Research Grant Proposals: Formulas for Funding Success

Adapted From: Illes, J. *The Strategic Grant-Seeker*, 1999, Lawrence Erlbaum Pub., NJ.; used by permission.

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Given a research idea, ask:

- Is there a match with the funding agency’s interests?
- Does the expertise of the project team match the project demands?
- Does the project have realistic deliverables?
- Do the resources exist or can they be created to support the research?
- Does proof of concept exist for each deliverable?
- Is the work personally compelling?
Formulas for Success

- Carefully lay out your project plan
  - Title
  - Abstract
  - Specific Aims
  - Background and Significance
  - Preliminary Results
  - Methods
Tips for Titles

Proposal titles should be
- Concise, easy to understand, easy to remember
- Focused on a clearly identifiable programmatic area (e.g., Devices for MR-Guided Therapy vs. [better] MR-Guided Therapy of Brain Cancer)

Proposal titles should not be
- Lengthy (longer than about 60 characters)
- A statement, a result, or a conclusion
Abstract

- State the problem
- State the state-of-the-art
- Summarize the objective of proposal
- List specific aims
- State the anticipated short-term
- State long-term outcomes
Specific Aims

- **Structure (first paragraph)**
  - State the overall objective of your work
  - What is the state of the art today?
  - What are the limitations of the state of the art?
  - What have you contributed to date?
  - What your proposed work will do to address existing limitations and advance the state of the art?
Specific Aims (cont’d)

Structure (second paragraph)
- Itemization of each specific aim and statement about how that aim will be achieved, e.g.:
  - To determine the accuracy of new technique X compared to two conventional techniques Y and Z. We will study .... using techniques ... to test the hypothesis that ..... Data will be analyzed using ...
Specific Aims (cont’d)

- Structure (last paragraph)
  - Summarize anticipated short and long term significance of the research
Specific Aims (cont’d)

- Strategies that work
  - Important and reasonable overall goals
  - Clear deliverables (the short-term goals)
  - Indication that methodological approach is feasible
Specific Aims (cont’d)

- Strategies that don't work
  - Overly ambitious goals
  - Aims that cannot be achieved given the
    - timeline
    - budget
    - experimental design
  - Lack of evidence of need
Background and Significance

Main objective
- To define and distinguish the need (*background*) vs. impact (*significance*) of the proposed work.
Background and Significance (cont’d)

Structure by paragraph:
- Explain the need
- Present related work (of others)
- Define the significance (impact of the proposed work)
Background and Significance (cont’d)

Typical Pitfalls

- Nonlinearity of the discussion
- Inadequate references to relevant literature
- Uncritical assessment of relevant literature
- Mixing proposed work into this section
Preliminary Results

- **Main objective**
  - To deliver evidence that the proposed work is feasible and that the results will be compelling

- **Key attributes**
  - Substantial detail
  - Excellent data, images, tables, and graphs
Typical Pitfalls

- Overview does not convey a cohesive research plan
- Section is presented as a narrative
- The data only loosely pertain to the proposed work
- Proof of concept is lacking
Methods

Main objective is to *detail* the methodological approaches
Methods (cont’d)

- Structure
  - Overview
  - Timeline
- Per experiment:
  - Hypothesis
  - Clearly define procedures and expected results
  - Limitations/Obstacles

*The experimental plan must map one-on-one to the specific aims*
Methods (cont’d)

- Specific Aim # 1
  - Rationale
  - Procedures
  - Interpretation
  - Relevance
Methods (cont’d)

- Typical Pitfalls
  - Inherent weakness or inappropriateness of methods
  - Absence of hypotheses, rationale, or both
  - Untestable hypotheses
  - Lack of detail
  - Lack of recognition of possible obstacles/limitations and alternative approaches
Formulas for Success

- Strive for perfection, linearity, and clarity
- Be confident; don’t hedge
- Proof your writing carefully
- A proposal that is painful to review will not do well
For the Reviewers

- Organize to make them “happy”
- Make it easy for them to understand
- Make it easy for them to find things
- Make it easy for them to be your advocate
- Don’t make them “work hard”
Formulas for Success

- Follow instructions
- Garner support from peers; incorporate their feedback
- Ensure that administrative information is accurate and up to date
- Add up and justify budgets meticulously
What happens at NIH?

- Assigned to a study section based on Abstract
- Study section chair assigns primary and secondary reviewers and a reader (these are your advocates)
- Study section reviews and assigns priority score (payline)
- Goes to Advisory Council
  - “high program relevance”
  - “low program relevance”
- Award statement $$$$$$
Revising the Grant

- A reviewer’s comments are not about you as a person
- Comments are about the material you provided in the application and the way in which you provided the information
Revising the Grant

- Address all criticisms thoroughly
- Respond constructively
- Accept the help of reviewer comments
- Update preliminary results
Elements of Grant Success

- Good ideas
- Good grantsmanship
- Good timing
- Good reviewers
- Good luck!
A Final Formula for Success

Be passionate about your project!
Reference

- Useful website (there are many at NIH.gov):
  http://www.ninds.nih.gov/funding/write_grant_doc.htm#writing

  - Ordering information: www.erlbaum.com