

## Grant Proposals

### Purpose

- › Convince evaluators that researcher is capable of successfully conducting proposed research project
  - Research ? and its importance
  - Literature review
  - Detailed description of methods and why they are appropriate
  - Plan for data collection and analysis
  - Timeline/ schedule for each step

### Grantsmanship

- › Use of strategies and skills in locating appropriate funding sources and preparing quality proposals to fund research
- › Internal Awards
  - Institutional sponsored programs office
  - Office of Grants and Research (URC)
  - Provost's Office
- › Private foundations
  - *The Foundation Directory*
  - *The Guide to Federal Funding for Social Scientists*
- › Government agencies
  - NSF
  - NIH

### NSF

- › **Program Areas**
  - [Biological Sciences](#)
  - [Computer and Information Science and Engineering](#)
  - [Crosscutting and NSF-wide](#)
  - [Cyberinfrastructure](#)
  - [Education and Human Resources](#)
  - [Engineering](#)
  - [Environmental Research & Education](#)
  - [Geosciences](#)
- › **Integrative Activities**
- › **International Science and Engineering**
  - [Mathematical and Physical Sciences](#)
  - [Social, Behavioral, Economic Sciences](#)

## NSF

- › Grants for Rapid Response Research (RAPID)
- › Early-concept Grants for Exploratory Research (EAGER)
- › Facilitation Awards for Scientists and Engineers with Disabilities (FASED)
- › CAREER
- › Proposals for Equipment
- › Proposals for Conferences, Symposia and Workshops
- › ADVANCE

## NSF

- › For Graduate Students:
  - › GRFP
    - late Oct/early Nov
    - 3 years of support
    - Effective as of the 2017 competition (Fall 2016 deadlines), graduate students are limited to only one application to the GRFP, submitted either in the first year or in the second year of graduate school.
  - › DDIG (IOS and DEB divisions only)
    - 2<sup>nd</sup> Thurs in Oct.
- › Post-docs
- › SBRF - for SBE cluster
  - Last Monday in Oct.

## NIH

- › Research Grants (R series)
- › Career Development Awards (K series)
- › Research Training and Fellowships (T & F series)
- › Program Project/Center Grants (P series)
- › Resource Grants (various series)
- › Trans-NIH Programs
- › Inactive Programs
- › Institutes and Centers

## NIH Research Grants

- › RO1
  - Usually awarded for 3-5 years
  - No specific amount
- › RO3 (Small Grant Program)
  - Two years
  - Up to \$50K/year
- › R13 (Support for conferences and meetings)
- › R15 (Academic Research Enhancement Award/AREA)
  - Three years
  - \$300K total

## NIH Research Grants

- ▶ R21 (Exploratory/Developmental)
  - Up to 2 years
  - Up to \$275K
- ▶ R34 (Clinical Trial Planning)
  - 1–3 years
  - Up to \$100 – 450K
- ▶ R41 /42 (Small Business Technology Transfer/SBTT)
- ▶ R56 (High Priority Short term)
  - 1–2 years
  - No specific amount
- ▶ K99/R00 (Pathway to Independence)

## Who Gives Money and Why?

- ▶ **Federal**
  - gives and takes away based on political agenda
  - they tell you what to do
  - fewer \$ means fewer submissions ∴ success rate increases
  - slow review process
- ▶ **State**
  - little \$ for basic research
  - often good for projects w/ students
  - outsource work when budgets decrease
  - BUT – even when they have money they won't tell you about it

## Private Giving

- ▶ **Private Foundations**
  - give out of goodness of their heart
  - advance a particular cause
  - \$10 billion annually
  - only \$1 billion to universities
  - often fund geographically
- ▶ **Corporations**
  - give for enlightened self-interest
  - quality of life
  - employment pool
  - improve image
  - “Dow helps you do great things”

## “Pork Barrel” Funding

- ▶ “Earmarked”
- ▶ Politicians targeted funds for specific projects at particular institutions based on political favoritism rather than competition
  - Projects bring money to businesses and supporters in politician's home district
  - Not merit-based or peer-reviewed
  - May increase publications but lower overall quality
- Agree to limits on open, free inquiry

## Questions to Ask

- › What types of projects are funded?
  - Applied, basic research, collaborative, large-scale
- › Deadlines
  - Response to RFPs (or RFAs)
- › Type of Proposal
  - Pre-proposal, full-length, invited
- › Size of grant
- › What aspects are not funded?
  - Salary, personnel, travel

## Experience

- › Build up C.V. first
  - ~ 5 pubs minimum
- › PI = project director
- › Build track record with smaller projects
- › Include c.v., letters of support

## Framing Research Plan

- › 1. Identify how your theoretical position differs from prevailing views
- › 2. Discuss aims and hypotheses
- › 3. Discuss background literature, highlighting your own work in the area
  - Shows your research competence
  - And feasibility of methodological approach

## The Problem Statement: Framing the Need

- › Don't assume that no one else has ever thought of your idea.
- › The **Problem Statement** establishes a framework for the project's goals, objectives, methods, and evaluation
- › Provide a thorough explanation of the need for your project
  - test assumptions
  - anticipate questions of others
  - incorporate proposal guidelines
- › Begin with a framing statement then provide documentation

## A Good Problem Statement Should:

- ▶ Show that you understand the problem
- ▶ Demonstrate that this is an important problem to solve
- ▶ Clearly describe the aspects of the problem that your project will address, and what gaps this will fill
- ▶ Describe the theoretical or conceptual basis for your project and your knowledge of the issues surrounding your proposed project
- ▶ Include statistical data, if appropriate
- ▶ Demonstrate that your approach is creative or innovative
- ▶ Describe how this project fits into the already existing goals of the organization

## A Well Thought-Out Project:

- ▶ Will have
  - one or two goals
  - several objectives related to the goals
  - many methodological steps to achieve each objective.

## Objectives

- ▶ The objectives state the essence of the proposed work in terms of **what** will be accomplished. Break the goal down to specific measurable pieces, the outcomes of which can be measured to determine actual accomplishments.
- ▶ Objectives discuss **who** is going to do **what**, **when** they will do it, and **how** it will be measured
- ▶ Can be the hypotheses

## Example Objective

- ▶ If our **goal** is getting high risk pregnant women to engage in healthier habits during their pregnancies
- ▶ To reduce drug use and poor eating habits (**what**) immediately upon pregnancy test results (**when**) for individuals who seek social services (**who**) as measured by fewer birth defects and higher birth weights in newborns from this population (**measure**).

## Fit

- › 1. Find idea you are excited about
- › 2. Find funding source that will be equally excited – good match is as important as anything else!
  - Write with specific audience in mind



## More Questions to Ask

- › Does the funding agency share your goals?
- › Is the funding agency interested in the same populations?
- › Has the funding agency funded projects similar to yours?
- › Have they made awards to institutions similar to yours?
- › Does the agency require matching?
- › When will the award be made?



## Approach

- › Always contact Foundation or Program Officer (PO) at Granting Agency
  - Grants without any prior contact are seldom funded! (15% or less)
  - Opportunity to sell enthusiasm for ideas



## Budget

- › Consult grants officer at institution (SPO)
- › Need to know F&A, fringe, base salary
- › Allowed salary
- › Also include budget justification



## Direct Costs

- ▶ Costs that can be identified specifically with a particular sponsored project, an instructional activity, or any other institutional activity; or that can be directly assigned to such activities relatively easily with a high degree of accuracy.



## Indirect or Facilities and Administrative (F&A) Costs

- ▶ Costs that are incurred for common or joint objectives, and, therefore, cannot be identified readily and specifically with a particular sponsored project, an instructional activity, or any other institutional activity.
- ▶ May include overhead
- ▶ Indirect Rate is negotiated with Cognizant Auditing Agency



## What Happens to Indirect Costs?

- ▶ According to College Policy
  - 1/3 to Business Office, a % of which must go into the Facilities Maintenance Fund
  - 1/3 to Grant Writer, currently used for mini-grants and to supplement conference budget
  - 1/3 to PI's department without restriction



## Cost Share or Match

- ▶ Funders like to see that the institution is putting funds into a project as well.
- ▶ Cost sharing = a portion of project's costs not borne by the sponsor
  - Faculty effort
  - Equipment, supplies, materials
  - Waivers of indirect costs
  - Donated use of space
- ▶ A 50% **Cost Share** of the total project cost where the funder puts up \$100,000 is \$100,000 because it is 50% of \$200,000.
- ▶ **Match**
  - A specific type of cost-sharing
  - - A 50% match for a \$100,000 grant is \$50,000



## Salaries

- ▶ You may not give yourself a raise.
- ▶ Your time must be figured in % of effort as it relates to 100%.
- ▶ You may not work more than 100%.
- ▶ Example:
  - Academic yr. =  $\$68,000 \times 50\% \text{ FTE} = \$34,000$
  - Summer =  $\$34,000 / 9 \times 2 \text{ mos.} \times 50\% \text{ FTE} = \$7,555$



## Fringe Benefits

- ▶ Varies according to classification of employee and salary
- ▶ Faculty are generally 23%
- ▶ Post-doc 35.4
- ▶ Summer benefits are less – around 16% (health benefits not included)
- ▶ Use 10.2% for Students



## Travel

- ▶ This section is only for employee travel. All other travel (e.g., to fly evaluators in for meeting) goes under contractual
- ▶ Airfare
- ▶ Per diem
- ▶ Lodging
- ▶ Ground Transportation
- ▶ Conference Registration



## Materials & Supplies

- ▶ No consumable office supplies such as pens, pencils, paper, etc.
- ▶ Computer Memory
- ▶ Lab Supplies
- ▶ Books, journals





## Equipment

- ▶ Anything over \$5,000 is considered equipment.
- ▶ In most cases the institution retains title to the equipment at the end of the grant



## Consultants

- ▶ Usually will require a formal agreement such as a subcontract, MOA or MOU.
- ▶ Substantive part of work for it to be subcontract
- ▶ Should be named in grant narrative
- ▶ Justification for selection must be documented
- ▶ A "consultant" is not an "employee"
- ▶ Consultants operate as independent contractors without detailed supervision
- ▶ Temporary, highly technical, urgent, special services that cannot be performed by a college employee

## Subawards

- ▶ Types
  - Subcontract/Subgrant/Subagreement
  - Consulting agreement (MOU or MOA)
  - Purchase Order
- ▶ Subcontracts are never to individuals, only to organizations.
- ▶ In developing a subcontract, make sure the time by which reports from the subcontractor must be in to you are much earlier, than when you have to submit your final report.

## Other

- ▶ Anything that does not fall into any other category
- ▶ Long distance phone, but not local
- ▶ copies – if they can be tracked
- ▶ publishing costs
- ▶ human subjects costs
- ▶ computer costs

## Approvals

- ▶ Institution registered
- ▶ IRB or IACUC approval

## Letters

- ▶ **Letters of Support**
  - We think it's a good idea
  - referred to in text, put in appendix
  - how does project fit with mission/goals of college
  - Presents type of support
- ▶ **Letters of Commitment**
  - Evidence of interest in project from participants
  - if project is funded they are ready with their contribution
  - what they will contribute
  - they will participate at the time that you need them



## Key Personnel

**Zinbarg, V.**  
**Biographical Sketch**

**Professional Experience**

1989-2004	Psychology	Michigan State University
1986-1989	Psychology	Yale University
1984-1986	Psychology	Yale University
1982-1984	Psychology	Yale University

**Academic Appointments**

2011 - Present	Assistant Professor of Psychology	University of Illinois, Urbana-Champaign
2007 - 2011	Assistant Professor of Psychology	University of Illinois, Urbana-Champaign

**Publications**

Zinbarg, V., & Leventhal, T. (Eds.). (2012). *Handbook of Compulsive Disorder and Obsession: Clinical Research, Theory, and Treatment*. New York, NY: Guilford Press.

Zinbarg, V., & Leventhal, T. (Eds.). (2012). *Handbook of Compulsive Disorder and Obsession: Clinical Research, Theory, and Treatment*. New York, NY: Guilford Press.

Zinbarg, V., & Leventhal, T. (Eds.). (2012). *Handbook of Compulsive Disorder and Obsession: Clinical Research, Theory, and Treatment*. New York, NY: Guilford Press.

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## Dissemination Plan

- ▶ Which results will be reported?
- ▶ What audiences will be reached?
- ▶ How the results or products will be disseminated, e.g., computer networks, video tapes, conferences, professional journals, or publication of books, chapters, or monographs?
- ▶ More creative methods for Broader Impacts



## Limits on Dissemination of Knowledge

- › 98% of findings show drugs are effective when research funded by drug companies
- › Gulf oil spill – researchers had to agree not to publish findings for lengthy time period following spill
- › SLAPP – strategic lawsuits against public participation

## Mentoring Plan

- › Must include if Post-doc funds are requested
- › Should indicate relevant experiences
- › How training will be achieved
- › How plan will be evaluated

## Evaluation

- › Formative evaluation of objectives
  - how the project will be evaluated as it progresses
- › Summative evaluation of objectives
  - how the project will be evaluated when it is finished

## Evaluation design

- › Explanation of the methods.
- › What was the impact?
- › Descriptions of record keeping, surveys, and assessment instruments.
- › Consider what would count as evidence that your project succeeded or failed?
- › If you were someone else who wanted to replicate the project what would you need to know to determine if you would benefit?
- › What form should that information take to be sufficiently credible or useful?

## Evaluation Design – Questions To Ask

- ▶ Evaluation for Faculty Development Workshops
- ▶ Formative
  - Who participated?
  - Were they organized and staffed as planned?
  - Were materials available?
  - Were they of high quality?
  - Was the full range of topics actually covered?
  - Too few, too many?
  - Problems?
  - Modification?
  - Timing?
- ▶ Summative
  - Did faculty change their instructional practices?
  - Did this vary by teacher or student characteristics?
  - Did faculty use information?
  - What obstacles prevented implementing change?
  - Were changes made in the curriculum?
  - Were students more interested in class work?

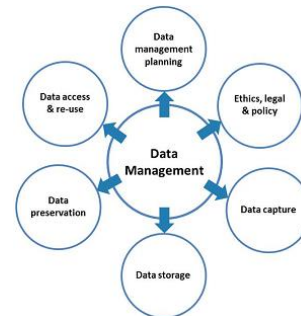
## Outside Evaluation

- ▶ Hire a third party.
- ▶ Someone well known in the field.
- ▶ Someone you quoted in the needs section.
- ▶ Identify evaluators before submitting proposal and include their resume and a letter of commitment.
- ▶ They may often contribute to the writing of the evaluation section.

## A Good Evaluation Plan:

- ▶ Covers both process and product
- ▶ Tells who will perform the evaluation and how they were chosen
- ▶ Defines the criteria by which the program will be evaluated
- ▶ Evaluates the achievement of each objective
- ▶ Describes data gathering methods
- ▶ Explains assessment instruments, questionnaires, and other materials
- ▶ Describes data analysis procedures
- ▶ Relates evaluation findings to a plan for program improvement
- ▶ Describes evaluation reports to be produced

## Data Management Plan



## Summary or Abstract

- › Conciseness
- › Precision
- › Theoretical significance
- › Main hypotheses – how addressed

## NSF Merit Review Criteria

### *Intellectual Merit*

- › Advancing knowledge and understanding
- › Proposer qualifications (and results of prior work)
- › Creative and original concepts?
- › Conception and organization
- › Resources
- › Questions
- › Feasibility
- › Impact on field



Typical NSF Panel Review Meeting

## NSF Merit Review Criteria

### **Broader Impacts**

- › Promoting teaching, training and learning?
- › Integration of research and education
- › Broaden the participation of underrepresented groups
- › Enhance the infrastructure for research and education (facilities, instrumentation, networks and partnerships)
- › Broad dissemination
- › Benefits to society

**Broader Impacts**

Effective ways to include preK-12 students as part of your Broader Impacts

- › Involve the classroom
- › Involve the lab
- › Mentor students for their science fair projects
- › Invite students to visit your lab
- › Set up multiple, one-on-one science camps
- › Conduct field trips to your lab or other research sites which are part of classroom activity

Provide hands-on activities to classroom:

- › Use classroom equipment
- › Reduce research complexity
- › Develop with the teacher
- › Utilize National Instruments, Programming, Mathematics, etc.

Use K-12 Outreach Opportunities for High School Students in your life:

- › Engage students to create 3D models to demonstrate genes to the lab and classroom

Opportunities at 100 Research Centers exist as NSF partners and the widely used database in NSF's iCBDB, [www.iCBDB.org](http://www.iCBDB.org), is available for researchers. For more information, contact the Division of Molecular and Cellular Biosciences. The meeting program is open and free to all researchers. Award #PCN-160121

Division of Molecular and Cellular Biosciences

## Scoring

- › The rating scale for written reviews will be: Excellent, Very Good, Good, Fair, and Poor. A panel summary describing the key points of the panel discussion and the rationale for the proposal's placement in one of the four panel ranking categories ("High Priority", "Medium Priority", "Low Priority", and "Not Competitive") will be provided for each proposal.

## Following the Guidelines

- ▶ You must follow the guidelines **exactly**.
- ▶ Respond to all sections.
- ▶ Adhere to any format restrictions.
- ▶ Topics must be covered in order presented in guidelines.
- ▶ Use headings that correspond to the guidelines.

## Appropriate Writing Style

- ▶ Write to the funding source
- ▶ Write in the correct language of the field – but no jargon
- ▶ **Never** write in 1st person
- ▶ Clarity
- ▶ 5 W's
- ▶ Write to inform
  - don't use language that is biased
- ▶ Write to persuade
  - data from reputable source
  - use current data
  - establish credibility
  - No unsubstantiated opinions

## What Reviewers Look For

- ▶ **Proposals that are organized.** Make their job easier by exactly following the guidelines.
- ▶ **Proposals that they can understand.** Avoid jargon. Keep your language as clear and concise as possible. Don't leave reviewers guessing, and leave nothing to the imagination.
- ▶ **Proposals that are pleasing to the eye.** Think what you can do to counter a reviewer's "fatigue factor." They will frequently be reviewing from 20 to 50 proposals at one time. Small type and long paragraphs are seldom a good idea. Use plenty of white space, as well as bulleted items to catch attention
- ▶ **Proposals that someone else had read.** Leave enough time to have your advisor and friends read and critique what you have written.

## What Reviewers Look For (cont)

- ▶ **Proposals that answer the questions:**
  - What is this person doing? (Many reviewers have complained that they were pages and pages into the proposal before they could winnow out the project.)
  - Why is it important?
  - Is it innovative? (Innovation is an essential ingredient in proposals today.)
  - How is this person going to do it?
  - Has this person made the case?

## Ending a Needs Statement

- ▶ Emphasize the significance of the project
  - what will be the result
  - what impact will it have
  - will the impact continue
- ▶ You might present your project as a model
- ▶ Always address the **priorities** of the funding agency
- ▶ Forecast the usefulness and importance of the results



## Other Possible Sections

- ▶ References or Literature Cited
  - use standard format
- ▶ Facilities
  - don't use boiler plate – what is available for your project
  - show you have access to what you need



## 14 Reasons Why Proposals Fail

- |                           |                                  |
|---------------------------|----------------------------------|
| ▶ Deadline not met        | ▶ Appeared beyond capacity of PI |
| ▶ Guidelines not followed | ▶ Methodology weak               |
| ▶ Nothing intriguing      | ▶ Unrealistic budget             |
| ▶ Did not meet priorities | ▶ Cost greater than benefit      |
| ▶ Not complete            | ▶ Highly partisan                |
| ▶ Poor literature review  | ▶ Poorly written                 |
|                           | ▶ Mechanical defects             |



## Submitting

- ▶ Grants.gov (NIH)
- ▶ Fastlane (NSF)
- ▶ Must be registered through institution



## Contract

- › Contract between researcher(s) and funding source
- › Final report must include details on what funds were spent for, findings, evaluation
- › Failure to file final report has serious consequences

## Perseverance

- › 80% or more of first submissions are rejected
- › Can submit simultaneously but must indicate if this is the case – and generally hard to find fit at more than one agency or program – must withdraw as soon as funded
- › According to NSF, one out of every four *competitive* grants you write will be funded
  - For NSF, the success rate is 23% between 2014 to 2016,
  - For NIH – 18.1–19.96% between 2014 and 2016
- › Decision not to fund, does not necessarily reflect on the quality of your grant proposal
- › Good people (even excellent people) can have proposals rejected, take rejection as a learning experience