07

Steps in writing proposals

- Find suitable funding opportunity
 - What do you want funding for?
 - Person versus project (distinction becomes less important as you get more senior)
 - Group versus individual project
 - What are criteria for funding?
 - Read the funding call
 - Get advice
- Write the proposal
 - Follow directions in funding call
 - Try to make proposal accessible to non-specialists
 - Put key points on first page
 - Write abstract or “project summary” last

Finding funding opportunities

- Sites on the web:
 - <http://www.rsp.wisc.edu/preaward/index.html>
 - <http://eweb.slu.edu/papers2/grant01v32e.pdf> (see list on page 34)
- Types of entities that provide funding:
 - University
 - Government (note: different agencies are different!)
 - Private foundations
 - Industry

Sometimes you end to write a white paper or preproposal

- Very typical for private foundations; standard for DOD funding; increasingly common for NSF funding.
- Read directions carefully to know what should be included in white paper or preproposal (and note length limits!)

Individual versus group proposals

- Group proposals: Also need to address
 - How do different people on research team fit together?
 - What is plan for non-research activities such as outreach (esp. for NSF)?

Writing grant proposals

- There are lots of proposal-writing guides available on the web
 - one example:
<http://www.research.umich.edu/proposals/PWG/pwgcomplete.html>
 - more examples on next slide:

More web sites with good advice on writing grant proposals

- <http://research.microsoft.com/~simonpj/papers/Proposal.html>
- http://www.unc.edu/depts/wcweb/handouts/grant_proposals.html
- <http://www.learnerassociates.net/proposal/>
- <http://grants.library.wisc.edu/>
- <http://www.bioscience.org/current/grant.htm>
- <http://grants.library.wisc.edu/organizations/proposalwebsites.html>
- <http://eweb.slu.edu/papers2/grant01v32e.pdf>

What a grant proposal should answer

- What is the problem?
- Why is it important?
- Why hasn't it been solved yet?
(includes summary of work by others)
- Why are you in a good position to solve it?
- How will you demonstrate that you have solved it?

More advice (from http://www.physics.ohio-state.edu/~wilkins/onepage/first_funds.html)

- Every first proposal should read as a renewal proposal.
- The proposal, while a natural renewal of the previous research, should not appear as a routine one — i.e., as just a continuation of old work (or even worse, of one's thesis). The proposal should be *new*, *exciting* and *novel* while not seeming crazy, far-out, or impossible so that the reviewers can exhibit real enthusiasm for it.

Different agencies require different styles

- Example: NIH proposals much different than NSF proposals
 - “NIH is for reimbursement”: project must be demonstrated to be completely feasible, and just about the only way to do this is to have basically completed it. NSF proposals must have some background work, but do not need to be essentially complete.
 - Military agencies are much more interested in “deliverables” than NSF or DOE.
- If you are not sure about appropriate style, ask someone who has successfully applied to the organization

The most important advice:

- Handle rejection appropriately!
 - Read critical comments carefully and address them in future submissions (slightly difficult if reviewers contradict each other, but try).

Why proposals are rejected (1)

(from <http://www.research.umich.edu/proposals/PWG/pwgrejected.html>)
data from 605 proposals; percentages >100% because some proposals
rejected for more than one reason

- Problem (58%)
 - not sufficiently important (33.1%)
 - reviewer feels hypothesis is unsound or based on insufficient evidence (8.9%)
 - reviewer feels investigator underestimates complexity (8.1%)
 - other problems with problem (scientifically premature, too involved, unclear) (~9%)

Why proposals are rejected (2)

- Approach (73%)
 - Methods unsuited to stated objective (34.7%)
 - Description of approach too nebulous (28.8%)
 - Design not carefully thought out (14.7%)
 - Insufficient consideration to statistical aspects (8.1%)
 - Lacks scientific imagination (7.4%)
 - Inadequate controls (6.8%)
 - Unsuitable material, or material difficult to obtain (3.8%)

Why proposals are rejected (3)

- Investigator (55%)
 - Inadequate experience (32.6%)
 - Unfamiliar with pertinent literature (13.7%)
 - Previous work in field does not inspire confidence (12.6%)
 - Too much reliance on insufficiently experienced associates (5%)
 - Investigator spreading self too thin (3.8%)
 - Investigator needs more liaison with colleagues in this field or in collateral fields (1.7%)

Why proposals are rejected (4)

- Other (16%)
 - Unrealistic requirements for equipment or personnel (10.1%)
 - Investigator has other responsibilities that prevent devotion of sufficient time and attention to this research (3.0%)
 - Unfavorable institutional setting (2.3%)
 - Investigator already has enough funding to do this research from other grants (1.5%)

Summary

- Work to identify possible funding sources
- Tailor your submission to funding source
- Explain as clearly as possible, with as little jargon as possible, why what you want to do is interesting, important, and feasible