

# Get It Funded 101

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# Where to start with proposal writing – getting the general idea? 😊

- Read many RFP introductory descriptions
- Go to Agency sponsored workshops/meetings
- Talk to successful PI's
- Become a worker-bee on a funded grant
- Sit in conference presentations from grant related research
- Volunteer to review
- Look around at what is going on in your department, college, discipline
- Get on list serves (Tomorrow's Professor, Research notices, ASEE Divisions)

What questions are you interested in knowing the answer to?

- Are there others interested in the same or similar questions – where to look.
- Is there a specific solicitation on this topic?
- What is the history of this topic?
- What can YOU bring to this topic?

What do we need to understand to begin answering our question(s)?

- Basic structure of research entities; government bodies, foundations, corporations, individuals
- Program announcements versus solicitations
- Review process and criteria

# Understand the Basic Structure of Research Opportunities – not just a faculty role!

- Look everywhere, talk to everyone
- Program officers
- Structured programs
- Timing of programs
- Ties to your institutions

# Program announcements versus solicitations

- Announcements – utilize the generic eligibility and proposal preparation guidelines (see [https://www.nsf.gov/pubs/policydocs/pappguide/nsf16001/gpg\\_3.jsp](https://www.nsf.gov/pubs/policydocs/pappguide/nsf16001/gpg_3.jsp))
- Solicitations – encourage to specific programs – more typical

## Developing the Specific Idea

- Is the research attainable and sustainable, while at the same time is exceptional and unique?
- What about this research is a significant improvement over current practice?
- What improvements/differences will your research make?
- What activities and course(s) must be developed?
- What instruments or processes will be needed?
- What coalitions must be formed to perform research or make the desired improvements?

# Know the Motivation or Background

- What has been funded previously in this or related areas by the agency and others?
- Clearly explain the target audience in terms of demographic characteristics, size, and special characteristics or problems/challenges faced by the group or current process.
- If you are uncertain about your target audience, use the background search to make yourself an expert.
- The research design should be developed in a manner that will effectively assist the target group in addressing those special problems or challenges.
- The applicant must clearly understand the depth of the problem and the previous research in the area, and they should be able to clearly fill in the gaps in the existing work.



## Let's Get Started

- READ the RFP – more than once. Highlight key words, phrases and unique requirements.
- Be familiar with ALL references in the RFP.
- Develop 2 white papers; one for a technical audience and one for a general audience (at most, 8th grade language).
- Attend grant writing workshops on campus, at professional society meetings, within specific agencies.

## Build the Team

- What types of backgrounds, degrees or experiences are needed to answer your question?
- Is it one institution, one department, one discipline?
- Would an external advisory board add to your project and if so, who should serve on that board?
- Assign responsibilities early

# Proof of Concept (Pilot Study or Project)

- Fastest means to funding
- Demonstrates appropriateness of project and/or questions
- Demonstrates ability to conduct the research
- Demonstrates dedication to the work
- Demonstrates feasibility
- Immensely helpful in refining research questions
- Helps write the proposal so that if funded, it can serve as a blueprint for executing the plan.

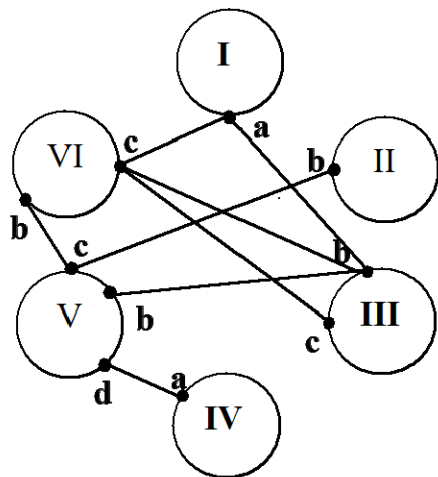
# Timeline for Writing the Proposal

- Start with our institution's requirements for routing, approval, etc.
- Contact your grant administrator now.
- Do you have your fastlane or grants.gov access, for example?
- Consider regularly scheduled team meetings for writing or mark your calendar as busy for individual writing.
- Depends on scale and work habits, but may need to mark off certain days before the grant is due either to the agency or to your pre-awards office.
- Factor in the Pilot Study to the timeline.

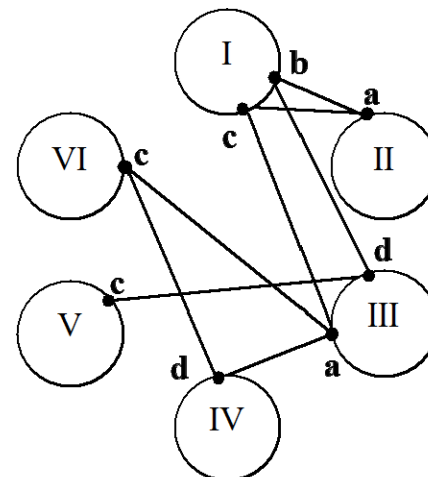
# Budget and Budget Justification

- Helps to determine project scope
- Gets buy-in from needed participants
- Definitely needed prior to routing/approval
- Detail the costs for each component and justify how the benefits of the project justify the costs
- Consider cost per contact for educational development grants

# Consider a Graphic



(A) factors related to people interests



(B) factors related to STEM interests

Figure 1: Complex Interrelationships Among Factors, Based on Pilot Interviews



**Table 8: Qualifications and Role(s) of Project Personnel**

Personnel	Position at OU	Expertise	Role in Project Tasks (1)-(4)
Fleener	Assoc. Dean, CoEduc; Prof., ILAC	education research methods	(1) co-PI (3) all depts.
Furneaux	Prof., Physics & Astronomy	physics content and culture	(1) liaison with Physics & Astronomy
Harris	Assoc. Prof., Anthropology; Director, Women's Studies	anthropology research methods	(1) co-PI; train student assistants to conduct interviews (2) all depts. (3) all depts. (4) analyze interview data
Lobban	Director, Chem E	chemical engineering content and culture	(1) liaison with Chem E
Meissler		ethnography research methods	(1) research coordinator (2) all depts. (4) analyze interview data
Murphy	Asst. Prof., Math	undergraduate mathematics education research	(1) PI; provide liaison with Math (2) non-Math majors (4) analyze interview data
Reynolds	Assoc. Prof., ILAC	education research methods	(2) all depts. (4) analyze interview data
Rhoads	Asst. Prof., IE	engineering education; statistics; IE content and culture	(1) co-PIs; liaison with IE at OU, ASU, UNL, Pitt (2) interview non-IE students (4) statistical analysis
Shehab	Asst. Prof., IE	human factors, design of experiments, IE content and culture	
Shirley	Asst. Dean, CoE; adjunct faculty, AME	mechanical engineering content and culture	(1) liaison with AME (2) non-AME majors

## Project Management Plan



# Dissemination

Target population	Conferences	Journals
engineering and computer science	American Society for Engineering Education Annual Conference and Exposition, Frontiers in Education, Association for Computing Machinery Technical Symposium on Computer Science Education	<i>International Journal of Engineering Education, Journal of Engineering Education, Journal of Women and Minorities in Science and Engineering, IEEE Transactions on Education</i>
physics	National Meeting of the American Association of Physics Teachers	<i>Physics Teacher</i>
mathematics	Joint Meetings of the American Mathematical Society and the Mathematical Association of America (MAA), MAA MathFest	<i>Conference Board of the Mathematical Sciences: Issues in Mathematics Education, Journal for Research in Mathematics Education</i>
education	Annual Meeting of the American Educational Research Association	<i>American Educational Research Journal</i>

## Prior Work

- Usually refers to prior agency funding, but explains qualifications of team.
- Think strategically – what are examples? 😊

# Project Summary

- VERY IMPORTANT!!!
- First thing people read and becomes published upon funding.
- Must address research question(s), motivation, intellectual merit, and broader impact
- Break out into three labeled paragraphs when told to do so!

# Project Description

- How will your project contribute to a gender-aware learning environment at your institution?
- How will the project improve engineering education for women, racial/ethnic minorities, and/or students with disabilities at your institution and how might it be emulated at other similar institutions?
- How will your plan ultimately improve students' understanding of concepts in science, technology, engineering, or mathematics?
- How will you know it has been done? How will you determine success? What are your evaluation criteria?
- Once successful, how will you assure that the program continues to grow?

# Think Sustainability

- Applying the research results is paramount.
- Most often, research projects begin with intricate designs and end with sustainable pieces. The sustainable pieces do not always have to look exactly like the envisioned results.
- Consider various sources of sustainability such as policy changes (both internal to the institution and through external agencies), external funding sources, internal funding sources, various methods of obtaining equipment and even perhaps the ultimate dream of new facilities.
- In addressing the sustainability issue both in writing the proposal and in completing the grant, flexible, open-minded thinking and ideas pay off.
- Obtaining key stakeholder buy-in will also contribute greatly to sustainability.
- Always be on the lookout for new and novel approaches to sustaining research projects and applying research results

## Show Support

- Whose support do you need; the provost, dean, department chair, course instructor?
- Key persons on research team
- Where does your project fit with strategic plans?
- What activities have been done recently that would demonstrate the likelihood of success of your project?

# Checking the Proposal

- Create a checklist from the RFP and use it.
- Are goals and objectives and written plans and procedures for achieving the goals clear?
- Are goals well-developed and realistic, innovative and appropriate?
- Consider using graphics to make your point stronger and clearer.
- Does timeline show when different components of your project are to be implemented?
- Make sure your management plan demonstrates how the project will be implemented.

# Little Things That Matter

- Work to *NOT make your reviewers mad*.
- Be sure to *follow the directions* given in the program solicitation or announcement.
- In general *avoid abbreviations*. For example, use mathematics, not math. You never know who your reviewer will be!
- *Write out the meaning of an acronym*. For example, write “Electrical and Computer Engineering Department Heads Association (ECEDHA)” the first time you use the name, and after that use the acronym.
- *Do not overuse acronyms*. Excessive use of acronyms and jargon can make your proposal unreadable to a reviewer not in your specific subfield.



## Little Things That Matter

- *Proofread* carefully before submitting the proposal. Do not rely on spell/grammar checker to catch all errors. Consider having the proposal edited by a professional editor.
- Make sure all *your references and page numbers are correct*.
- *Print a copy* of your proposal to ensure that all sections are readable.
- The program submission deadline is a *'hard' deadline*. Only in exceptional circumstances will a late submission be accepted.

# Writing a successful proposal

- Generate ideas
- Build a team (helpful if you like them)
- Talk about your ideas everywhere
- Listen!
- Read related literature
- Read the RFP and highlight key phrases
- Be persistent
- Do focus groups, pilot projects, foundation work
- Live with the idea and then the proposal for several months (can become years)

# Writing a successful proposal

- Take reviews seriously and then get over it!
- Getting your passions funded – difficult, but rewarding and fun
- Sit on review panels
- Get to know your funding personnel
- Go to conferences to talk to others and see what is really cutting edge (not the presentations, the discussions)
- Try to understand and do what is best for your students – one size does not fit all
- Convince yourself and then others
- How will the idea be sustained beyond funding?

There is no failure. Only feedback.  
-Anonymous

Happy grant writing!

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