



Grants and Grantsmanship

157th Meeting of the Acoustical Society of America
May 21st, 2009
Portland, OR



Sources of Information

- Faculty of Communicative Disorders at the University of Wisconsin
- Jeremy T. Miner and Lynn E. Miner, *Proposal Planning and Writing*
- Jacob Kraicer, “The Art of Grantsmanship”
- Tamar Gollan, “Writing a Successful Grant Proposal”
- Israel Goldberg, “Funding Strategies in Tough Times”
- Jennell Vick, “The Mechanics of Grant Writing”
- ASA Student Council Fellowship website

Student Council Fellowship Website

<http://www.acosoc.org/student/fellowships/fellowships.html>

Fellowship & Grant Opportunities

(note subcategories for undergraduate students, grad students, and post-docs)



Home / Intro
Latest News
Awards & Reports
At the ASA Meetings
Student Council
Mentor Award
Fellowships & Grants
For Undergraduates
For Grad Students
For Post-Docs
HEY UNDERGRADS!
Get More Involved



GOT MONEY?

Welcome to the Fellowship/Grant section of the ASA Student Zone! These pages are intended to help you find funding as an undergraduate student, a graduate student, or a post-doctoral researcher. The breadth of acoustical topics covered by the ASA is enormous, and funding sources for these areas of research are even broader. To help guide you through the process, the awards are categorized by academic status. There is also a special section featuring tips and suggestions for writing an effective proposal. Good luck!

GRANTWRITING WORKSHOPS AT ASA MEETINGS

Be sure to take advantage of these workshops for students given periodically at ASA meetings. Previous workshop sessions include:

- **The Mechanics of Grantwriting (June 2006 meeting in Providence):** [Presentation slides](#) are available from this introductory session with information about full and letter proposals, essential proposal components, common mistakes, the state of funding among federal funders, and what to do if/when your grant proposal is not funded.
- **Evolving Funding Opportunities (Dec 2007 meeting in New Orleans):** presentations and roundtable discussions with expert panelists representing the National Science Foundation (NSF), the Office of Naval Research (ONR), National Institutes of Health/National Institute of Deafness and Other Communication Disorders (NIH/ NIDCD), and the Acoustical Society of America Prizes and Special Fellowships committee. The focus is to inform students and young investigators about how funding opportunities change as individuals transition from student, to post-doc, to young faculty.



Student Council Fellowship Website

<http://www.acosoc.org/student/fellowships/fellowships.html>

PROPOSAL WRITING TIPS FROM FUNDING AGENCIES

[Grant Writing Tips Sheets](#) from the National Institutes of Health

[Grant Proposal Guide](#) from the National Science Foundation

[Submitting a Proposal](#) by the Office of Naval Research

PROPOSAL WRITING TIPS FROM OTHER SOURCES

[How to Write a Fellowship Proposal](#) by Harvard University's Graduate School of Arts and Sciences

[Tips on Writing Grant and Fellowship Applications](#) by The Princeton Review

[Proposal Writing Tips](#) by Columbia University's Graduate School of Arts and Sciences

[Proposal Writing Resources](#) from the University of Washington Libraries


[Grant Writing Resources](#) from the Feinberg School of Medicine

Many other grant and proposal writing tips are available through university home pages.

TOP TEN LIST


How can I write an effective proposal? Here are ten ideas to keep in mind as you get started.

1. Be clear, be organized, be detailed.
2. Avoid jargon--say what you mean in clear, simple language.
3. Proof read your draft for spelling and grammar.
4. Include figures and tables to help explain your work, but don't over do it. There should be a good balance between figures and text.
5. Use all of the space that you are given, be it 4 pages or 25.
6. Have advisors and colleagues from your institution review the draft.
7. Include enough background to make your point, but don't focus on it. The focus should be your new research.
8. Provide good alternative approaches and contingency plans in the event your original approaches do not work.
9. Describe how the proposed research addresses a gap or problem area.
10. Impress reviewers with your up-to-date knowledge of your field ... reference work from your lab and from your competitors.



“Successful grant writers understand the sponsor’s view of the world and express that view in the grant proposal. ... Sponsors view grants as investments in an improved future.”

– Miner & Miner



“The art of grantsmanship will not turn mediocre science into a fundable grant proposal. But poor grantsmanship will, and often does, turn very good science into an unfundable grant proposal.”

– Kraicer




Outline

1. Why Apply for Grants?
2. Show Me the Money! (...where is it?)
3. Before You Start Writing
4. Current State of Funding
5. Components of a Grant
6. Three True Outcomes
7. Revising
8. Private Foundations
9. Letter Proposals
10. Notes on Grantsmanship



Why Apply for a Grant?


- Money (obviously)
- Stature (funding makes you more competitive for the next grant)
- Experience
- Crystallizes your science (forces you to make decisions)



Grant = Science + Administration


- Forms
- Budgets
- Justification
- Support letters
- Biosketches
- Resources
- Subject protection
- Signatures
- Appendices

What support does
your department offer
in this process?




“Show Me the Money!” (...where is it?)

- Public grants at NIH
 - Investigator-initiated research (unsolicited), >80%
 - Program Announcement (PA), ~10%
 - Request for Applications (RFA), (problem-oriented grant), <10%
 - Request for Proposals (RFP), (problem-oriented project)



“Show Me the Money!” (...where is it?)

- Public grants
 - Institute websites (NIH, NSF, ONR, *etc.*)
 - Catalog of Federal Domestic Assistance (www.cfda.gov)
 - Federal Register (www.gpoaccess.gov/fr)
 - Grants.gov
 - Contract opportunities >\$25k (www.fedbizopps.gov)



“Show Me the Money!” (...where is it?)

- Private Grants

- Foundation Center
(<http://foundationcenter.org>)
- Council of Foundations (<http://www.cof.org/>)
- Foundations make their money available to specific purposes, specific populations, specific types of organizations, specific geographic areas, specific priorities and interests, *etc.*



Look for These Four Things:

1. Level of experience required
 - Predoc / postdoc / new PI
2. Status requirements (citizenship)
3. Eligibility for specific programs
 - Underrepresentation / disability
4. Scope of support
 - Large vs. small research grant, career development grant, training fellowship, project / center grant



Before You Start Writing

- Ensure goodness of fit between your proposal and chosen mechanism
- Contact program officer
- Contact past reviewers and grantees
- Request/download current application forms and guidelines, **READ INSTRUCTIONS**
- Create your own “review committee”
- Budget your time!



Basic Components of a Grant

- Cover Letter
 - Title
 - Face Page
 - Abstract
 - Biographical Sketch(es)
 - **Specific Aims**
 - **Preliminary Studies / Progress Report**
 - **Background & Significance**
 - **Research Design & Methods**
 - Literature Cited
 - Human Subjects / Vertebrate Animals
 - Budget
 - Facilities, Equipment, & Resources
 - Appendix
- } “guts” of the grant



Grant Components by Question Answered

- **Who?** Biographical Sketch, Preliminary Data
- **What?** Specific Aims, Design & Methods
- **How?** Design & Methods
- **How much?** Budget
- **Why is it worth doing?** Background & Significance, Specific Aims
- **Why are you doing it?** Background & Significance, Preliminary Data, Biographical Sketch
- **Where is the project going?** Background & Significance, Design, Specific Aims

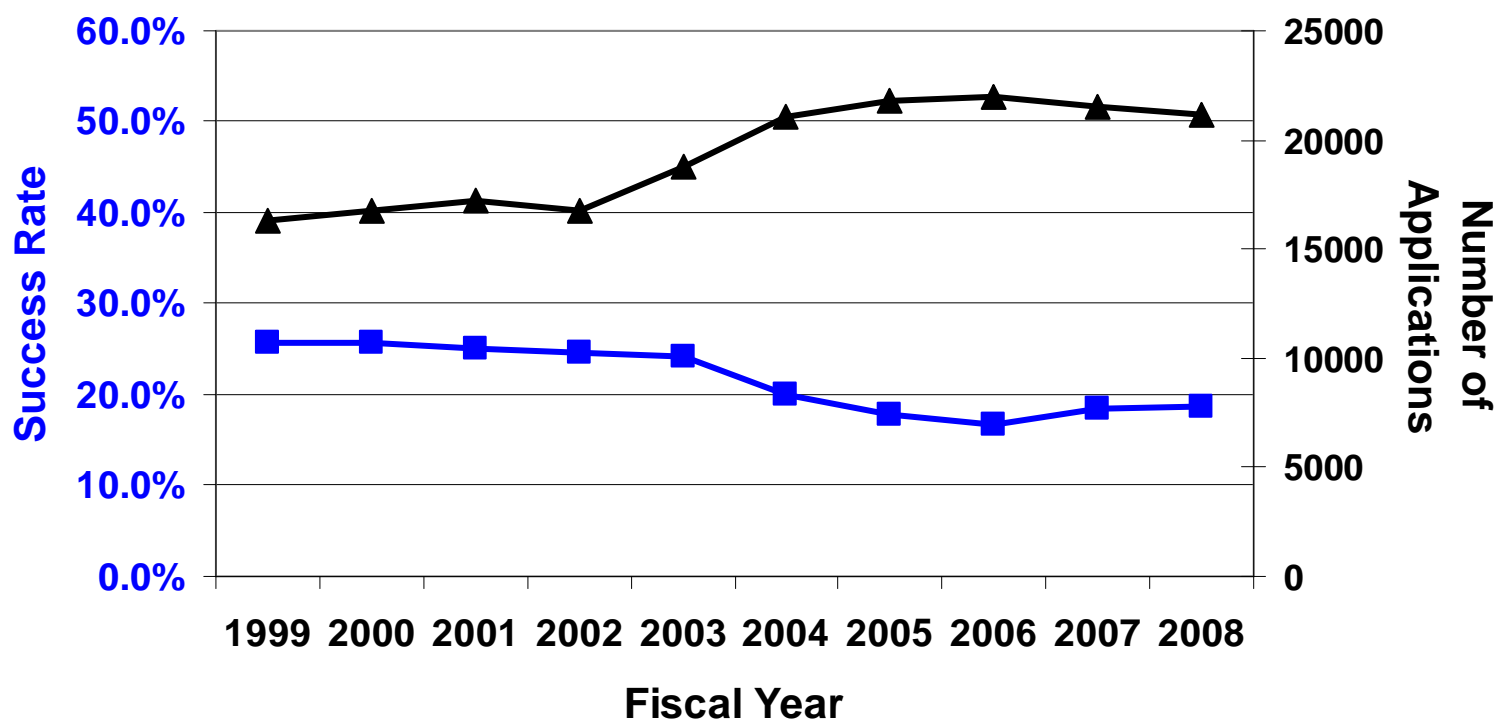


Review Criteria

1. Significance: ability to improve health
2. Approach: feasibility, budget
3. Innovation: originality or advancing the science
4. Investigator: training and experience
5. Environment: facilities, support from institution

Current State of Funding

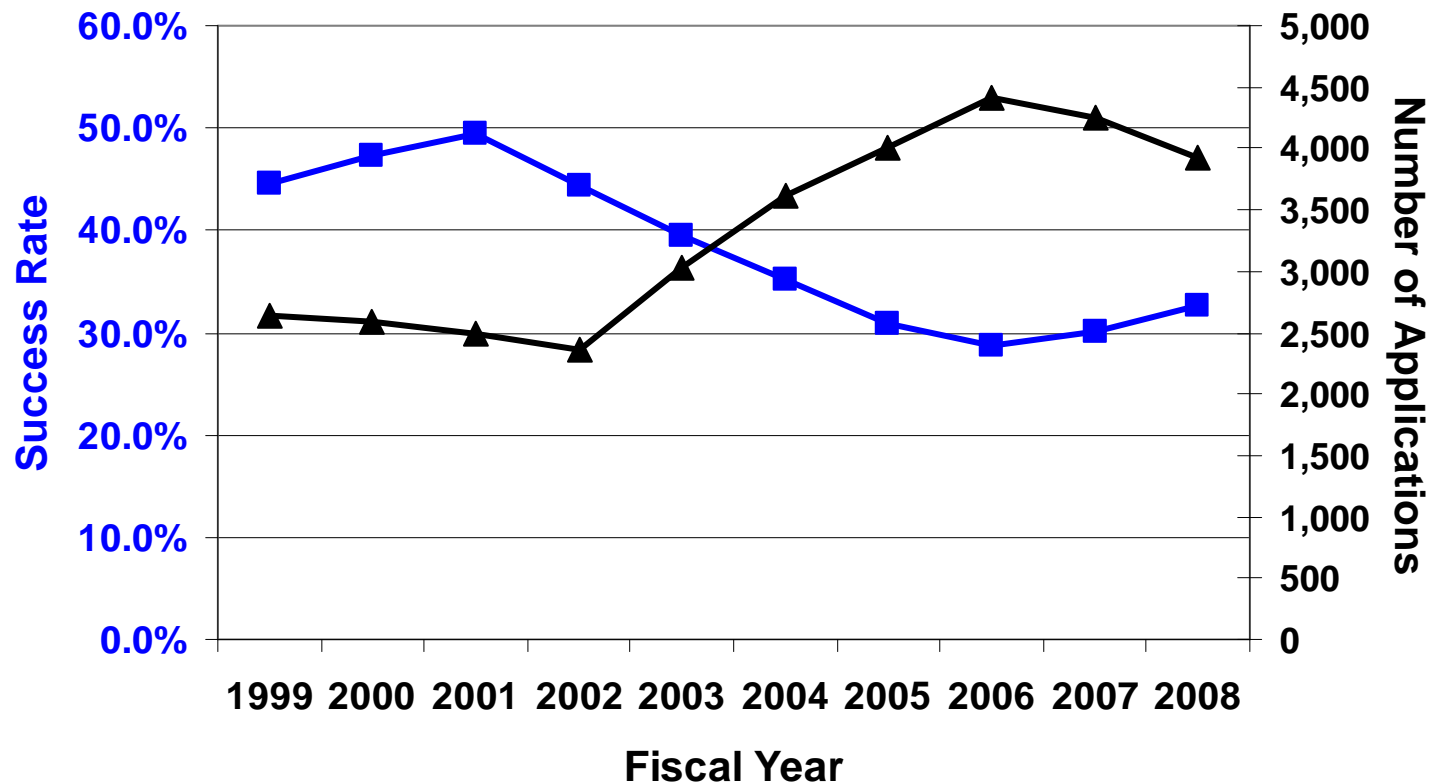
Success Rates for New NIH R01 Grants (All Institutes)



http://report.nih.gov/success_rates/index.aspx

Current State of Funding

Success Rates for NIH F Series Fellowships



http://report.nih.gov/success_rates/index.aspx

SPEED BUMP

DAVE COVERLY



COMPARISON OF TWO STRATEGIES FOR GRANT APPLICANTS

"ONE SHOT"

<u>ODDS</u>	<u>FAIL RATE</u>	<u>EVENTUAL SUCCESS RATE</u>
.12	.88	$1 - (0.88)$ = 0.12

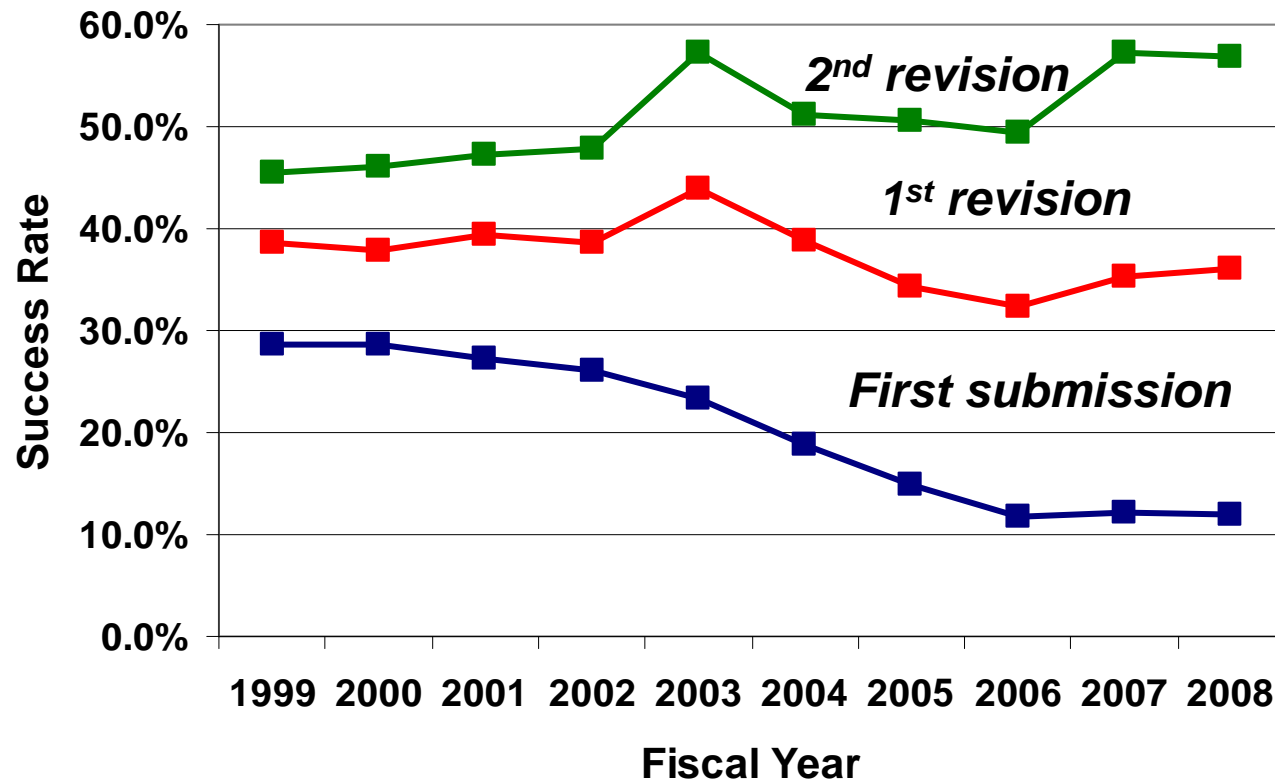
"PLAN TO RESUBMIT"

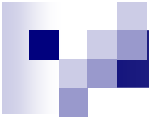
	<u>ODDS</u>	<u>FAIL RATE</u>	<u>EVENTUAL SUCCESS RATE</u>
1 ST Try	.12	.88	
1 ST Revision	.35	.65	
2 ND Revision	.57	.43	$1 - (0.88 \times 0.65 \times 0.43)$ $= 1 - (0.25)$ = 0.75

Israel Goldberg

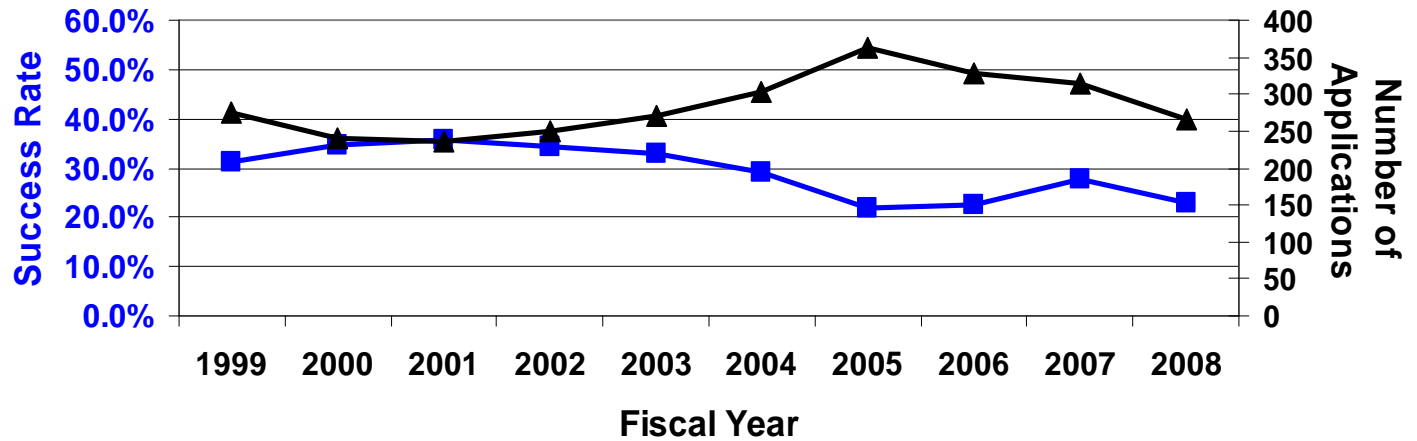
Funding Successes by Revision

Success Rates for NIH Research Grants

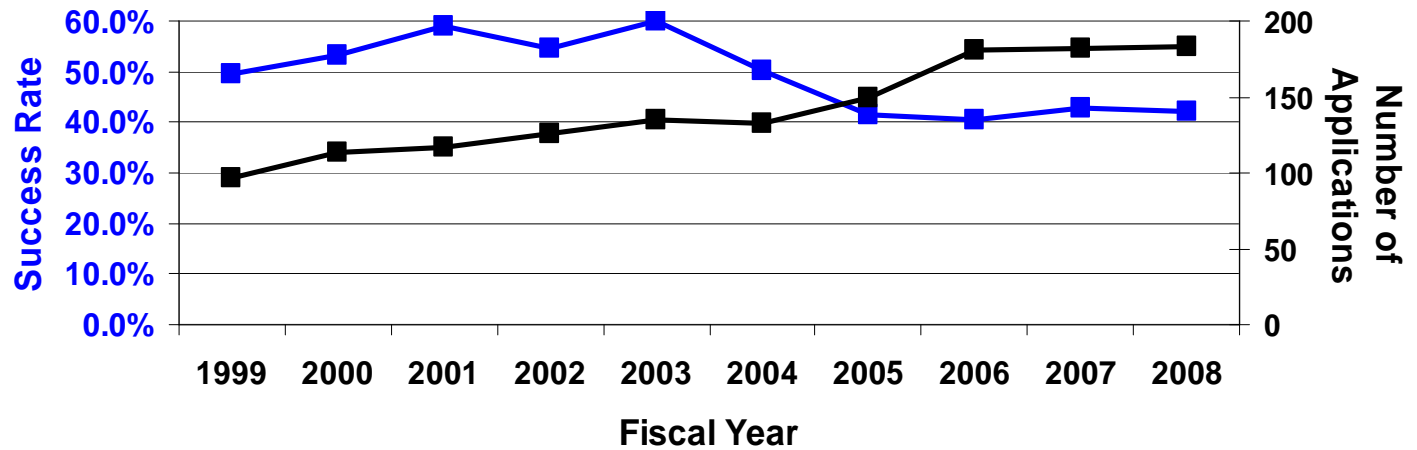




Success Rates for NIDCD R01s (New)



Success Rates for NIDCD R01s (Continuations)





What Makes a Proposal Competitive?

- original ideas
- sound scientific rationale / theoretical basis
- critical approach
- likely high impact
- succinct, focused research plan
- experience in essential methodology
- pilot data
- clarity of future direction
- knowledge of subject area
- realistic timeline



Research Plan

- Convince the reviewers:
 - Your hypotheses are important
 - Your research answers the questions posed by your hypotheses
 - Your aims are feasible and logical
 - Potential problems are understood
 - You can analyze the data
 - You have not proposed too much



Title

- With the abstract, has significant implications for reviewer assignment
- Should be informative and engender enthusiasm
- Descriptive, appropriate, and fairly specific (but not *too* specific)



Abstract

- The abstract **must** stand alone!
- Hardest section to write well; write this last
- Clear and succinct; clear understanding of the project's significance, generalizability, and potential contribution
- Contains brief background, aims, hypotheses, expected results, significance, relevance to agency's mission



Specific Aims

- One page; meets “grandmother” criterion
- Number of aims depends on scope of grant (typically ≥ 3), but must be independent
- Clear statement of information to be obtained
- Emphasize significance of each aim individually in one sentence
- What are you going to learn, how will you learn it with this research, why is it important



Specific Aims: Common Errors

- Overly general
- Weakly motivated
- Illogical flow
- Over/underambitious
- Not an important question



Background & Significance

- Less technical language for a broader audience
- Critical and focused summary of what is known and what is not known
- Convey theoretical framework, research significance, breadth of your knowledge, how research suits the agency's mission
- Reviewer's ideal response: "I know why the applicant thinks this is important, what the background literature says about it, and how the background drives the questions and theory proposed."



Background & Significance: Common Errors

- Trying to cite every paper under the sun
- Proposing research because “it hasn’t been done before”
- Conveniently ignoring the opposing camp
- Not defining terms, abbreviations, or acronyms
- Numbering citations – reviewers HATE this



Preliminary Studies

- You can handle technologies, understand methods, interpret and analyze results
- Figure are key here
- A reviewer can think of 100 reasons why something you propose will not work. These objections vanish if you can show that you have already done it.



Research Design & Methods

- This section carries the most weight in reviewer decisions
- Reviewers should be able to anticipate your solution based upon your analysis of the problem
- What you propose to do and how you propose to do it; detailed enough that reviewers should be able to do the study



Research Design & Methods

■ Include

- Expected results and what they mean
- Potential problems; limitations of your approach; alternative hypotheses
- Logical flow (same as Specific Aims)
- Justifications for all design choices made
- Expertise (consultants; who does what)
- References!
- Timeline



Research Design & Methods: Common Errors

- Insufficient detail
- Later experiments critically depend on success of earlier experiment
- Forget to include how data will be evaluated
 - What statistics used; what do results mean?
- Lingering questions of feasibility / competence



Human Subjects / Animal Care

- Include up-to-date IRB / IACUC approval
- Protection against risks
- Compensation / benefits
- Recruitment and demographics
- Confidentiality
- Data safety monitoring plan



Literature Cited

- Demonstrate breadth of knowledge in your field
- Don't use *et al.*; name every last author (no page limit here)



Budget

- Unlike the research proposal, everyone on the review committee is now an expert
- Personnel (salary + fringe), nonpersonnel (equipment, supplies, travel), indirect costs
- Salaries will make up 60-80% of total request
- Justify everything, and be specific!
 - Budget too high = sign of waste
 - Budget too low = poor planning



Resources and Facilities

- Reviewers trying to evaluate suitability of your facilities to the work proposed
 - Is your work feasible where you are?
- Lab space, office space, equipment, computers, clinical and animal facilities, *etc.*



Cover Letter

- Application title
- Request assignment to an institute or specific study section
- Specify if application is in response to a request for applications
- List of people who should not review your application and why



Appendix

- Less is more; only primary reviewer sees this
- Glossy photos / figures that won't copy well
- Article reprints
- Letters of support from collaborators
 - Offer to write the first draft
 - Delighted to participate (role)
 - Importance of work
 - Your expertise
 - Closing (“eager to begin this important work”)



Final Editing

- Have people inside and outside your research area read the grant
- Proofread your proposals in multiple readings, looking for different features on each reading
 - Content, organization, clarity, mechanics, design
- Use all available space (even if adding white space)



Submission

- Not just the act of mailing / clicking “send”!
- Check all copies before submitting
- Don’t underestimate “production phase”:
 - How are your printer / copier toner levels? Are color copies necessary? What are FedEx Kinko’s hours and locations? Network availability and backup plan? **Submission deadline?**



Your grant is submitted! Congratulations!

Now you spend several months eagerly awaiting (or fearing) what comes next...



Common Problems Cited by Reviewers

- Problem not important enough
- Issue is scientifically premature
- Study will not produce useful information
- Studies based on shaky hypotheses / data
- Alternative hypotheses not considered
- Methods inappropriate
- Investigator underqualified / inexperienced
- Problem more complex than applicant realizes
- Too little detail in research plan



Common Problems Cited by Reviewers

- Overambitious
- Direction not clearly defined
- Lack of focus in hypotheses, aims, research plan
- Lack of originality
- Method in search of a problem
- Rationale for experiments not provided
- Relevant controls missing
- Lacking preliminary data to support feasibility
- Insufficient consideration of statistical needs



Other Common Errors

- Too geared towards thinking what funding agency wants to see or what reviewers think
- Formatting errors
- Not budgeting enough time
- Not considering FedEx requirements / navigation of online submission system
- Not checking with local grants offices for pre-approval for draft budget



Not Scored? Now What?

- At least half of all grants are streamlined (not scored) due to time restrictions
 - Reviewed but not discussed
- Nothing to be ashamed of; you're in good company
 - Most unscored grants should be revised
- Different from Not Recommended for Funding



Rejected? Now What?

- Some grant proposals are rejected because they contain bad ideas. Most grant proposals are rejected because they contain good ideas poorly written.
- The only people who don't make mistakes are the ones who don't do anything; so spend no more than one day wallowing in discouragement if your first proposal is rejected.



Rejected? Now What?

- 70% of all applications submitted to NSF and NIH are turned down
- Take reviews seriously, but not personally
- Look for common criticisms / suggestions across reviewers



Rejected? Now What?

- Talk with a trusted colleague or mentor
- Contact PO to make a phone appointment to discuss reviews; focus on ways to improve
- Ask yourself and others:
 - Do the reviews give guidance for shaping the research in future proposals?
 - Did the reviewers misunderstand your intentions?



Fixable Problems

- Poor writing
- Lack of detail for experiment or preliminary data
- Significance not apparent
- Demonstrating feasibility
- Insufficient consideration of potential obstacles, alternative approaches



More Difficult Problems

- Philosophical differences (importance of work)
- Unsound / unsupported hypothesis
- Work has already been done
- Methods unsuitable for testing hypotheses



Resubmission Options

1. Revise & resubmit to same study section
2. Revise & resubmit to different study section
3. Create “new” application and request new study section
4. Create new (no air quotes) application (>50% revised)



Addressing Revisions

- Be gracious; revisions are trying to help you make your grant better.
- Respond to every comment directly
 - If you disagree, explain why
- Note substantial changes
 - Bold, italics, indents, or arrows for new text
- ****DON'T change anything reviewers didn't ask you to change!****



Funded? Now What?

- CELEBRATE! You've earned it!
- Don't gloat
- Read reviews for constructive suggestions
- Ask PO about common mistakes other grantees make so you don't fall into the same trap
- Clarify deadlines for progress reports



Ten Commandments of Private Foundation Proposals

1. Be realistic
2. Follow instructions
3. Avoid overfamiliarity
4. Engage key officials
5. Ensure well-roundedness of you and your project
6. Keep trying
7. Don't be overambitious
8. Form collaborations
9. Fulfill all awardee obligations
10. Do your homework!




Letter Proposals

- Send a different, original letter to each potential grantor
- Emphasize what parts your grantor will find most interesting and most beneficial
- Reiterate results of any personal contact you've had with grantor
- Begin and end letter by showing amount / purpose of \$ requested
- Suggest opportunity to discuss project further with onsite visit or in-person interview
- Thank them for their time!



Letter Proposals

1. Summary (introduction, what you propose they do, how much, potential benefits)
2. Sponsor Appeal (identify prior funding patterns)
3. Problem (helping them reach their goals)
4. Solution (describe your approach briefly)
5. Capabilities (your credential)
6. Budget (precise amount)
7. Conclusion



Grant reviewers envision themselves as judges at an Olympic skating competition, *looking for deductions to assess*. Your job as an applicant is to minimize those places in your ‘program’ where deductions can be made, but it is not sufficient to attain technical perfection, there must be some risk! The trick is balancing the risk and the technique.



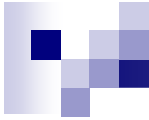
Make Life Easy for Reviewers

- Label everything clearly; divide into sections
- Short and simple; state key points directly
- *Sparkle*! Make significance clear
- Leave no room for argument
- In the long run, it is better to miss a deadline to turn in the “perfect” grant rather than rush a poor product



Write To Your Audience

- 1) A small number of primary reviewers familiar with your techniques, field, and finer points of the proposal
- 2) A large number of reviewers will not be familiar, instead skimming and focusing on the abstract and specific aims



These slides are available at:

[http://www.acosoc.org/student/fellowships/
fellowships.html](http://www.acosoc.org/student/fellowships/fellowships.html)

Or, ASA website → Student Zone link
(lower-right corner) → “Fellowships &
Grants” tab (left side)

Thank you!