A Guide on Writing a Well-Structured Grant Proposal

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AGENDA

Introduction & Background

Preparation

Planning

Producing the Proposal

*Plus…Avoiding Common Pitfalls
Why write grants?

- Expectations differ depending on the school
- Helpful for tenure achievement
Why write grants?

Grant funding may also provide:

– Research assistants for projects
– Buy out of courses
– Build an exceptional research team (e.g., editor, statistician, etc.)
– Pilot data for publication
– Improve chances for larger scale research grant application in the future
Current Environment

• Since 2000, NIH applications grew 72%, with a slight dip in 2004 and then returned to the same levels in 2013

• NIH awarded only 17% of the 61,013 applications its received in 2013

(Chung & Shauver, 2008; Davidson, 2012; Koppelman & Holloway, 2012; Richardson, 2013; Rockey, 2014)
Current Environment

- Success rates dropped from 53% in 2000 to below 24% in 2008.
- Acceptance rate are currently at 9-11%.

(Koppelman & Holloway, 2012)

Grant writing skills are becoming more important for academics in order to compete for dwindling research funds
## Current Environment: NIH Funding by Research Area

<table>
<thead>
<tr>
<th>Research/Disease Areas</th>
<th>FY 2014 Actual (Dollars in million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Research</td>
<td>11,087</td>
</tr>
<tr>
<td>Prevention</td>
<td>6,858</td>
</tr>
<tr>
<td>Cancer</td>
<td>5,392</td>
</tr>
<tr>
<td>Behavioral &amp; Social Sciences</td>
<td>3,682</td>
</tr>
<tr>
<td>Health Disparities</td>
<td>2,740</td>
</tr>
<tr>
<td>Minority Health</td>
<td>2,514</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>1,564</td>
</tr>
<tr>
<td>Violence Research</td>
<td>154</td>
</tr>
</tbody>
</table>

(NIH 2015)
Current Environment: Predictors of Funding Success

- Grant writing knowledge
- Reduced teaching load
- Larger professional network
- Increased research team size
- Submitting a high number of proposals

Number of publications & academic rank were not found to be significantly related to funding success
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A Good Research Idea

- Relevant
- Innovative
- Has potential to advance the field
- Builds upon the preliminary studies of the investigator and/or research team

Seek a **mentor** at the early phase of your academic career who can help supervise your grant seeking and writing process.
A Clear Core Hypothesis

• Simple
• Easily outlined in two or three sentences
• Based on:
  – State-of-the-art review of literature
  – Preliminary data from pilot studies
• Easily broken down into specific aims

HOT TIP

Unfocused and overly ambitious research hypothesis are easily rejected by reviewers
Seeking Funding Resources

• Types of funding sources
  – Government
  – Private Foundations
  – Industry
  – Philanthropic
  – UMN internal grant programs

• Different funding sources have different administrative requirements
Seeking Funding Resources

- Search multiple (industry specific) databases
- Contact grant administrator for RFP questions
- Grant officers (located on campus) can help identify potential grant opportunities

**HOT TIP**
Seek **grant-giving bodies** with priority goals aligned with your research idea → increases your chances of acceptance & makes grant writing bearable!
Decision-Making Process of the Grant-Giving Agency

- Are scientific committees involved?
- Does it use Internal/External reviewers?
- Do they conduct interviews with applicants?

Talk with colleagues who successfully applied for the grant of interest & interview faculty who serve on grant-review bodies
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Draft a Plan & Timeline

After a thorough dissection of the grant instruction manual:

– Meet with research team
– Outline each responsibility and task
– Note the deadlines & forms needed for completion
– Develop alternative plans
– Secure letters of support
Demonstrate Capacity to Succeed

Investigators must show, through past training and experience, that they are able to administer and conduct the proposed study successfully.

More complex studies → the greater need to show sufficient training and experience to manage the study.
Capacity to Succeed

• Investigators will be expected to show that proposed study is feasible & cost effective
• Plan ahead and secure:
  – Technical and institutional resources
  – Novel and state-of-the-art instruments
  – Access to proposed population and materials

Show that you have mentors in your specialty, capable team members and an understanding of the proposed timeframe for the study
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Specific Aims Section: The Most Important One

- Clearly written, thoughtfully arranged and flawlessly organized
- Provide testable hypotheses
- Aligned with parts of the proposal (i.e. core hypothesis, preliminary data)
Specific Aims Section

• Uses declarative sentences
• Acts as a template for how study will be administered
• Focuses on the big picture
Background & Significance Section

Following objectives must be met:

– Thorough understanding of the field of study
– How the proposed study will expand and advance the field
– Direct & plausible connection between investigator/research team’s preliminary findings to proposed study’s specific aims

Primary takeaway → your proposed study is the most logical step to advance area of research
Demonstrate proposed study’s impact:

- Preliminary data show proposal study’s hypotheses are testable, novel & feasible
- Specific aims appropriate & supported by preliminary data
- New methods/concepts emphasize innovation & understanding of current environment
Preliminary Studies Section

Following objectives must be met:

– Previous work is directly related to population, methods and/or setting of the proposed study
– Pilot data shows proposed hypotheses has merit
– Shows investigator/research team’s expertise
– Shows feasibility of study’s proposal

Provide sufficient pilot data → but not excessive that reviewers find it unnecessary to fund your proposal
Approach Section

- Use visual images showing related hypothesis & pathways
- Outline anticipated results, potential limitations & future directions
- Balance content & a clear timeline for each specific aim
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## Academic vs. Grant Writing

<table>
<thead>
<tr>
<th>Academic Writing</th>
<th>Grant Writing</th>
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</thead>
<tbody>
<tr>
<td>Driven by Scholarly/Personal Goals</td>
<td>Driven by Grant-Giving Agency Goals</td>
</tr>
<tr>
<td>Past Oriented</td>
<td>Future Oriented</td>
</tr>
<tr>
<td>Impersonal/Explanatory Tone</td>
<td>Persuasive/Passionate Tone</td>
</tr>
<tr>
<td>Lengthy &amp; Specialized</td>
<td>Brief &amp; Accessible</td>
</tr>
</tbody>
</table>

“Many good ideas are not funded because it is poorly written” (Porter, 2007)
Using On-Campus Research & Grants Office

Grants office staff is very knowledgeable in this process and may help you in:

- Completing forms
- Check missed requirements
- Obtain required signatures
- Negotiate internal requirements with other institutions
- Meet with successful grant applicants
• Read & dissect successful grant applications
• Review grant instruction manual **thoroughly**
• Work with experienced senior colleagues & create your own internal review team
• Give yourself **enough time** to write the proposal
• Think like a reviewer – be clear, concise & straight to the point
• Use images (graphs, timelines, flowcharts)
• **Proofread, proofread, proofread**
• **Use external reviewers!!!**
Finally…

Your grant proposal has a higher chance of getting **rejected** than accepted. **Perseverance** is key.

Listen to reviewers’ critique & resubmit with demonstrated changes.

Resubmission – 28% success rate

3rd Time Submission – 40% success rate

(Chung & Shauver, 2008)
SHARP PENCILS, CLEAN PAPER, GOOD LIGHT, COMFORTABLE CHAIR, HOT COFFEE, WARM ROOM...READY TO WORK...PERHAPS THE ROOM IS TOO WARM...
Good Luck on Your Grant Writing Journey!!!
Question & Answer

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References:


