

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

Preliminary Results (cont'd)

- 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
- Illes, J., *The Strategic Grant-Seeker*, 1999,
Lawrence Erlbaum Pub., NJ.
 - Ordering information: www.erlbaum.com