Windows of Opportunity

Grant Preparation Tips I Have Learned

I have been at MSU since 2000 and in the first six years, I wrote 11 proposals to the NSF, none of which were funded. In 2010, I wrote my first NIH proposal, which was scored and came back with informative reviews. In 2011, this proposal was funded. Since then, I have submitted four more NIH proposals where I was the lead PI. Of these, one was scored twice, one was not discussed, and two are under review. I have also written two major proposals (U01 and R01) as a Co-Investigator and of these one was funded and one is currently under review.

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As you read these tips, you may think, "With all these bases covered, how is she not getting funded every time?" I thought the same thing! When I first read successful proposals from other investigators, I saw they had come back scored and unfunded even though they were magnificent scholarly works. Securing federal funding is extremely competitive. I have been told that writing a grant takes the same effort as writing a paper. I disagree! Writing a grant takes the effort of writing *at least* three papers. Knowledge of how much time and effort I will need to set aside is probably the *single most changed factor* from my previous grant writing history to my current status.

Let me share some of the most profound points I have internalized over the course of time from some of the best grant writers in my field. Although these tips lean toward NIH submissions, many of them can be adopted to any type of proposal.

Prepare Yourself by Doing Your Research and Reading

Learn from the best. You can learn more from a few grants that were successful than you can from books or presentations. I learned quite a bit from other people's successfully funded proposals. I noticed a large difference in quality between the grants scored very high (NIH fundable percentile scores are from 1 to 15; I found grants that were scored a 3) and the grants that were on the borderline. Grants that are scored very high can teach you quality grantsmanship and what it takes to rise above the very noisy competition. I found many successful proposals from NIH by looking through NIH Reporter. I landed on proposals authored by people I know and asked them for a copy.

Find books—buy them! It's money well spent. Also, find URLs that teach you good grantsmanship and let you walk a mile in the reviewers' shoes. My own favorite list appears below:

- *How to Write a REALLY Bad Grant Application (and Other Helpful Advice For Scientists)* by Lloyd Fricker. I love this book! It is short, funny, and gets the point across. The best part is the author has you walk through the day of a reviewer. It is common sense that whoever is reading your grant is reading 20 other proposals, hence you should get your point across clearly and quickly, but seeing it as a story is really compelling.

- *Research Proposals: A Guide to Success, Third Edition* by Thomas E. Ogden and Israel A. Goldberg. This book is outdated and describes NIH guidelines that have been phased out, but the tips the authors provide are clear, to the point, and informative. As opposed to the first book, this is more of a grant writing methodology book.

- [NIH Grant Review Process YouTube Videos](). I was new to the NIH world and these videos helped me see how grants are reviewed and what may happen as they are reviewed. I especially liked the mock study session video. I found all sorts of other information on the NIH websites; unfortunately, each division appears to post different degrees of guidance, so you have to search around.

Grantsmanship Tips

- Draft and send your letters of support to your supporters. Also, use your letters to bring across information that you couldn't bring into your grant. For example, I'm a mathematician working in a biomedical field at an institution that does not have a biomedical facility. I have drafted letters explaining how I've overridden these issues. My chair and I used her letter to explain how I publish enough for a mathematician and how this discipline-specific rate differs from biomedical research publication rates. Also, remove the burden from your collaborators: Prepare their biosketches for them using a CV, in case they do not have one prepared. All of this effort will ensure your letters and biosketches are received on time and contain quality content to support your proposal.

- Prepare all your forms (routing, budget justification, multiple PD plan) *at least* a month in advance. People tend to be on vacation when you need a signature. You also often find out there are mystery forms to prepare that you didn't anticipate, so if you save all the administrative side to the eleventh hour, you may not meet the deadline.

- Prepare a finished draft of your proposal at least two months before the deadline. Spend those last two months editing and wordsmithing.

- Use the [Adobe Read Out Loud]() feature in those last two months. There is nothing like having your writing read out loud to you to see the flaws.

- Use call out boxes, bold, and underline when you have a take-home point to articulate.

- Surprise your critical, tired, overwhelmed, and generally grumpy reviewer. Think of all the limitations of your proposal and identify them in your grant along with how you intend to address them if they come up.

- Draft your Project Summary first. Most people leave this piece for last; if you are running out of time, this portion will not read as well. Edit it over and over—it may be the only thing most reviewers read!

- Be careful to add collaborators that genuinely contribute something to your proposal and have established a collaboration with you. If you add collaborators just to pump up your grant (for example, a well-known investigator from Harvard) the reviewers will be on to you and kill your grant. Remember, they see it all!

> *"If you add collaborators just to pump up your grant… the reviewers will be on to you and kill your grant. Remember, they see it all! "*

Suggested Grant Writing Timeline

1 year	Draft your first project summary ▪ Outline what you will need ▪ Contact potential collaborators to obtain verbal agreement and share your draft project summary as an "advertisement" to get them on board ▪ Contact your program officer and share your project summary draft ▪ Let ORSP know of your intent.
6 months	You should be well on your way to having readable drafts of your proposal ▪ An outline should be in place and all the pieces of the proposal thought out.
3 months	Your draft should be close to final form ▪ Start drafting letter shells for your letter writers ▪ Prepare collaborators' biosketches if they do not have one.
2 months	Prepare your budget justification, facilities, and all other paper work related to your grant ▪ Edit, edit, edit…
2 weeks	Routing forms should be submitted ▪ Final look through by administrative personnel can be completed now ▪ People who read drafts need time! The earlier you can give them a draft, the better.

Featured Awards

Charles Du (Biology and Molecular Biology, CSAM) received a supplemental subaward in the amount of $74,892 from Rutgers University's National Science Foundation grant entitled, "TRPGR: New Reverse Genetics Resources for Maize: Production and Indexing Using Next-Generation Sequencing." This provides the investigators an opportunity to use next generation sequencing technology to analyze the maize genome. Funds from the grant are being used to support a bioinformatics server.

Eden Kyse (Center for Research and Evaluation on Education and Human Services—CREEHS, CEHS) received a contract from the Paterson Public Schools for $80,000 for the project entitled "Paterson Public Schools—District Procedural Manual." CREEHS, along with CEHS faculty, consultants, and district representatives will collaborate on the development of a District Procedural Manual for the district's Special Programs (e.g., special education, bilingual/ESL, gifted and talented). The manual will be aligned with federal and state requirements and with day-to-day best practices in the district's schools. The team also will prepare a professional development plan for training stakeholders that will use the manual (e.g., district and school administrators and staff, parents).

Robert McCormick (Center for Child Advocacy, CHSS) received a $131,702 subcontract from Rutgers University for "SHIP: Summer Housing and Internship Program 2012-2013." SHIP is a twelve-week program from May to August that offers an alternative to recipients of the New Jersey Foster Care scholarship who lack the financial, family, and social connections to secure safe and stable housing in the summer months. Students between the ages of 18 and 21 are given the opportunity to receive quality housing and paid internship positions throughout the summer months. The program provides for weekly workshops and recreational activities for the participants. This summer, the program is being extended to include MSU students.

The National Science Foundation awarded **Sandra Passchier** (Earth & Environmental Studies, CSAM) $118,937 for "The Stratigraphic Expression of the Onset of Glaciation in Eocene-Oligocene Successions on the Antarctic Continental Margin," which aims to investigate glacial advance and retreat of the East Antarctic Ice Sheet through the Eocene-Oligocene transition. The project will test the leading hypotheses about the onset of Antarctic glaciation and CO_2 thresholds.

Robert Prezant (Dean, CSAM) and **Quinn Vega** (Biology & Molecular Biology, CSAM) received a $112,137 subaward from Rutgers University for the fourth and final year of "LSAMP: The Garden State Alliance for Minority Participation." Funded by the National Science Foundation, the goal of this project is to increase the participation of African American and Hispanic students in the sciences and address the national shortage of STEM-trained professionals from underrepresented minority groups.

For More Information on Funding Sources, Submittal Strategies, Awards Management, and Much More,
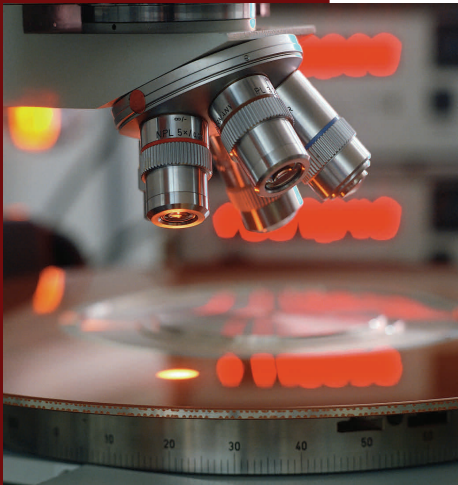
Please Visit ORSP Online at http://www.montclair.edu/orsp

Straight Talk About Indirect Costs

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What are indirect costs?

Indirect costs represent those costs that are not directly identified with a particular grant, contract, project, program, or activity, but are necessary for the general operation of the organization and the activities it performs: in essence, the costs of conducting research on- or off-campus. Practical difficulties preclude the exact assessment of project-specific costs like heat, electricity, accounting, and general administrative personnel. Therefore, indirect cost rates are used to distribute such costs back to the research infrastructure in support of common, or joint objectives. The easiest way to determine just what constitutes an indirect cost is to separate out costs that can be classified as direct. Direct costs can be identified specifically with particular cost objectives such as a grant, contract, project, function, or activity.

Typical costs usually allocated directly:

- Salaries and wages of employees working on a specific grant
- Fringe benefits allocable on direct labor employees working on a specific project
- Consultant services contracted to accomplish specific grant objectives
- Travel of employees associated with a specific activity
- Materials, supplies and equipment purchased directly for use on a specific project
- Communication costs such as long distance telephone calls or telegrams identifiable with a specific contract

Typical costs usually allocated indirectly:

- Utilities
- Telephone (general use)
- Building and equipment depreciation
- Facilities and maintenance staff
- Sponsored programs and departmental administration
- Library

How are indirect cost rates determined?

Indirect costs rates are negotiated every three years with the University's cognizant federal agency (Department of Health and Human Services for MSU). Quite a bit of effort goes into the creation and negotiation of an indirect cost rate and the calculations are complex. MSU's indirect cost rate is prepared, submitted, and negotiated by the University's Division of Finance and Treasury. MSU's current indirect cost rate is 59% of Salaries and Wages (on-campus), and 21.8% (off-campus). Off-campus rates may be justified when more than 50% of the work will be conducted at a facility off-campus. Other universities might have a Modified Total Direct Costs, or "MTDC," basis for the calculation of indirect costs, where all direct costs are charged indirect costs, excluding tuition, equipment, and subawards greater than $25,000.

References

AACE® International Certified Cost Technician™ Primer, 1st Edition – January 2011 (pg.10): http://www.aacei.org/educ/cert/cct/cct_primer.pdf

US Department of Education: http://www2.ed.gov/about/offices/list/ocfo/intro.html

Team Science

Ted Russo
*Director,
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As research problems become increasingly complex, the federal funding landscape has shifted its focus from funding primarily single investigator initiated projects, to funding a greater percentage of interdisciplinary "team" efforts. Multidisciplinary collaborations have become essential in fostering creativity and advancing scientific discovery where a unidisciplinary approach may not be best suited in approaching a particular research problem. In recent years, for example, the NIH has provided applicants the opportunity to collaborate on "Multiple-PI" projects in an effort to foster the "team science" approach. The NSF places a high priority on interdisciplinary research as well, and program solicitations have reflected this where more than one directorate may be involved.

The NIH has made available an extremely interesting and useful publication entitled *Collaboration & Team Science: A Field Guide.* This 79-page guide will be of particular interest to those researchers/investigators currently participating in team science, or those that may be considering a team science effort.

As the guide notes, team science "may not suit everyone." But it's likely at some point that a researcher will be "asked to participate on or lead a research team at some point in their careers." This guide will help investigators in navigating the potential challenges and conflicts inherent in team science and reduce some of the initial apprehension and anxiety typically experienced when embarking on a team effort.

What makes some teams successful? Why do others falter, or even fail? Working from my own experience in a research and sponsored programs environment with researchers across a wide variety of disciplines and institutions, I've come across countless scenarios at nearly all phases of a research project. Some general observations are:
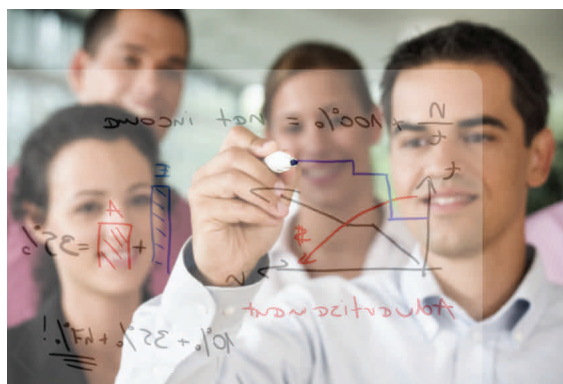
Thriving teams:
- have a proven track record of collaboration, either together or individually;
- have a level of familiarity through scholarly and professional networks;
- communicate frequently;
- foster trust and mutual respect;
- freely and willingly share data and results;
- often share physical proximity; and
- share the same level of commitment to a particular issue/problem.

Struggling teams:
- have little initial familiarity with each, or are borne out of need for a "quick fix" in response to an RFP with a fast approaching deadline;
- exhibit, or develop over time, a lack of trust and respect;
- are more hesitant to share data and discuss the results of their research;
- often show large geographic separation (less important with technological advances);
- are teams where the lead PI is not adept or proactive at handling conflict;
- are teams in which the PI did not spell out other team members' roles/responsibilities from the outset; and
- do not address how disagreements will be handled; e.g., sharing of credit, final technical reporting, funding and resource allocation.

Of course, I would more often hear about those teams that were having difficulties, than about those that were thriving. The vast majority of issues that arose—either administrative, technical, or personal—were resolved to the mutual satisfaction of all concerned. However, there were infrequent times where a mutual "parting of ways" was the only course. That outcome might have been avoided had the parties afforded themselves with the knowledge of successful team collaboration. I highly encourage those interested in "team-science" to take advantage of the NIH Guide and the links/resources provided below:

Collaboration & Team Science: *A Field Guide*, by L. Michelle Bennett, Howard Gadlin, and Samantha Levine-Finley.

http://www.teamscience.net/

One Report for All (Well, Almost All)

Catherine Bruno
Post-Award Officer, ORSP

> "Principal investigators know too well that a proposal submission deadline is not the last deadline they'll face."

Reports, reports, reports! Principal investigators know too well that a proposal submission deadline is not the last deadline they'll face. Once a grant is awarded, the race to meet deadlines continues with submitting technical progress reports. Those PIs that have several awards from various sponsors not only have to manage multiple report deadlines, but also have to navigate agency specific templates and formats which can become cumbersome and time-consuming.

Thankfully, federal sponsors have felt our pain and created the Research Performance Progress Report (RPPR) which streamlines and standardizes reporting across several federal agencies that fund research. The RPPR is comprised of two major categories:

- **Mandatory Category**: Accomplishments. What was done? What was learned?
- **Optional Categories**:
  - Products: What has the project produced?
  - Participants & Other Collaborating Organizations: Who has been involved?
  - Impact: What is the impact of the project? How has it contributed?
  - Changes/Problems
  - Special Reporting Requirements (where applicable)
  - Appendix 1: Demographic Information for Significant Contributors

Each participating agency has the flexibility to decide which of the optional categories they would like PIs to report on. It's important to note that the agencies *cannot* unilaterally decide to add another category. Adding of a category would require them to get approval from the Office of Management and Budget.

PIs will prepare and submit RPPRs via Research.gov, which is the next generation and modernization of NSF's FastLane system. PIs will log onto Research.gov with their FastLane login and password and gain access to their personal Project Reporting Dashboard that will list all their reports in one place, indicating when each report is due.

Some of the benefits of the RPPR and Research.gov are a new government-wide template, a rich text editor that will allow PIs to include scientific characters and images, structured collection of data, and allowing of PDF upload of images, graphics, etc.

Some of the agencies that have agreed to use the RPPR include:

- Department of Health and Human Services/NIH (and Other PHS Agencies)
- Department of Defense
- Department of Education/Institute of Education Sciences
- EPA
- NASA
- NSF
- USDA
- Forest Services
- NIFA

NSF has been designated as the lead agency in developing the RPPR and Research.gov. NSF awardees must stop submitting project reports in FastLane starting on February 1, 2013. On March 18, 2013, the NSF will completely transfer all project reporting from FastLane to Research.gov. PIs will log on to Research.gov to submit all their project reports (i.e., Annual, Final, Project Outcomes).

To learn more, go to Research.gov. As always, ORSP is here to help!

Do I Have a Monetary $take in My Research?

Hila Berger
Compliance Administrator, Academic Affairs

"No" or "I don't believe so" are the common responses. You will be asking yourself this question at the time you submit and/or receive a sponsored award. This is due to the new Financial Conflict of Interest Policy MSU created to address the requirements put forth by the Public Health Service, which includes the NIH. More specifically, the policy requires institutions to create a monitoring, training, and tracking system that promotes objectivity in research by establishing standards that ensure the design, conduct, and reporting of research sponsored grants or cooperative agreements will be free from bias resulting from financial conflicts of interest.

It may be in your best interest to take a closer look at your business relationships or engaged partnerships before you quickly reply "No" on the required Disclosure Form.

These are some fictional yet applicable scenarios to consider...

Scenario 1

You hold a patent in a speech recognition device. The proposal you are writing will allow you to advance the current technology. You plan to collaborate with a for-profit company, Z-Speech, that is very excited to see you applying for additional research in this area. They are also potential investors in licensing a new product. You are invited to speak at their annual shareholders conference in California "all-expenses paid," including coverage of your travel expenses and a $3,000 speaking honorarium.

This type of activity would be considered a Significant Financial Interest and should be reported at the time of proposal submission to ORSP. The Designated Official will then determine if this is a Financial Conflict of Interest and contact you to provide a course of action.

Scenario 2

You have been consulting for the last three years to Research Enterprise Organization on drug development. You earn on average $6,000 in remuneration directly from Research Enterprise Organization. You are in the process of preparing a proposal to NIH which would involve similar areas of research and expertise. Research Enterprise Organization is not involved in the proposal. At the time of proposal this relationship is considered reportable as a Significant Financial Interest that has the potential for influencing the design, conduct, and reporting of research.

Scenario 3

You are a researcher currently funded by Google for a research award in health disparities. During the holidays your wife is gifted with stock in Google, valued at $7,000. You are required to report this new Significant Financial Interest on the MSU forms and it will be reviewed by the Designated Official.

Vetting Funders: Doing Your Homework Pays

- **Know the agency's organizational structure** e.g., National Institute of Environmental Health Sciences: http://www.niehs.nih.gov/about/orgchart/index.cfm
- **Know the agency's programs** e.g., Institute of Education Sciences: http://ies.ed.gov/funding/
- **Understand the difference between solicited and unsolicited proposals and which the sponsor prefers or requires**

   A **solicited proposal** is one that is submitted in response to a specific work statement from the sponsor. A Request for Proposals (RFP) or Request for Applications (RFA) is sometimes used by sponsors to solicit proposals for specific research, development, or training projects or to provide specific services or goods. The RFP or RFA generally includes standard terms, conditions, and assurances that the institution is asked to accept.

   An **unsolicited proposal** is initiated by the applicant and submitted according to the sponsor's broad guidelines. The funding arrangement for unsolicited proposals is usually a grant.

- **Review the summary of previous awards (if available)** e.g., Environmental Protection Agency Green Chemistry Program: http://www.epa.gov/greenchemistry/pubs/pgcc/past.html
- **Know your program officer and division director, and communicate with them** e.g., National Aeronautics and Space Administration: http://science.nasa.gov/researchers/sara/program-officers-list/
- **Participate in workshops, if offered**
- **Serve on panels, if possible** e.g., National Science Foundation: http://www.nsf.gov/bfa/dias/policy/meritreview/reviewer.jsp
- **Read lots of sample proposals**

UPDATE: NSF Grant Proposal Guide

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The National Science Foundation (NSF) updated several key policies, guidance, and procedures impacting proposal development and merit review. As of January 14, 2013, the changes described below have taken effect. For a complete list, visit NSF's GPG Summary of Changes page.

Select Highlights:

- **Project Summary:** FastLane has been modified to display three separate text boxes (up to 4,600 characters total) in which proposers must provide an "Overview" and address the "Intellectual Merit" and "Broader Impacts" of the proposed activity (still within one page).

   Only proposals with special characters may upload the Project Summary as a PDF, with the same sections: "Overview," "Intellectual Merit," and "Broader Impacts."

- **Project Description:** Proposals must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities.

   If a proposer has a project previously funded by NSF (within the last five years), you must describe the Intellectual Merit and Broader Impact of the funded activities as two separate sections in the "Results from Prior NSF Support" section.

- **Biographical Sketch:** The "Publications" section has changed to "Products," making clear that products may include, but are not limited to, publications, data sets, software, patents, and copyrights. Proposers are limited to five products most closely related to the proposed project, and up to five other significant products.

- **Budget:** If no person months and no salary are requested for senior personnel, they should be removed from the budget and budget justification (consistent with NSF's prohibition of including voluntary committed cost sharing).

- **Facilities, Equipment and Other Resources:** This section has been supplemented to indicate that an aggregated description of the internal and external resources that are, or will be available to the project (both physical and personnel) should be provided. A new format for submission of the Facilities, Equipment and Other Resources information will be available in FastLane.

   Note: Proposers should not include any dollar amounts, costs, or dates of acquisition for facilities, equipment, and other resources. These figures can be interpreted as cost-sharing which is unallowable by the NSF.

- **Merit Review Principles and Criteria:** Clarification of the review process for proposers and that further standardizes how peer reviewers score proposals. The changes include:
   - update to the Three Guiding Merit Review Principles;
   - revision to Broader Impacts description and implementation; and
   - Review Criteria (Intellectual Merit/Broader Impacts) will be guided by five Core Principles to be utilized by peer reviewers during review.
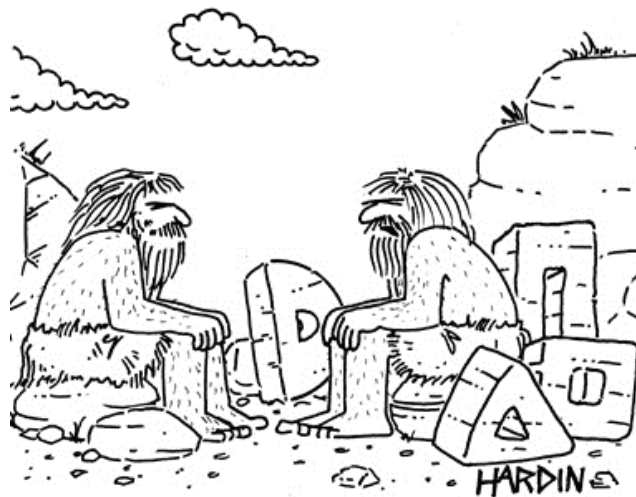
"I was close to a breakthrough when the grant money ran out."

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