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Where NSF is Going & How It Will Get There

If you want to understand the continuously evolving vision, culture, mission, and hence investment priorities, of the National Science Foundation, which you do because it is a key factor in your competitiveness at that agency, it helps to recognize the IGERT as a microcosm of the agency. Both NSF and IGERT (Integrative Graduate Education and Research Traineeship) have evolved dramatically over the past several years and share a focus on transformative, interdisciplinary research and graduate education that occurs at disciplinary boundaries and intersections rich with the potential for technology development, innovation, and commercialization.

If you want to peek into the soul of NSF, so to speak, you need go no further than to the IGERT 2012 Annual PI Meeting held two weeks ago (May 30-June 1, 2012). The one-hour Welcome Session (video download at above URL) given by Subra Suresh, Director of the National Science Foundation, Joan Ferrini-Mundy, Assistant Director, Directorate of Education and Human Resources, and Ram Ramasubramanian, IGERT Program Director, represent one of the best 60-minute investments you could make in decoding the NSF vision for research and education in the university environment, particularly the OneNSF environment where, as Suresh observed, “boundaries are porous” and NSF “is benchmarking to a global research environment.”

Suresh delivers most of the 60-minute presentation followed by a Q&A session with IGERT PIs. His comments represent a roadmap of NSF’s future landscape—where it is going, why it is going there, how it will get there, and the singular role of university research and education in that process.

Other presentations available at the meeting website for download include the keynote address, “Creating an Innovation Ecosystem.” Understanding NSF’s view of the role of innovation will be a key competitive factor in many program areas at that agency, including the new NSF Innovation Corps (I-Corps) designed to guide promising research with commercial potential out of university laboratories. Also see NSF Director Subra Suresh’s talking points on NSF’s Innovation Corps.

Other presentations that address some of the key programmatic areas at NSF include the following (see 2012 IGERT Annual Meeting Technical Session IV Abstracts):

Session IV: Technical Science Presentations
- View Climate, the Environment, and Ecology Presentations
- View Bioinformatics and Bioengineering Presentations
- View Nanoscience and Materials Science Presentations

Session XI: Breakout Sessions
- View Energy and Sustainable Development Presentations
- View Cognitive, Social, and Economic Science Presentations
Research Development & Grant Writing News

- View Computation, Sensing, and Devices Presentations

Collaboration Networks
- Griffin Weber, CTO, Harvard Medical School

However, it is the Suresh overview of NSF at the IGERT PI conference that offers a broad description of that agency at the intersection of a new era in science, one in which NSF invests in “two buckets”: (1) observation (theory, experiment, computation, and “citizen science”; and (2) data and information (provides the infrastructure for new knowledge).

The value in the Suresh comments also lies in gaining a more nuanced understanding of the NSF transdisciplinary culture (e.g., Creative Research Awards for Transformative Interdisciplinary Ventures). For example, one common struggle in developing and writing proposals to NSF for the many programs that require an integration of the physical sciences with the social and behavioral sciences lies in integrating those research components to demonstrate synergy and value-added benefits. In many cases, the engineering and science and the social and behavioral science components of research grants requiring attention to societal dimensions or societal impacts are poorly integrated, appearing to be siloed sections of the proposal rather than descriptions of truly integrated disciplines. This failure to integrate can often be the Achilles Heel of proposals seeking funding.

In addressing the need for research partnerships between the physical and social sciences, Suresh cited the case of the Center for Analysis and Prediction of Storms (CAPS) established at the University of Oklahoma in 1989 as one of the first 11 National Science Foundation Science and Technology Centers, CAPS’ mission was and remains the development of techniques for the computer-based prediction of high-impact local weather, such as individual spring and winter storms. Suresh recalled a conversation with the CAPS director where Suresh noted that, after 25 years of NSF funding, people were still dying in Oklahoma from tornadoes. The director’s response, Suresh noted, captured the essence of why NSF believes that science and engineering research will fall short of exercising its fullest impact without the involvement of the social, behavioral, and economic sciences.

Suresh paraphrased the director’s response: “It is not the inability to predict tornadoes that causes deaths so much as the inability to predict people’s responses to warnings of tornadoes.” Anyone who has worked on an NSF proposal struggling to capture the synergy sparked at the intersection of the physical and the social sciences will recognize the crisp insight of this remark that conveys the urgency of achieving an integrated rather than a siloed narrative.

Other comments by Suresh related to what might be called the NSF engagement in transagency funding partnerships, including Suresh’s meetings with all the NIH CI directors and Secretary of Education Arnie Duncan.
Decoding reviews of proposals not funded is familiar territory for anyone who writes proposals, or supports those who do. In some cases, reviewing the reviews may seem as challenging as decoding the Rosetta Stone, an ancient Egyptian granodiorite inscribed with a decree appearing in three different scripts, including two in Ancient Egyptian hieroglyphs and one in Ancient Greek. Peering intently into the reviews of your declined proposal may not be as perplexing as it was for archeologists attempting to decipher the Rosetta Stone, but at times it may seem that your reviews were written in ancient scripts nonetheless. While this Rosetta-like experience may not be the norm in understanding reviews, the process of correctly interpreting reviews is often one sufficiently infused with uncertainty to make the task of deciding whether or not to rewrite and resubmit a proposal a difficult one. However, keep in mind that reviews are secular and not divine documents, and so the various principles of author inerrancy that apply in the latter case will not apply in the former, to-wit, reviewers can be wrong, but be very cautious and thoughtful in coming to this conclusion.

You might begin by assuming that the quality of reviews resembles a bell curve, not unlike the quality of submitted proposals being distributed among the five common ranking points of poor, fair, good, very good, and excellent. In this case, i.e., where some reviewers do a good job and others, well, not so good, the author of a declined proposal, or those assisting the author in interpreting the reviews, must learn the somewhat imperfect art of “reviewing reviewers” and characterizing or assigning a value weighting scheme to the reviewers’ comments, perhaps the same five-point value assignment used in ranking proposals.

In this process of characterizing reviews, don’t assume a reviewer’s credibility just because the review favors your proposal, nor should you assume a reviewer’s blame when the review criticizes your proposal. In the former case, for example, you might be suspicious if the lone excellent review on a declined proposal is represented by little more elaboration than a check mark on “excellent” and a few brief and very general favorable statements. In the latter case, by contrast, seriously consider taking to heart the comments by a reviewer who rates your proposal as “poor” or “fair”, but accompanies that sobering judgment with extensive comments that are thorough, insightful, and instructive. A review of “poor” by an excellent reviewer can be a gift, whereas an “excellent” review with no substantive elaboration is of little value on a declined proposal.

Of course, rating reviewers is not really about characterizing their performance, so you can either praise or grouse about them, although the latter can be an alluring thought at times. The real purpose is to help you better understand the weight to give reviewers’ comments, essentially determining the credibility of each reviewer’s comments as input to your decision whether or not to prepare a resubmission, as well as to identify the revisions that should be made to ensure a competitive resubmission.
Minimalist reviews, regardless of ranking or score given, can be problematic as input to revising and resubmitting a declined proposal for the next grant cycle, assuming one exists. Because they are brief and generally non-specific, minimalist reviews are ambiguous in many ways, leaving you to ponder whether or not the reviewer actually gave your proposal a close and thoughtful read, or, for some unknown reason, was not able or willing to offer more substantive comments on the strengths and weaknesses of your research narrative. Any reviewer-assigned ranking of your declined proposal, e.g., whether “fair” or “excellent,” not accompanied by sufficient comment to justify the ranking will likely prove of little value in determining your revision and resubmission strategy.

By comparison, the “ideal reviewer” takes a sufficient interest in your research narrative to offer a thorough and knowledgeable explication of your proposal’s weaknesses and strengths. The ideal reviewer will accompany a ranking or score with clear and specific details that address both the weaknesses and the strengths of your declined proposal. Ideal reviewers can offer valid roadmaps to help you revise and resubmit a more competitive research narrative. Fortunately, odds are favorable that out of perhaps five reviewers, at least one and likely more will at least approximate the ideal reviewer. Specificity, details, and rationale in reviews is just as important as they are in a successful research narrative.

The key to finding value in reviews given a declined proposal is to judge reviewers not on how well or how poorly they ranked your proposal so much as whether the reviewer has supported that ranking by sufficiently insightful, knowledgeable, and thorough comments clearly illuminating both the weaknesses and strengths of your proposal. In one way, your task is to judge the significance and relevance of the reviews of your proposal relative to preparing a competitive resubmission just as the reviewers will judge the significance and relevance of your proposed research to the funding agency mission.

But keep in mind that reviewing proposals is not a perfect process, and that reviewing the reviewers is just one way among many to discover the reasons for a declined proposal that will allow you to make an informed decision on how best to correct identified weaknesses and amplify identified strengths for a resubmission.

Of course the other key question in a resubmission relates to how much or extensively the original research narrative in a declined proposal needs to be revised based on reviews, among other factors. The hopeful response by the harried PI of a declined proposal might be “as little as possible.” However, it may often be the case that the entire proposal should be re-written for a resubmission.

Several factors support this response, not the least of which is that integrating revisions of an old narrative with a new research narrative text written in response to review comments will be hampered by the structural rigidity of the logic, sequencing, and transitions of the original narrative. Moreover, it is likely that a year has passed between the submission of a declined proposal and the due date for a resubmission. During that intervening year, it is reasonable to assume that the PI has significantly advanced the original research from what was proposed a year ago, or more. It would not be a good competitive indicator should the research remain static over that period of time. In fact, given a year’s time to advance the research, the PIs of a resubmission of a declined proposal should be much better and more
competitive than at the time of the original submission—in effect, they should have become more mature researchers.

Given this, a comprehensive rethinking of the proposal may be in order for a resubmission. If that is the case, it will require a rethinking of the narrative structure to accurately reflect the research and the arguments, logic, and specificity used to persuasively describe it. Rather than end up with a revised research narrative that reads like a patchwork quilt or a proposal mimic of a Rube Goldberg device, optimize the competitiveness of your resubmission by starting anew from Word 1 to Word N and write an entirely new research narrative for the resubmission to ensure a seamless integration of all the new factors that have developed over the intervening year since the original submission, including the reviewer comments and, particularly, to reflect your significant growth as a researcher during that period.
Introduction

Writing grants related to education often requires becoming familiar with funding opportunities available across multiple federal funding agencies and foundations. Moreover, faculty with an interest in education-related research and institutional programs come from a broad spectrum of colleges, departments, and academic disciplines, including, for example, colleges of agriculture, education, engineering, geosciences, liberal arts, science, and veterinary medicine, among others.

Faculty from these colleges may find both research and programmatic funding opportunities from such agencies as the U.S. Department of Education (ED) and the National Science Foundation, as well as from USDA/NIFA, DoD (Navy, Air Force, and Army BAAs), DOE, NOAA, NASA, EPA, NEH, etc. A broad range of education-related funding opportunities exists at foundations, from major national foundations to smaller regional foundations, where education may be one of the mission focus areas. Some foundations, such as the William T. Grant Foundation, Spencer Foundation, and the Arthur Vining Davis Foundations, have established a mission focus on education.

However, this large universe of education-related research and programmatic funding is really an aggregate of numerous smaller education-related sub-domains funded by many agencies and foundations, all representing multiple and often divergent missions, both specific to an agency and distributed among them. In other instances, federal agencies and foundations may have shared or complementary mission priorities related to education, or may even promote transagency programmatic partnerships.

Transagency STEM Education Partnerships

Take, for example, an excerpt from the recent (May 14, 2012) NSF Dear Colleague Letter - Request for ideas about a Mathematics Education Initiative: “NSF in cooperation with the U.S Department of Education (ED) is interested in input that can inform new activities and programs to support and improve K-16 mathematics education. The fiscal year 2013 budget to Congress proposes a jointly administrated K-16 mathematics education initiative funded by $30 million from NSF and $30 million from ED. This funding will create a dual-agency initiative on mathematics education that will combine the strengths of NSF and ED to stimulate needed research and development in mathematics education and the use of successful practices and innovations at scale.” This request clearly presents a strategic planning opportunity for both individual faculty and research offices. Both offering input by July 1 and tracking outcomes on the priorities and challenges requested and identified by NSF/ED with this DCL can put you in a more competitive position for responding to the anticipated solicitations.
In this case, these two agencies have some intersecting domains of common interest, as represented by the NSF DCL, but in most instances, these two agencies are very distinct with respect to both mission and culture. However, both NSF and ED are typically major funders of education research and education programs at universities, both to individual faculty and to what might be considered institutional grants. In the latter case, these often relate to institutional capacity building programs of various sorts. For comparison, see the three graphics at the end of this article from the April 10, 2012 presentation, “Successful K-12 STEM Education” by Dr. Joan Ferrini-Mundy, Assistant Director, National Science Foundation, Education and Human Resources, specifically (1) Federal STEM Education Investments by Agency (3.44B), (2) DoED Investments in Stem by Objective; and (3) NSF Investments in STEM by Objective. It is important to keep in mind that, while NSF and ED share a few intersecting or complementary educational domains, these intersections typically relate to K-12 STEM teaching and learning.

Furthermore, the topic area of K-12 STEM education currently cuts across most federal research agencies in some way, including STEM workforce education at many of the federal mission agencies, e.g., NOAA, NASA, DoD, etc. See the three pie charts at the end of this article for STEM education investments by agency. Keep in mind, however, that K-12 STEM education comprises only a subset of federal agency and foundation funding for education overall, albeit a very large subset. See Identifying Successful STEM Education and the downloadable National Research Council report on this topic; prepublication copies of Discipline-Based Education Research: Understanding and Improving Learning in Undergraduate Science and Engineering are available from the National Academies Press.

Education Programs at NSF

The integration of research and education is an agency-wide theme at NSF, often linked to the Broader Impacts overarching review criterion. However, many core education programs are funded from Research on Learning in Formal and Informal Settings (DRL) in the Directorate for Education and Human Resources.

U.S. Department of Education

A comprehensive listing of ED programs can be found in ED’s Guide to Programs. However, university researchers will most likely focus on writing ED discretionary grants. The ED awards these grants using a competitive review process rather than a preexisting formula (aka formula grants). University faculty or other university-eligible PIs will respond to discretionary grant programs at ED (more). Eight principal offices administer the discretionary grant programs. For example, the Office of Postsecondary Education (OPE) formulates federal postsecondary education policy and administers programs that address critical national needs in support of postsecondary education. It does this through two major components: Higher Education Programs (HEP) and International and Foreign Language Education (IFLE). Another key ED office is the Institute for Education Research (more on IES below). Descriptions of these programs, as well as applications and guidelines, can be found in the grants overview. A listing of Discretionary Grant Application Packages currently open can be found here. Upcoming
grants can be found at [Forecast of ED Funding Opportunities](#) organized by the eight principal offices. A complete list of ED programs can also be found at the [Catalog of Federal Domestic Assistance](#), arranged by Agency.

In particular, it is very helpful to identify how the competitive grants process at ED may differ from other federal agencies with which you are familiar as funders of your research, especially with respect to the structure of the proposal project description and the review criteria and process. See the ED publication [Answers to Your Questions About the Discretionary Grants Process](#), 2010, an overview of the discretionary grants process for new and experienced grant seekers (formerly called “What Should I Know about ED Grants”).

[Institute for Education Research](#) (IES) is the research arm of ED. IES’s mission is to provide rigorous and relevant evidence on which to ground education practice and policy and to share this information broadly. By identifying what works, what doesn’t, and why, IES aims to improve educational outcomes for all students, particularly those at risk of failure. A list of currently open IES grants appears in a table below. The IES website offers a comprehensive overview of funding opportunities and webinars, workshops, and reports to help researchers better compete for funding. Key examples of information are given below; these are particularly relevant to young investigators, among others.

IES considers unsolicited applications for research, evaluation, statistics, and knowledge utilization projects that would make significant contributions to the mission of the Institute. The Institute’s mission is to conduct and support rigorous education statistics, research, and evaluation in order to provide reliable information about the condition of education, education practices that improve academic achievement, and the effectiveness of federal and other education programs, policies, and practices. Unsolicited applications are defined as those ineligible (i.e., not a good match) for funding under the Institute’s current grant competitions.

**How ED Reviews Your Application for Funding**

For the majority of ED’s grant competitions, program offices recruit application reviewers from outside who have expertise in the subject area of the grant program for which the applications were submitted. However, for some competitions, program offices may use employees or contractors of ED, or employees of other federal agencies, to serve as reviewers. In general, however, ED screens applications to ensure that they meet all the requirements of the program and assign applications to reviewers. Reviewers read and independently score each application assigned to them. After the reviewers score the applications, the program staff carries out an internal review to ensure that the reviewers’ scoring sheets are correctly completed.

Reviewers score each application against the selection criteria stated in the notice or application package. In reviewing applications, reviewers are not permitted to use other criteria or consider any information that is not in the application. ED typically averages the scores given by all those who reviewed an application. It uses the average score for each application to determine its rank order among all the eligible applications.
reviewed. After checking the applications, reviews, and related documents for completeness, the program staff conducts a series of steps to determine the applicants to be funded. The steps are as follows:

- Develop a rank order list from the panel scores for each application.
- Determine how many applications can be funded with the available appropriations.
- Perform a cost analysis on those applications that can be considered for funding. The cost analysis is done to determine whether the proposed costs of an applicant’s budget are allowable. In addition, program staff members review the narratives and budgets to ensure that costs apply to the activities and objectives of the project. All unallowable costs are deleted from the budget. During this stage, program staff may contact applicants for clarifying information.
- Create a formal list, called a “slate,” of the applications recommended for funding and the recommended funding level for each application.
- Forward the slate to the principal officer of the program office for approval. In making the final funding decisions, the principal officer may consider information in addition to the information in the application, such as an applicant’s past performance on a U.S. Department of Education grant.
- Issue award notices to the successful applicants.

No particular score guarantees funding. Even if an application ranks high, it may not be funded. ED may be unable to fund all high-scoring applications because of the large number of high-quality applications submitted and the set level of funds that Congress appropriates for a program. In addition, high-scoring applications may not be funded because a program may establish a geographic distribution requirement limiting the number of grants awarded to specific regions of the country. Some applications may not be funded because of an applicant’s poor performance in the past on other federal projects.

Foundations with an Education Focus (three of many)

In terms of foundation funding, as mentioned, the William T. Grant Foundation, Spencer Foundation, and the Arthur Vining Davis Foundations are mission-focused funders of education programs. In particular, they offer education-related funding opportunities to faculty in colleges of education and human development, or in such disciplines as sociology, psychology, and other social and behavioral sciences that have disciplinary intersections with education.

The research interests of the William T. Grant Foundation, for example, are in “understanding and improving social settings such as families, schools, peer groups, and organizations, and studying how these social settings affect youth.” The foundation focuses “on when, how, and under what conditions research evidence is used in policy and practice that affect youth, and how its use can be improved.” The foundation accepts investigator-initiated grants three times a year, funds two fellowship programs, and issues RFPs that align with the foundation’s interests. Current RFPs focus on the measurement of classroom quality and the use of research evidence in policy and practice.
The mission-focused research interests of the Spencer Foundation are advanced by awarding research grants and fellowships and by strengthening the connections among education research, policy, and practice through its communications and networking activities. The foundation's research grants are organized under four areas of inquiry that identify broad topics of fundamental and abiding importance for educational improvement.

- The Relation between Education and Social Opportunity
- Organizational Learning in Schools, School Systems, and Higher Education Systems
- Teaching, Learning, and Instructional Resources
- Purposes and Values of Education

Moreover, the Spencer Foundation is open to the possibility that someone may have a terrific idea for worthwhile research that does not fit easily into even these broad categories. In such cases, the foundation will entertain “field-initiated,” or unsolicited proposals. In a field-initiated proposal, the foundation advises that you address explicitly how your proposed study aligns with the foundation's mission of research toward educational improvement. The foundation’s reviews will determine whether the field-initiated proposal promises to advance the foundation’s purposes more effectively than research the foundation can fund in one of the four declared areas of interest.

The Arthur Vining Davis Foundations historical emphasis on education addresses how carefully targeted, thoughtful funding can contribute to strengthening education in grades 9 - 12. In order to concentrate efforts in this broad area, it awards grants for innovative professional development programs that strengthen teachers and their teaching in grades 9-12. In considering proposals to support high school teaching, the foundations encourage sustained partnerships between the faculties of colleges (e.g., arts and sciences and education) and school districts, or collaborative efforts involving reform organizations, colleges/universities, and high schools. Proposals may cover a wide range of initiatives intended to improve teaching. For example, projects might be designed to improve professional development for in-service and pre-service teachers, strengthen teaching skills, support practical research in teacher and high school education, or encourage innovative use of technology and new techniques for presenting classroom materials in high schools.

Links to Education Funders:
- U.S. Department of Education (ED)
- Institute of Education Sciences (ED/IES)
- National Center for Education Research (IES/NCER)
- National Science Foundation
- William T. Grant Foundation
- Spencer Foundation
- Arthur Vining Davis Foundations
- Russell Sage Foundation
- Alfred P. Sloan Foundation
- Ford Foundation
- Foundations for Education Excellence (Foundation Center)
Things to consider when seeking federal agency funding:
- What types of education research and programs does the agency fund?
- What is the agency mission?
- What is the agency culture?
- What is the agency trying to accomplish with the program, or suite of related programs?
- How are proposals reviewed?
- Who makes the funding decisions?
- What is the role of the program officer in funding decisions?

Things to consider when seeking foundation funding:
- Learn about the foundation and its mission.
- Talk to the Program Officer. The Program Officer can often have a large influence on the types of projects funded.
- Investigate what the foundations have funded in the past.
- Identify the agenda of a foundation.
- Understand that a foundation’s mission can change.
- Learn the type of proposal the agency wants to receive. The Program Officer may not want to see a full proposal at first. The PO may want to review a preliminary proposal, including a detailed abstract with a preliminary budget and performance timeline.
- If a proposal is rejected, do not resubmit without clear encouragement to do so.
DoED Investments in STEM by Objective

NSF Investments in STEM by Objective
Overview

Similar to DARPA and ARPA-E, the mission of IARPA (Intelligence Advanced Research Projects Activity) is to **invest in high-risk/high-payoff research programs** that have the potential to provide the U.S. with an overwhelming intelligence advantage over future adversaries. However, the agency offers the following caveat: “**high-risk/high-payoff is not a free pass for stupidity**”. The goal is to bring the best minds to bear on problems through world-class program managers (PMs). **IARPA will not start a program without a good idea and an exceptional person to lead its execution.**

Dr. Peter Highnam became the Acting Director of IARPA on May 14, 2012. He joined IARPA in February 2009 as the Office Director for Incisive Analysis. Prior to IARPA, Dr. Highnam was a senior advisor in the National Institutes of Health (NIH) and then in the Biomedical Advanced Research and Development Authority (BARDA). From 1999 to 2003, Dr. Highnam was a DARPA program manager with programs in electronic warfare and airborne communications. Before joining DARPA, he worked in applied research in industry. Dr. Highnam has a Ph.D. in computer science from Carnegie Mellon University.

**U.S. Academic Institutions**

According to Executive Order 12333, as amended, paragraph 2.7, —Elements of the Intelligence Community are authorized to enter into contracts or arrangements for the provision of goods or services with private companies or institutions in the United States and need not reveal the sponsorship of such contracts or arrangements for authorized intelligence purposes. **Contracts or arrangements with academic institutions may be undertaken only with the consent of appropriate officials of the institution.**

**It is highly recommended that offerors submit with their proposal a completed and signed Academic Institution Acknowledgement Letter for each participating U.S. academic organization that is a part of their team,** whether the academic organization is serving in the role of prime, or a subcontractor or consultant at any tier of their team. A template of the Academic Institution Acknowledgement Letter is enclosed [in the relevant BAA] [BAA at Appendix B]. **It should be noted that an appropriate senior official from the institution, typically the President, Chancellor, or Provost, or other appropriately designated official, must sign the completed form.** Although not required for the proposal, this Letter must be received before IARPA can enter into any negotiations with any offeror when a U.S. academic organization is part of its team.
Research at IARPA

The key to research success at IARPA can be found in their paraphrasing of the “Heilmeier Catechism” in IARPA BAAs, a set of questions posed by George Harry Heilmeier, former Chief Technology Officer at Texas Instruments, that must be clearly answered by anyone proposing a research project (more):

- What are you trying to do?
- How does this get done at present?
  - Who does it?
  - What are the limitations of the present approaches?
  - Are you aware of the state-of-the-art and have you thoroughly thought through all the options?
- What is new about your approach?
  - Why do you think you can be successful at this time?
  - Given that you’ve provided clear answers to bullets 1 & 2, have you created a compelling option?
  - What does first-order analysis of your approach reveal?
- If you succeed, what difference will it make?
  - Why should IARPA care?
- How long will it take?
  - How much will it cost?
  - What are your mid-term and final exams?
  - What is your program plan?
  - How will you measure progress?
  - What are your milestones/metrics?
  - What is your transition strategy?

Technical and programmatic excellence are required for IARPA. Each Program will have a clearly defined and measurable end-goal, typically 3-5 years out. Intermediate milestones to measure progress are also required. Every Program has a beginning and an end. A new program may be started that builds upon what has been accomplished in a previous program, but that new program must compete against all other new programs.

This approach, coupled with rotational PM positions, ensures that

- IARPA does not “institutionalize” programs
- Fresh ideas and perspectives are always coming in
- Status quo is always questioned
- Only the best ideas are pursued, and only the best performers are funded.

Moreover, the “P” in IARPA is very important. The Intelligence Advanced Research Projects Activity invests in high-risk, high-payoff research programs with the potential to provide the United States with an overwhelming intelligence advantage over future adversaries. IARPA tackles some of the most difficult challenges across the intelligence agencies and disciplines, and results from its programs are expected to transition to its IC
customers. **IARPA does not have an operational mission and does not deploy technologies directly to the field.**

There are three cutting-edge offices within IARPA:

- **Office of Incisive Analysis.** The goal of the programs in this office is to maximize **insight** from the information collected, in a **timely** fashion.
  - Advanced tools and techniques that will enable effective use of massive volumes of multiple and disparate sources of information.
  - Innovative approaches that dramatically enhance the analytic process.
- **Office of Safe & Secure Operations.** The goal of the programs in this office is to be able to counter new capabilities implemented by adversaries that could threaten our ability to operate freely and effectively in a **networked** world.
- **Office of Smart Collection.** The goal of the programs in this office is to dramatically improve the **value** of collected data from all sources.
  - Innovative modeling and analysis approaches to identify where to look and what to collect.
  - Novel approaches to access.
  - Innovative methods to ensure the veracity of data collected from a variety of sources.

**How to engage with IARPA**

- **Website:** [www.iarpa.gov](http://www.iarpa.gov)
- Reach out to a PM or an Office Director (OD). Contact information is on the website.
- Schedule a visit if you are in the DC area, or invite us to visit you.
- Opportunities to Engage: Program BAAs.
- Proposers Days are a great opportunity to learn in advance what is coming, and to influence the BAA.
- Proposals are typically due 45-60 days after the BAA is published in order to be considered for the first round of evaluation, but most are open for a year.
- Read carefully. Follow instructions. Read posted Q&As and send Qs if you don’t understand something. **Watch for amendments.**

**IARPA Office-Wide BAAs for “Seedlings”**

- “Seedlings” are typically 9-12 months in duration. Intended to flesh out an idea to determine whether a full program is warranted.
- Each Office has one. Open year round. New topics get added periodically.
- Contact a PM or OD before submitting an abstract or proposal.
- **Requests for Information** (RFIs) often lead to workshops and ultimately programs and offer the opportunity to provide input as a PM is thinking about a new program. There are currently two open IARPA RFIs.
Download pdf of Open IARPA Solicitations

A full listing of currently open IARPA solicitations can be found [here](#). The below example taken from a currently open BAA represents the generic process of responding to an open BAA, including information on the core technical and scientific interests specific to the BAA, how to engage IARAP on questions related to the BAA, writing the abstract and proposal, and the review criteria.

**IARPA Incisive Analysis Office Wide Broad Agency Announcement (BAA)**

This announcement seeks research ideas for topics that are not addressed by emerging or ongoing IARPA programs or other published IARPA solicitations. It is primarily, but not solely, intended for early stage research that may lead to larger, focused programs in the future, so periods of performance will generally not exceed 12 months.

*In order to avoid the preparation and review of proposals poorly aligned with IARPA’s mission*, and therefore unlikely to be selected for negotiation for award, offerors are strongly encouraged to schedule teleconferences via electronic mail, with IA Program Managers. The technical areas of interest of IA Program Managers and their contact information can be found on our web page [http://www.iarpa.gov/office_incisive.html](http://www.iarpa.gov/office_incisive.html). Furthermore, *it is recommended that the first formal document submitted to IARPA be a five-page abstract describing the proposed research*. IARPA will review it and provide comments which may be useful if the offeror decides to prepare a full proposal.

Offerors are strongly encouraged to read the “Intelligence Advanced Research Projects Activity’s (IARPA) Approach to Managing Organizational Conflicts of Interest (OCI)”, found on IARPA’s website at [http://www.iarpa.gov/IARPA_OCI_081809.pdf](http://www.iarpa.gov/IARPA_OCI_081809.pdf).

*Classified abstracts and proposals are permitted* but must conform to the security classification guide under which the work is to be performed. Contact the IARPA Security Officer at (301) 851-7580 if additional clarification is required.

*Successful proposals will concisely and completely answer the following questions, broadly known as the Heilmeier criteria:*

1. What are you trying to do?
2. How is it done at present? Who does it? What are the limitations of present approaches?
3. What is new about your approach? Why do you think that you can be successful at this time?
4. If you succeed, what difference will it make?
5. How long will it take? How much will it cost? How will you evaluate progress during and at the conclusion of the effort? (i.e., what are your proposed milestones and metrics?)

*The proposal should articulate a statement of work with clearly defined technical tasks including, for each,*

- the expected duration;
- interdependencies;
- resource requirements;
• a product, event, or milestone that defines its completion (i.e. exit criterion);
• the primary organization responsible for its execution; and
• deliverables to be provided to the Government.

Application Review Information

Proposal Review

If there is no common statement of work for the BAA, each proposal will be reviewed on its own scientific merits and its relevance to IARPA’s mission, not against other proposals responding to the Announcement. The following criteria will be applied, in order of descending importance:

Overall Scientific and Technical Merit

The proposal clearly articulates quantitatively substantiated answers to each of the Heilmeier questions cited above. The technical approach is credible, innovative, and concisely delineated with a clear assessment of primary risks and means to mitigate them. Innovation will be judged in the context of the current state of the art.

Effectiveness of the Proposed Work Plan

The offeror’s approach to achieving quantifiable milestones is explicitly described and substantiated. The milestones are crisply defined and logically support decisions by the offeror or the Government. The proposed schedule is realistic and critical paths are identified. The role and relationships among team members are balanced and transparent, and the time commitments from key personnel are sufficient. Requirements for timing and delivery of Government Furnished Property, Equipment, or Information (GFP, GFE, or GFI) are clearly delineated.

Alignment with IARPA’s Mission

The proposed work has the potential to provide the U.S. with an overwhelming intelligence advantage over its future adversaries and the proposed approach to intellectual property rights is in the best interest of the Government.

Relevant Experience and Expertise

The offeror’s capabilities, related experience, facilities, techniques, or unique combination of these needed to achieve the proposal’s objectives will be evaluated. The qualifications, capabilities, and experiences of the principal investigator and key personnel are matched to the technical challenges. Time commitments of key personnel are appropriate for their proposed contribution to the effort.

Cost Realism

The proposed costs are realistic to accomplish the proposed effort. The cost proposal delineates and justifies all expenses including those incurred to support subcontractors and
consultants. The parsing of costs by task, performer, category, and time is concise and consistent with the proposed work plan.

The following topics are of interest to IA in this open BAA example:

- Understanding how knowledge and ideas are transmitted and change within groups, organizations, and cultures
- Analysis of social, cultural, and linguistic data
- Multidisciplinary approaches to assessing linguistic data sets
- Methods for measuring and improving human judgment and human reasoning
- Extraction and representation of the information in non-technical structured documents, including legal and regulatory
- Extraction and representation of the information in the non-textual contents of documents, including figures, diagrams, and tables
- Understanding and managing massive, dynamic data
- Effective analysis of massive, unreliable, and diverse data
- Assessing relevancy of new data
- Processing noisy audio and speech
- Top-down models of visual perception and visual cognition
- Analysis of significant societal events
- Estimation and communication of uncertainty and risk
- Augmented reality applied to analysis
Why Halloween Is Bad for Proposals, Part 3

There are many scary Halloween costumes you might inadvertently use to mask the identity of the research idea put forward in your proposal, and unfortunately, any one of them will result in more tricks than treats when it comes to the success of your grant. Of course, the premise here assumes that a fundable idea lies cloaked beneath a number of correctable grant-writing mistakes identified sufficiently before the due date to allow for their correction. Unlike Halloween, when scary costumes earn treats, program officers and reviewers will not reward ideas cloaked in ghoulish disguises. Unfortunately, a number of all too common scary costumes can so successfully disguise a potentially fundable idea that the idea becomes unrecognizable to the reviewers. To avoid spooking reviewers, don’t submit your proposal cloaked or masked, or wearing one of the more common scary costumes guaranteed to horrify, as addressed in the below examples of possible proposal disguises.

The Recycled Proposal Mask

Recycling discarded, broken, failed, or unused items is great for the environment but not so good for declined proposals. Like most recycled materials, old proposals are best left at curbside to be removed for chemical or mechanical processing, or more specifically in the case of a research narrative, substantive rethinking. Unlike the Phoenix, a mythical sacred firebird, a declined proposal rarely will have the ability to be reborn from its own ashes. A recycled proposal submitted in an attempt to do so will be quickly “unmasked” by program officers and reviewers for the truth that lies beneath it—a PI unwilling, unable, or too disorganized to rethink and restructure a research narrative in a way that remolds it into an essentially new proposal. This is not an easy task, but it is a necessary one. Proposals have a very specific home within a very specific time frame, not a generic home within an open-ended time frame.

Shopping declined proposals around to multiple agencies is something akin to (pick your analogy) a snipe hunt, wild goose chase, or fool’s errand. Proposals are not fungible across agencies, within agencies, or even within programmatic areas within agencies, nor are proposals fungible over time. All proposals enjoy fifteen minutes of fame, as Marshall McLuhan might have observed, during the period when reviewers are making the decision to recommend or not recommend funding. However, when a proposal is declined, a resubmit is many months if not a year away in most cases. It is time to begin anew given that a declined proposal, while perhaps not a lemon, certainly had some serious problems that needed fixing. Don’t try to pass it off “as is” like a used car with mechanical or electrical problems to some other unsuspecting buyer, i.e., some other funding agency.

The Stove-Pipe Disguise

When an invitation to a “proposal party” arrives in the form of a solicitation wherein research and/or education integration is explicitly addressed as a key factor in the evaluation of
the proposal, or research integration across multiple disciplines is implicit in the research objectives and outcomes of interest to the sponsor, don’t show up disguised as research silos or stovepipes. One common and often fatal mistake in writing a proposal that must demonstrate synergy and value-added benefits to multiple research strands is to compose the narrative sections as separate research articles loosely addressing a common research theme without close coordination or integration.

Given the dramatic increase in research funding over the past several years to support research that explores and illuminates the boundaries, interstices, and intersections of multidisciplinary environments in search of new discoveries, it is critical for successful authors to both recognize and avoid siloed sections and learn the more difficult skill of writing integrated research narratives. If the multiple authors of the multiple research sections of a transdisciplinary proposal cannot demonstrate and clearly describe how the intersections of “disciplinary catalysts” accelerate the research discovery process in the research narrative, then programs officers and reviewers will be unlikely to fund the proposal, trusting that the required research integration might magically happen in practice.

The “Trust Me” Mask

The “trust me” mask is typically worn by a very vague proposal narrative containing a lot of reminiscence of past accomplishments and accompanied by long descriptive narrative sections that read like a textbook, but with only a fuzzy hypothesis and few specifics about what is actually being proposed and its significance. The subtext of the “trust me” proposal is “just give me the money and great research will happen.” It often reads like a daisy chain of effusive superlatives, but lacks any grounding in specificity and detail. Reading a “trust me” proposal will put you in mind of H. L. Mencken’s comment about “an army of words marching across the page in search of an idea.” In other instances, the “trust me” proposal may present a grandiose idea embellished with vague claims of significance. Ultimately, however, the “trust me” proposal, to quote Macbeth’s famous soliloquy, “is a tale told by an idiot, full of sound and fury, signifying nothing.”

As Lieutenant Worf observed in Star Trek: The Next Generation, “trust is earned, not given away,” when told by Counselor Deanna Troi that “the Cardassians are our allies now, Mr. Worf. We have to trust them.” Think of reviewers as Lieutenant Worf. To be successful, proposals must exchange the “Trust Me” Mask for the Sergeant Joe Friday Mask: “Just the facts”: what you will do, why it is important to do it, the significance and impact of your research on the field and agency mission, why you are the right person to do the research, why you have the capacity, expertise, and experience to perform, and evidence of your access to the institutional infrastructure that will support your efforts when required.
Using NIH RePORTER to Identify Your Program at NIH

The NIH database is an extremely powerful tool to help you identify which ICs and Programs at NIH that might be interested in funding your research.

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By Lucy Deckard, co-publisher

We’ve discussed previously (in the February 2012 issue) the importance of understanding the priorities and interests of the various Institutes and Centers (ICs) at NIH, determining which IC(s) and program(s) might be interested in funding your research, and getting to know the appropriate NIH program staff (note here that we use program staff, program official, program director and program officer interchangeably here). However, NIH is so large and complex, determining where your research might fit can be a daunting task. Similarly, it’s important to determine which study section to request and who is on that study section.

IC websites can be helpful, but each IC site uses its own format and organization, and program descriptions can often be buried many levels deep. If you find yourself totally flummoxed, you can always contact the IC’s Director of Extramural Research to ask for help. One of their roles is to help direct researchers to the appropriate program within their IC. However, a great way to narrow down the possibilities is to use NIH’s searchable funding database, called NIH RePORTER.

You’re probably already familiar with NIH RePORTER (which superceded the old CRISP database), but you may not realize that NIH has been adding capabilities, so that today’s RePORTER likely has features you didn’t see last time you used it. Below are some strategies for using NIH’s searchable database to find the right NIH program and study section that fits your research, and to understand more about them.

Using NIH RePORTER

To use RePORTER to help identify a program, program director and study section that may be interested in your research topic, go to the RePORTER query page and type in key words related to your research topic under “Text Search”. In our example, we typed in “obesity,” “behavioral,” and “therapy,” connected by the AND boolean operator. You can also designate a number of other things, including what part of the country the lead institution is in and the activity code. In our case, we decided we only wanted to see R01s and equivalent, R03s, R15s, R21s, etc. that matched our search terms. This is what the query page looks like.

![RePORTER query page](image)
After you hit “Submit Query,” a list of funded projects matching your search terms will come up. Look through the list for projects with titles that look like they might be related to your research topic. Here, we selected “Encouraging Young Adults to Make Effective Nutrition Choices: Menu Gen Y Study,” PI: Gwen Leigh Alexander. I could also tell by a quick glance at the Project Number that this is an R01.

When I click on that project, the project description comes up. After checking to make sure the project is indeed related to my research interests, I click on the “Details” tab.

Now I come to a very useful page. This page tells me which IC funded the project (NICHD), the name of the Program Official associated with this project (Daniel Raiten) and his e-mail address, which funding opportunity (FOA) the application was responding to, and which study section reviewed the proposal (Psychosocial Risk and Disease Prevention (PRDP)). I then Googled, “Daniel Raiten NIH,” and his page at NICHD came up, telling me that he is the program official for the nutrition portfolio within the Endocrinology, Nutrition & Growth Branch (ENGB) and that he’s part of the Center for Research for Mothers & Children (CRMC) within NICHD.
Note also that to the right of the “Details” tab, there is a “Similar Projects” tab. If we click that tab, we obtain a new list of projects related my selected project which might not have popped up with the specific key words I happened to use. I can then select one of those projects, click on the details tab, and then find out which IC, Program Official, FOA and study section were associated with that funded project.

Going through the same steps with a selected “similar project,” I found program director Lynne Haverkos, who directs the Pediatric Behavior and Health Promotion Program in the Child Development & Behavior (CBD) Branch within NICHD. Clicking on “organization” on the left, I can see where CBD, ENG and CRMC fit within NICHD’s organization, and I can read more about the research priorities of each of these branches.
There is one caveat that not all ICs make it this easy to find the program staff, but once you have a name, IC and email address, you’re well on your way to finding NIH program staff to talk to.

Now that we know the study section, we can go back to the query form and, using a pull-down menu, search specifically on grants funded by that study section, and then follow those grants through to the program director and program supporting each grant.

We can also go to the query page to search on other projects funded through each of the FOAs we identified in order to widen our search. Clearly, many enjoyable hours can be spent searching on RePORTER and following up on the information you find there!

Exploring Potential Study Sections

Now that we know potential study sections, we’ll discuss how to learn more about the study sections you’ve identified. For any agency, the more you know about the people reviewing your proposal, the better. In the case of NIH, knowing what kind of background the members of your assigned study section have and what kind of research they do can help you determine if your research is a good fit and how to communicate with your reviewers. For example, if you have a degree in counseling, and your study section is composed of all psychologists, then you may be well-advised to bring in a collaborator who is a psychologist and make sure that your proposal uses terms and methodologies with which psychologists are comfortable.

Because NIH publicizes the rosters of their study sections and review panels, once you know which study section you’re interested in, it’s easy to find out who is on it. First, go to this Center for Scientific Review page. Scroll down to “Find a Study Section,” and enter the name of your study section (in our case, Psychosocial Risk and Disease Prevention Study Section (PRDP)). Click “Go” and the best matches with your search are shown. Click on the appropriate study
section, and a description of the topic areas that the study section handles is given, along with a link to the roster. Click on the roster, and the names, positions, institutions and locations of the standing members of the study section are listed. Now you can look though these names to see if you recognize anyone (odds are, if they are in your field at least some of the names will be familiar). You can then look up their recent papers to get a better feel for their research and backgrounds.

What Now?

You’ve spent a pleasant rainy weekend searching through RePORTER and have identified one or two likely programs and their program officials. The next step is to contact your program director. NIH strongly encourages you to do this; you are not being a bother or imposing on the program director. That said, NIH program staff are extremely busy, so it’s important to use their time wisely. One good way to do this is to send them an email with a short description (one page or less) of your proposed project, asking when might be a good time to meet with them in person (if you’ll be in the area) or talk over the phone. When you talk to them, ask whether your research topic aligns with their program’s research priorities, which activity code (R01, R03, etc.) would be most appropriate, which study section you should request, and if they have any other advice for you. In order to be funded, you must receive a good score from your reviewers, but you must also be proposing research of interest to your IC. Your program director can be your mentor and advocate in this process.
Session VI: CAREER DEVELOPMENT, Part 1 Plenary with IGERT alumni – Trainees

- **Speakers:**
  - Lucas Arzola, IGERT Trainee and I-Corps recipient, University of CA-Davis;
  - Genya Dana, AAAS Science & Technology Policy Fellow, Dept. of State;
  - Daniel McGarvey, Assistant Professor of Environmental Studies, VA Commonwealth University;
  - Martin Robards, Director, Wildlife Conservation Society's Arctic Beringia Program;
  - Dena Vallano, AAAS Science & Technology Policy Fellow, Environmental Protection Agency

Upcoming Fellowship Funding Opportunities

**HR-2013 Thomas R. Pickering Foreign Service Fellowship Program**
The Thomas R. Pickering Foreign Affairs Fellowship program encourages the application of members of groups historically under-represented in the Foreign Service of the U.S. Department of State and those with financial need. The fellowship provides financial support towards the completion of a Master's degree and professional development training. Upon completion of the degree, recipients have a service commitment to work as a U.S. Department of State Foreign Service officer. **Due June 22.**

**Fulbright Post-Doctoral Fellowships**
The United States-Israel Educational Foundation (USIEF) plans to award 8 grants to American post-doctoral scholars who are about to begin a program of research at Israeli institutions of higher education which will commence during the 2013/2014 academic year. The total length of the proposed program of work in Israel must be at least two academic years (20 months net in Israel). The Fulbright award totals $40,000, $20,000 per academic year. Fulbright funding supplements basic post-doctoral stipends provided by Israeli host institutions. This program is open to post-doctoral researchers in all academic disciplines. **Due August 1.**

**DOD FY12 Peer Reviewed Cancer Visionary Postdoctoral Fellowship Award**
The FY12 Peer Reviewed Cancer Research Program (PRCRP) fosters the next generation of cancer research by providing new and early career investigators opportunities to excel in
groundbreaking cutting-edge research for the prevention, detection, and treatment of cancer. To support the development of future generations of cancer researchers, this award offers an opportunity for a candidate postdoctoral fellow to collaborate with an early-career independent, not yet tenured investigator serving as mentor in at least one of the FY12 PRCRP Topic Areas (see full program announcement) toward investigations that are relevant to military beneficiaries. The Visionary Postdoctoral Fellowship Award is intended to support exceptionally talented, recent medical or other doctoral graduates in their pursuit of cancer research during a postdoctoral fellowship with a focus on cutting-edge, innovative, high-risk/high-impact basic science or translational research that will have either short-term or long-term clinical impact. **Due September 12.**

**International Association for Mathematical Geosciences**
To provide financial support to students in graduate school or post-doctoral position for research in the fields of mathematical geology, geomathematics, and geoinformatics. **Due October 15.**

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**National Fellowship Databases**

**About GRAPES**
The GRAPES database catalogs extramural funding opportunities of interest to prospective and current graduate students, students working on a master's thesis or doctoral dissertation, and postdoctoral scholars. It contains information on over 500 private and publicly funded awards, fellowships, and internships. Advanced search options allow users to refine their search by field, academic level, award type, award amount, and other criteria. GRAPES is maintained by the Graduate Outreach, Diversity and Fellowships Office. **Access the database through the GRAPES Search Form.**

**Cornell Fellowships Database**

**Michigan State University Graduate Fellowships Database**

**Duke Humanities & Social Science Fellowships** and Grants for Graduate and Professional Students.

**Externally Funded Fellowships, University of Texas, Arlington**

**National Postdoctoral Association**
Headquartered at AAAS; an independent voice for postdocs.

**American Psychological Association, Scholarships, Grants and Awards**
APA and its affiliate organizations provide a wide range of grants, scholarships, awards with the aim of advancing the science and practice of psychology.

**APA Scholarships, Fellowships and Dissertation Awards**
Psychology cannot thrive without nourishing our most intelligent and inquiring minds to pursue the discipline. To this end, the Foundation supports a number of programs aimed at helping graduate students further their education in psychology.

University of California, Berkeley Links
- Postdoc Funding in the Biosciences
- Postdoc Funding in the Social Sciences
- Postdoc Funding in the Humanities

Writing Advice

Writing Fellowship and Grant Proposals
UCLA Writing Center

Guide to Proposal Development in the Humanities For Graduate Students
Hall Center, Humanities Grant Development Office, The University of Kansas

Writing Proposals for ACLS Fellowship Competitions
Christina M. Gillis, American Council of Learned Societies

Fellowship Personal Statements and Essays
Worcester Polytechnic Institute
Grant-Writing Tips for Graduate Students, The Chronicle Of Higher Education
By Lisa Patrick Bentley, a National Science Foundation postdoctoral fellow in bioinformatics at the University of Arizona's department of ecology and evolutionary biology.

Developing Graduate Fellowship Proposals, A Guide for Students
By Colgate University (More)

Writing and Presenting Your Thesis or Dissertation
S. Joseph Levine, Ph.D., Michigan State University

Dissertation Proposal Resources, University of California, Berkeley, IIS
Writing research and grant proposals is one of the most difficult -- and unavoidable -- requirements of graduate study in the social sciences. When it comes time to write them, however, many graduate students feel left to their own devices. This website is designed to help you navigate the hazards this process entails. This site comprises a collection of tips, samples, and links. It is not meant as a class, nor a substitute for feedback from colleagues and advisors. It is merely an amiable guide meant to help you through an important phase in your academic career. Although biased in favor of "area studies" specialists and those planning to
spend extended periods overseas, the content of this workshop is intended to be useful for all students hoping to conduct empirical social-scientific fieldwork.

- **NIH Fellowships**
  - Applying for a Fellowship
  - Writing a Fellowship Application
  - Promote Your Research Plan
  - Advice for Predoctoral Fellowship Candidates
  - Submitting Your Fellowship Forms, Contacting NIAID

**Funding Your Research: How to Apply for an NRSA**

Co-Sponsored by Career Services and the Office of Postdoctoral Programs

This presentation was given by Laura Stark Malisheski, Ph.D., Postdoctoral Fellow in Neuroscience at the University of Pennsylvania.

**UNC-Chapel Hill’s Writing Center**

A handout provided by to help graduate students write and revise grant proposals for research funding in all academic disciplines.

**Proposal Writer’s Guide**

by Don Thackrey, University of Michigan

**NIH Early-Stage Postdoctoral Grants Fit Different Interests**

If you recently earned a doctoral degree and are beginning your career as a junior researcher or faculty member, you qualify for several types of research support. Choose the award type that matches your area of interest.

- To obtain training, apply for an NRSA Postdoctoral Fellowship (F32).
- If you have independent funding, such as an R01 grant, apply for an Independent Scientist Award (K02).
- If your background is in quantitative science and engineering and you want to integrate this expertise with biomedicine, apply for a Mentored Quantitative Research Development Award (K25). To qualify, you'll need experience at the junior-faculty level, such as early- to mid-level assistant professor or research assistant professor.
- To work in a clinical field, apply for a Mentored Clinical Scientist Development Award (K08). However, if you have a significant publication history, reviewers may consider you overqualified for a K08.
- To pursue an assistant professorship, apply for a Research Scholar Development Award (K22) or NIH Pathway to Independence Award (K99/R00). You should have no more than five years of postdoctoral experience.
To conduct patient-oriented research, apply for a Mentored Patient-Oriented Research Career Development Award (K23). You'll need a Ph.D. or clinical degree and have just completed specialty or subspecialty training.

**Society for Social Work and Research, Doctoral Student Center**

- **Writing for Academic Journals** presents tips on structure and common mistakes authors make. This 20-page document isn’t a quick read; however, it provides advice to advanced students. By Daryl J. Bem at Cornell University.
- **Research Proposals** presents guidelines, sections to include, and common mistakes in proposals. By The University of Hawaii.
- **Dissertation Writing** presents study skills and guided activities to aid in writing a dissertation. Ideal for students just beginning their work, and well as for students who are overwhelmed by the complexity of the dissertation process.
- **Grant Proposals** presents 10 common mistakes in grant writing. By Pearson.
- **Publishing Advice for Graduate Students** presents the hidden secrets behind publishing. By Thom Brooks.
DOD Minerva Initiative for Social Science Research: Save the Dates
The U. S. Department of Defense Minerva Research Initiative is a university-based social science basic research program that seeks to build deeper understanding of the social, cultural, and political dynamics that shape regions of strategic interest around the world. The Initiative has posted a “save-the-date” notice that the 2012 Minerva Conference will be held September 13-14 in Washington, D.C. The program intends to release a new Broad Agency Announcement this summer for a 2012/2013 competition, with similar but updated topic tracks to the 2011/2012 competition. See FAQs.

Early Career Reviewer (ECR) Program, Center for Scientific Review
What’s the Purpose of the ECR Program?
- To train and educate qualified scientists without significant prior review experience so that they may become effective reviewers
- To help emerging researchers advance their careers by exposing them to review experience
- To enrich the existing pool of NIH reviewers by including scientists from less research-intensive institutions as well as those from traditionally research-intensive institutions

What Are the Requirements for Being an ECR?
- You must not have reviewed for CSR beyond one mail review
- You should demonstrate training, experience or qualifications in the discipline and fields of the scientific areas under review as evidenced by:
  - A faculty appointment or equivalent
  - An active independent research program and recent publications in peer-reviewed research journals
  - Other relevant credentials or experience
- You don’t have to have NIH or equivalent funding

What Does an ECR Do?
- Attends study section meeting
- Writes a full critique of each assigned application
- Participates in no more than one study section per year and no more than twice total

What Are the Benefits?
- You have an opportunity to serve the scientific community by participating in NIH peer review
- You develop critique-writing skills
- You learn what drives the review discussions and how impact is evaluated
- You can use your insights into the review process to improve your own grant applications
Apply Now to Become an ECR?
Please send your current CV or biosketch along with a list of terms that describe your scientific expertise to CSR at CSREarlyCareerReviewer@mail.nih.gov
What Happens After you Apply?
- We will determine your eligibility
- If you are selected -
  - we will help you obtain an eRA Commons ID that will allow you to serve as a reviewer
  - we will place you in our ECR database
  - we will invite you to serve as a reviewer when your expertise is needed for a study section (MORE HERE)
Writing educational grants to federal agencies and foundations is helped by developing a knowledge base of proven and successful educational models and STEM standards at the K-12, community college, and university level.

**The NSTA Reader's guide to A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas**

What can science educators do now to prepare for the new science standards in 2012? NSTA Past President, Harold Pratt, gives his insights and ideas in the NSTA Reader's Guide. The Guide assists science educators in the study of the Framework for K-12 Science Education. For each chapter of the Framework, the Guide provides a brief overview, an analysis of what's new and different from previous standards and benchmarks, and suggested actions science educators can take to learn more about the concepts and ideas.

**Next Generation Science Standards (First Public Draft)**

The Next Generation Science Standards is based on A Framework for K-12 Science Education, issued by the National Research Council last summer, which defines the major practices, crosscutting concepts, and disciplinary core ideas that all students should be familiar with by the time they finish high school. A Framework for K-12 Science Education offers a new vision for K-12 education in science and engineering, and represents a significant shift in how these subjects are viewed and taught.

**The Condition of Education 2012**

The Condition of Education 2012 summarizes important developments and trends in education using the latest available data. The report presents 49 indicators on the status and condition of education, in addition to a closer look at high schools in the United States over the past twenty years. The indicators represent a consensus of professional judgment on the most significant national measures of the condition and progress of education for which accurate data are available. The 2012 print edition includes indicators in three main areas: (1) participation in education; (2) elementary and secondary education and outcomes; and (3) postsecondary education and outcomes.

**Learning Together: A User-Friendly Tool to Support Research on STEM Education Interventions**

Federally funded K-12 science, technology, engineering, and mathematics (STEM) education projects are generally expected not only to use what is already known in designing and implementing interventions but also to add to the knowledge base. STEM education projects supported by NSF, the Department of Education, and other funders, often involve a mix of people with quite different backgrounds and prior experiences: STEM faculty; STEM education
faculty; district supervisors; and master teachers. Involving people with diverse backgrounds helps bring a great deal of expertise to the table, but at the same time it can create communication challenges, as the terminology that some people find extremely useful can seem like just a lot of jargon to others. This document provides a brief introduction to research on K-12 STEM education interventions; it is intended to help people who may be new to social science research understand some of the key issues. We include some terminology commonly used in social science, but the emphasis is on developing concepts that project teams can refer to as they design and implement research.

**Consumer's Guide to Research on STEM Education**
Periodically the field summarizes what is known in particular areas, in some cases supplementing the findings from empirical research with the insights of experts in the area. Typically involving people with a variety of backgrounds and perspectives in the development process, these summaries not only document the state of knowledge at a given juncture, but also provide guidance to practitioners and policymakers based on what is currently known. But comprehensive efforts of this sort are time consuming and expensive, and there are many areas of interest to STEM educators where the available knowledge has not been compiled in a practitioner-friendly form. Rather, a mathematics/science supervisor, teacher, or other educator may find out about studies in presentations at professional association meetings, newsletters, or journals and want to learn more. This guide is intended to help consumers of research assess the quality and implications of both individual studies of interventions and research syntheses. This paper addresses two key questions that should guide practitioners in reviewing research: 1. How much should I trust the findings?; 2. What are the implications, if any, for my context?

**Improving Mathematical Problem Solving in Grades 4 Through 8**
This practice guide provides five recommendations for improving students’ mathematical problem solving in grades 4 through 8. This guide is geared toward teachers, math coaches, other educators, and curriculum developers who want to improve the mathematical problem solving of students.

**Preparing Middle School Mathematics Teachers: Rethinking Engagement and Learning**
In this theoretical research paper we describe a collaborative effort between researchers and university faculty to improve how teachers are prepared to teach middle school mathematics. Two powerful instructional frameworks, UDL and TPACK are dovetailed within in a web-based dynamic textbook, *Proportional Dynabook* that focuses on proportional reasoning concepts related to ratio, similarity, and linear function. Theoretical tensions between special and general education teacher preparation programs influence the ongoing design of *Proportional Dynabook*. Pre-service and in-service special education teachers used *Proportional Dynabook* in a graduate level methods class to design a ratio lesson for a student who struggled with the concept. Teachers developed deeper understanding of ratio and related pedagogical strategies that make the content of mathematics accessible to diverse learners.
**Professional Learning Activities in Context: A Statewide Survey of Middle School Mathematics Teachers**

Based on a statewide survey of professional learning activities among 577 middle school mathematics teachers in Missouri, this study examined two questions: 1) What professional learning activities do middle school math teachers participate in and how much time do they spend in these activities?, and 2) How are teacher qualifications and contextual characteristics associated with the amount of their professional learning activities? The study examined seven types of formal and informal professional learning activities: 1) professional development programs, 2) teacher collaboration, 3) university courses, 4) professional conferences, 5) mentoring/coaching, 6) informal communications, and 7) individual learning activities. The study found that middle school mathematics teachers spend the greatest amount of time involved in teacher collaboration, professional development programs, and individual learning activities. In addition, mathematics teachers in high-poverty and ethnically diverse districts tend to spend more time in formal learning activities such as professional development programs, teacher collaboration, and mentoring/coaching than do mathematics teachers in wealthier and less diverse districts. To promote a greater level of teachers' participation in shared learning activities, it is important for district and school administrators to offer professional learning activities that meet mathematics teachers' learning needs for understanding students' mathematical knowledge and thinking.

**Professional Development for Teachers: What Two Rigorous Studies Tell Us**

This synthesis reviews findings from two rigorous, large-scale evaluations - the Professional Development in Reading Study and the Middle School Mathematics Professional Development Impact Study. Both interventions had only limited effects on teachers' knowledge and instruction and no impacts on students' test scores. The report ends with suggestions about how professional development might be improved to achieve better results.
Notice of NIH Piloting of Procedures for Special Council Review of Research Applications from PD(s)/PI(s) with More than $1.5 Million Total Annual NIH Support

This Notice announces NIH’s intent to pilot procedures for investigator-initiated grants and cooperative agreements in consideration of managing resources during austere times. During May 2012 NIH Institute and Center (IC) Advisory Council meetings, Councils will discuss and pilot-test procedures for the additional review of grant and cooperative agreement applications from Program Director(s)/Principal Investigator(s) [PD(s)/PI(s)] who already receive in excess of $1.5 million per year in total costs to determine if additional funds should be provided to already well-supported investigators. The feedback from this pilot will help NIH further refine policies for managing limited grant resources.

Dear Colleague Letter - US Ignite: The Next Steps

The NSF Global Environment for Network Innovations (GENI) program is now in its 5th year. At this stage, the focus has moved from developing and prototyping GENI to using it. About 30 science and engineering experiments are now deployed on GENI. (For a listing of GENI EAGER awards, go HERE.) While GENI will continue to provide a national research and education resource for networking scientists and engineers for years to come, NSF intends to further extend its usefulness through the US Ignite Initiative by encouraging the research community to develop novel, public sector applications that take advantage of ultra-fast software-defined networks and which have potential for significant societal impact.

The primary goal of the US Ignite is to break a fundamental deadlock: there is insufficient investment in gigabit applications that can take advantage of advanced network infrastructure because such infrastructure is rare and dispersed. And conversely, there is a lack of broad availability of advanced broadband infrastructure for open experimentation and innovation because there are few advanced applications and services to justify it. US Ignite intends to break this deadlock by providing incentives for imagining, prototyping, and developing public sector gigabit applications and by leveraging and extending this network testbed across US campuses and cities. At this point in the process, NSF is accepting EAGER proposals or supplemental funding requests that are consistent with the guidance given in this letter and in the NSF Grant Proposal Guide: and / or the NSF Award & Administration Guide. **NSF is currently emphasizing the development of public sector gigabit applications in areas of national priority -- advanced manufacturing, clean energy and transportation, cyber learning, health IT, and public safety/emergency preparedness.** The expectation is that within a year or so, these applications could showcase new possibilities for gigabit networks.

Dear Colleague Letter - Alliances for Graduate Education and the Professoriate (AGEP) Program

The NSF Division of Materials Research (DMR) would like to call to your attention the Alliances for Graduate Education and the Professoriate (AGEP) program (NSF 12-554). AGEP is committed
to the national goal of increasing the numbers of under-represented minorities (URMs),
including African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians and other Pacific Islanders, as well as URMs with disabilities in the science and engineering workforce. In particular, the AGEP program focuses on graduate education and postdoctoral training. We are bringing this program to your attention now because AGEP allows alliances to be built around a single science, technology, engineering and mathematics (STEM) discipline area or a subset of STEM disciplines and interdisciplinary areas, such as materials research. Additionally, alliance partners can now include other entities besides institutions of higher education, such as industry, professional societies, non-profit organizations, national labs, and research centers.

**Dear Colleague Letter - DGE-REESE-AGEP-AISL Call for Research Proposals on STEM Graduate Education and Postdoctoral Training**

The Division of Graduate Education (DGE), in collaboration with the Division of Research on Learning in Formal and Informal Settings (DRL) and the Division of Human Resource Development (HRD), in the Directorate for Education and Human Resources (EHR) calls your attention to an opportunity to request support for research projects focused on STEM graduate education and postdoctoral training. This opportunity is embedded in the Research and Evaluation on Education in Science and Engineering (REESE) Solicitation (NSF 12-552), the Alliances for Graduate Education and the Professoriate (AGEP) Solicitation (NSF 12-554), and Advancing Informal STEM Learning (AISL) Solicitation (NSF 12-560). We seek proposals that will advance theory and yield evidence about graduate education and postdoctoral training and that can potentially enhance the preparation of a diverse 21st century academic and non-academic workforce. The goal is to address the critical issues that impact the quality and effectiveness of graduate education and postdoctoral training in the nation. We seek research appropriate for the REESE, AGEP, and AISL Program Solicitations that focuses on graduate education, such as the following areas:

**Effectiveness of interventions to broaden the participation of underrepresented groups (e.g., women, underrepresented minorities, and persons with disabilities).** Studies of the underlying issues affecting the differential participation rates in STEM graduate education and postdoctoral training; organizational and STEM cultural factors that make STEM graduate and postdoctoral training environments more or less welcoming; and cognitive, behavioral, and institutional causes of variable success in STEM graduate and postdoctoral training.

**Graduate education and postdoctoral training.** Graduate education models that address a wide range of disciplinary and/or interdisciplinary-based needs, the related institutional barriers, and strategies for mitigation; the impact of teacher training experience on the quality and level of graduate students’ or postdoctoral fellows’ research skills, competencies, and research productivity; mitigation of factors affecting student attrition and completion or fellows advancement to early career; the influence of skill requirements from employment sectors on graduate teaching and training; and the educational and professional outcomes for student or fellow involvement in collaborative activities with international and industrial partners.
Dear Colleague Letter: New Solutions to Create Integrative Data Management Infrastructure(s) for Research Across the Sciences

NSF seeks transformative approaches to create integrative data management infrastructures across science and engineering disciplines that will advance US research and innovation through new capabilities empowering the majority of the nation's researchers whether they are working individually, in small groups, or as part of large projects. These efforts will enhance our understanding of the scope and nature of legacy, current, and potential future data sets in Science, Technology, Engineering, and Mathematics (STEM). The opportunity has never been greater, and NSF seeks input from the community. NSF places significant emphasis on computational and data-rich science and engineering, and recognizes the complex challenges in many such disciplines, for example, that the volume and fragmented nature of generated data sets is often difficult to handle with traditional tools. Transformative approaches and innovative technologies are needed for heterogeneous data to be integrated, made interoperable, explored and re-purposed by researchers in disparate fields and for myriad uses across institutional, disciplinary, spatial and temporal boundaries. **NSF will host a series of webinars followed by a charrette meeting to rapidly facilitate the early stages of novel approaches to achieve the goals described.** NSF expects that actionable ideas emerging from the charrette will help define future developments of this system in FY2013 and beyond. The webinars will begin on June 15, 2012 (details on how to register for participation in the June 15, 2012 webinar are given below). This dialog with the community will provide context for the initial integrative data-focused infrastructure vision and offer an opportunity for the community to interact with the leadership of the NSF units involved. Additional details on the sequence of events will be provided at the webinar and will be posted on the MPS, BIO, CISE, EHR, ENG, GEO, OCI, and SBE websites.

**Dear Colleague Letter - Announcement of Efforts to Increase Hispanic Participation in STEM Fields**

In keeping with the National Science Foundation's long-term commitment to broaden the participation of underrepresented groups in science and engineering education and career fields, the Foundation is pursuing a multi-faceted approach to significantly engage institutions, organizations, and individuals to broaden the participation of Hispanic students in STEM fields and careers. This approach will build on prior NSF Listening Sessions, national reports, project and program evaluation, and community input, and will provide for a further expansion and deepening of the knowledge base and evidence-based approaches in support of the following goals:

- Increase the entry, retention and graduation rates of Hispanic students pursuing associate or baccalaureate degrees in science, technology, engineering, and mathematics (STEM) fields
- Expand and deepen Hispanic student participation in research experiences
• Provide for new STEM instructional approaches, program models, and strategies in Hispanic-Serving Institutions (HSIs, as defined in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1101A))
• Stimulate effective STEM faculty development in HSIs
• Leverage increased Hispanic participation in STEM through partnerships with other stakeholders committed to broadening participation.

Specifically, as one element of its multi-faceted approach, the Foundation encourages enhanced participation of Hispanic Serving Institutions in a range of available programs in order to draw upon a larger proportion of HSI institutions than are currently represented, and thereby reach more Hispanic students. These programs include (MORE):

**Dear Colleague Letter - Request for ideas about a Mathematics Education Initiative**

The National Science Foundation (NSF) in cooperation with the U.S Department of Education (ED) is interested in input that can inform new activities and programs to support and improve K-16 mathematics education. The President’s fiscal year 2013 budget to Congress proposes a jointly administrated K-16 mathematics education initiative funded by $30 million from NSF and $30 million from ED. This funding will create a dual-agency initiative on mathematics education that will combine the strengths of NSF and ED to stimulate needed research and development in mathematics education and the use of successful practices and innovations at scale. This initiative will support researchers, practitioners, and institutions with the greatest potential for transformational impact, and provide opportunities for state, local and institutional decision-makers to infuse proven practices into mathematics education. The goal is to have a lasting impact on the learning and teaching of mathematics. To shape the direction of this initiative, NSF and ED are seeking help from all concerns with K-16 mathematics education. What do you think are the highest priority issues or challenges that need to be addressed in order to improve K-16 mathematics teaching and learning in the country? The information received in response to this Dear Colleague letter may be used to help shape directions for this initiative. Please submit your ideas by July 1, 2012 by using the online form at [http://www.surveymonkey.com/s/k_16_initiative](http://www.surveymonkey.com/s/k_16_initiative).

• Explain the priority issue, challenge, or opportunity; provide a brief rationale for its importance; and comment on the implications it has for the teaching and learning of mathematics at the K-16 level.
• Provide the evidence or research base that supports the priority issue, challenge, or opportunity you have identified, including references, if appropriate.

Receipt of these short statements does not signify adoption, endorsement, or approval of the content by the NSF. The content remains the property and opinion of the contributor. No personal identifiable information will be collected and no awards will be made for these submissions. We invite you to provide ideas that will help the National Science Foundation and the U.S. Department of Education inform the development of this initiative.
Dear Colleague Letter - Strategic Technology for CyberInfrastructure (STCI)
We encourage submission of proposals to the Strategic Technology for CyberInfrastructure (STCI) Program for modest pilot projects presenting experimental national services to the NSF scientific and engineering community through a standard interface. These interfaces should allow for programmatic access to the service with usage and costs being tracked on a per researcher and per group basis. Proposals should present ideas about how they might deal with cost recovery in a permanent service. These cloud services might be at the Infrastructure as a Service (IaaS) (for example, compute cycles or storage), Software as a Service (SaaS) (for example, MatLab or ANSYS), or Platform as a Service (PaaS) (for example, Google Docs) level. Services presented should allow for surge capability to draw on additional resources (up to 10x more) should demand spike. This is not a new program. Proposals should be submitted in accordance with guidance found on the STCI program description page here.

Dear Colleague Letter - Supplemental Opportunity for Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) Community College Research Teams (Phase II-CC)
The Small Business Community College Research Teams Supplement (henceforth referred to as SBIR/STTR Phase II-CC) will award research supplements to existing SBIR/STTR Phase II grantees that are able to host a research team from a Community College. This supplement opportunity is intended to further SBIR/STTR Phase II research and facilitate progress toward their grant goals while providing a substantial scientific research experience for the community college research team. Community Colleges (CC): Are non-profit post-secondary institutions which offer associate degrees. Community College Research Teams: Must consist of at least one community college faculty member and at least one community college student. (Teams with additional students or faculty are highly encouraged if supported within the standard award amount.) Faculty at community colleges interested in identifying SBIR/STTR Phase II grantees should consult the NSF interactive award search system (http://www.nsf.gov/awardsearch/). In the text box labeled Search Award for enter "SBIR Phase II" or "STTR Phase II" and check the box for Active Awards Only.

Frequently Asked Questions About the PAESMEM Award and Nomination Process

1. May an individual or organization self-nominate?
2. May more than one individual or organizational program from the same institution be nominated in a given round?
3. Does the mentoring effort have to be directed to students?
4. I've mentored a lot of students during my years as a professor, am I eligible?
5. Does a nomination need letters of support?
6. To whom should the letters of support be addressed?
7. Do letters of support need to be uploaded into the online nomination package?
8. How do I submit a nomination?
9. To submit a nomination in FastLane, does our institution's Sponsored Research Office (SRO) need to submit the application?
10. **How long should the Project Summary be?**
11. **Can an Organizational nomination change who will be their representative (PI)?**
12. **What is the process for announcing the Awardees?**

**Energy Department Announces Funding to Test a Wave Energy Device**
The Energy Department on May 18 announced that $500,000 is available this year to test the technical readiness of technologies that can harness energy from waves to supply renewable power to highly-populated coastal regions. The funding will support one project to deploy and test a wave energy conversion device for one year at the Department of Navy's Wave Energy Test Site off of the Marine Corps Base Hawaii in Kaneohe Bay, Oahu. This funding will demonstrate and accelerate wave power technologies that could further develop the country's significant ocean energy resources.

**Electricity Storage Can Smooth Out Moment-To-Moment Variations In Electricity Demand**
Electricity storage technologies that operate on short timescales (seconds, minutes, hours) can be used to keep a more precise balance between electric supply and demand. These power quality management technologies can fill the gaps between actual electric demand and an average, smooth demand curve that is easier for typical supply sources to follow (see chart above). However, a potential barrier to adopting these technologies is finding a way to get paid for the service they provide. Previous articles in Today in Energy discussed electricity storage and its longer-timescale applications. This article focuses on storage that performs best on short timescales, serving a different set of needs on the electric power system.

**International Science & Engineering Visualization Challenge**
Some of science's most powerful statements are not made in words. From DaVinci's Vitruvian Man to Rosalind Franklin's X-rays, science visualization has a long and literally illustrious history. To illustrate is to enlighten! Illustrations provide the most immediate and influential connection between scientists and other citizens, and the best hope for nurturing popular interest. They are a necessity for public understanding of research developments. The National Science Foundation (NSF) and the journal *Science* created the International Science & Engineering Visualization Challenge to celebrate the grand tradition of science visualization and to encourage its continued growth. The spirit of the competition is to communicate science, engineering and technology for education and journalistic purposes. This year's competition opens June 1. Judges appointed by NSF and *Science* will select winners in five categories: Photography, Illustrations, Posters & Graphics, Video Games & Apps, and Videos. The winning entries will appear in a special section of *Science* (with one entry chosen for the front cover) and be hosted at ScienceMag.org and NSF.gov. In addition, each winner will receive a one-year online subscription to *Science* and a certificate of appreciation. If you are interested in participating, please familiarize yourself with the Guidelines and submit your entry using the online entry form. If you have questions, please contact us at scivis@nsf.gov.
The competitiveness of proposals can be enhanced by grounding the arguments you make in the proposal narrative, as appropriate, on national reports, agency research roadmaps, and research workshops that demonstrate your understanding of the national research agenda and how your research advances and maps to that agenda.

Discipline-Based Education Research: Understanding and Improving Learning in Undergraduate Science and Engineering
The National Science Foundation funded a synthesis study on the status, contributions, and future direction of discipline-based education research (DBER) in physics, biological sciences, geosciences, and chemistry. DBER combines knowledge of teaching and learning with deep knowledge of discipline-specific science content. It describes the discipline-specific difficulties learners face and the specialized intellectual and instructional resources that can facilitate student understanding. *Discipline-Based Education Research* is based on a 30-month study built on two workshops held in 2008 to explore evidence on promising practices in undergraduate science, technology, engineering, and mathematics (STEM) education. This book asks questions that are essential to advancing DBER and broadening its impact on undergraduate science teaching and learning. The book provides empirical research on undergraduate teaching and learning in the sciences, explores the extent to which this research currently influences undergraduate instruction, and identifies the intellectual and material resources required to further develop DBER. *Discipline-Based Education Research* provides guidance for future DBER research. In addition, the findings and recommendations of this report may invite, if not assist, post-secondary institutions to increase interest and research activity in DBER and improve its quality and usefulness across all natural science disciples, as well as guide instruction and assessment across natural science courses to improve student learning. The book brings greater focus to issues of student attrition in the natural sciences that are related to the quality of instruction. *Discipline-Based Education Research* will be of interest to educators, policy makers, researchers, scholars, decision makers in universities, government agencies, curriculum developers, research sponsors, and education advocacy groups.

The Condition of Education 2012
The Condition of Education 2012 summarizes important developments and trends in education using the latest available data. The report presents 49 indicators on the status and condition of education, in addition to a closer look at high schools in the United States over the past twenty years.. The indicators represent a consensus of professional judgment on the most significant national measures of the condition and progress of education for which accurate data are available. The 2012 print edition includes indicators in three main areas: (1) participation in education; (2) elementary and secondary education and outcomes; and (3) postsecondary education and outcomes.
Improving Measurement of Productivity in Higher Education

Higher education is a linchpin of the American economy and society: Teaching and research at colleges and universities contribute significantly to the nation's economic activity, both directly and through their impact on future growth; federal and state governments support teaching and research with billions of taxpayers' dollars; and individuals, communities, and the nation gain from the learning and innovation that occurs in higher education. In the current environment of increasing tuition and shrinking public funds, a sense of urgency has emerged to better track the performance of colleges and universities in the hope that their costs can be contained while not compromising quality or accessibility. *Improving Measurement of Productivity in Higher Education* presents an analytically well-defined concept of productivity in higher education and recommends empirically valid and operationally practical guidelines for measuring it. In addition to its obvious policy and research value, improved measures of productivity may generate insights that potentially lead to enhanced departmental, institutional, or system educational processes. *Improving Measurement of Productivity in Higher Education* constructs valid productivity measures to supplement the body of information used to guide resource allocation decisions at the system, state, and national levels and to assist policymakers who must assess investments in higher education against other compelling demands on scarce resources. By portraying the productive process in detail, this report will allow stakeholders to better understand the complexities of--and potential approaches to--measuring institution, system and national-level performance in higher education.

Nutrition and Healthy Aging in the Community: Workshop Summary

In light of the increasing numbers of older adults choosing to live independently rather than in nursing homes, and the important role nutrition can play in healthy aging, the Institute of Medicine (IOM) convened a public workshop to illuminate issues related to community-based delivery of nutrition services for older adults and to identify nutrition interventions and model programs. *Nutrition and Healthy Aging in the Community* summarizes the presentations and discussions prepared from the workshop transcript and slides. This report examines nutrition-related issues of concern experienced by older adults in the community including nutrition screening, food insecurity, sarcopenic obesity, dietary patterns for older adults, and economic issues. This report explores transitional care as individuals move from acute, subacute, or chronic care settings to the community, and provides models of transitional care in the community. This report also provides examples of successful intervention models in the community setting, and covers the discussion of research gaps in knowledge about nutrition interventions and services for older adults in the community.
New Funding Opportunities

Content Order

New Funding Posted Since May 15 Newsletter
Links to New & Open Funding Solicitations
Solicitations Remaining Open from Prior Issues of the Newsletter

New Funding Solicitations Posted Since May 15 Newsletter

Open Solicitations from IARPA (Intelligence Advanced Research Projects Activity)

Army Research Laboratory Broad Agency Announcement for Basic and Applied Scientific Research
This Broad Agency Announcement (BAA), which sets forth research areas of interest to the Army Research Laboratory (ARL) Directorates and Army Research Office (ARO), is issued under the paragraph 6.102(d)(2) of the Federal Acquisition Regulation (FAR), which provides for the competitive selection of basic research proposals. Proposals submitted in response to this BAA and selected for award are considered to be the result of full and open competition and in full compliance with the provision of Public Law 98-369, "The Competition in Contracting Act of 1984" and subsequent amendments. Open June 1, 2012 to March 31, 2017.

The U.S. Nuclear Regulatory Commission (NRC) was created as an independent agency by Congress in 1974 to enable the nation to safely use radioactive materials for beneficial civilian purposes while ensuring that people and the environment are protected. The NRC regulates the nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment. The NRC’s Office of Nuclear Regulatory Research (RES) furthers the agency’s regulatory mission by providing technical advice, technical tools and information for identifying and resolving safety issues, making regulatory decisions, and promulgating regulations and guidance. RES is comprised of three technical divisions and one administrative division, each with their own responsibilities and program goals. Functional descriptions of each division can be found here. Due June 26.

Energy Innovation Hub - Critical Materials
The purpose of this FOA is to fund a Critical Materials Energy Innovation Hub to reduce materials criticality and prevent criticality of new materials that are essential for energy technologies. The Critical Materials Hub will coordinate Research and Development across the entire materials lifecycle. Research and Development will combine basic and applied research with engineering to accelerate scientific discovery utilizing highly collaborative teams across
multiple scientific and engineering disciplines. The initial award period is for five years. The Hub will be funded up to a total of $20 million in the first year; up to $10 million of those funds can be devoted to infrastructure start-up for the Hub, including building renovation (but not new construction), lease arrangements, equipment, and instrumentation. It is anticipated that the Hub will be funded up to $25 million per year for Hub operations in the final four years of the initial award period, pending Congressional appropriations. **LOI June 29; full August 30.**

**National Integrated Water Quality Program**
The goal of the National Integrated Water Quality Program is to contribute to the improvement of the quality of our Nation’s surface water and groundwater resources through research, education, and extension activities. Projects funded through this program will work to solve water resource problems by advancing and disseminating the knowledge base available to agricultural, rural, and urbanizing communities. Funded projects should lead to science-based decision making and management practices that improve the quality of the Nation’s surface water and groundwater resources in agricultural, rural, and urbanizing watersheds. **Due June 28.**

**Innovative Biosynthetic Pathways to Advanced Biofuels**
The focus of this FOA is found in these two topic areas: 1. **Topic Area 1 - Intermediate Production:** Innovative synthetic biological approaches to the cost-effective fractionation of lignocellulosic biomass, both terrestrial and aquatic, into processable components such as fermentable sugars, modified lignin suitable for conversion to higher value materials, and oligomeric sugar fractions or biopolymers that are more easily converted to monomers for further processing. 2. **Topic Area 2 – Intermediate Transformations:** Innovative synthetic biological approaches to the cost-effective and high yield conversion of processable component fractions into advanced biofuels and high-energy impact bioproducts. The desired outcome is to improve the current performance metrics for lignocellulosic processing. **LOI June 21; full July 7.**

**Project Archaeology**
The Cultural Resources Education and Protection project will allow BLM (in partnership with the recipient) to plan, develop, and distribute high-quality educational materials to educators and their students throughout the United States through the National Project Archaeology program. Project Archaeology is an educational program dedicated to teaching scientific and historical inquiry, cultural understanding, and the public land stewardship ethic, specifically, the importance of protecting our nation’s rich cultural resources. The program was founded by the Bureau of Land Management (BLM) to satisfy, in part, protection mandates spelled out in Section 10(c) of the Archaeological Resources Protection Act (ARPA). The materials are designed to increase awareness of archaeological resources on public lands, their significance, and the need to protect them now and in the future. The project will continue existing efforts to develop and distribute educational materials in schools and in informal learning environments such as public lands visitor centers, museums, and science learning centers and to provide professional development for school teachers and informal educators such as
interpreters, museum docents, and youth group leaders. The project will assist BLM archaeologists and managers in protecting archaeological sites on public lands. Due June 29.

**Advanced Computational and Modeling Research for the Electric Power System**
The objective of this Funding Opportunity Announcement (FOA) is to leverage scientific advancements in mathematics and computation for application to power system models and software tools, with the long-term goal of enabling real-time protection and control based on wide-area sensor measurements. Specifically, this FOA [Fedconnect](#) focuses on two foundational research challenges: 1) handling of large data sets to improve suitability for operational (and/or planning) models and analysis; and 2) faster than real-time simulations that improve understanding of system dynamics to help guide operational decision-making. Due July 5.

**Capacity Building Grants for Non Land Grant Colleges of Agriculture (NLGCA) Program**
NLGCA Institutions may use the funds: (a) to successfully compete for funds from Federal grants and other sources to carry out educational, research, and outreach activities that address priority concerns of national, regional, State, and local interest; (b) to disseminate information relating to priority concerns to interested members of the agriculture, renewable resources, and other relevant communities, the public, and any other interested entity; (c) to encourage members of the agriculture, renewable resources, and other relevant communities to participate in priority education, research, and outreach activities by providing matching funding to leverage grant funds; and (d) through: (1) the purchase or other acquisition of equipment and other infrastructure (not including alteration, repair, renovation, or construction of buildings); (2) the professional growth and development of the faculty of the NLGCA Institution; and (3) the development of graduate assistantships. Due July 6.

**Coordinating Center For Interprofessional Education And Collaborative Practice**
The purpose of the coordinating center for interprofessional education and collaborative practice (CC-IPECP) is to provide an infrastructure for leadership, expertise, and support to enhance the coordination and capacity building of IPECP among health professions across the U.S. and particularly in medically underserved areas. Through innovative program coordination, scholarly activities, and analytic data collection efforts, the coordinating center will raise the visibility of high-quality, coordinated, team-based care that is well-informed by interprofessional education and best practice models. The CC-IPECP will be a focal point in a growing national effort to foster IPECP among health professions. HRSA intends to partner with other federal agencies, foundations, and public and private organizations to work towards a shared vision to transform a siloed U.S. healthcare system into one that engages patients, families, and communities in collaborative, team-based care. Accordingly, the CC-IPECP will serve as a hub to generate, coordinate, evaluate, and disseminate safe, efficient, effective, and equitable practice models that are essential for education and practice in emerging integrated care delivery systems. Due July 20.
Resilient Extreme-Scale Solvers (RX-Solvers?)
Advanced Scientific Computing Research (ASCR), Office of Science (SC), US Department of Energy (DOE), thereby invites applications for basic research in Resilient Extreme-Scale Solvers (RX-Solvers?) that demonstrably advances the state of science and practice for scalable, resilient, extreme-scale numerical algorithms, to enable scientific discovery on the supercomputers expected to come online in the next 5-10 years and lay the foundation for research in numerical algorithms for extreme-scale scientific computing. Due August 13.

Air Force Fiscal Year 2013 Young Investigator Research Program
AFOSR’s Young Investigator Research Program (YIP) supports scientists and engineers who have received Ph.D. or equivalent degrees in the last five years (on or after 1 May 2007) and who show exceptional ability and promise for conducting basic research. The objective of this program is to foster creative basic research in science and engineering, enhance early career development of outstanding young investigators, and increase opportunities for the young investigators to recognize the Air Force mission and the related challenges in science and engineering. Proposals addressing the research areas of interest for the Air Force Research Laboratory will be considered. The basic research areas of current interest are available on-line at the Grants.gov web site. Search for:BAA-AFOSR-2012-0001, Research Interests of the Air Force Office of Scientific Research. For detailed information regarding technical goals, potential applicants are advised to refer to the announcement cited above and may contact AFOSR program managers listed therein to explore mutual interests before submitting proposals. Due August 14.

Advancing Informal STEM Learning (AISL)
The Advancing Informal STEM Learning program invests in research and development of innovative and field advancing out of school STEM learning and emerging STEM learning environments. Preliminary proposal due August 14; full January 14, 2013.

Fellowship Programs at Independent Research Institutions
Grants for Fellowship Programs at Independent Research Institutions (FPIRI) support fellowships at institutions devoted to advanced study and research in the humanities. NEH fellowships provide scholars with research time and access to resources that might not be available at their home institutions. Fellowship programs may be administered by independent centers for advanced study, libraries, and museums in the United States; American overseas research centers; and organizations that have expertise in promoting research on foreign cultures. Individual scholars must apply directly to the institutions themselves. A list of currently funded institutions is available at http://www.neh.gov/divisions/research/fpiri-supported-fellowships. Due August 16.

DARPA-BAA-12-47: Deep Exploration and Filtering of Text (DEFT)
DARPA is soliciting innovative research proposals in the area of deep natural language understanding. The Deep Exploration and Filtering of Text (DEFT) program seeks to develop the
ability to see through language to meaning in text, to make use of key information contained in text documents, to cue up information sources that contain new developments for analysts, and to automate the initial stages of report writing. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice. **Due August 20.**

**ROSES 2012: Remote Sensing of Water Quality**
Research is solicited that addresses the reduction of interference that the atmosphere generates by existing between a satellite (or airborne) remote sensing device and the water of lakes, rivers, and coastal ocean. By addressing this problem, improvements should be possible with current and near-future satellite observations. Research in this topic may also target optimal remote sensing design of future systems so as to maximize the return of the coupled sensor design and radiative transfer algorithm. If this goal is proposed, then explicit connection must be drawn between the approach and goals of the study and potential NASA satellites and or remote sensing approaches – as either defined by the Decadal Survey and/or NASA sponsored working groups. Research is solicited to better understand how the biogeochemical properties of a water body may influence its optical properties. This work should also be put into context of how remote sensing can be used to make backward inferences, i.e. using the remotely sensed signal of optical properties to accurately describe the biogeochemical state of the water. **Due August 22.**

**Louis Stokes Alliances for Minority Participation (LSAMP)**
The LSAMP program assists universities and colleges in diversifying the STEM workforce through their efforts at significantly increasing the numbers of students successfully completing high quality degree programs in science, technology, engineering and mathematics (STEM) disciplines. **This solicitation includes a new activity "Bridge to the Baccalaureate Alliances" (B2B) to support community college partner institutions** to accelerate the transfer of under-represented minority STEM students to four-year institutions in pursuit of a Baccalaureate STEM degree. B2B Alliances will be made up entirely of two-year colleges. Proposals may be submitted directly by a single lead two-year institution of higher learning with sub-awards made to partners within the alliance. **Multiple due dates beginning August 28.**

**Energy Innovation Hub - Critical Materials**
The purpose of this FOA is to fund a Critical Materials Energy Innovation Hub to reduce materials criticality and prevent criticality of new materials that are essential for energy technologies. The Critical Materials Hub will coordinate Research and Development across the entire materials lifecycle. Research and Development will combine basic and applied research with engineering to accelerate scientific discovery utilizing highly collaborative teams across multiple scientific and engineering disciplines. The initial award period is for five years. The Hub will be funded up to a total of $20 million in the first year; up to $10 million of those funds can be devoted to infrastructure start-up for the Hub, including building renovation (but not new
construction, lease arrangements, equipment, and instrumentation. It is anticipated that the Hub will be funded up to $25 million per year for Hub operations in the final four years of the initial award period, pending Congressional appropriations (more). Due August 30.

**Sensors and Sensing Systems (SSS)**
The Sensors and Sensing System (SSS) program funds fundamental research on sensors and sensing systems. Such fundamental research includes the discovery and characterization of new sensing modalities, fundamental theories for aggregation and analysis of sensed data, fundamentally new approaches for data transmission, and approaches for addressing uncertain and/or partial sensor data. Innovative research in nonlinear prediction, filtering and estimation in the context of sensing systems is also considered in this program. **Full Proposal Window: September 1, 2012 - October 1, 2012.**

**State and National Archival Partnership Grants**
The National Historical Publications and Records Commission seeks proposals to strengthen archives and historical records programs in each of the states and build a national archival network. **Due September 6.**

**FY 2013 Research Opportunities in High Energy Physics**
The Office of High Energy Physics at the U. S. Department of Energy’s Office of Science, hereby invites new grant applications for support of research programs in high-energy physics. **Due September 10.**

**Advances in Biological Informatics (ABI)**
The Advances in Biological Informatics (ABI) program seeks to encourage new approaches to the analysis and dissemination of biological knowledge for the benefit of both the scientific community and the broader public. The ABI program is especially interested in the development of informatics tools and resources that have the potential to advance- or transform- research in biology supported by the Directorate for Biological Sciences at the National Science Foundation. The ABI program accepts three major types of proposals: Innovation awards that seek to pioneer new approaches to the application of informatics to biological problems, Development awards that seek to provide robust cyberinfrastructure that will enable transformative biological research, and Sustaining awards that seek to support ongoing operations and maintenance of existing cyberinfrastructure that is critical for continued advancement of priority biological research. **Due September 10.**

**NEH Enduring Questions**
The NEH Enduring Questions grant program supports faculty members in the teaching and development of a new course that will foster intellectual community through the study of an enduring question. This question-driven course will encourage undergraduates and teachers to grapple with a fundamental concern of human life addressed by the humanities, and to join
together in a deep and sustained program of reading in order to encounter influential thinkers over the centuries and into the present day. Due September 13.

**SunShot Solar Energy Evolution and Diffusion Studies (SEEDS)**
Through the SEEDS FOA, the Department of Energy will invest up to $9 million over three years to support research on solar energy innovation dynamics and technology adoption patterns. SEEDS supports the development of a diversity of analytical, numerical, and computational tools and methods; implementation of pilot test strategies for modifying current business and policy practices; and assessment of pilot tests outcomes for impact and scalability. Through SEEDS, the Department of Energy seeks to launch a series of systematic investigations that will result in viable methods for dramatically transforming the operations of solar researchers, manufacturers, developers, installers, and policymakers. Selected research efforts will be performed in tandem with industry partners to ensure that results can be applied, tested, and modified in real time. A User Guide for EERE Exchange can be found on the EERE website [http://eere-exchange.energy.gov/Manuals.aspx](http://eere-exchange.energy.gov/Manuals.aspx) after logging in to the system. Information on where to submit questions regarding the content of the announcement and where to submit questions regarding submission of application is found in the full FOA posted on the EERE Exchange website. Due September 17.

**Joint DMS/NIGMS Initiative to Support Research at the Interface of the Biological and Mathematical Sciences (DMS/NIGMS)**
The Division of Mathematical Sciences in the Directorate for Mathematical and Physical Sciences at the National Science Foundation and the National Institute of General Medical Sciences at the National Institutes of Health plan to support research in mathematics and statistics on questions in the biological and biomedical sciences. Both agencies recognize the need and urgency for promoting research at the interface between the mathematical sciences and the life sciences. This competition is designed to encourage new collaborations, as well as to support existing ones. Due September 17.

**Research in Engineering Education (REE)**
The Division of Engineering Education and Centers (EEC) supports creation of a more agile engineering education ecosystem, equally open and available to all members of society, that dynamically and rapidly adapts to meet the changing needs of society and the nation's economy. Research is sought that will inform systemic change across all parts of the ecosystem. Due September 20.

**Digital Humanities Start-up Grants**
The National Endowment for the Humanities (NEH) invites applications to the Digital Humanities Start-Up Grants program. This program is designed to encourage innovations in the digital humanities. By awarding relatively small grants to support the planning stages, NEH aims to encourage the development of innovative projects that promise to benefit the humanities. Proposals should be for the planning or initial stages of digital initiatives in any area of the
Digital Humanities Start-Up Grants may involve research that brings new approaches or documents best practices in the study of the digital humanities; planning and developing prototypes of new digital tools for preserving, analyzing, and making accessible digital resources, including libraries' and museums' digital assets; scholarship that focuses on the history, criticism, and philosophy of digital culture and its impact on society; scholarship or studies that examine the philosophical or practical implications and impact of the use of emerging technologies in specific fields or disciplines of the humanities, or in interdisciplinary collaborations involving several fields or disciplines; innovative uses of technology for public programming and education utilizing both traditional and new media; and new digital modes of publication that facilitate the dissemination of humanities scholarship in advanced academic as well as informal or formal educational settings at all academic levels. **Due September 25.**

**EPSCoR Research Infrastructure Improvement Program Track-1: (RII Track-1)**
Research Infrastructure Improvement Program Track-1: (RII Track-1) awards provide up to $4 million per year for up to 5 years to support physical, human, and cyber infrastructure improvements in research areas selected by the jurisdiction's EPSCoR steering committee as having the best potential to improve future R&D competitiveness of the jurisdiction. **Due October 3.**

**Documenting Democracy: Access to Historical Records**
The National Historical Publications and Records Commission seeks proposals that promote the preservation and use of the nation's most valuable archival resources. Projects should expand our understanding of the American past by facilitating and enhancing access to primary source materials. **Due October 4.**

**Innovation in Archives and Documentary Editing**
The National Historical Publications and Records Commission seeks projects that are exploring innovative methods to improve the preservation, public discovery, or use of historical records. **Due October 4.**

**Publishing Historical Records**
The National Historical Publications and Records Commission seeks proposals to publish historical records of national significance. New Republic through the Modern Era. **Due October 4.**

**Advancing Digitization of Biodiversity Collections (ADBC)**
This program seeks to enhance and expand the national resource of digital data documenting existing vouchered biological and paleontological collections and to advance scientific knowledge by improving access to digitized information (including images) residing in vouchered scientific collections across the United States. The information associated with various collections of organisms, such as geographic, paleogeographic and stratigraphic distribution, environmental habitat data, phenology, information about associated organisms,
collector field notes, and tissues and molecular data extracted from the specimens, is a rich resource providing the baseline from which to further biodiversity research and provide critical information about existing gaps in our knowledge of life on earth. **Due October 19.**

**ARL Core Broad Agency Announcement for Basic and Applied Scientific Research for Fiscal Years 2012 through 2017**

**Links to New & Open Funding Solicitations**

- Open Solicitations from IARPA (Intelligence Advanced Research Projects Activity)
- Bureau of Educational and Cultural Affairs, Open Solicitations, DOS
- ARPA-E Funding Opportunity Exchange
- DOE Funding Opportunity Exchange
- NIAID Funding Opportunities List
- NPS Broad Agency Announcements (BAAs)
- NIJ Current Funding Opportunities
- NIJ Forthcoming Funding Opportunities
- Engineering Information Foundation Grant Program
- Comprehensive List of Collaborative Funding Mechanisms, NORDP
- ARL Funding Opportunities — Open Broad Agency Announcements (BAA)
- HHS Grants Forecast
- American Psychological Association, Scholarships, Grants and Awards
- NIAID Funding Blog
- EPA 2012 Science To Achieve Results (STAR) Research Grants
- NASA Open Solicitations
- Defense Sciences Office Solicitations
- The Mathematics Education Trust
- Opportunities for Humanities Funding Announced
- EPA Open Funding Opportunities
- DOE Funding Opportunity Exchange
- CDMRP FY 2012 Funding Announcements
- Office of Minority Health
- Department of Justice Open Solicitations
- DOE/EERE Funding Opportunity Exchange
- HHS/Administration for Children and Families Funding Opportunities
- New Funding Opportunities at NIEHS (NIH)
- National Human Genome Research Institute Funding Opportunities
- Army Research Laboratory Open Broad Agency Announcements (BAA)
- SBIR Gateway to Funding
Solicitations Remaining Open from Prior Issues of the Newsletter

**NSF/DOE Partnership on Advanced Combustion Engines 2012-2015**
The Directorate for Engineering at the National Science Foundation (NSF) has established a partnership with the Vehicle Technologies Program (VTP) of the U.S. Department of Energy (DOE) in order to address critical fundamental and applied research challenges associated with advanced combustion engine technologies. The goal of the partnership is to leverage the complementary missions of deployment and commercialization (DOE) and fundamental research and education (NSF) to address issues of national importance that impact the efficiency of the internal combustion engine (ICE). The Directorate for Engineering seeks proposals with transformative ideas that meet the detailed requirements delineated in this solicitation. **LOI required June 18; full August 8.**

**Clean Cities - Implementation Initiatives to Advance Alternative Fuel Markets**
The Department of Energy’s (DOE), Office of Energy Efficiency and Renewable Energy (EERE) is seeking applications that address and assist in reducing multiple barriers to alternative fuel vehicle adoption and use. Overall, this Funding Opportunity Announcement (FOA), issued on behalf of EERE by the National Energy Technology Laboratory (NETL), aims to decrease the nation’s dependence on petroleum and reduce greenhouse gas emissions by accelerating the deployment of alternative fuels. Efforts should focus only on the alternative fuels defined by the Energy Policy Act of 1992, as amended by the Energy Policy Act of 2005 and further augmented by the Energy Independence and Security Act of 2007. The expanded use of
alternative fuel vehicles and domestically produced alternative transportation fuels can create and retain jobs, stimulate and support domestic economies, and help protect the environment. The Clean Cities program has identified the following four critical areas that provide significant obstacles to alternative fuel vehicle use: 1) Policies, 2) Barrier Reduction, 3) Safety and Training, and 4) Market Development/Outreach. Due June 18.

Integrated Research, Education, and Extension Competitive Grants Program - Methyl Bromide Transitions
This RFA solicits applications for the Integrated Research, Education, and Extension Competitive Grants Program, Methyl Bromide Transitions (MBT). Methyl Bromide has been a pest and disease control tactic critical to agricultural, industrial, natural resource or urban pest management systems for decades. The MBT program seeks to solve critical agricultural issues, priorities, or problems through the integration of research, education, and extension activities. It is designed to address immediate needs, and the costs of transition that have resulted from the loss of availability of methyl bromide. Due June 19.

Collaborative Research in Fusion Energy Sciences on Foreign Research Facilities
The Office of Fusion Energy Sciences of the Office of Science (SC), U.S. Department of Energy, hereby announces its interest in receiving proposals from multi-institutional teams to carry out experimental research in magnetic fusion energy sciences on international tokamak facilities. The FES International Collaboration portfolio supports U.S scientific teams who work in collaboration with foreign scientists to explore critical science and technology issues at the frontiers of magnetic fusion research. These collaborations take advantage of the unique capabilities of the most advanced international research facilities. The Fusion Energy Sciences Advisory Committee (FESAC) International Collaboration Panel recently submitted a report entitled ?International Collaboration in Fusion Energy Sciences Research: Opportunities and Modes during the ITER Era? on compelling opportunities for international collaboration: http://science.energy.gov/~media/fes/pdf/workshop-reports/20120309/FESAC-Intl_Collaborations-final-report.pdf The specific areas of interest for this Program Announcement involve one of the major scientific challenges identified in this report: achieving high performance core plasma regimes suitable for long pulse. Due June 21.

SBIR E-learning for HAZMAT and Emergency Response (SBIR [R43/R44])
This funding opportunity announcement (FOA) encourages Small Business Innovation Research (SBIR) grant applications from small business concerns (SBCs) that propose to further the development of Advanced Technology Training (ATT) Products for the health and safety training of hazardous materials (HAZMAT) workers, emergency responders, and skilled support personnel. These products would complement the goals and objectives of the Worker Education and Training Program (WETP). The major objective of the NIEHS/WETP is to prevent work related harm by assisting in the training of workers in how best to protect themselves and their communities from exposure to hazardous materials. There is a need to ensure that learning and training technologies are further developed, field tested and applied to real world
situations. It is the intent of this FOA to support the development of emerging technologies to improve worker preparedness through training and education enhancements and methodologies, and to support e-collaboration, e-teaching, and e-learning in safety and health training for workers engaged in hazardous materials response. The financial support for this initiative comes directly from NIEHS Worker Education and Training Branch SBIR funds. This FOA is for SBIR applications only. **LOI June 27; full July 27.**

**Humanities Initiatives at Historically Black Colleges and Universities**
NEH Humanities Initiatives are intended to strengthen and enrich humanities education and scholarship at Historically Black Colleges and Universities. These grants may be used to enhance the humanities content of existing programs, develop new programs, or lay the foundation for more extensive endeavors in the future. Each project must be organized around a core topic or set of themes. **Due June 27.**

**Humanities Initiatives at Hispanic-Serving Institutions**
NEH Humanities Initiatives are intended to strengthen and enrich humanities education and scholarship at Hispanic-Serving Institutions. These grants may be used to enhance the humanities content of existing programs, develop new programs, or lay the foundation for more extensive endeavors in the future. Each project must be organized around a core topic or set of themes. **Due June 27.**

**Bridging Cultures through Film: International Topics**
The *Bridging Cultures* through Film: International Topics program supports documentary films that examine international and transnational themes in the humanities. These projects are meant to spark Americans’ engagement with the broader world by exploring one or more countries and cultures outside of the United States. Proposed documentaries must be analytical and deeply grounded in humanities scholarship. The Division of Public Programs encourages the exploration of innovative nonfiction storytelling that presents multiple points of view in creative formats. The proposed film should range in length from a standard broadcast length of thirty minutes to a feature-length documentary. **Due June 27.**

**Preservation and Access Education and Training**
Preservation and Access Education and Training grants support national or regional (multistate) education and training programs. Grants aim to help the staff of cultural institutions, large and small, obtain the knowledge and skills needed to serve as effective stewards of humanities collections. Grants also support educational programs that prepare the next generation of conservators and preservation professionals, as well as projects that introduce the staff of cultural institutions to new information and advances in preservation and access practices. **Due June 28.**
NSF GeoPRISMS Program
GeoPRISMS (Geodynamic Processes at Rifting and Subducting Margins) is the successor to the MARGINS Program. GeoPRISMS will investigate the coupled geodynamics, earth surface processes, and climate interactions that build and modify continental margins over a wide range of timescales. These interactions cross the shoreline and have applications to margin evolution and dynamics, construction of stratigraphic architecture, accumulation of economic resources, and associated geologic hazards and environmental management. The GeoPRISMS Program includes two broadly integrated science initiatives (Subduction Cycles and Deformation and Rift Initiation and Evolution), linked by five overarching scientific topics and themes, where transformative advances are likely to occur in the next decade, and where a focused scientific program could be most effective. Due July 2.

NSF Solicitation: Research and Evaluation on Education in Science and Engineering (REESE)
The Research and Evaluation on Education in Science and Engineering (REESE) program seeks to advance research at the frontiers of STEM learning and education, and to provide the foundational knowledge necessary to improve STEM learning and education in current and emerging learning contexts, both formal and informal, from childhood through adulthood, for all groups, and from before school through to graduate school and beyond into the workforce. The goals of the REESE program are: (1) to catalyze discovery and innovation at the frontiers of STEM learning and education; (2) to stimulate the field to produce high quality and robust research results through the progress of theory, method, and human resources; and (3) to coordinate and transform advances in education and learning research [See an introduction to DRL and its programs by Dr. Joan Ferrini-Mundy; See an introduction to REESE by Dr. Janice Earle]. Due July 17.

Humanities Collections and Reference Resources
This program supports projects that provide an essential underpinning for scholarship, education, and public programming in the humanities. Thousands of libraries, archives, museums, and historical organizations across the country maintain important collections of books and manuscripts, photographs, sound recordings and moving images, archaeological and ethnographic artifacts, art and material culture, and digital objects. Funding from this program strengthens efforts to extend the life of such materials and make their intellectual content widely accessible, often through the use of digital technology. Awards are also made to create various reference resources that facilitate use of cultural materials, from works that provide basic information quickly to tools that synthesize and codify knowledge of a subject for in-depth investigation. Due July 19.

Failure-Resistant Systems (FRS)
The National Science Foundation and the Semiconductor Research Corporation (SRC) have agreed to embark on a new collaborative research program to address compelling research challenges in failure resistant systems that are of paramount importance to industry, academia, and society at large. New approaches in the design of electronic circuits and systems are
needed for products and services that continue to operate correctly in the presence of transient, permanent, or systematic failures. From large information processing systems supporting communications and computation, to small embedded systems targeting medical and automotive applications, whole industries are facing the challenge of improving the reliability of systems. **Due July 26.**

**DARPA Local Control of Materials Synthesis (LoCo)**

The goal of the Local Control of Materials Synthesis (LoCo) program is to develop a low-temperature process for the deposition of thin films whose current minimum processing temperature exceeds the maximum temperature substrates of interest to the Department of Defense (DoD) can withstand (e.g., chemical vapor deposited diamond on polymers). To achieve this goal, DARPA is soliciting innovative research proposals that independently develop novel chemical and physical processes to meet the energetic/chemical requirements of thin film deposition (e.g., reactant flux, surface mobility, reaction energy, etc.), without reliance on broadband temperature input used in state-of-the-art chemical vapor deposition. Complementary, successful methods will then be integrated by DARPA to deposit a DoD-relevant thin film (e.g., optically clear diamond) on a DoD substrate of interest (e.g., zinc sulfide). Non-traditional performers outside of the materials research/thin film deposition communities in areas such as surface acoustic wave spectroscopy, plasma physics, photochemistry, etc. are highly encouraged to submit proposals to the LoCo program. To facilitate technology transfer, DARPA is also seeking input on DoD systems and parts that could benefit from success in the LoCo program. **Due July 26.**

**Data Infrastructure Building Blocks (DIBBs)**

Science and engineering research and education are increasingly digital and increasingly data-intensive. Digital data are not only the output of research but their analysis provide input to new hypotheses, enabling new scientific insights, driving innovation and informing education. Therein lies one of the major challenges of this scientific generation: how to develop, implement and support the new methods, management structures and technologies to store and manage the diversity, size, and complexity of current and future data sets and data streams. NSF’s vision for a Cyberinfrastructure Framework for 21st Century Science and Engineering (CIF21) considers an integrated, scalable, and sustainable cyberinfrastructure as crucial for innovation in science and engineering (see [www.nsf.gov/cif21](http://www.nsf.gov/cif21)). Data Infrastructure Building Blocks is an integral part of the CIF21 portfolio. **Due July 26 and August 30.**

**Opportunities for Promoting Understanding through Synthesis (OPUS)**

All four clusters within the Division of Environmental Biology (Population and Community Ecology, Ecosystem Science, Evolutionary Processes and Systematic Biology and Biodiversity Inventories) encourage the submission of proposals aimed at synthesizing a body of related research projects conducted by a single individual or a group of investigators over an extended period. **Due August 1.**
DARPA-BAA-11-65: Defense Sciences Research and Technology, Response Date 8/09/2012
The mission of the Defense Advanced Research Projects Agency’s (DARPA) Defense Sciences Office (DSO) is to pursue and exploit fundamental science and innovation for National Defense. Therefore, DSO is soliciting proposal abstracts and full proposals for advanced research and development in a variety of enabling technical areas (more). Due August 9.

International Research Experiences for Students (IRES)
The International Research Experiences for Students (IRES) program supports development of globally-engaged U.S. science and engineering students capable of performing in an international research environment at the forefront of science and engineering. The IRES program supports active research participation by students enrolled as undergraduates or graduate students in any of the areas of research funded by the National Science Foundation. IRES projects involve students in meaningful ways in ongoing research programs or in research projects specifically designed for the IRES program. Due August 21.

NEH Summer Stipends
Summer Stipends support individuals pursuing advanced research that is of value to humanities scholars, general audiences, or both.
- Recipients usually produce articles, monographs, books, digital materials, archaeological site reports, translations, editions, or other scholarly resources.
- Summer Stipends support full-time work on a humanities project for a period of two months.
- Summer Stipends support projects at any stage of development.
- Summer Stipends are awarded to individual scholars. Organizations are not eligible to apply.
- Program Statistics: In the last five competitions the Summer Stipends program received an average of 953 applications per year. The program made an average of 74 awards per year, for a funding ratio of 8 percent. Due September 27 for Projects Beginning May, 2013.

Alliances for Graduate Education and the Professoriate
The Alliances for Graduate Education and the Professoriate (AGEP) program will support three types of projects described in this solicitation: 1) AGEP-Transformation; 2) AGEP-Knowledge Adoption and Translation; and 3) AGEP-Broadening Participation Research in STEM Education. This solicitation represents an expansion of the program to include strategic investments in the development and study of new models for STEM graduate education, postdoctoral training, and academic STEM career preparation that eliminate or mitigate negative factors and promote positive practices for underrepresented racial and ethnic minorities. AGEP is interested in proposals that include any or all science, technology, engineering, and mathematics (STEM) fields supported by the NSF, including the social, behavioral and economic sciences, and multi-, cross-, or inter- disciplinary fields. A pilot project with the Directorate for Mathematical and
Physical Sciences (MPS) is included in this solicitation, but AGEP is not limited to or focused only on the mathematical and physical sciences. **Due September 28 and October 30.**

**Fiscal Year 2012 Funding Opportunity Announcement (FOA) for Navy and Marine Corps Science, Technology, Engineering and Mathematics (STEM) Programs 12-002**
The purpose of this announcement is to receive proposals in support of the Naval Strategic Plan and the Office of Naval Research’s scientific outreach and education mission to develop its next generation of scientists and engineers. **The objective of these activities will be to:** 1. Establish successful, sustainable, and affordable long-term, national Navy-sponsored programs targeted at elementary and secondary schools as well as institutions of higher learning. 2. Increase the awareness of and exposure to Naval relevant STEM content, research experience and career options through education and outreach programs. 3. Establish and maintain a pipeline of students, particularly women and under-represented minorities, who will apply for and participate in Naval education and outreach programs. 4. Increase the number of domestic students (particularly students from under-represented groups) completing STEM degrees through enhancing student interest and attitudes toward science, technology, engineering, and mathematics. 5. Strengthen peer, family, and school support for STEM programs. 6. Ensure long-term inclusiveness of women and minorities in Naval science and technology programs. 7. Increase the number of students taking college-prep science and mathematics courses. 8. Strengthen the resources and training offered to STEM teachers. For more information on these priorities, please review the Naval STEM Strategic Plan at [www.onr.navy.mil](http://www.onr.navy.mil). (MORE). **Open to September 30, 2012**

**Fiscal Year 2012 Basic Research Initiative (BRI)**
The Air Force Office of Scientific Research (AFOSR) manages the basic research investment for the U.S. Air Force (USAF). As a part of the Air Force Research Laboratory (AFRL), AFOSR’s technical experts foster and fund research within the Air Force Research Laboratory, universities, and industry laboratories to ensure the transition of research results to support USAF needs. AFOSR announces a competition for the Fiscal Year 2012 Basic Research Initiative (BRI) program, for the topics listed below. Detailed descriptions of the topics may be found in Section I of this announcement. It is expected that multiple awards will be made. **The Air Force Defense Research Sciences Program is open to November 23, 2012.**

**FY 12 Funding Opportunity For The National Consortium For Measurement And Signature Intelligence (MASINT) Research Program**
FY12 Program: Offerors are invited to present related work, on-going research activities and proposed future activities associated with the following areas: (A) Remote assessment of missile performance characteristics such as location, thrust, throw weight, warhead accuracy, defensive capabilities, etc. (B) Remote assessment and detection of weapons of mass destruction such as nuclear, biological, chemical and radiological weapons. This thrust area does not include improvised explosive devices utilizing standard explosives such as dynamite, TNT, C4, ANFO, etc. (C) Remote assessment and detection of directed energy weapons. This
would include all lasers that are primarily designed as weapons as well as high-powered microwave (HPM) and electromagnetic pulse (EMP) weapons. **Open to Dec. 31, 2012.**

**DARPA Strategic Technologies**
The Defense Advanced Research Projects Agency's (DARPA) Strategic Technology Office (STO) is soliciting innovative proposals under this Broad Agency Announcement (BAA) for the performance of research, development, design, and testing that directly supports Strategic Technology Office (STO). This includes Finding Difficult Targets; Communications, Networks and Electronic Warfare; Shaping the Environment; and Foundational Technologies that support multiple STO focus areas. DARPA-BAA-12-09, entitled Strategic Technologies, is provided as an attachment to this presolicitation notice and includes information on the specific areas of interest, the submission process, proposal formats, as well as all other pertinent administrative information. **DARPA-BAA-12-09 at FedBizOpps**. **Open through January 16, 2013.**

**DARPA Strategic Technologies**
The Defense Advanced Research Projects Agency's (DARPA) Strategic Technology Office (STO) is soliciting innovative proposals under this Broad Agency Announcement (BAA) for the performance of research, development, design, and testing that directly supports Strategic Technology Office (STO). This includes Finding Difficult Targets; Communications, Networks and Electronic Warfare; Shaping the Environment; and Foundational Technologies that support multiple STO focus areas. DARPA-BAA-12-09, entitled Strategic Technologies, is provided as an attachment to this presolicitation notice and includes information on the specific areas of interest, the submission process, proposal formats, as well as all other pertinent administrative information. **Open to January 12, 2013.**

**Mexican Partnership Program**
The United States Agency for International Development (USAID) Mission in Mexico is seeking concept papers and, later, applications from Mexican for-profit and non-for-profit organizations to implement activities to support the Mexican Partnership Program related to global climate change, economic competitiveness, youth, human rights and rule of law. Eligible organizations include, but are not limited to, non-government organizations (NGOs), associations, cooperatives, universities, civil society organizations, foundations, and private companies. **Open to January 29, 2013.**

**GDA APS 2012 - Addendum Mexico**
Through this Addendum to the FY 2012 Global Development Alliance (GDA) Annual Program Statement (APS) No. APS-OAA-12-000003 (the GDA APS), USAID/Mexico is making a special call for the submission of concept papers related to the USG development pillars of private sector competitiveness, environment and education for work in Mexico. The objectives supported under this addendum are to: 1) help mitigate the effects of global climate change, with a focus on the energy and forestry sectors; 2) improve the availability, relevance and quality of youth leadership and workforce development programs in communities most affected by crime and
violence; and 3) support Mexico’s implementation of a new criminal justice system. **Open to January 31, 2013.**

**Initiative for Conservation in the Andean Amazon Phase II**
The United States Agency for International Development (USAID) is seeking concept papers and later, applications, from Non-Governmental Organizations (NGOs), education institutions, partnerships and consortia to implement activities to support the Initiative for Conservation in the Andean Amazon (ICAA) with Landscape-based programs. Please note, at this time we are not accepting full applications or proposals. Only concept papers will be reviewed. Instructions on how to prepare a concept paper are provided within this APS. **Open to May 2, 2013.**

**APS for Food Security, Nutrition, Biodiversity and Conservation**
The U.S. Agency for International Development (USAID) continues its commitment to foster more strategic alliances with the private sector’s “solution holders” who are often well positioned to address specific development challenges. The purpose of this APS is to announce USAID/Uganda’s plans to fund a limited number of Public Private Alliances to enhance food security and address issues of biodiversity and conservation. Competition under this APS will consist of a two-step process where applicants first submit a Concept Paper for an initial competitive review. **All Concept Papers received will be evaluated for responsiveness to the application criteria specified in this APS.** USAID will then request applicants successful in the first stage (i.e. selected Concept Papers) to submit a Full Application. This APS seeks PPAs in two key priority areas: (1) food security and nutrition; and (2) biodiversity and conservation. In regards to food security and nutrition, USAID/Uganda is seeking priority partnerships that include promising methods for substantially advancing coffee, maize, beans, agro-inputs, nutritional food products, financial services, and information and communication technologies (ICT) solutions. Biodiversity priorities include innovative methods for promoting ecotourism as well as averting ecological and trans-boundary threats. **Open to September 15, 2013.**

**National Oceanic and Atmospheric Administration (NOAA)**
The purpose of this notice is to request applications for special projects and programs associated with NOAA’s strategic plan and mission goals, as well as to provide the general public with information and guidelines on how NOAA will select proposals and administer discretionary Federal assistance under this Broad Agency Announcement (BAA). This BAA is a mechanism to encourage research, education and outreach, innovative projects, or sponsorships that are not addressed through our competitive discretionary programs. It is not a mechanism for awarding congressionally directed funds or existing funded awards. Funding for potential projects in this notice is contingent upon the availability of Fiscal Year 2012, Fiscal Year 2013 and Fiscal Year 2014 appropriations. Applicants are hereby given notice that funds have not yet been appropriated for any potential activities in this notice. Publication of this announcement does not oblige NOAA to review an application, or to award any specific project, or to obligate any available funds. **Open until September 30, 2013.**
National Geospatial-Intelligence Agency Academic Research Program

The National Geospatial-Intelligence Agency (NGA) is releasing this solicitation for its sponsored academic research program. This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Department of Defense (DoD) Grant and Agreement Regulations (DoDGARs) 22.315(a). Awards will take the form of grants. However, other instruments may be considered as appropriate based on the proposals. **Open to September 30, 2013.**

Research Interests of the Air Force Office of Scientific Research

AFOSR plans, coordinates, and executes the Air Force Research Laboratory’s (AFRL) basic research program in response to technical guidance from AFRL and requirements of the Air Force; fosters, supports, and conducts research within Air Force, university, and industry laboratories; and ensures transition of research results to support USAF needs. The focus of AFOSR is on research areas that offer significant and comprehensive benefits to our national warfighting and peacekeeping capabilities. These areas are organized and managed in three scientific directorates: Aerospace, Chemical and Material Sciences, Physics and Electronics, and Mathematics, Information and Life Sciences. The research activities managed within each directorate are summarized in the BAA. AFOSR plans, coordinates, and executes the Air Force Research Laboratory’s (AFRL) basic research program in response to technical guidance from AFRL and requirements of the Air Force; fosters, supports, and conducts research within Air Force, university, and industry laboratories; and ensures transition of research results to support USAF needs. The focus of AFOSR is on research areas that offer significant and comprehensive benefits to our national warfighting and peacekeeping capabilities. These areas are organized and managed in three scientific directorates: Aerospace, Chemical and Material Sciences (RSA), Physics and Electronics (RSE), and Mathematics, Information and Life Sciences (RSL). The research activities managed within each directorate are summarized in the BAA. **Open until superseded.**

Research Interests of the Air Force Office of Scientific Research

AFOSR solicits proposals for basic research through this general Broad Agency Announcement (BAA). This BAA outlines the Air Force Defense Research Sciences Program. AFOSR invites proposals for research in many broad areas. These areas are described in detail in Section I, Funding Opportunity Description. AFOSR is seeking unclassified, white papers and proposals that do not contain proprietary information. We expect our research to be fundamental. **Open until superseded.**

FY2011 – 2016 Basic Research for Combating Weapons of Mass Destruction (C-WMD) Broad Agency Announcement (BAA)

This BAA is focused on soliciting basic research projects that support the DTRA mission to safeguard America and its allies from WMD (e.g., chemical, biological, radiological, nuclear, and high-yield explosives) by providing capabilities to reduce, eliminate, and counter the threat and mitigate its effects.
**NINDS SBIR Technology Transfer (SBIR-TT [R43/R44])**
This Funding Opportunity Announcement (FOA) encourages Small Business Innovation Research (SBIR) grant applications from small business concerns (SBCs) for projects to transfer technology out of the NIH intramural research labs into the private sector. If selected for SBIR funding, the SBC will be granted a royalty-free, non-exclusive internal research-use license for the term of and within the field of use of the SBIR award to technologies held by NIH with the intent that the SBC will develop the invention into a commercial product to benefit the public. **Open November 5, 2011, to September 8, 2014.**

**Small University Grants Open 5-Year Broad Agency Announcement**
Open to August 26, 2015
What We Do—

We provide consulting for colleges and universities on a wide range of topics related to research development and grant writing, including:

- **Strategic Planning** - Assistance in [formulating research development strategies and building institutional infrastructure](#) for research development (including special strategies for Predominantly Undergraduate Institutions and Minority Serving Institutions)

- **Training for Faculty** - Workshops, seminars and webinars on [how to find and compete for research funding](#) from NSF, NIH, DoE and other government agencies as well as foundations. Proposal development retreats for new faculty.

- **Large proposals** - Assistance in [planning and developing institutional and center-level proposals](#) (e.g., NSF ERC, STC, IGERT, STEP, Dept of Ed GAANN, DoD MURI, etc.)

- **Assistance for new and junior faculty** - Help in identifying funding opportunities and developing competitive research proposals, particularly to NSF CAREER, DoD Young Investigator and other junior investigator programs

- **Facilities and Instrumentation** - Assistance in identifying and competing for [grants to fund facilities and instrumentation](#)

- **Training for Staff** - [Professional Development](#) for research office and sponsored projects staff

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**Workshops by Academic Research Funding Strategies**

We offer workshops on research development and grant writing for faculty and research professionals based on all published articles. ([View Index of Articles](#))

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