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New Faculty Guide to Competing for Research Funding is an invaluable tool for faculty writing research grants, or for use by research offices developing grantwriting workshops to help faculty write more competitive proposals. Table of Contents.

Table of Contents

- Going from Research Ideas to Research Dollars
- NSF ERC Webinar Report
- How Proposals Are Reviewed By NSF, NIH, DoED, & DOE
- Big Changes in STEM Education Funding
- Research Grant Writing Web Resources
- Educational Grant Writing Web Resources
- Agency Research News
- Agency Reports, Workshops & Roadmaps
- New Funding Opportunities
- About Academic Research Funding Strategies

Topics of Interest

Fact sheet: Impact of Sequestration on NIH
The Mathematical Sciences in 2025
NSF/OFR Collaborations in Finance Informatics
NIH Fiscal Policy for Grant Awards – FY 2013
Corporations, NSF Team Up to Improve STEM Retention
NSF/EPRI Collaboration on “Water for Energy”
OneNOAA Science Seminars: June 2013
Recruiting Veterans Helps Program Engineer its Future
NSF Science, Engineering & Education Innovation
National Academies Research Associateship Programs
Fulbright U.S. Scholar Program
North American Association for Environmental Educ.
Designing for STEM Integration
ERC 2013 Solicitation Informational Webinar VIDEO
NSF Cedes Little Ground on Political Science Reviews
ARPA-E has Issued Two New FOAs
ARPA-E Thermal Management Solutions RFI
ARO BAA Research in Quantum Computing
DOD STEM Professional Development Grant
2013 Federal Continuing Appropriations Act provisions Affecting the NSF Political Science Program

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As the geologists say, “if you don’t ask the right questions the rock won’t answer.” This expression has its analog in the pursuit of research funding. If you don’t ask the right questions about yourself, your potential funder, the funding solicitation, the process of identifying funding opportunities, and the process of planning, developing, writing and submitting a successful proposal, then the funding agency is unlikely to answer your request for funding in a positive way. In order for you to build a successful portfolio of research awards, you will have to satisfactorily answer many of the following questions. The questions listed below are essentially the critical touchstones that will transition you from a research idea to a funded research idea. You must answer some of these questions about yourself and your research readiness before submitting a successful proposal. Others are questions you must ask about the depth of your understanding of the funding agency, research solicitation, review and selection process, and the grant-writing process itself to determine whether you are prepared to write a competitive proposal.

1. Know yourself (as Ann Landers once said “Know yourself. Do not accept your dog’s admiration as conclusive evidence that you are wonderful.”)
   a. What are my research strengths?
      i. How do I most effectively characterize my research strengths, expertise, experience, background, and future directions?
         1. Can I do this succinctly, clearly, and simply?
         2. Can I explain my research and make a convincing case for the importance of my research to a scientifically literate (intelligent or “informed” reader) reviewer who is a nonexpert in my field?
      ii. What is the significance of my research expertise to my disciplinary field and can I explain this citing the appropriate literature?
      iii. How will my research contribute to my disciplinary field or other disciplinary fields and advance them in some important way?
      iv. Is my research disciplinary, multidisciplinary, interdisciplinary, transdisciplinary?
         1. Do I understand how these terms are used by specific agencies, e.g., by NSF?
      v. Is my area of expertise addressed in the agency’s strategic plan?
         1. How would my research advance the agency strategic plan?
      vi. Does my research bring value-added benefits to the agency and program?
      vii. Does my research advance the mission priorities of the agency?
         1. Do I clearly understand the difference between basic research agencies (e.g., NSF, NIH, DARPA) and mission specific agencies (e.g.,
DOD, NOAA, DOE) and how different agencies characterize value-added benefits?

viii. Have I prepared a convincing and brief (perhaps 1 page) white paper that serves as a very concise and clearly stated overview of my research goals, objectives, rationale, experience, and expertise that would be of interest to a potential funder? Also, does this white paper (abstract, project summary, executive summary, “elevator speech,” etc.) make a compelling case for the value-added benefits my research would bring to the critical mission areas of the agency, or to the research field, or to other research fields?

b. What are my research weaknesses?
   i. Do I lack preliminary data; if so, how will I address that?
   ii. Do I lack publications on the research topic; if so, how will I address that?
      1. Do I lack the appropriate peer-reviewed publications that will help convince reviewers of the importance of my research and my capacity to perform?
      2. Are my publications too weighted towards non-peer reviewed proceedings, book chapters, conference presentations, etc. that will leave reviewers unconvinced about the importance of my research and my capacity to perform?
   iii. Do I lack experience and expertise in the field; if so, how will I address that?
   iv. Do I need research collaborators; if so, how will I address that?

c. Do I have a strategic plan for my research?
   i. Where am I going and how do I plan to get there?
      1. Why is it important that I do this research?
   ii. How do I best characterize the significance of my current research/expertise
      1. To the field?
      2. To other fields?
      3. To the agency?
      4. To an agency mission?
   iii. Where will my research be in five years, or even ten or twenty years?
   iv. Does my research require my engagement in “team science” and research collaborations?

d. Can I define my disciplinary domain of interest (e.g., education, engineering, science, social science, humanities, education, health and biomedical sciences, etc.) with sufficient clarity to begin the process of identifying potential funders of my research?

e. Can I clearly characterize the nature of my research interests within my disciplinary domain, e.g., is my research predominantly basic or applied, or perhaps applications or contract based?

f. Have I identified funding agencies whose mission, strategic plan, and investment priorities are aligned with my research interests and expertise;

g. If required, do I know how to develop the research and/or educational partnerships and research collaborations with other researchers in other disciplines or at other
institutions needed to be competitive at a specific agency or for a specific program area?
h. Have I gone through the process to further align my research interests with funding agency opportunities by:
   i. Reviewing past funding solicitations by the agency,
   ii. Reviewing abstracts of recently funded proposals by the agency in my disciplinary area

1. Reviewing abstracts (aka project summary or executive summary) of recently funded projects gives researchers yet another source of information about the interests of a funding agency by presenting review panels’ and program officers’ selections of successful proposals. Reading the abstracts of funded projects will give you a more nuanced understanding of the funding agency culture and expectations specific to a solicitation, or cluster of solicitations, within a disciplinary domain. Abstracts from the two most current past funding cycles are typically the most informative because annual grant solicitations often evolve over time. Most agencies post the abstracts of funded projects on their websites.

2. Reviewing agency mission statements. Many avenues lead to gaining a more substantive and nuanced understanding of the mission and culture of the funding agency, including:
   a. Visiting the agency website and reviewing the mission, strategic plans, and research and educational roadmaps of both the agency and the programmatic areas within the agency;
   b. Reviewing online postings of agency reports, presentations, and research and/or educational workshops given by agency program officers;
   c. Talking to colleagues that have been funded by the agency;
   d. Identifying researchers on your campus that have served as agency program officers (e.g., NSF rotators) and talking to them;
   e. Identifying researchers on your campus that have served as reviewers for specific agencies and programs and talking to them;
   f. Reading agency online abstracts of currently funded projects and asking (by email or phone) whether the PI is willing to talk to you about the agency;
   g. Reading current agency solicitations in your disciplinary area and identifying any reports, presentations, or technical workshops identified in the solicitation as motivating the agency’s funding of particular research areas;
h. Subscribing to agency RSS feeds and email alerts that keep you current on new solicitations, reports, presentations, technical workshops, and general agency news related to mission and research priorities.

3. Analyzing the funding agency will help you better understand several key elements common to every competitive proposal narrative:
   a. Who is the audience (e.g., agency program officers and reviewers) and how are they best characterized in terms of the expertise they bring to the review process?
   b. What is the best way to address them?
   c. What is a fundable idea, and how does it support the agency’s research investment priorities, or mission-critical objectives?
   d. How are claims of research uniqueness and innovation best supported in the proposal text and how well do they agree with the agency’s research objectives, or mission focus?
   e. How do you best communicate your passion, excitement, commitment, and capacity to perform the proposed research to review panels and program officers using the language of the funding agency?

   iii. Reviewing the agency strategic investment plans, research roadmaps, and related documentation,
   iv. Exploring the agency website,
   v. Reviewing agency workshops on funding, e.g., NSF regional grants conferences, or agency webinars specific to a particular solicitation or general webinars on writing proposals to that agency, e.g., DoED/IES,
   vi. Reading the agency guidelines on submitting proposals to the agency,
   vii. Reading agency guidelines on submitting unsolicited proposals to the agency, e.g., Department of Energy Guide to Submitting Unsolicited Proposals.

2. Know your funder
   a. What kinds of research does the agency fund?
   b. What is the agency mission(s)?
   c. What is the agency culture?
   d. What is the agency trying to accomplish with this specific program solicitation, or suite of related program solicitations?
   e. How are proposals reviewed at the agency?
   f. Who makes the funding decisions?
   g. What is the role of the program officer in funding decisions?
   h. Talk to the program officer(s), but keep these questions in mind:
      i. Do I have specific, well thought out questions I want answered?
      ii. Have I read and reread the solicitation?
      iii. Have I informed myself about the agency’s mission and culture?
      iv. Have I informed myself on the mission and culture of the program area?
v. Have I carefully read information posted to the agency website?  
vi. Do I have an idea whose fittedness I want to discuss with the agency?  
vi. Do I understand I will not be asking about the likelihood of being funded?  
vii. Do I understand the call will not be a meandering fishing expedition?  
viii. Do I understand I will not be asking questions that are easily answerable by a close reading of the solicitation or documents referenced in the solicitation?  
ix. Never hesitate to contact a program officer for clarification—any ambiguities in your understanding of the agency mission priorities or in the funding solicitation need to be resolved; otherwise, it will be impossible to write a successful proposal.  
  i. Timidity is NEVER rewarded in the competitive proposal process!  
  ii. Ambiguities are ALWAYS punished!  

3. Identify a funding solicitation  
   a. Develop search protocols to fit your research interests  
   b. Know relevant agencies likely to fund your research  
   c. Learn the agency’s grant cycles  
   d. Use agency email alerts and RSS feeds to keep you informed of upcoming funding opportunities and relevant reports, workshops, webinars, etc. that can help you write a more competitive proposal  
   e. Know the process for unsolicited proposals  
      i. Proposals may be initiated in two general ways by the university researcher:  
         1. in response to a published solicitation (solicited proposal, RFP, BAA, PA); or  
         2. by the investigator (unsolicited proposals and white papers).  
            a. ~50% of NSF and ~80% of NIH proposals are unsolicited—learn the process specific to agency  
   f. Review open BAAs (Broad Agency Announcements) for program funding opportunities and the process of submitting proposals, included such “multigate” quad charts, white papers, preliminary or preapplication proposals.  
      i. BAAs are commonly used by mission agencies (e.g., DOD, DOE, NOAA). They remain open for some period of time, typically least a year but often longer. The BAA lists the mission priority research areas of interest to the agency along with all information needed to submit a proposal in response to the BAA.  
   g. Consider transagency research funding opportunities  
      i. Transagency funding opportunities represent solicitations published jointly by two or more federal research agencies. For example, NSF has published joint solicitations with such agencies as USDA, DOE, DOD, among others, to address key research areas that are interdisciplinary and are common to the core mission of the partnered agencies. For example, NSF and USDA have partnered on the research topic related to water sustainability and climate.  
   h. Keep in mind that a funding solicitation is an invitation by a funding agency to submit a proposal focused on addressing research topic areas of interest to the
agency, i.e., your proposal must map tightly to agency mission and bring value-added benefits to that mission. **Bottom line:** it is your task to fit and be fully responsive to the research interests of the funding agency; it is not the task of the research agency to be responsive to your research interests. Moreover, keep in mind that:

i. The solicitation is a non-negotiable listing of performance expectations reflecting the mission goals and research objectives of the funding agency.

ii. The solicitation is not a menu or smorgasbord offering you a choice of addressing some research topics but not others, depending on your interest, or some review criteria, but not others.

iii. The solicitation contains or references all the key information you will need to develop and write a competitive proposal that is fully responsive to an agency’s mission, for example, the agency’s:
   1. submission process,
   2. research objectives,
   3. review criteria, and
   4. budget requirements.

iv. Review referenced documents in the funding solicitation, for example:
   1. Understand funding opportunities at all scales: RFP, Program, Division, Agency, Field, National, etc.
      a. The solicitation resides at the fine grain scale, but it also resides in a larger context, or scale, of how the agency defines its mission at the larger scales, e.g., the agency strategic plan or research roadmap, as well as at the national level, e.g., perhaps a solicitation starts with a workshop or report from the National Academies on some “grand challenge” research topic and, therefore, your success in writing a proposal to a specific solicitation can be significantly influenced by how well you understand the agency’s motives for in investing in the specific research topic.
   2. Reports, workshops, conferences, webinars, etc.
      a. This is a key point to keep in mind because successful grants are those that gain a marginal advantage over the competition. You are always competing at the margins or boundaries of excellence, and to do that well means that every opportunity you have to write a better proposal needs to be fully exploited. Viewing a webinar or reading a report that gives you a deeper and more nuanced understanding of the funding agency’s reasons for supporting a program will provide critical information when crafting the arguments you will put forward to convince program officers and reviewers to fund your proposal.
   3. Agency mission, culture, investment priorities, strategic plan, etc.
a. Agency websites are now very robust and information rich in terms of helping you better understand the mission interest of the agency.

v. Understand the agency language used in solicitation, for example:
   1. Team science (aka partners, collaborators...)
      a. Complexity of the scientific problem
      b. Disciplines required to solve the problem
      c. Value-added benefits
      d. Integration and synergy
      e. Technology development
      f. Innovation ecosystems (e.g., NSF)
      g. Commercialization partnerships
   2. Value added benefits
   3. Interdisciplinarity
   4. Transformational research
      a. NSF, for example, uses this term to describe a range of endeavors that promise extraordinary outcomes, such as revolutionizing entire disciplines, creating entirely new fields, or disrupting accepted theories and perspectives.
   5. Synergy not silos
   6. Societal Goals
   7. Broader impacts

i. Solicited
j. Unsolicited (investigator initiated)
k. Identify your research and education interests and goals
l. Learn about the types of grants and agencies that fund research in your area
m. Understand interdisciplinarity and team grants
n. Learn how to find funding opportunities that fit your goals and interests
o. Learn how various agencies fund research and education projects, both solicited and unsolicited
p. Understand the agency’s investment priorities/mission
q. Learn role of BAAs (Broad Agency Announcements) in Your Funding Strategies
   i. They describe the agency’s research interest, either for an individual program requirement or for broadly defined areas of interest covering the full range of the agency’s requirements;
   ii. Describe the application and submission process, particularly any requirements for approval waypoints, such as quadcharts, white papers, preliminary proposals, and preapplications required to be invited to submit a full proposal;
   iii. Describe the criteria for selecting the proposals, their relative importance, and the method of evaluation;
   iv. Specify the period of time during which proposals submitted in response to the BAA will be accepted;
v. Designate a Point of Contact (POC) specific to agency research topic areas. BAAs typically encourage potential applicants to contact the agency POC to discuss the relevance of their research to the agency mission priorities before preparing proposals.

r. Develop a long-term strategy for funding your research

4. Map your research to agency opportunity
   a. Make sure your research fits the research interests of the funding agency, either as defined in a specific solicitation or by fitting a list of agency research priority research topics, for example, as listed in an agency BAA.
   b. Talk to a program officer about your research and how well your research fits the interests of the agency.
   c. Talk to colleagues who have been well funded by the agency, served as reviewers for the agency, or have served as rotating program officers at the agency to gain an additional insight into how well your research and your “research readiness” maps to mission of the funding agency.

5. Analyze the solicitation
   a. Does my research expertise fit the goals and objectives of a specific solicitation?
      i. How well do I understand the agency goals and objectives in the solicitation?
      ii. Can I address all the research goals and objectives required by the solicitation?
         1. Do I need research collaborators for a competitive submission?
      iii. Am I understanding the solicitation for what it is—*not what I want it to be*?
      iv. Is there sufficient time to plan, develop, and write a competitive proposal?
   b. Can I make a compelling case for the significance of my research to the solicitation?
      i. Why is my research significant?
         1. Why should an agency want to fund my research?
            a. Can I explain why my research is exciting and novel?
      ii. What are my research objectives?
         1. Is my research hypothesis-driven?
            a. If so, can I state the hypothesis clearly?
         2. How will my research lead to new knowledge?
            a. Will my research advance the field in some important way?
         3. Is my proposed research based on prior research support?
            a. What were the outcomes of my past funded research?
         4. Do I have preliminary data that bolsters my case for funding?
            a. Do I have sufficient preliminary data to be competitive?
      iii. Do I have a realistic research plan?
         1. Can I make clear what I propose to do?
         2. Can I make clear why I propose to do it?
         3. Can I make clear why it is important to do it?
         4. Can I make clear that I have the expertise to do it?
5. Can I demonstrate that my research plan is believable and not overly ambitious?

6. Can I present a research plan based on a stepwise, logical approach?

7. Can I instill in reviewers a confidence in my capacity to perform?

iv. Is my research basic or applied?

1. Do I know the difference between basic and applied research?
2. Is the agency a basic research agency or a mission agency?
3. Do I know the difference between a basic and a mission agency?
4. Do I know how this distinction is made at the agency of interest?
   a. Does the agency fund both basic and applied research?
   b. Do I know what program offices at a specific agency fund basic research and which fund applied research?

v. Am I considering the appropriate agency program for my research?

1. Is there more than one agency program for which my research is fitted?
2. Does the agency accept unsolicited proposals?
   a. Do I know the process for submitting an unsolicited proposal?
3. Have I had sufficient discussions with a program officer to ensure there are no unanswered questions I have about the agency that are key to my competitiveness, and that I have resolved any ambiguities in my understanding of the research funding solicitation, or agency priority areas if I am submitting an unsolicited proposal?

6. Develop a proposal production schedule

a. The end point of the proposal production schedule is the proposal due date and the beginning point is the date your decide you will submit a proposal—these two points bracket your production activities, including scheduling:
   i. Multiple draft iterations of the research narrative (project description)
      1. If there are multiple authors then draft sections need to be assigned to team members for completion
   ii. Drafting the proposal budget, writing the budget justification, and preparing or managing the collection of related documents, commitments, and other proposal components not part of the research narrative, e.g., cost sharing commitments, current and pending support, biographical sketches, data management plans, post-doc mentoring plans, letters of support, etc.
   iii. Task and performance assignments for all team members
      1. Good proposal team members do what they say they will do when they say they will do it and provide material of sufficient quality to enhance the competitiveness of the overall effort.

b. A poorly planned proposal has little likelihood of success. Walt Kelly’s Pogo once famously observed, “We have met the enemy and he is us!” That observation perfectly fits a poorly planned proposal development effort.
c. A well-planned proposal development effort cannot turn ideas of modest importance into ideas of compelling significance, but it can give your ideas a chance to be realized through a well-crafted proposal rather than disguised by a poorly crafted one.

7. Use the solicitation as a draft proposal template
   a. Copy and paste the solicitation’s key sections, research objectives, and review criteria into a beginning draft narrative as an organizational template for the full proposal. This ensures that subsequent draft iterations of the research narrative are continuously calibrated to the guidelines and fully responsive to all of the sponsor’s requirements:
      i. fully responds to all requested information,
      ii. offers information in the order requested,
      iii. provides the required level of detail,
      iv. integrates review criteria into the narrative, and
      v. makes a complete and compelling case for the significance of your research, i.e., why it has valued-added impact on the agency’s mission.

   b. Do I understand how the agency will review my proposal?
      i. Do I understand the overarching review criteria used by the agency?
         1. Do I understand how basic research agencies review proposals?
         2. Do I understand how mission agencies review proposals?
            a. Do I understand the role of mission-critical priorities in the review process?
      ii. Do I understand the program or solicitation’s specific review criteria?
      iii. Do I understand the role of the program officer in the review process?
         1. Are reviews binding on the program officer?
         2. Can the program officer consider some reviews advisory only?
      iv. Will my proposal be peer reviewed and by what format?
         1. Will there be a panel review?
         2. Will there be a mail review?
         3. Will some other process be used?
      v. Specific review criteria and review processes differ from agency to agency, as well as by program within an agency, or by type of solicitation. But the core, generic questions program officers and reviewers want answered can be simply stated:
         1. What do you propose to do?
         2. Why is it important—what is its significance?
         3. Why are you able to do it?
         4. How will you do it?
         5. How does it contribute to and advance the research interests of the agency or the field?
      vi. Do I understand “how to write for reviewers” and program officers?
1. Unless you are confident you know otherwise, when writing to reviewers, **write for the intelligent reader and not the expert.** Remember you are most likely writing to a panel of reviewers, each member of which will be selected for a needed expertise. In all cases:
   a. You must craft a persuasive argument presenting the merit, significance, rigor, and relevance of your research that makes the reviewers want to fund it;
   b. You must convince reviewers you have the capacity to perform, and the institutional infrastructure to support your research;
   c. You must extend your argument to discuss the likely impact your research will have in advancing the field and creating new knowledge, both in your research area and possibly in other research fields as well; and
   d. When writing to federal mission agencies, you must demonstrate to the program managers and reviewers that your research advances the mission of the agency.

2. The author of a funded proposal has accomplished the following basic goals of writing for or with reviewers in mind:
   a. Ensured the reviewers were intrigued and excited about the proposed research;
   b. Understood its significance to the agency mission or field;
   c. Understood that existing research enhances the likely success of the proposed effort;
   d. Understood how the proposed research will be accomplished;
   e. Had confidence in the researcher’s capacity to perform.

3. Writing for Reviewers—**Generic Narrative Tips**
   a. Sell your proposal to a good researcher but not an expert;
   b. Some review panels may not have an expert in your field, or panels may be blended for multidisciplinary initiatives, so write to all the reviewers on the panel;
   c. Recall that proposals are not journal articles; proposals must be user friendly and offer a narrative that is compelling and memorable to reviewers;
   d. Proposals are not mystery novels. Reveal the significance of your research early, not at the conclusion;
   e. Reviewers will assume that sloppy errors in language, usage, grammar, and logic will translate into sloppy errors in your research;
   f. Write a compelling project summary (or abstract) and narrative introduction:
      i. This is where you must capture the interest of reviewers and win them over by making them
intrigued enough to want to read your entire proposal closely and with interest;
ii. Define the significance of the core ideas early, clearly, and concisely;
iii. Describe the connectedness of the core ideas to specific research activities and outcomes, and advance your ideas with sufficient detail to make your research memorable after the proposal is read.

8. Draft the project description
a. Use the solicitation as a template to draft the project narrative;
b. Make sure all members of the research team have read and understand the expectations of the solicitation;
c. Answer in narrative form all the questions asked in the solicitation in the order they are asked;
d. Plan on the use of graphics, visuals and milestone charts to complement the narrative text
   i. Narrative text is linear. It is grounded on a logical sequence of explanation made coherent and persuasive by the author’s writing skills. Graphics, however, function as a “visual language” able to capture complex relationships in a simple and unifying way by synthesis, integration, and synergy, the holy grail of the successful narrative.
e. The generic underpinnings of a successful research grant include five key persuasive elements: the research vision, goals, objectives, rationale, and specific outcomes. These five key components are strengthened by preliminary data, results from prior research support, publications in the field, and patents, among other prior performance information that validates your capacity to perform. Depending on the solicitation, these elements may or may not appear in the order described here, but they typically provide the critical mass of the persuasive argument in successful proposals. They also provide clarity through a logically-tiered framework that allows reviewers to differentiate your research at multiple levels of specificity and detail, from the macro-vision to micro-performance details.
f. Recognize what a successful research narrative is not.
   i. A research plan cloaked in a fog of poorly written text.
   ii. A vague research vision lacking focus, or reading, as H.L. Menken once observed, “like an army of words marching across the page in search of an idea.”
   iii. A research narrative focusing heavily on general statements about past and planned research, but failing to give details and specifics that help readers understand the importance of the research, or its significance in advancing the field through questions, hypotheses, or solutions.
g. Recognize what a successful research narrative is.
i. Starts with an important research idea stated clearly and simply so reviewers can quickly grasp the research questions or hypotheses.

ii. Explains why your research is unique and supports this with sufficient specificity and detail to make your case.

iii. Explains the importance, significance, or value-added benefits of your research to advancing the field, or advancing the research mission of the funding agency.

iv. Provides reviewers with a clear statement of the significance of the project from a precisely written project description that is supported by specificity and detail.
   1. Specificity grounds the research vision and goals in the key performance details unique to your research objectives, and thereby illuminates the importance of your research for reviewers.
   2. Specifics serve to both test and prove the value of your ideas, and when they are lacking, it tells a reviewer that your ideas may also be lacking, or have yet to become fully developed.
   3. Stating a goal without then offering compelling specifics that make clear the process you will use to transition a goal to reality, i.e., a research outcome, is the domain of politicians and bumper sticker slogans and not that of the successful research proposal.

v. Conversely, generalities seem to escape many authors’ notice, yet appear as glaring flaws to readers and reviewers alike, especially those searching for the specificity needed to make an informed critical judgment on the project’s merit. The experience of reading a narrative laced with generalities leaves the reader and reviewer alike with a foreboding and increasingly exasperating sense of uncertainty about specifically what the proposer actually plans to do.

vi. Moreover, ambiguity introduces significant uncertainty into the research narrative, although ambiguity in the narrative does offer one certainty—an unfunded proposal. This is because ambiguity in the project description imposes unwanted riddles on program officers and reviewers alike that may lead them to believe reading the research narrative is an experience somewhat akin to attempting to interview Schrödinger’s Cat without opening the box to determine its state, either dead or alive. However, narrative ambiguity exists in only one state—confusion.

9. Ask colleagues to critique your drafts
   a. Too often, the first – and final – substantive outside review of a proposal narrative occurs when the funding agency makes the funding decision. This is too late in the process to ensure success!
   b. Ask colleagues to review your proposal prior to submission and with sufficient time remaining for you to make narrative changes. Let them know upfront that you want
the “brutal, frank and honest” review option and not the “nice and sensitive to your feelings” review option. Ask them to:

i. Find weaknesses, deficiencies, and ambiguities in the proposal text;
ii. Identify inconsistencies and omissions between the proposal narrative and the requirements of the solicitation and review criteria;
iii. Play the devil’s advocate when necessary;
iv. Challenge the vision, assumptions, and other statements in the text that are not well supported or clearly stated, or are poorly argued;
v. Make observations on the persuasiveness of the arguments you put forward describing the uniqueness of your research;
vi. Offer suggestions that both correct identified deficiencies in your research narrative and better amplify identified strengths.

10. Converge on narrative perfection
   a. The key to a successful proposal represents the outcome of a process of continuous iteration and improvement of the project narrative that, over a sufficient amount of time, converges on perfection.
"A core group of people must really want to do this. You need to find a core group of people with a passion to do this. That will come through in your proposal. The power of the ERC vision, the power of your goals rests on the power and passion of your team. The challenge of forming an ERC team is finding those individuals. Moreover, are deans and department heads supporting the kind of culture required to achieve the ERC vision? That is the key question—your institutional cultures—which NSF will examine and scrutinize very carefully if you ever get to a site visit.

What kind of culture is NSF investing in?
What chance of success does this ERC have in this culture?"

NSF held a 2-hour webinar on the Gen-3 Engineering Research Centers (ERC; NSF 13-560): Partnerships in Transformational Research, Education, and Technology on May 22. The key remaining dates for the ERC are July 30 for submission of a 7-page preliminary proposal and February 12, 2014 for submission of an invited full proposal. The 2-hour video is posted online by NSF at View Video and the 50 slides accompanying the webinar are posted here.

While the webinar is of immediate importance to those submitting a preliminary proposal to the ERC program, it is also of longer-term significance to anyone submitting a proposal to NSF in the future because much of the subtext of the webinar not only addressed the ERC culture but the broader NSF culture as well, particularly as it relates to many of the key programmatic components of programs across the agency.

These key NSF program components, for example, relate to research strategic plans, diversity, and inclusion of underrepresented groups, long-term pre-college partnerships, preparing the next generation STEM graduate, industry partnerships, global engagement, innovation ecosystem (technology advancement, commercialization, entrepreneurship), research and education integration, transfer of research into the curriculum, etc. If you want to better understand the NSF cultural landscape and see further along the NSF horizon, this webinar, the ERC solicitation, and some of the referenced reports provide an excellent primer to help you better understand the holistic programmatic culture of NSF—and hence how to write more successful proposals to that agency.

That said, the ERCs, NSF explained in the webinar, are meant to give universities and industry a “space” to work together and to create a culture in academia that allows linking the discovery process to technology development while producing a diverse set of engineering graduates who will be highly effective in industry practice and also highly creative innovators in a global economy. ERCs are meant to create a place for innovation in partnership with industry, what NSF calls the innovation ecosystem. NSF sees this as a wholly different type of culture. It “stretches the academic culture” by integrating industrial perspectives into academia and it becomes a “very powerful place” for research, technology development, and advancement.
In order to create this very complex system, it is necessary to have structured features, what NSF calls the “key features” of an ERC. **The first part of that is a strategic vision for an engineered system.** It will join fundamental research, enabling technology, and engineered systems to technology innovation. **A key part of that vision is to create a highly trained, innovative, and globally prepared workforce.** In order to accomplish this, NSF expects there must be strategic planning for research, education, and diversity. Essentially, ERCs offer the opportunity to develop a system proof of concept. According to NSF, engineering is discovery; it is fundamental research, but it is also designing, building, and looking at new systems and technology “in a proof of concept way.” This is an important part of ERCs for the faculty and the students.

In addition to requiring a strategic vision, ERCs call for broadening participation, and, in doing that, ERCs must integrate research and education and focus on developing the future engineering workforce. This will involve undergraduates and graduates, but NSF wants applicants to this program to think **strategically about how to “design” the next generation of engineering graduates.** (This is reminiscent of the NSF Engineering Education Coalition [EEC] Program that originated with the 1989 Belmont Conference on *Imperatives in Undergraduate Engineering Education*. Eight EECs involving 40 universities were funded at ~$3 million per year for up to 10 years, 1989-2005.) The future workforce, NSF believes, requires graduates to be creative, adaptive, and innovative. They must have a basic knowledge of industrial practice, technology advancement, innovation, and entrepreneurship. All of that rests on the graduates’ technical knowledge, which must show breadth as well as depth. It is also critical to student success in universities as engineering programs become increasingly interdisciplinary.

**Consequently, another key aspect of an ERC relates to teaching. The first implication for teaching is the need to infuse ERC knowledge into the curriculum.** The knowledge newly developed through an ERC must move into the curriculum through, for example, courses or course modules. But this infusion must be prepared for through **long-term precollege partnerships.** ERCs need to reach out to the students and teachers to bring engineering into high school classrooms.

Yet another significant interface anticipated by ERCs occurs at the junction of universities and industry. It is called the innovation ecosystem, which promotes a close connection between universities and industry. Industrial partnerships form the basis for ERCs, according to NSF, particularly in terms of training students to enter industry better prepared to understand and foster technologically advanced industrial products and processes. **The role of industry in ERCs is to bring new views of technology into the university where they will stimulate the training of students.**

In order to do all this, NSF notes, you need an infrastructure. University partners, industry, cross-disciplinary teams, strong leadership, strong organizational management capacity, strategic plans for inclusion, etc. are all part of that successful infrastructure. Moreover, institutional commitment to the ERCs include a commitment to mentoring students and a commitment to faculty, along with the long-term NSF required commitment to the integrating of research and education.
So, given the above, this is a very complex mission for those who elect to enter the ERC competition. If you are submitting a proposal, you have to ask yourself, NSF notes, “does your university really want to engage in this?” There must be a very strong commitment to the ERC vision. You must have a team willing to achieve a well-defined engineered system and have a vision to do that in a way that will integrate and motivate the team for an entire decade. You will have to merge the culture of academia, with which most faculty are quite comfortable, with the systems and technology culture of industry. This represents a new dimension and a new challenge.

You have to be willing to select research projects through a strategic plan rather than following faculty interests. You will be engaged “use-inspired, systems-inspired research planning.” You have to have an interdependent cross-disciplinary research culture deeply committed to working together to advance the technology. You also need a strategic plan to integrate research and education and to develop this new workforce. These are very important aspects of the ERC, NSF notes in the webinar. Further, that workforce must be diverse, and to ensure diversity, you must establish a culture of inclusion and success for all. Integrated into all this, NSF explained, is that you provide an industry practitioner-friendly university innovation ecosystem.

At this point, NSF noted in the webinar, if you have heard all of this and you say, “Whoa, we don’t really want to do all this. We just want to do research, or only education, or only spinning out small firms. We don’t want to integrate at all.” If this is the case, NSF suggests you not compete for an ERC.
Agency review criteria are as important to those writing a proposal as they are to proposal reviewers. The authors of a successful proposal must clearly understand the review criteria before starting to write the proposal in much the same way that the proposal reviewers must clearly understand the review criteria—to ensure the research narrative fully addresses the goals and objectives of the funding agency. Review criteria are the critical touchstones that must be fully integrated into the project description if it is to succeed. Beginning to write a proposal without the review criteria clearly in mind will significantly decrease the chances of a proposal being funded. The review criteria must guide every aspect of selecting, ordering, and elaborating on the arguments made in the research narrative to make a compelling and convincing case that your proposal is among those few deserving funding.

While many review criteria are program specific, that is, defined in the solicitation and applying only to a particular grant program, most agencies also have overarching review criteria that apply to all program solicitations. While these overarching review criteria may go for some period of time without change or modification, they often do change, e.g., the recent modifications to the NSF review criteria in January of 2013. Therefore, it is important to keep informed of the overarching review criteria and keep them in mind when considering various funding opportunities, or when advising others how proposals will be reviewed by specific agencies. It has been two years since this newsletter published an overview of the review criteria at all federal research agencies of particular interest to university researchers. This is the first of three articles that will address the current overarching review criteria of specific federal agencies, starting herein with the National Science Foundation, National Institutes of Health, U.S. Department of Education, and the U.S. Department of Energy, Office of Science.

**NATIONAL SCIENCE FOUNDATION**

**Important facts about the NSF merit review process (listed here):**

1. All proposals submitted to NSF are reviewed according to the two merit review criteria: **Intellectual Merit and Broader Impacts**
2. NSF implemented revised merit review criteria in January 2013
3. NSF Program Officers make recommendations to fund or decline a proposal. **Reviewers do not make funding decisions.**
4. Most proposals that are awarded do not receive all "Excellents"
5. NSF Program Officers are encouraged to recommend high-risk science and engineering projects for funding.
6. Principal Investigators submit on average about 2.3 proposals for every award they receive.
7. NSF promotes broadening participation in science and engineering.
Upon receipt of a proposal, Program Officers conduct a preliminary review to ensure completeness and conformance with NSF requirements, which are outlined in GPG Chapter II.A. Conformance with Instructions for Proposal Preparation and in GPG Chapter II.B. Format of the Proposal. Adherence to these requirements is strictly enforced (unless the proposal has an approved deviation). If the proposal does not adhere to the instructions in the GPG (or the program solicitation, if applicable), NSF may return the proposal without review. See GPG Chapter IV.B. Proposal Not Accepted or Returned without Review for a complete list of reasons for which a proposal may not be accepted or may be returned without review.

If the proposal is complete and conforms to NSF requirements, NSF Program Officers identify at least three external reviewers to review the proposal. The review may be conducted by ad hoc reviewers, a panel of experts, or a combination of both. For some programs, site visits are also conducted. Some categories of proposals may not be externally reviewed. For example, proposals submitted to Rapid Response Research Grants (RAPID) and EARly-concept Grants for Exploratory Research (EAGER) are internally reviewed only. For some other categories of proposals (for example, proposals for international travel), NSF staff have the option of conducting an internal review only. In addition, Program Officers are also responsible for identifying potentially disqualifying conflicts of interest among reviewers. (See GPG Chapter II, Exhibit II-2.)

GPG Chapter III.B. Selection of Reviewers provides the NSF guidelines for reviewer selection. These guidelines are designed to ensure that the reviewers selected are experts in their field and will provide program officers with the proper information needed to make a recommendation in accordance with the National Science Board approved merit review criteria for projects.

**National Institutes of Health**

*New Scoring Guidance.* The NIH posted new scoring guidance for reviewers to use in evaluating grant applications. The scoring guidance for research applications is intended to focus reviewers on the positive aspects of an application as well as the weaknesses, and to encourage use of the entire scoring range. The generic guidance has been revised as well, and is intended for reviewers to use in deriving criterion scores and overall impact scores for activity codes that use review criteria other than those used for research applications.

Key Links: NIH Peer Review Process; NIH Peer Review Process Revealed; Center for Scientific Review Applicant Resources.

**NIH Core Review Criteria**

*Overall Impact.* Reviewers will provide an overall impact/priority score to reflect their assessment of the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, in consideration of the following review criteria and additional review criteria (as applicable for the project proposed).
Scored Review Criteria. Reviewers will consider each of the review criteria below in the determination of scientific and technical merit, and give a separate score for each. An application does not need to be strong in all categories to be judged likely to have major scientific impact. For example, a project that by its nature is not innovative may be essential to advance a field.

Significance. Does the project address an important problem or a critical barrier to progress in the field? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?

Investigator(s). Are the PD/PIs, collaborators, and other researchers well suited to the project? If Early Stage Investigators or New Investigators, or in the early stages of independent careers, do they have appropriate experience and training? If established, have they demonstrated an ongoing record of accomplishments that have advanced their field(s)? If the project is collaborative or multi-PD/PI, do the investigators have complementary and integrated expertise; are their leadership approach, governance and organizational structure appropriate for the project?

Innovation. Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense? Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?

Approach. Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed? If the project involves clinical research, are the plans for (1) protection of human subjects from research risks, and (2) inclusion of minorities and members of both sexes/genders, as well as the inclusion of children, justified in terms of the scientific goals and research strategy proposed?

Environment. Will the scientific environment in which the work will be done contribute to the probability of success? Are the institutional support, equipment and other physical resources available to the investigators adequate for the project proposed? Will the project benefit from unique features of the scientific environment, subject populations, or collaborative arrangements?

US Department of Education

A discretionary grant is an award made by the ED for which the ED has discretion, or choice, in which applicants get funded. Virtually all of the Department’s discretionary grants are made based on a competitive review process. ED reviews applications based on the legislative and regulatory requirements, and on the application requirements and criteria.
established for a discretionary grant program. This review process gives ED the discretion to determine which applications best address the program requirements and are, therefore, most worthy of receiving funding. Successful applicants become the ED’s grantees.

Key Links:  Grantmaking at ED, Answers to Your Questions About the Discretionary Grants Process; ED Program’s Overview; Discretionary Grant Applications lists the application packages that are currently available; Forecast of Funding Opportunities for ED Discretionary Grant Programs forecasts when grant competitions are expected to open. These are the dates to begin watching for the application materials. Contact information for each grant is also provided; More.

The Application Review Process at the Department

For the majority of the Department’s grant competitions, program offices recruit application reviewers (reviewers) from outside the federal government who have expertise in the subject area of the grant program for which the applications were submitted. For some competitions, program offices may use employees or contractors of the Department of Education, or employees of other federal agencies, to serve as reviewers. The Department staff 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.

How are application reviewers chosen?

ED recruits reviewers who have expertise in areas pertinent to a grant program. Individuals interested in becoming a reviewer complete an application or submit a resume or a curriculum vita that provides information the program staff uses to determine whether they have the necessary qualifications. The program staff maintains a reviewer registry and contacts individuals when they are needed for an upcoming competition. The Department reviews potential reviewers’ information to determine whether they have the necessary expertise and whether they have any potential conflicts of interest in the outcome of a specific upcoming competition. A reviewer is considered to have a conflict of interest when he or she, or certain individuals and entities with which the reviewer has a relationship, has a financial interest in the outcome of the competition. The Department staff works with potential reviewers and assigns them to competitions that raise no conflicts of interest or other reasons for which the public would question the reviewers’ objectivity in rating proposals for a specific competition.

What criteria do reviewers use to score my application?

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.

How does the Department determine the rank order of applications?

Generally, the Department averages the scores given by all the reviewers that read an application. The average score for each application is used to determine its rank order among
all the eligible applications that were reviewed. Under certain circumstances, the program staff uses a statistical method to standardize reviewers’ scores. Standardization helps compensate for the tendencies of some reviewers to score applications higher or lower than other reviewers for the same quality applications.

**How does the Department decide which applicants get funded?**

After the applications, reviews, and related documents are checked for completeness, the program staff conducts a series of steps to determine which applicants will be funded. The steps are to:

- 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 relate 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, usually by telephone. If the program staff requests a written response from an applicant, the applicant’s response should address only the specific items needing clarification.
- 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 (or his or her designee) 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.

**Does a high score guarantee funding?**

There is no particular score that guarantees that an application will be funded. Even if an application ranks high it may not be funded. The Department 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 that limits 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.

**U.S. Department of Energy, Office of Science Administrative Review.** Upon receipt of an application, the Office of Science receiving office determines whether the document contains the prescribed information, has been approved by an official authorized to sign for the applicant organization and falls under the scientific scope of the Office of Science Financial Assistance Program.
After this preliminary review, copies of the application are forwarded to the appropriate program office for further review to determine if the application contains sufficient technical/scientific information to conduct an evaluation; meets program policies and priorities, and does not duplicate or overlap currently funded research projects. Applications shall be acknowledged to the applicant in writing by the SC program office generally within one week of receipt. This acknowledgement usually advises the applicant of the SC staff member responsible for conducting the merit review of the application.

Program staff may return an application which does not include all information and documentation required by statute, 10 CFR Part 605, 10 CFR Part 600, and the Funding Opportunity Announcement when the nature of the omission precludes review of the application. However, if an application contains most of the information required, the missing information may be requested from the applicant so that it can be processed. During the review of a complete application, the Office of Science may request the submission of additional information only if the information is essential to evaluate the application.

Evaluation Criteria

New and renewal applications meeting the above standards will be subjected to formal merit review and will be evaluated against the following criteria which are listed in descending order of importance as set forth in 10 CFR Part 605:

1. Scientific and/or technical merit or the educational benefits of the project;
2. Appropriateness of the proposed method or approach;
3. Competency of applicant’s personnel and adequacy of proposed resources;
4. Reasonableness and appropriateness of the proposed budget; and<
5. Other appropriate factors, established and set forth in a notice of availability or in a specific solicitation.

For renewal applications, the Office of Science also shall consider the recipient’s performance under the existing award.

Also, the Office of Science shall consider, as part of the evaluation, other available advice or information as well as program policy factors such as ensuring an appropriate balance among the program areas.

Merit Review Process

Project managers will review applications for technical/scientific merit and program policy factors. In addition, the project manager will submit applications generally to at least three qualified reviewers for evaluation, in addition to anyone having direct line authority over the project manager, including the selection official. Instructions to reviewers will include a reasonable length of time for responding to the request for a merit review. In those instances where three or more reviews are not obtained, the project manager must provide a written explanation to be retained in the official file. In the event that the project manager is a reviewer and is also the selection official, the decision shall be approved by the Director, Office of Science, or a designee. If no reviews are provided to the Office of Science by the selected qualified reviewers, any award must be justified on a non-competitive basis.
Such additional reviewers may be Federal employees (including those from the Office of Science that are neither the selecting official nor those in a direct line of supervision above the project manager) or non-Federal employees. Also, such additional reviewers will not include former employees of the project manager's immediate office, or anyone having had line authority over that immediate office, within the past one year.
The National Science and Technology Council just released its Federal STEM Education 5-year Strategic Plan, and we’re already seeing its impact at the funding agencies.

In the 2010 Reauthorization of the America COMPETES Act, the U.S. Congress tasked the Director of the Office of Science and Technology Policy with developing a 5-year Federal Science, Technology, Engineering, and Mathematics (STEM) Education Strategic Plan. That Strategic Plan was released on May 31, 2013 by the National Science and Technology Council (NSCT’s) Committee on STEM Education (CoSTEM), and it presages big changes in how the Federal government funds STEM education research and workforce development. Below, we’ll discuss the highlights of the strategic plan, and then we’ll discuss the impacts we’re already seeing at NSF and other research funding agencies as they realign their funding programs to carry out the plan.

**Background**

The Federal agencies spent almost $2.9 billion on STEM education initiatives in 2011, spread out over a number of agencies: USDA, Commerce (NOAA), DoD, Education, DOE, EPA, Health & Human Services (which includes NIH), Homeland Security, Department of the Interior, NASA, NSF, Nuclear Regulatory Commission, and Transportation. These programs ranged from internship and fellowship programs to informal education to STEM education research. A very interesting table is included as Appendix A in the Strategic Plan listing these programs by agency along with the funding for each one for 2008 through 2011.

The U.S. Congress expressed concern that despite these large investments, U.S. students continue to lag behind in STEM. One potential reason may be the fact that these investments are dispersed across so many agencies with little coordination. As a result, in the 2010 Reauthorization of the America COMPETES Act (Section 101), the Congress required that the NSTC establish a committee to coordinate Federal programs and activities that support STEM education among all Federal agencies that support such programs. In addition, the committee was tasked with reviewing Federal STEM education activities and programs to ensure that they are not duplicative, and developing and implementing through the participating agencies a 5-year STEM education strategic plan (which must be updated every 5 years). The strategic plan was required to: a) Specify and prioritize annual and long-term objectives; b) specify the common metrics that will be used to assess progress toward those objectives; c) describe the approaches to be taken by each participating agency to assess the effectiveness of its STEM education programs and activities; and d) describe the role of each agency in supporting programs and activities designed to achieve the objectives listed in a). The committee was also
tasked with establishing and periodically updating an inventory of federally sponsored STEM education program and activities, including documentation of assessments and rates of participation by women, underrepresented minorities and persons from rural areas.

The Director of the Office of Science and Technology Policy is also required to submit an annual report to Congress that includes: 1) a description of the STEM education programs and activities for each agency for previous and current years as well as proposed programs under the President’s budget request; 2) the levels of funding for those programs; 3) an evaluation of the levels of duplication and fragmentation of the programs and activities; 4) description of progress made in carrying out the implementation plan, including the outcome of any program assessments completed during the previous year; 5) a description of how the participating Federal agencies will disseminate information about federally supported resources for STEM education practitioners, including to teachers and administrators in schools.

In response, the Office of Science and Technology formed the Committee on STEM Education (CoSTEM), which includes representatives from NSF, EPA, NASA, NIH, NOAA, the Departments of Agriculture, Defense, Education, Energy, Homeland Security, Interior, Transportation, and the Office of Science and Technology Policy. They have been working on the strategic plan for the last 2 years, and the final plan was just released on May 31st.

**Highlights of the Strategic Plan**
The entire plan is a good read for anyone interested in STEM Education policy and funding; below are highlights and excerpts from the report, focusing of aspects of the plan that are most likely to affect university faculty pursuing STEM education-related funding.

- The plan specifies **five priority areas** for STEM education investment, along with specific goals for each priority area:
  1. Improve P-12 STEM instruction (**100,000 new K-12 STEM teachers by 2020 and support existing STEM teacher workforce**)
  2. Increase and sustain youth and public engagement in STEM (**50% increase in number of U.S. youth who have an effective, authentic STEM experience each year prior to completing high school**)
  3. Improve undergraduate STEM education (**1 million additional students earning degrees in STEM fields over the next 10 years**)
  4. Better serve groups historically underrepresented in STEM fields (**increase the number of underrepresented minorities graduating with STEM degrees in the next 10 years and improve participation of women in STEM areas where they are underrepresented**)
  5. Design graduate education for today’s STEM workforce (**provide STEM graduate students with basic and applied research expertise, options to acquire specialized**
Two coordination strategies will be implemented for organizing Federal investments in STEM education in order to reduce fragmentation and duplication:

- **Build new models for leveraging assets and expertise** – establish a coordinated, coherent portfolio of STEM education investments across the Federal Government, designating initial lead and collaborating agencies within certain priority areas, developing joint solicitations or MOUs, consolidating programs, and using new funding strategies such as performance partnerships that encourage agency collaborations.
- **Identify, use, and share evidence-based approaches** – create and use common metrics, evidence guidelines and evaluation practices; develop complementary program goals; create a shared understanding of evidence-based STEM education practices.

As part of the first coordination strategy, above, the following agencies have been designated as lead agencies for the priority areas as follows:

- **Improving P-12 STEM Instruction** will be led by the Department of Education. It will invest $80 million in support of the 100,000 new STEM-ed teachers goal and $35 million for the launch of a pilot STEM-ed Master Teacher Corps. It will also create new STEM Innovation Networks to better connect school districts with local, regional, and national STEM resources, and will collaborate with all the Co-STEM agencies to ensure that Federal scientific assets are utilized in the improvement of P-12 STEM education.
- **Improving delivery of undergraduate STEM teaching and learning through evidence-based reforms** will be led by NSF. NSF will initiate a new $123 million program aimed at improving retention of undergraduates in STEM fields, expand and enhance its graduate fellowship programs (with an additional $325 million), and use a common infrastructure at NSF to reach more students and offer a set of opportunities that address national needs and mission-critical workforce needs for the CoSTEM agencies.
- **Improving informal STEM education** to ensure that materials are aligned with classroom learning will be led by the Smithsonian Institution. The Smithsonian will receive $25 million and will work with NSF, ED and other CoSTEM agencies and other science partners to disseminate relevant, evidence-based materials and curricula, on-line resources, and employ delivery and dissemination mechanisms to reach more teachers and students inside and outside the classroom.
- The other CoSTEM agencies will continue to be key players in the re-organized effort. All CoSTEM agencies will be invited to participate. This may be through direct
support, provision of expertise and content, mobilization of talented STEM role
models and mentors, or by exposing students to real-world learning opportunities at
Federal STEM facilities. **Lead agencies** will be responsible for convening other
CoSTEM agencies, helping facilitate review and revision with collaborating agencies
and tracking progress toward achieving priorities.

- In support of the five priority areas, the plan described the following **strategies**:
  1. **Improve STEM Instruction** – increase coordination among STEM-teacher preparation,
support, and recognition efforts within existing and proposed programs. Continue
research on teacher learning and STEM teacher development. Encourage appropriate
connections to local and state policy, standards, and assessments.
  2. **Increase and sustain youth and public engagement in STEM** – develop coordinated
programs inside and outside of school, platforms, and infrastructure to provide desired
audiences with STEM experiences enabled through government assets, including but
not limited to materials, facilities, and skilled STEM professionals. Collaboration among
all agencies will be critical for better understanding the current baseline of engagement
activities and their outcomes and furthering a focused and impactful government
investment in engagement.
  3. **Enhance STEM experience of undergraduate students** – Use internship, scholarship, and
fellowship programs, research experience opportunities, initiatives to create and test
innovative instructional approaches and materials, faculty professional development,
and research on STEM learning. In addition, efforts to broaden participation in STEM will
be critical to reaching the number of needed graduates, and the resulting diversity will
enhance innovation in STEM fields.
  4. **Better serve historically underrepresented in STEM fields** – CoSTEM agencies will work
with relevant stakeholder communities, including faculty, administrators, and students
from Minority-Serving Institutions (MSIs) given that approximately 10% of the funds
invested by Federal agencies on this priority are focused on these institutions. Agencies
will consider emphasizing education at critical transition points from P-12 to
postsecondary education and from postsecondary education to the STEM workforce,
when students from groups traditionally underrepresented in STEM often drop out of
the STEM pipeline. As part of this focus, agencies will work to create more common
definitions and consistent categorization of programs that serve underrepresented
groups as either a focus or an emphasis. This may also include improving access to and
increasing coordination across, programs for Minority-Serving Institutions.
  5. **Design graduate education for tomorrow’s STEM workforce** – CoSTEM agencies will
coordinate to improve access to, and efficacy of, government-funded graduate
fellowships. Over time, CoSTEM agencies may also consider addressing improvements
to a broader range of Federal approaches to graduate student support. There is growing
evidence that opportunities for professional development of students to learn a broader range of skills that are important in STEM fields (e.g., communication) and to participate in applied work on authentic problems and challenges of government and the private sector are important components of graduate education. Some universities are encouraging students to set and meet more ambitious goals for their research, education, and service; giving students greater autonomy earlier in their career; connecting students to real-world problems at a regional, national, and global level; and involving students in the design of university curricula, research initiatives, and collaborations with external partners. The CoSTEM agencies can continue to benefit from understanding the effectiveness of innovative practices that universities are incorporating in their graduate education to promote those practices in graduate education more broadly.

Impacts at the Agencies
It will take some time to see how these changes play out at the agencies, but we are already seeing impacts in terms of funding programs disappearing and new programs being announced. Regarding the impact of designating lead agencies for specific priorities, the strategic plan states,

Designation as a lead agency does not narrowly define an agency’s role in STEM education. It does not mean that NSF, for instance, will abandon its efforts in areas other than the improvement of undergraduate STEM education, or that no other agency will have any role in undergraduate education. It means instead, that NSF may request additional funding and resources to support an increased role initially in leading the improvement of undergraduate STEM education. Similarly, while ED is the initial lead for P-12 instruction, it will also play a strong role in supporting engagement activities and building bridges between in-school and out-of school learning to increase the effectiveness of both. The other CoSTEM agencies will be key collaborators, working with the lead agencies to find ways to build on their existing investments in STEM education, and leverage the passion and expertise of their staff and other STEM professionals who will continue to provide access to STEM content and Federal assets that can be used in formal and informal learning environments.

National Science Foundation
At NSF, PIs have been noticing since the beginning of the year that some long-running STEM education-related programs that normally release solicitations each year such as TUES and REESE had not issued solicitations as expected. The other shoe at least started to drop with the April release of NSF’s budget request, which included a description of Catalyzing Advances in
Undergraduate STEM Education (CAUSE) ($123.08 million was requested to fund CAUSE). According to this description, CAUSE is an NSF-wide initiative that will focus on undergraduate STEM education and will build a portfolio through collaboration among all of the NSF directorates, informed by input from the STEM disciplines and education research.

CAUSE will be created by consolidating three Division of Undergraduate Education Programs (STEP, WIDER, and TUES) and several STEM-focused programs from other directorates (TUBE, NUE, OEDG, and CCE). That means that new funding for all of these programs will be discontinued by 2014 (note that the NSF website doesn’t yet reflect these changes).

CAUSE will support three investment areas:

- **Foundational research.** Focuses on core research questions such as how learners move towards expertise in a discipline, that are foundational to improving teaching, learning, engagement and retention.
- **Design-based research.** Supports iterative approaches to design, implementation, analysis, and revision, including prototyping and building and refining models.
- **Scale-up and effectiveness studies.** Focuses on scaling up efforts on learning and learning environments, broadening participation, workforce preparation, and employing emerging technologies.

Over the next couple of years, we can expect to see a number of new program announcements and solicitations in support of these investment areas; the first CAUSE solicitation is expected to come out in December 2013. NSF states that funding will be available for individual investigators, research teams with expertise cutting across one or more STEM disciplines and STEM education research, and discipline-based education research and the social and behavioral sciences.

In a related development, NSF recently announced a new EHR core program (ECR)—up until then, EHR had only funded projects through solicitations. This program funds core research proposals (max 5 years, $1.5M) to study foundational STEM research questions, and capacity building proposals (max 3 years, $300K) to support groundwork necessary to advance research in STEM learning, STEM learning environments, workforce development, and broadening participation in STEM.

**Department of Education**

In response to this strategic plan, the new STEM education plan at ED includes several new and modified initiatives, described on their website and in the budget overview as follows:
• **STEM Innovation Networks** ($150 million requested): This program will provide competitive grants to local educational agencies (LEAs) **in partnership with institutions of higher education**, nonprofit organizations, other public agencies, and businesses to increase the number of students who are effectively prepared for postsecondary education and careers in STEM fields. Eligible partnerships will develop comprehensive plans for identifying, developing, testing and implementing evidence-based practices to provide rich STEM learning opportunities for students in participating LEAs and schools. To support the implementation of these plans, STEM Innovation Networks (STEM-INs) will employ a wide range of strategies—depending on local needs—in areas such as the recruitment, preparation, and professional development of effective STEM educators; the development and testing of teaching and learning models that enable students to successfully meet STEM-focused college- and career-ready standards; and student engagement in STEM subjects.

• The **STEM Virtual Learning Network** (approximately $5 million). The STEM Virtual Learning Network (STEM-VLN) will create a professional learning community of STEM educators. This community, operating primarily but not exclusively online, will enable STEM educators to share innovative STEM content, effective STEM teaching strategies, and research on STEM education. The funding for the STEM-VLN will come from a set aside from the larger STEM-INs program.

• **STEM Teacher Pathways** ($80 million requested): To support the President's goal of preparing 100,000 effective STEM teachers, this new program will provide competitive awards to high-quality programs that recruit and train talented STEM educators for high-need schools.

• **STEM Master Teacher Corps** ($35 million requested): This program will enlist the country's leading science and mathematics teachers to improve STEM education across America. The Corps will recognize and reward the most accomplished STEM educators by offering them membership in a national community of talented STEM educators, opportunities to serve as instructional leaders in their schools and communities, and additional pay in exchange for their leadership and service. The President's budget provides $35 million to pilot the program before the program is taken to scale.

• **Effective Teaching and Learning:** STEM ($150 million). **Formerly the ED Mathematics and Science Partnerships** program (this was a formula grant, and shouldn’t be confused with NSF's MSP), this program will **fund partnerships between local education authorities (LEAs) and institutions of higher education (IHEs)** that will help States improve teaching and learning in science, technology, engineering and mathematics (word is that this will be a competitive grant program rather than a formula grant). Funds will be used to support State implementation of
comprehensive, evidence-based plans; professional development that aligns Federal, State, and local resources to promote high-quality STEM instruction; and for subgrants to high-need LEAs to support comprehensive STEM instruction in the grades and schools with the greatest needs.

- **Fund for the Improvement of Education** ($30 million). These funds will be used to expand the Improving Mathematics Achievement and Transition to College from High School (IMATCH) program, a joint initiative between ED and NSF. The program will help develop, evaluate, and scale up effective practices that increase student achievement in mathematics during the critical transition period from the last two years of high school through the first two years of college.

**The Smithsonian**

In their [2014 budget request](#), the Smithsonian requests $25 million to support their role in providing inspiring STEM experiences for teachers and students. They state that the Smithsonian will work “collaboratively with federal agencies offering STEM programs so that we may: create content that takes advantage of each agency’s unique assets, create complementary materials and avoid duplication of effort, and share a centralized portal for the broad dissemination of our engagement offerings. The Smithsonian will also create a knowledge-transfer infrastructure that serves students and teachers as well as the scientists and educators who are creating these educational assets. The Smithsonian will manage these endeavors by creating a centralized oversight group that will coordinate the efforts of STEM engagement providers, including Smithsonian units, mission agencies and other non-profit collaborators. [They] will also increase the capacity of Smithsonian units that offer programs, experiences and services in the creation, dissemination and evaluation of STEM education content.” No external grant programs were mentioned.

**More Information**


Grantees (Post Award)-How To: Basic Tasks in eRA Commons

OneNOAA Science Seminars: June 2013
A joint effort by several NOAA offices to provide the most complete summary of upcoming NOAA science seminars. For further information please contact Hernan Garcia [OneNOAA Seminar Partner's contacts]

Web page last updated: Wednesday, 22-May-2013 10:57:12 UTC

Note: To hear about upcoming OneNOAA Science seminars you can subscribe to our weekly e-mail, join our RSS feed, and/or access the seminars in Google calendar:

- Sending an email to OneNOAAScienceseminars-request@list.woc.noaa.gov with the word `subscribe' in the subject or body (don't include the quotes)
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- Subscribe to the OneNOAA Science Seminar RSS feed (http://www.nodc.noaa.gov/seminars/seminars.xml)
- Access the seminars via google calendar (see how at http://www.nodc.noaa.gov/seminars/Google_Calendar.html)

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HRSA: How to Apply For A Grant
Apply for a Grant: 10 Tips (HHS/Health Resources and Services Administration)

- Start preparing the application early. Allow plenty of time to gather required information and submit well before the deadline. Power failures happen and are not an excuse for late submission.
- Follow the instructions in the Funding Opportunity Announcement carefully. Place all information in the order requested in the guidance. Don't force reviewers to hunt through your application for information.
- Keep your audience in mind. Reviewers will use only the information contained in the application to assess the application. Be sure the application and responses to the program requirements and expectations are complete and clearly written. Do not assume that reviewers are familiar with your organization, service area, barriers to health care, or health care needs in your community. Keep the review criteria in mind when writing the application.
- Be brief, concise, and clear. Make your points understandable. Provide accurate and honest information, including candid accounts of problems and realistic plans to address them. If any required information or data is omitted, explain why. Make sure the information provided in each table, chart, attachment, etc., is consistent with the proposal narrative and information in other tables. Your budget should reflect back to the proposed activities, and all forms should be filled in accurately and completely.
• **Be organized and logical.** Many applications fail to receive a high score because the reviewers cannot follow the thought process of the applicant or because parts of the application do not fit together.

• **Show evidence of fiscal stability and sound fiscal management.** Your application should demonstrate your ability to be a responsible steward of public funds.

• **Attend to technical details.** A missing or incorrect DUNS number or an expired SAM registration are the top two reasons an application is rejected and not even reviewed. Applications are also rejected because they use file names that exceed the Grants.gov 50 character, no special character limitation, the wrong version of Adobe Acrobat or unacceptable file types.

• **Be careful in the use of attachments.** Do not use the attachments for information that is required in the body of the application. Be sure to cross-reference all tables and attachments to the appropriate text in the application. Be sure to upload the attachments in the order indicated in the forms.

• **Print out and carefully proofread and review your electronic application to ensure accuracy and completion.** When submitting electronically, print out the application before submitting it to ensure appropriate formatting and adherence to page limit requirements. Check to ensure that all attachments are included before sending the application forward.

• **Submit all information at the same time.** We will not consider additional information and/or materials submitted after your initial submission, nor will we accept e-mailed applications or supplemental materials once your application has been received.
NCES: The Condition of Education 2013
The Condition of Education 2013 summarizes important developments and trends in education using the latest available data. The report presents 42 indicators on the status and condition of education, in addition to Spotlights that look more closely at 4 issues of current interest. 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.

Student Learning in Challenge-Based Engineering Curricula
In recent years, there has been a demand to teach engineering in high schools, particularly using a challenge-based curriculum. Many of these programs have the dual goals of teaching students the engineering design process (EDP), and teaching to deepen their understanding and ability to apply science and math concepts. Using both quantitative and qualitative methods, this study examines whether a high school design engineering program accomplishes each of the two goals. During the 2010-2011 school year, over 100 students enrolled in the same design engineering course in seven high schools. Evidence of learning and application of the EDP is accomplished by triangulating student interviews with pre-/post-tests of EDP-related questions and a survey of design engineering beliefs. To determine whether students could apply science and math concepts, we examined content test questions to see if students used science and math ideas to justify their engineering work, and triangulated these results with student interviews. The results are mixed, implying that although there is some learning, application is inconsistent.

Engineering Efforts and Opportunities in the National Science Foundation's Math and Science Partnerships (MSP) Program
This analysis gives an overview of efforts to implement engineering in K-12 through NSF's MSP program. These projects are employing many of the best practices in teacher preparation, professional development, curriculum development, and partnerships that characterize NSF's MSP program in general. Many programs had a focus on alignment of instruction and assessment of mathematics and science to meet state and national standards. Some programs had a focus on teacher preparation to meet the gap in prepared teachers, with alternate certification of engineering professionals or recruitment of undergraduate engineering majors. Some inculcated engineering content into preservice teacher education. Some projects provided support to minimize high turnover of new teachers. Industrial partners provided support to develop curricular materials or to serve as mentors.

Designing for STEM Integration
We are increasingly seeing an emphasis on STEM integration in high school classrooms such that students will learn and apply relevant math and science content while simultaneously developing engineering habits of mind. However, research in both science education and engineering education suggests that this goal of truly integrating STEM is rife with challenges.
As such, this paper reports upon the efforts of an NSF-funded project to translate the lessons learned in science classrooms—in which the science learning goals are contextualized within engineering challenges—to engineering classrooms—in which the engineering practices are an additional, and important, learning goal. In particular, this paper identifies design principles for facilitating student application of math and science concepts while they engage in the practices of engineering. We explain the intent and learning theories behind each principle. In addition, we reify each goal by illustrating its application in our yearlong engineering course.

**How do I find out about grant opportunities with the Department of Education?**
The U.S. Department of Education administers about 200 grant programs. Descriptions of those programs, as well as applications and guidelines, can be found in the grants overview. You may want to note in particular the following:
- **Grantmaking at ED** provides a general overview of the grant process at the Department.
- **Programs website** lists all programs organized by subject, title, who is eligible to apply, and more.
- **Discretionary Grant Applications** lists the application packages that are currently available.
- **Forecast of Funding Opportunities for ED Discretionary Grant Programs** forecasts when grant competitions are expected to open. These are the dates to begin watching for the application materials. Contact information for each grant is also provided.
- **Guide to Education Programs** is an annual publication that provides information on financial assistance offered to state and local education agencies, institutions of higher education, other postsecondary institutions, public and private nonprofit organizations, and individuals.
- **Student Aid on the Web** provides information on grants -- including the **Pell Grant** -- and loans to go to college.

Additionally, you can now learn about ED grant opportunities by connecting via Twitter (@edfedregister), signing up for

**Understanding Formative Assessment: Insights from Learning Theory and Measurement Theory**
Formative assessment is intended to yield real-time information about if and how students are learning—and what might be impeding their progress. Insights gained from this ongoing classroom assessment process can help teachers shape instruction and guide student efforts as well. The effective use of formative assessment can add balance to assessment systems that, in recent years, have leaned heavily toward assessment for accountability purposes. This paper, written by former WestEd researcher Elise Trumbull and WestEd's Andrea Lash, defines formative assessment and includes:
- A description of the key features of formative assessment
- A summary of concepts in learning theory that are central to effective formative assessment
- A summary of concepts in measurement theory that are central to effective formative assessment
• A brief review of research summaries on the effect of formative assessment on student learning.

**Professional Development on Formative Assessment: Insights From Research and Practice**

Formative assessment is a key component in next-generation assessment systems. This paper, authored by former WestEd researcher Elise Trumbull and WestEd's Nancy Gerzon, outlines how different programs and studies have responded to educators' need for professional development on formative assessment. The authors address the major issues in the design and implementation of professional development on formative assessment and make recommendations for future efforts.
Notice: Implementation of the 2013 Federal Continuing Appropriations Act provisions affecting the NSF Political Science Program

The Consolidated and Further Continuing Appropriations Act of 2013 (P.L. 113-6, enacted on March 26, 2013) contains a provision that places restrictions on the types of research projects that can be funded through the Political Science Program. Specifically, Division B, Title III, Sec. 543 reads:

a. None of the funds made available by this Act may be used to carry out the functions of the Political Science Program in the Division of Social and Economic Sciences of the Directorate for Social, Behavioral, and Economic Sciences of the National Science Foundation, except for research projects that the Director of the National Science Foundation certifies as promoting national security or the economic interests of the United States.

b. The Director of the National Science Foundation shall publish a statement of the reason for each certification made pursuant to subsection (a) on the public website of the National Science Foundation.

c. Any unobligated balances for the Political Science Program described in subsection (a) may be provided for other scientific research and studies that do not duplicate those being funded by other Federal agencies.

The Political Science Program in the Directorate for Social, Behavioral and Economic Sciences (SBE) will continue to engage panels to review grant proposals, using the two National Science Board approved merit review criteria (Intellectual Merit and Broader Impacts). Panels will also be asked to provide input on whether proposals meet one or both of the additional criteria required for exceptions under P.L. 113-6, i.e., promoting national security or the economic interests of the United States. Based on the advice of the review panels, NSF Program Officers will make funding recommendations. All PIs will receive the customary communications from NSF about funding decisions. Note, however, that due to the provisions stipulated by P.L. 113-6, funding decisions for Political Science proposals may be delayed. The provisions of P.L. 113-6 apply only to the Political Science program in SBE for Fiscal Year 2013. NSF will post information about requirements for future fiscal years as they are known. Investigators are encouraged to stay apprised of future notices regarding the Political Science program by visiting http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5418&org=SES&from=home.

Corporations, NSF Team Up to Improve STEM Retention Rates

Notice of Intent: Research and Development for Hydrogen Storage

The purpose of this Notice is to provide potential applicants advance notice that the Fuel Cell Technologies Office (FCTO), on behalf of the DOE Office of Energy Efficiency and Renewable Energy (EERE), intends to issue a FOA titled "Research and Development for Hydrogen Storage" (DE-FOA-0000827). NO APPLICATIONS WILL BE ACCEPTED THROUGH THIS NOTICE. Please do
Research Development & Grant Writing News

not submit questions or respond to this Notice of Intent. Prospective applicants to the FOA should begin developing partnerships, formulating ideas, and gathering data in anticipation of the issuance of this FOA. It is anticipated that this FOA will be posted in late June / early July. For more information, see the full solicitation.

ARPA-E Issues Two New FOAs
ARPA-E has issued two new Funding Opportunity Announcements (FOAs) for high-current wide bandgap (WBG) power semiconductor devices called "Strategies for Wide Bandgap, Inexpensive Transistors for Controlling High Efficiency Systems (SWITCHES)." Both FOAs seek to fund innovative WBG semiconductor materials, device architectures, and device fabrication processes that promise to enable increased energy density, increased switching frequencies, enhanced temperature control, and reduce power losses in a range of power electronics applications, including high-power electric motor drives and automotive traction drive inverters. ARPA-E is allocating up to $25 million for both SWITCHES FOAs, with $15 million in funding being made available to small businesses under ARPA-E’s Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) program and $10 million being made available to all applicants. The deadline to submit a Notice of Intent for a SWITCHES FOA is 5 p.m. ET on July 8, 2013. Full applications are due by 5 p.m. ET on July 19, 2013. Additional information on SWITCHES FOAs can be found on ARPA-E’s online application portal, ARPA-E eXCHANGE.

NIH to Require Use of Updated Electronic Application Forms for Due Dates on or after September 25, 2013
The purpose of this Guide Notice is to alert applicants that NIH is transitioning to updated electronic application forms packages. The new packages will be identified with a Competition ID of FORMS-C and will include the form changes documented at: http://grants.nih.gov/grants/ElectronicReceipt/files/FORMS-C_Changes.pdf. For due dates on or after September 25, 2013, all applicants will be required to use FORMS-C packages, with the exceptions noted below. The requirement includes electronic applications submitted under the continuous submission policy, administrative supplement requests (Type 3), change of organization requests (Type 6) and change of grantee/training institution requests (Type 7) submitted September 25, 2013 and beyond. Multi-project applications that are transitioning to electronic submission beginning with the September 25, 2013 due dates (see NOT-OD-13-075) will also use FORMS-C packages.

Dear Colleague Letter: FY 2013 Career-Life Balance (CLB) - Graduate Research Fellowship Program (GRFP) Supplemental Funding Requests
The purpose of this DCL is to announce a new opportunity for GRFP institutions to submit supplemental funding requests to sustain the research of active NSF Graduate Research Fellows who have been granted an NSF-approved medical deferral for dependent-care (family leave) situations (see Guide for fellowship status options). This gender neutral supplemental funding opportunity is in addition to the limited paid leave option for Fellows on Tenure with an NSF-approved medical deferral. GRFP institutions are invited to submit supplemental funding
requests to provide additional personnel (e.g., research technicians or equivalent) to sustain the research of NSF Graduate Research Fellows on approved medical deferral due to dependent care (family leave) situations. The supplemental funding request may include funding for up to 3 months of salary support for the additional personnel, for a maximum of $12,000 in salary compensation.

Dear Colleague Letter: Information to Principal Investigators (PIs) Planning to Submit Proposals to the Sensors and Sensing Systems (SSS) Program October 1, 2013, Deadline

The Sensors and Sensing Systems (SSS) program will be conducting a proposal review pilot test of a modified proposal review process utilizing proposals submitted to the SSS program for the October 1, 2013, proposal submission deadline. Submission of a proposal to this program for this deadline will imply your willingness to participate in the process. The purpose of this pilot is to seek new approaches to proposal review that can lower the cost of the review process, improve the quality of reviews, and reduce the workload on the reviewer community, while not discouraging the submission of collaborative or highly innovative proposals. Briefly, the review process shall consist of the following:

1. Proposals will be subject to ad hoc review only. There will be no panel review of these proposals.
2. All proposals submitted to the SSS program will be organized into groups consisting of approximately 25 to 40 proposals.
3. Each PI whose proposal is assigned to a group will be assigned to review and rank seven other proposals also in that group. Review assignments will be made so as to avoid organizational or individual conflicts-of-interest.
4. All PIs must complete their review and ranking of the seven assigned proposals within 30 days of the date of their assignment. Failure to complete this review and ranking within the allotted time will result in the disqualification of the PI’s own proposal.
5. A composite ranking of all proposals in each group will be determined, and each PI’s proposal ranking will be adjusted based on a measure of the “quality” of the reviews provided by the PI. The adjustment is designed to provide an incentive to all PIs to do an honest and thorough job of reviewing the proposals to which they are assigned.
6. Final aggregation of proposals across the groups and award/declination decision making will be done by the Program Director as currently done.

Dear Colleague Letter: OFR-NSF Partnership in Support of Research Collaborations in Finance Informatics

The Directorate for Computer and Information Science and Engineering (CISE) of the National Science Foundation (NSF) and the Office of Financial Research (OFR) of the Department of Treasury share an interest in advancing basic and applied research centered on Computational and Information Processing Approaches to and Infrastructure in support of Financial Research and Analysis and Management (CIFRAM). The complexity of modern financial instruments presents many challenges in recognizing and regulating Systemic Risk. The topic has been the subject of a recent National Academy of Science Report titled "Technical Capabilities Necessary for Systemic Risk Regulation: Summary of a Workshop." The CISE directorate and the Computing Community Consortium have sponsored workshops on Knowledge Representation...
and Information Management for Financial Risk Management and on Next-Generation Financial Cyberinfrastructure aimed at identifying research opportunities and challenges in CIFRAM. NSF and OFR have established a collaboration (hereafter referred to as CIFRAM) to identify and fund a small number of exploratory but potentially transformative CIFRAM research proposals.

Dear Colleague Letter - Advanced Cyberinfrastructure (ACI) & Faculty Early Career Development (CAREER)
The CISE Division of Advanced Cyberinfrastructure (ACI, formerly the Office of Cyberinfrastructure or OCI) reminds the cyberinfrastructure community that ACI participates in the Faculty Early Career Development (CAREER) Program (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503214) with the goal of supporting the community of junior scholars in Cyberinfrastructure. The deadline to submit CAREER proposals to ACI is July 22, 2013. CAREER is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations. Such activities should build a firm foundation for a lifetime of leadership in integrating education and research. NSF encourages submission of CAREER proposals from junior faculty members at all CAREER-eligible organizations and especially encourages women, members of underrepresented minority groups (African Americans, Native Americans, Hispanics and Pacific Islanders), and persons with disabilities to apply.

Within this context, ACI encourages proposals that promote research, education, and the integration of research and education in projects that:

1. Contribute to development and deployment of comprehensive, integrated, sustainable, and secure cyberinfrastructure at the national or international scale;
2. Have an effective cyberinfrastructure impact with clearly defined benefits across multiple research disciplines; and
3. Build on existing or upcoming ACI investments, as well as major cyberinfrastructure investments from other units.

NIH Implementation of the RPPR
As indicated in NIH Guide Notices OD-12-142 and OD-13-035, NIH began implementing the that federal-wide Research Performance Progress Report (RPPR) in the Fall of 2012. The RPPR is required for all awards issued under the Streamlined Non-competing Award Process (SNAP), and all F awards, with budget start dates on or after July 1, 2013. NIH continues development of the RPPR for non-SNAP awards, including complex and training awards, and will update the community as progress is made in that regard.
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.

The Mathematical Sciences in 2025
The mathematical sciences are part of nearly all aspects of everyday life—the discipline has underpinned such beneficial modern capabilities as Internet search, medical imaging, computer animation, numerical weather predictions, and all types of digital communications. The Mathematical Sciences in 2025 examines the current state of the mathematical sciences and explores the changes needed for the discipline to be in a strong position and able to maximize its contribution to the nation in 2025. It finds the vitality of the discipline excellent and that it contributes in expanding ways to most areas of science and engineering, as well as to the nation as a whole, and recommends that training for future generations of mathematical scientists should be re-assessed in light of the increasingly cross-disciplinary nature of the mathematical sciences. In addition, because of the valuable interplay between ideas and people from all parts of the mathematical sciences, the report emphasizes that universities and the government need to continue to invest in the full spectrum of the mathematical sciences in order for the whole enterprise to continue to flourish long-term.

Making the Soldier Decisive on Future Battlefields
The U.S. military does not believe its soldiers, sailors, airmen, and marines should be engaged in combat with adversaries on a "level playing field." Our combat individuals enter engagements to win. To that end, the United States has used its technical prowess and industrial capability to develop decisive weapons that overmatch those of potential enemies. In its current engagement—what has been identified as an "era of persistent conflict"—the nation's most important weapon is the dismounted soldier operating in small units. Today's soldier must be prepared to contend with both regular and irregular adversaries. Results in Iraq and Afghanistan show that, while the U.S. soldier is a formidable fighter, the contemporary suite of equipment and support does not afford the same high degree of overmatch capability exhibited by large weapons platforms—yet it is the soldier who ultimately will play the decisive role in restoring stability. Making the Soldier Decisive on Future Battlefields establishes the technical requirements for overmatch capability for dismounted soldiers operating individually or in small units. It prescribes technological and organizational capabilities needed to make the dismounted soldier a decisive weapon in a changing, uncertain, and complex future environment and provides the Army with 15 recommendations on how to focus its efforts to enable the soldier and tactical small unit (TSU) to achieve overmatch.

Precision Agriculture in the 21st Century: Geospatial and Information Technologies in Crop Management
Sensors, satellite photography, and multispectral imaging are associated with futuristic space and communications science. Increasingly, however, they are considered part of the future of agriculture. The use of advanced technologies for crop production is known as precision agriculture, and its rapid emergence means the potential for revolutionary change throughout the agricultural sector. Precision Agriculture in the 21st Century provides an overview of the specific technologies and practices under the umbrella of precision agriculture, exploring the full implications of their adoption by farmers and agricultural managers. The volume discusses how precision agriculture could dramatically affect decisionmaking in irrigation, crop selection, pest management, environmental issues, and pricing and market conditions. It also examines the geographical dimensions—farm, regional, national—of precision agriculture and looks at how quickly and how widely the agricultural community can be expected to adopt the new information technologies. Precision Agriculture in the 21st Century highlights both the uncertainties and the exciting possibilities of this emerging approach to farming. This book will be important to anyone concerned about the future of agriculture: policymakers, regulators, scientists, farmers, educators, students, and suppliers to the agricultural industry.

Overcoming Barriers to Electric-Vehicle Deployment: Interim Report
The electric vehicle offers many promises—increasing U.S. energy security by reducing petroleum dependence, contributing to climate-change initiatives by decreasing greenhouse gas (GHG) emissions, stimulating long-term economic growth through the development of new technologies and industries, and improving public health by improving local air quality. There are, however, substantial technical, social, and economic barriers to widespread adoption of electric vehicles, including vehicle cost, small driving range, long charging times, and the need for a charging infrastructure. In addition, people are unfamiliar with electric vehicles, are uncertain about their costs and benefits, and have diverse needs that current electric vehicles might not meet. Although a person might derive some personal benefits from ownership, the costs of achieving the social benefits, such as reduced GHG emissions, are borne largely by the people who purchase the vehicles. Given the recognized barriers to electric-vehicle adoption, Congress asked the Department of Energy (DOE) to commission a study by the National Academies to address market barriers that are slowing the purchase of electric vehicles and hindering the deployment of supporting infrastructure. As a result of the request, the National Research Council (NRC)—a part of the National Academies—appointed the Committee on Overcoming Barriers to Electric-Vehicle Deployment.
New Funding Solicitations Posted Since May 15 Newsletter

**NOAA Geospatial Modeling Grant**
The purpose of this notice is to solicit proposals for cooperative agreements and/or grants between NOAA and partnering entities in the United States, implementing NOAA's National Height Modernization Program (NHMP) to support Regional Geospatial Modeling. Proposals submitted in response to this announcement should contribute to the beneficial public outcomes associated with the five priority issues which consist of enhancing infrastructure of geodetic control, coastal remote sensing data, terrestrial gravity measurements, and other physical datasets; developing models, tools, and guidelines to access that control and manipulate and analyze geodetic data; supporting education, capacity building, and technology transfer; coordinating through partnerships with local users (state and local governments, universities, and the public sector) and other partners in the region; sharing environmental data and information, collected and/or created under NOAA grants/cooperative agreements, making it visible, accessible, and independently understandable to general users, free of charge or at minimal cost, in a timely manner, except where limited by law, regulation, policy, or by security requirements. This competition is focused on the geography of the Gulf Coast states in response to NOAA’s Height Modernization Plan and subsequent congressional appropriations. The program priorities for this opportunity support NOAA's mission support goal of: Resilient Coastal Communities and Economies. Priorities addressing this mission goal also frequently are found to support NOAA's other mission goals: Climate Adaptation and Mitigation; Weather-Ready Nation; Healthy Oceans. In addition, these priorities support NOAA’s Enterprise goals for Science and Technology, and Engagement. **Due June 21.**

**EPA FY13 Region 7 Wetland Program Development Grants**
Wetland Program Development Grants (WPDGs) provide eligible applicants an opportunity to conduct and promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution. All proposals submitted under this RFP must be for projects that build or refine state/tribal/local government wetland programs. Implementation of wetland protection programs is not an eligible project under this announcement. **Due June 26.**

**Grants to Support the Historically Black Colleges and Universities Health Services Research Grant Program**
The Centers for Medicare & Medicaid Services (CMS) is announcing the availability of funds under this grant program to assist Historically Black Colleges and Universities (HBCUs) in conducting health services and health disparities research for 2013. The purpose of the grant program is to support researchers in implementing health services research activities to meet the needs of diverse CMS beneficiary populations. The goals of the grant program are to: 1) encourage HBCU health services researchers to pursue research issues which impact the Medicare, Medicaid, and Children Health Insurance Programs (CHIP), 2) assist CMS in implementing its mission focusing on health care quality and improvement for its beneficiaries, 3) assist HBCU researchers by supporting extramural research in health care capacity development activities for the African American communities, 4) increase the pool of HBCU researchers capable of implementing the research, demonstration, and evaluation activities of CMS, 5) promote research that will be aimed at developing a better understanding of health care services pertaining to African Americans, and 6) assist in fostering inter-university communication and collaboration regarding African American health disparity issues. Due July 8.

Public Participation in Environmental Protection
The Bureau of Oceans and International Environmental and Scientific Affairs? (OES) Office of Environmental Quality and Transboundary Issues (EQT) at the U.S. Department of State announces the Request for Applications (RFA) for a project on Public Participation in Environmental Protection. The purpose of this RFA is to increase civil society engagement in environmental protection and promote public participation in environmental decision-making, resulting in increased environmental protection, enforcement of environmental laws, and sustainability in Central America and the Dominican Republic. The agreement awarded will use FY12 Economic Support Funds, subject to availability. Due July 9.

Gender-Informed Research (Women): Enhanced Approaches to Project Development
The National Institute of Corrections (NIC) is seeking applications from organizations, groups, or individuals to enter into a cooperative agreement with NIC for an 18-month period to begin no later than September 15, 2013. Work under this cooperative agreement will involve convening a working group with the purpose of identifying key areas of gender-informed knowledge specific to women that will both inform a future research agenda and define a project that would further incorporate these key areas into NIC initiatives and provide further guidance for policymakers and practitioners in their management of this population. The audience for this project is quite broad, representing all aspects of corrections (jails, prisons, and community corrections), the research and academic community, other Federal agencies, state and local entities and other related stakeholders that have an interest in this population. The deliverables from this solicitation will be based on research and theory and are meant to provide a medium to inform NIC initiatives as well as more generally the corrections field, with the goal of improved system and individual outcomes. This project will be a collaborative venture with the NIC Community Services Division. Due July 9.

Grants to Support the Hispanic Health Services Research Grant Program
The Centers for Medicare & Medicaid Services (CMS) is announcing the availability of funds under this grant program to assist researchers in conducting health services research for 2013. The purpose of the Hispanic grant program is to implement Hispanic health services research activities to meet the needs of diverse CMS beneficiary populations. The grant program is designed to: 1) encourage health services and health disparities researchers to pursue research issues which impact Hispanic Medicare, Medicaid, and Children Health Insurance Program (CHIP) health services issues, 2) conduct outreach activities to apprise Hispanic researchers of funding availability to conduct research-related issues affecting Hispanic communities to expand the pool of applicants applying for such grants, 3) assist CMS in implementing its mission focusing on health care quality and improvement for its beneficiaries, 4) support extramural research in health care capacity development activities for the Hispanic communities, 5) promote research that will be aimed at developing a better understanding of health care services issues pertaining to Hispanics, and 6) foster an network for communication and collaboration regarding Hispanic health issues. Due July 9.

NIFA announces the availability of grant funds and requests applications for the Integrated Research, Education, and Extension Competitive Grants Program – National Integrated Water Quality Program (NIWQP) for fiscal year (FY) 2013 to address critical agricultural water quality issues in the United States. The amount available for support of this program in FY 2013 is approximately $3,918,683. This notice identifies the objectives for NIWQP projects, the eligibility criteria for projects and applicants, and the application forms and associated instructions needed to apply for a NIWQP grant. NIFA additionally requests stakeholder input from any interested party for use in the development of the next RFA for this program. Due July 10.

Garrett A. Morgan Technology and Transportation Education Program Clearinghouse
The purpose of the Garrett A. Morgan Technology and Transportation Education Program (GAMTTEP) is to improve the preparation of students, particularly women and minorities, in science, technology, engineering, and mathematics (STEM) through curriculum development and other activities related to transportation. Due July 11.

Head Start University Partnerships: Dual-Generation Approaches
The Office of Planning, Research and Evaluation (OPRE), within the Department of Health and Human Services (HHS) Administration for Children and Families (ACF), is planning to solicit applications for Head Start University Partnerships: Dual-Generation Approaches to support projects that will examine the role that Head Start can play in promoting family well-being, including health, safety, financial security, and school readiness. Projects must be led by researchers working in partnership with one or more Head Start programs. Together, they will identify and evaluate promising dual-generation approaches, which combine intensive, high-quality, child-focused programs with intensive, high-quality, adult-focused services to support both parent well-being and children’s school readiness, within the context of Head Start.
Eligible approaches include programs, or interventions, that are added onto Head Start services and new or existing models of service provision within Head Start. **Due July 26.**

**Nuclear Science and Nuclear Nonproliferation Research**
The intent of this Funding Opportunity Announcement (FOA) is to award TWO separate five-year cooperative agreements to consortia of accredited U.S. Colleges and Universities to allow them to receive and administer funds for student and faculty research, fellowships, and scholarship funding awarded by the U.S. Department of Energy (DOE), National Nuclear Security Administration (NNSA), Office of Defense Nuclear Nonproliferation Research and Development (DNN R and D). Each cooperative agreement will be awarded to a consortium of Universities which will include the participation of a one or more DOE or NNSA National Laboratories as a consortium member. Individual consortium-member universities shall make specific contributions and shall receive specified portions of the funding. The consortium may include student and early career research fellowships and has a long-term objective of building expertise in nuclear nonproliferation detection. Research results should be incorporated readily into university curricula. Students, faculty, and researchers must be able to work unencumbered while moving across what are now organizational and bureaucratic boundaries of the academic and governmental facilities engaged in the consortium, while properly protecting critical information and materials. The consortium should establish reciprocal arrangements between the home academic institution and other degree-granting institutions as well as relationships with appropriate National Laboratories. **Due July 31.**

**Harry Frank Guggenheim Foundation, Research Grant**
Awards given to proposals in the natural and social sciences and the humanities that promise to increase understanding for the causes, manifestations, and control of violence and aggression. Highest priority is given to research that can increase understanding and amelioration of urgent problems of violence and aggression in the modern world. **Due August 1.**

**The National Academies, Research Associateship Programs**
The mission of the NRC Research Associateship Programs (RAP) is to promote excellence in scientific and technological research conducted by the U. S. government through the administration of programs offering graduate, postdoctoral, and senior level research opportunities at sponsoring federal laboratories and affiliated institutions. In these programs, prospective applicants select a research project or projects from among the large group of opportunities listed on this website. Prior to completing an application, prospective applicants should contact the proposed Research Adviser to assure that funding will be available if their application is recommended by NRC panels. Once mutual interest is established between a prospective applicant and a Research Adviser, an application is submitted through the NRC WebRap system. Reviews are conducted four times each year and review results are available approximately 6-8 weeks following the application deadline. **Due August 1 and November 1.**
**Research Development & Grant Writing News**

**Bluefin Tuna Research Program**
The objective of the program is to provide a basis for advancing science-based fisheries management for Atlantic bluefin tuna. Such advancement will depend upon improvements in understanding of the fisheries harvesting and the biology of bluefin tuna, especially regarding the effects of mixing and movement between the eastern and western Atlantic stocks on monitoring stock abundance. Contracting Parties to the International Convention for the Conservation of Atlantic Tunas (ICCAT), of which the US is one, and other partners have embarked upon a $25 million research program on bluefin tuna, expected to span 6 years as a step toward improving ICCAT’s science based management approach for fisheries affecting bluefin. Research sponsored under this funding opportunity represents a contribution to this partnership. **Due August 5.**

**America's Historical and Cultural Organizations: Planning Grants**
America’s Historical and Cultural Organizations grants provide support for museums, libraries, historic places, and other organizations that produce public programs in the humanities. Grants support the following formats:
- exhibitions at museums, libraries, and other venues;
- interpretations of historic places, sites, or regions;
- book/film discussion programs; living history presentations; other face-to-face programs at libraries, community centers, and other public venues; and
- interpretive websites.
**Due August 14.**

**America's Historical and Cultural Organizations: Implementation Grants**
America’s Historical and Cultural Organizations grants provide support for museums, libraries, historic places, and other organizations that produce public programs in the humanities. Grants support the following formats:
- exhibitions at museums, libraries, and other venues;
- interpretations of historic places, sites, or regions;
- book/film discussion programs; living history presentations; other face-to-face programs at libraries, community centers, and other public venues; and
- interpretive websites.
**Due August 14.**

**NSF/EPRI Collaboration on "Water for Energy"- Advanced Dry Cooling for Power Plants**
The Directorate of Engineering at the National Science Foundation (NSF) and the Electric Power Research Institute (EPRI) have established a collaboration to jointly address the critical problem of water usage and consumption in power plant cooling. The "water-for-energy" issue is an important piece of the Energy-Water nexus. The goal of this collaboration is to leverage the complementary missions of applied research and commercialization (EPRI) and fundamental research and education (NSF) to foster enabling research and technology development that will lead to significant reductions or elimination of the use of water for cooling power plants.
Through this joint collaboration, NSF and EPRI jointly solicit proposals with transformative ideas that meet the detailed requirements in this solicitation. **Due August 19.**

**Data-Intensive Research to Improve Teaching and Learning - An Ideas Lab to Foster Transformative Approaches to Teaching and Learning**

The goal of this activity is to foster novel, transformative, multidisciplinary approaches that address the use of large data sets to create actionable knowledge for improving STEM teaching and learning environments (formal and informal) in the medium term, and to revolutionize learning in the longer term. These approaches will involve the work of learning scientists, STEM disciplinary experts, computer scientists, statisticians, database experts and educational researchers who design and study learning environments. Among the potential benefits of integrating approaches from these disciplines are improving student learning and engagement, optimizing personalized instruction, and supporting rapid decision making to help educators respond more effectively to the learning needs of individuals and groups of learners in multiple settings. These approaches may be risky but should have the potential to rapidly advance the field. The scope of this activity does not include infrastructure development focused on data base design and development for education domains. The new approaches envisioned in this solicitation will require the generation and use of data that range from micro-level data on individual learners, to data from online learning sources (such as massively open online courses), to meso-level data from the classroom that provide information to students and teachers about how learning is progressing, to macro-level data such as school, district, state, and national data, including data from federal science and policy agencies. Participants in the Ideas Lab, selected through an open application process, will engage in an intensive five-day residential workshop, the development of multidisciplinary collaborative proposals through a real-time and iterative review process, and, for the participant teams invited to submit full proposals, the subsequent submission of full proposals. **Required preliminary August 19; full December 9.**

**HFSP Postdoctoral Fellowships**

HFSP postdoctoral fellowships encourage early career scientists to broaden their research skills by moving into new areas of study while working in a new country. Long-Term Fellowships (LTF) are for applicants with a Ph.D. in a biological discipline, who will broaden their expertise by proposing a project in the life sciences which is significantly different from their previous Ph.D. or postdoctoral work. Cross-Disciplinary Fellowships (CDF) are for applicants with a Ph.D. from outside the life sciences (e.g. in physics, chemistry, mathematics, engineering or computer sciences), who have had limited exposure to biology during their previous training. **Due August 29.**

**Research in Quantum Computing**

The U.S. Army Contracting Command – Aberdeen Proving Ground RTP Division, on behalf of the U.S. Army Research Office (ARO), is issuing a Broad Agency Announcement (BAA), W911NF-13-R-0010, for the establishment of Research in Quantum Computing. There are two separate research topics covered in this announcement: 1. Quantum characterization, verification, and
validation The Quantum Characterization, Verification, and Validation (QCVV) research topic seeks proposals addressing the development of theoretical and experimental techniques, procedures, and methods for characterizing few-qubit systems with a focus on metrics relevant to robust fault-tolerant quantum computation (FTQC). The ultimate goal is to develop a set of standards and procedures, together with experimental demonstration, that will aid in characterizing increasingly complex quantum information systems. 2. Advanced quantum computing measurement technology Quantum information systems utilize measurement in a variety of ways: for diagnostic purposes while calibrating a quantum information system, to tune up a process for optimal operation, and for final read-out when implementing a quantum information process. Three performance parameters characterize quantum computing measurement techniques: (1) speed, (2) fidelity, and (3) resources. The overall objective is to demonstrate novel qubit measurement techniques for existing qubits. This Broad Agency Announcement (BAA) which sets forth research areas of interest to the Army Research Laboratory- Army Research Office (ARL-ARO) is issued under paragraph 6.102(d)(2) of the Federal Acquisition Regulation (FAR), and 10 USC 2358 which provides for the competitive selection of basic research proposals. Due September 10.

Susceptibility and Variability in Human Response to Chemical Exposure
The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking applications proposing research to study life stage and/or genetic susceptibility in order to better characterize the sources of human variability in response to chemical exposure. The adverse outcome pathways (AOP) concept has the potential to serve as a framework for using susceptibility indicators, biomonitoring, and high throughput screening (HTS) data in an integrated manner to predict population responses to novel, potentially harmful, chemicals. While much emphasis has been placed on improved biomonitoring and HTS approaches, research is needed to understand the underlying factors that influence human susceptibility and to develop tools and methods for the identification and use of susceptibility indicators in this context. This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects 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 12.

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. Projects may also focus on techniques and tools that will improve the professional performance and effectiveness of those who work with such records, such as archivists, documentary
Research Development & Grant Writing News

editors, and records managers. Projects must anticipate results that will affect more than a single institution or a single state. Projects may focus on methods of working with records in any format, including born-digital records. Projects designed to publish historical records must focus on innovative methods of presenting archival records as primary sources. The Commission does not fund projects focused on artifacts or books. For a comprehensive list of the Commission's limitations on funding, please see What We Do and Do Not Fund. Applications that consist entirely of ineligible activities will not be considered. Due October 3.

Healthy Schools: Environmental Factors, Children’s Health and Performance, and Sustainable Building Practices
The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is seeking applications proposing research that will inform school (K-12 educational facilities) building design, construction and operation practices in order to foster safe and healthy school environments and maximize student achievement and teacher and staff effectiveness. Specifically, the goal is to understand the relationship between environmental factors defined broadly and the health, safety and performance of students, teachers and staff. In addition to health-related concerns, the school environment may similarly impact the performance of students, teachers and staff, including lowering student achievement outcomes, and reducing teacher effectiveness. Accordingly, research is needed to better understand the negative impacts of the school environment on students’ health, safety, and achievement, and to measure the positive potential benefits of effectively managing environmental factors and applying sustainable building practices. The results of this research will help ensure that the risks of environmentally-induced illness and injury to America’s students, teachers and other school staff are diminished or avoided and that students, teachers and staff are provided with optimal learning environments in their schools. Due October 8.

DoD Duchenne Muscular Dystrophy Investigator-Initiated Research Award
The DMDRP Investigator-Initiated Research Award (IIRA) mechanism was first offered in FY11. Since then, 40 IIRA applications have been received, and 7 have been recommended for funding. The DMDRP IIRA supports translational research that will accelerate the movement of promising ideas in DMD into clinical applications. Translational research may be defined as an integration of basic science and clinical observations with the specific goal of developing new therapies. While the ultimate goal of translational research is to move an observation forward into clinical application, translational research is most effective as a two-way continuum between the bench and the bedside. Within this continuum, the IIRA supports mid-stage or later translational research projects, including early-phase, proof-of-principle clinical trials and DoD FY13 DMDRP Investigator-Initiated Research Award 4 correlative studies to better inform the development of drugs, devices, and other DMD interventions. Research projects may also include preclinical studies in animal models, human subjects, and human anatomical substances. All projects should adhere to a core set of reporting standards for rigorous study design. The standards are described fully in www.nature.com/nature/journal/v490/n7419/full/nature11556.html. While these standards are written for preclinical studies, the basic principles of randomization, blinding, sample-size
estimation, and data handling derive from well-established best practices in clinical studies and should be applied to those projects as well. Studies proposed under this award mechanism should not include: Target discovery; Drug screening; Mechanism of action studies; Hypothesis-driven pathophysiology studies Applications must include preliminary data that are relevant to DMD and the proposed project. Clinical trials are supported by this award mechanism. Optional Qualified Collaborator: The FY13 DMDRP strongly supports collaborative research between laboratory scientists and clinical researchers, and between academic scientists and biotechnology/pharmaceutical industry scientists. Collaborations that bring new perspectives from other disciplines, or bring new investigators into the DMD field, are also strongly encouraged. Due November 6.

**NEH Collaborative Research Grants**

Collaborative Research Grants support interpretive humanities research undertaken by a team of two or more scholars, for full-time or part-time activities for periods of a minimum of one year up to a maximum of three years. Support is available for various combinations of scholars, consultants, and research assistants; project-related travel; field work; applications of information technology; and technical support and services. All grantees are expected to communicate the results of their work to the appropriate scholarly and public audiences. Due December 5.

**NEH Scholarly Editions and Translations Grants**

Scholarly Editions and Translations grants support the preparation of editions and translations of pre-existing texts and documents of value to the humanities that are currently inaccessible or available in inadequate editions. These grants support full-time or part-time activities for periods of a minimum of one year up to a maximum of three years. Projects must be undertaken by a team of at least one editor or translator and one other staff member. Grants typically support editions and translations of significant literary, philosophical, and historical materials, but other types of work, such as musical notation, are also eligible. Due December 5.

**Climate Change Adaptation Program (GPAP)**

One important effect of global climate change is the reduction in naturally stored water resources which, for Peru, means melting glaciers and a decrease in the size of highland wetlands (paramos). The loss of these areas decreases water availability for upland and lowland communities and increases the potential for Glacial Lake Outburst Floods (GLOFs). This APS seeks to stimulate adaptation projects that assist indigenous mountain communities, rural and urban areas, and local and regional governments potentially affected by GLOFs or changes in water availability. General project outcomes will be long-term, sustainable approaches that help reduce the impact of climate change on glaciated and highland wetland ecosystems and on those that depend on these ecosystems' services. Open to June 6, 2014.

**Links to New & Open Funding Solicitations**

Links verified: Monday, February 11, 2013
• SAMHSA FY 2013 Grant Announcements and Awards
• DARPA Microsystems Technology Office 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
• EPA 2013 Science To Achieve Results (STAR) Research Grants
• NASA Open Solicitations
• Defense Sciences Office Solicitations
• The Mathematics Education Trust
• EPA Open Funding Opportunities
• DOE Funding Opportunity Exchange
• CDMRP FY 2013 Funding Announcements
• Office of Minority Health
• Department of Justice Open Solicitations
• DOE/EEERE Funding Opportunity Exchange
• 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
• Water Research Funding
• Fellowship and Grant Opportunities for Faculty Humanities and Social Sciences
• DARPA Current Solicitations
• Office of Naval Research Currently Active BAAs
• HRSA Health Professions Open Opportunities
• NIH Funding Opportunities Relevant to NIAID
• National Institute of Justice Current Funding Opportunities
• Funding Opportunities by the Department of Education Discretionary Grant Programs
• EPA’s Office of Air and Radiation (OAR) Open Solicitations
• NETL Open Solicitations
• DoED List of Currently Open Grant Competitions
• Foundation Center RFP Weekly Funding Bulletin
Solicitations Remaining Open from Prior Issues of the Newsletter

**DOE Cost-Shared Development of Innovative SMR Designs**
The U.S. Department of Energy (DOE) Office of Nuclear Energy, through this Funding Opportunity Announcement (FOA), seeks to facilitate the development of innovative SMR designs that have the potential to address the nation’s economic, environmental and energy security goals. Specifically, the DOE is soliciting applications for SMR designs that offer unique and innovative features that can serve to improve nuclear safety, operability, efficiency, economics, security, and performance over existing plants and previously certified nuclear plant designs and that can achieve NRC design certification on a schedule that supports deployment in the 2025 timeframe. **Due July 1.**

**Partnerships for Biodefense (R01)**
This Funding Opportunity Announcement (FOA) issued by the National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH), invites research applications for projects that support preclinical development of lead candidate therapeutics, vaccines and related technologies, or diagnostics against NIAID Category A, B, or C priority agents. Applications must include a Product Development Strategy attachment and demonstrate substantive investment by at least one industrial participant. **Due July 2.**

**Widening Implementation & Demonstration of Evidence-Based Reforms (WIDER)**
The chief goal of WIDER is to transform institutions of higher education into supportive environments for STEM faculty members to substantially increase their use of evidence-based teaching and learning practices. The first recommendation in the Report of the President's Council of Advisors on Science and Technology (PCAST), "Engage to Excel," is to increase widespread implementation of evidence-based practices in order to increase persistence in STEM and contribute to the goal of producing 1 million additional STEM graduates. **Due July 3.**

**Clean Energy Manufacturing Innovation Institute**
The goal of this Funding Opportunity Announcement (FOA) is to establish a Clean Energy Manufacturing Innovation Institute (Institute) to support U.S. prosperity and security; and that will contribute to the creation of the National Network for Manufacturing Innovation (NNMI). The primary goals of the Institute are to revitalize American manufacturing and support domestic manufacturing competitiveness by driving innovation, and developing and accelerating adoption of next generation manufacturing technologies that will increase energy productivity, improve product quality, reduce cost, waste or pollution leading to increased domestic production capacity, jobs for American workers and regional economic development. **Mandatory LOI July 11; full August 23.**

**NSF EHR Core Research (ECR)**
The EHR Core Research (ECR) program establishes a mechanism in the Directorate for Education and Human Resources to provide funding in foundational research areas that are broad, essential and enduring. EHR seeks proposals that will help synthesize, build and/or expand research foundations in the following core areas: STEM learning, STEM learning environments, workforce development, and broadening participation in STEM. We invite researchers to identify and conduct research on questions or issues in order to advance the improvement of STEM learning in general, or to address specific challenges of great importance. Two types of proposals are invited: Core Research Proposals (maximum 5 years, $1.5 million) that propose to study a foundational research question/issue designed to inform the transformation of STEM learning and education and Capacity Building Proposals (maximum 3 years, $300,000) intended to support groundwork necessary for advancing research within the four core areas. Due July 12.

**ONR Computational Methods for Decision Making**
The purpose of this topic is to identify, understand, and resolve key issues, develop and mature algorithms and methods; determine and demonstrate performance of algorithms, methods, techniques, and strategies for automated computational methods and information systems that support decision making. The algorithms, methods, techniques, and strategies must support autonomous information processing systems that can successfully and securely execute a variety of missions in complex environments while exploiting multiple sources of sensor and open domain data. Due July 15.

**Humanities Collections and Reference Resources**
The Humanities Collections and Reference Resources (HCRR) 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. Due July 18.

**AHA Summer 2013 - National Established Investigator Award**
To support mid-career investigators with unusual promise and an established record of accomplishments; candidates have a demonstrated commitment to cardiovascular or cerebrovascular science as indicated by prior publication history and scientific accomplishments. A candidate's career is expected to be in a rapid growth phase. Research broadly related to cardiovascular function and disease and stroke, or to related clinical, basic science, bioengineering or biotechnology, and public health problems, including multidisciplinary efforts. Due July 18.

**AHA Summer 2013 - National Innovative Research Grant**
To support highly innovative, high-risk, high-reward research that could ultimately lead to critical discoveries or major advancements that will accelerate the field of cardiovascular and stroke research. Research deemed innovative may introduce a new paradigm, challenge
current paradigms, look at existing problems from new perspectives, or exhibit other uniquely
creative qualities. The Innovative Research Grant (IRG) promotes new ideas; therefore,
proposals need not include preliminary data. However, a solid rationale for the work must be
provided. Proposed work should not be the next logical step of previous work, but should have
a high probability of revealing new avenues of investigation, if successful. Due July 18.

**AHA Summer 2013 - Mentored Clinical and Population Research Award**
To encourage early career investigators who have appropriate and supportive mentoring
relationships to engage in high quality introductory and pilot clinical studies that will guide
future strategies for reducing cardiovascular disease and stroke while fostering new research in
clinical and translational science, and encouraging community- and population-based activities.
This grant does not fund basic science or support senior researchers, but encourages mentoring
of early career investigators. Funding is available for research related to cardiovascular disease
and stroke prevention or treatment, or to related clinical and public health problems, including
multidisciplinary efforts. Due July 18.

**AHA Summer 2013 - Scientist Development Grant**
To support highly promising beginning scientists in their progress toward independence by
encouraging and adequately funding research projects that can bridge the gap between
completion of research training and readiness for successful competition as an independent
investigator. Research broadly related to cardiovascular function and disease and stroke, or to
related clinical, basic science, bioengineering or biotechnology, and public health problems,
including multidisciplinary efforts. Due July 18.

**Concentrating Solar Power: Efficiently Leveraging Equilibrium Mechanisms for Engineering
New Thermochemical Storage (CSP: ELEMENTS)**
New Thermochemical Storage (CSP: ELEMENTS) Funding Opportunity Announcement (FOA)
that is being issued by the U.S. Department of Energy (DOE) is seeking applications that
integrate Thermochemical Energy Storage (TCES) systems with a minimum of 6 hours of
thermal storage to be used in ≥1 Megawatt-electric (≥1 MWe) scale CSP electricity generation
that have promise to achieve a cost target of ≤$15 per kilowatt-hour-thermal (≤$15/kWhth) are
the focus of this FOA. Successful projects will culminate in an on-sun demonstration of the
 thermochemical reactor along with reliable projections of the full scale performance of the
integrated storage system through the utilization of validated performance models developed
as part of the research and development effort. Due July 23.

**Instrument Development for Biological Research (IDBR)**
The Instrument Development for Biological Research (IDBR) Program supports the
development, production, and distribution of novel instrumentation that addresses
demonstrated needs in biological research in areas supported by NSF Biology programs (see
http://www.nsf.gov/bio). These systems would benefit a broad user community through mass
distribution of the technology. Interdisciplinary collaborations are strongly encouraged, as are
partnerships with U.S. industries that can facilitate knowledge transfer, commercialization and broad utilization in the research community. Due July 31.

**Bridging Cultures at Community Colleges**

NEH *Bridging Cultures* at Community Colleges grants are intended to strengthen and enrich humanities education and scholarship at community colleges or community college systems. These projects must be planned and implemented in collaboration with another institution with appropriate resources, such as a college or university, museum, research library, or professional association. 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. Due August 27.

**Institute of Education Sciences (IES): Education Research and Development Centers CFDA Number 84.305C**

Purpose of Program: The central purpose of the Institute's research grant programs is to provide parents, educators, students, researchers, policymakers, and the general public with reliable and valid information about education practices that support learning and improve academic achievement and access to education opportunities for all students. In carrying out its grant programs, the Institute provides support for programs of research in areas of demonstrated national need. The Institute's National Center for Education Research (NCER) will hold five competitions: One competition for education research, one competition for education research training, one competition for education research and development centers, one competition for statistical and research methodology in education, and one competition for partnerships and collaborations focused on problems of practice or policy. The Institute's National Center for Special Education Research (NCSER) will not hold competitions in FY 2014. Due September 4.

**Institute of Sciences (IES): Research Training Program in the Education Sciences CFDA Number 84.305B**

Purpose of Program: The central purpose of the Institute's research grant programs is to provide parents, educators, students, researchers, policymakers, and the general public with reliable and valid information about education practices that support learning and improve academic achievement and access to education opportunities for all students. In carrying out its grant programs, the Institute provides support for programs of research in areas of demonstrated national need. The Institute's National Center for Education Research (NCER) will hold five competitions: One competition for education research, one competition for education research training, one competition for education research and development centers, one competition for statistical and research methodology in education, and one competition for partnerships and collaborations focused on problems of practice or policy. Due September 4.

**Institute of Education Sciences (IES): Partnerships and Collaborations Focused on Problems of Practice or Policy CFDA Number 84.305H**
Purpose of Program: The central purpose of the Institute's research grant programs is to provide parents, educators, students, researchers, policymakers, and the general public with reliable and valid information about education practices that support learning and improve academic achievement and access to education opportunities for all students. In carrying out its grant programs, the Institute provides support for programs of research in areas of demonstrated national need. The Institute's National Center for Education Research (NCER) will hold five competitions: One competition for education research, one competition for education research training, one competition for education research and development centers, one competition for statistical and research methodology in education, and one competition for partnerships and collaborations focused on problems of practice or policy. Due September 4.

**Institute of Education Sciences (IES): Statistical Research Methodology in Education CFDA Number 84.305D**

Purpose of Program: The central purpose of the Institute's research grant programs is to provide parents, educators, students, researchers, policymakers, and the general public with reliable and valid information about education practices that support learning and improve academic achievement and access to education opportunities for all students. In carrying out its grant programs, the Institute provides support for programs of research in areas of demonstrated national need. The Institute's National Center for Education Research (NCER) will hold five competitions: One competition for education research, one competition for education research training, one competition for education research and development centers, one competition for statistical and research methodology in education, and one competition for partnerships and collaborations focused on problems of practice or policy. Due September 4.

**Water Sustainability and Climate**

The goal of the Water Sustainability and Climate (WSC) solicitation is to enhance the understanding and predict the interactions between the water system and land use changes (including agriculture, managed forest and rangeland systems), the built environment, ecosystem function and services and climate change/variability through place-based research and integrative models. Studies of the water system using models and/or observations at specific sites, singly or in combination, that allow for spatial and temporal extrapolation to other regions, as well as integration across the different processes in that system are encouraged, especially to the extent that they advance the development of theoretical frameworks and predictive understanding. Due September 10.

**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 humanities. Due September 12.
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 12.

High-End Instrumentation Grant Program (S10)
The ORIP High-End Instrumentation Grant (HEI) program encourages applications from groups of NIH-supported investigators to purchase a single major item of equipment to be used for biomedical research that costs at least $750,000. The maximum award is $2,000,000. Instruments in this category include, but are not limited to, biomedical imaging systems, NMR spectrometers, mass spectrometers, electron microscopes and supercomputers. Due Sept. 13.

Documenting Endangered Languages
The Documenting Endangered Languages (DEL) program is a partnership between the National Endowment for the Humanities (NEH) and the National Science Foundation (NSF) to develop and advance knowledge concerning endangered human languages. Made urgent by the imminent death of an estimated half of the 6000-7000 currently used languages, this effort aims also to exploit advances in information technology. Awards support fieldwork and other activities relevant to recording, documenting, and archiving endangered languages, including the preparation of lexicons, grammars, text samples, and databases. DEL funding is available in the form of one- to three-year project grants as well as fellowships for six to twelve months. At least half the available funding will be awarded to projects involving fieldwork. All DEL applications are submitted to NSF for review. Upon completion of the review process, the administration of awards is conducted separately by NEH or NSF. Due September 16.

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. Due September 26.

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 continuous 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. Due September 26.
Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology
This BAA is intended for proposals related to basic research, applied research, or advanced technology development. Open to September 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. 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. 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.

FY 2013 Continuation of Solicitation for the Office of Science Financial Assistance Program
The Office of Science of the Department of Energy hereby announces its continuing interest in receiving grant applications for support of work in the following program areas: Advanced Scientific Computing Research, Basic Energy Sciences, Biological and Environmental Research, Fusion Energy Sciences, High Energy Physics, Nuclear Physics, and Workforce Development for Teachers and Scientists. This annual FOA DE-FOA-0000768 succeeds FOA DE-FOA-0000600, which was published September 30, 2011. Open to September 30, 2013.

U.S. Army Medical Research and Materiel Command Broad Agency Announcement for Extramural Medical Research
The U.S. Army Medical Research and Materiel Command's (USAMRMC) mission is to provide solutions to medical problems of importance to the American Warfighter at home and abroad.
The scope of this effort and the priorities attached to specific projects are influenced by changes in military and civilian medical science and technology, operational requirements, military threat assessments, and national defense strategies. The extramural research and development program plays a vital role in the fulfillment of the objectives established by the USAMRMC. General information on USAMRMC can be obtained at: (https://mrmc.detrick.army.mil/). This Broad Agency Announcement (BAA) is intended to solicit extramural research and development ideas, and is issued under the provisions of the Competition in Contracting Act of 1984 (Public Law 98-369), as implemented in Federal Acquisition Regulation 6.102(d)(2) and 35.016. This announcement provides a general description of USAMRMC’s research programs, including research areas of interest; general information; proposal/application preparation instructions; and the evaluation and selection criteria. This fiscal year’s BAA contains several changes from previous USAMRMC BAAs. Read each section carefully. Open to September 30, 2013.

Long Range BAA for Navy and Marine Corps Science and Technology
ONR is constantly looking for innovative scientific and technological solutions to address current and future Navy and Marine Corps requirements. We want to do business with educational institutions, nonprofit and for-profit organizations with ground-breaking ideas, pioneering scientific research and novel technology developments. The following list includes currently active broad agency announcements (BAAs) -- each announcement provides technical and contracting points of reference. Required: All BAAs incorporate a standardized template for the submission of technical and cost proposals for all contract awards. Guidance and assistance in completing the form and spreadsheet can be obtained from points of contact provided in the BAA. Download the forms (updated for 2012) | Email your feedback Open to September 30, 2013.

FAA Center of Excellence for Environment and Energy
The FAA is forming a Center of Excellence for Environment and Energy during FY-13. The COE will be a consortium of the FAA, university partners, and private industry affiliates selected by the FAA Administrator to work collectively on business and operational issues of mutual interest and concern. Due October 4, 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. Open until superseded.
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.**

**DARPA Innovative Systems for Military Missions**
The Tactical Technology Office of the Defense Advanced Research Projects Agency is soliciting executive summaries, white papers and proposals for advanced research and development of Innovative Systems for Military Missions. This solicitation seeks system and subsystem level technologies that enable revolutionary improvements to the efficiency and effectiveness of the military. Novel concepts are sought in the following focus areas: Ground Systems, Maritime Systems, Air Systems, and Space Systems. Proposals may be submitted at any time while this solicitation is open. TTO may publish groups of special topics as modifications to this BAA throughout the year. **Open to April 9, 2014.**

**DARPA Defense Sciences Research and Technology**
DARPA is soliciting innovative research proposals of interest to the Defense Sciences Office. Proposed research should investigate innovative approaches that enable revolutionary advances in science and technology. Specifically excluded is research that results primarily in evolutionary improvements to the existing state of the art. **Open to May 22, 2014.**

**DARPA Microsystems Technology Office-Wide**
The Microsystems Technology Office (MTO) supports DARPA’s mission of maintaining technological superiority and preventing technological surprise by investing in areas such as microelectromechanical systems (MEMS), electronics, system architecture, photonics, and biotechnology. In recent years, the proliferation of commercial components and manufacturing processes has allowed our adversaries to achieve capabilities that were previously not possible. **Open to September 1, 2014.**

**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.**

**Army Engineer Research and Development Center BAA**
The U.S. Army Engineer Research and Development Center (ERDC) has issued a Broad Agency Announcement (BAA) for various research and development topic areas. The ERDC consists of the Coastal and Hydraulics Lab (CHL), the Geotechnical and Structures Lab (GSL), the
Environmental Lab (EL) and the Information Technology Lab (ITL) in Vicksburg, Mississippi; the Cold Regions Research and Engineering Lab (CRREL) in Hanover, New Hampshire; the Construction Engineering Research Lab (CERL) in Champaign, Illinois; and the Topographic Engineering Center (TEC) in Alexandria, Virginia. The ERDC is responsible for conducting research in the broad fields of hydraulics, dredging, coastal engineering, instrumentation, oceanography, remote sensing, geotechnical engineering, earthquake engineering, soil effects, vehicle mobility, self-contained munitions, military engineering, geophysics, pavements, protective structures, aquatic plants, water quality, dredged material, treatment of hazardous waste, wetlands, physical/mechanical/chemical properties of snow and other frozen precipitation, infrastructure and environmental issues for installations, computer science, telecommunications management, energy, facilities maintenance, materials and structures, engineering processes, environmental processes, land and heritage conservation, and ecological processes. This research is conducted by Government personnel and by contract with educational institutions, non-profit organizations and private industries. The BAA is available at http://erdc.usace.army.mil/ and is open until superseded. Proposals may be accepted at any time. For questions regarding proposals to CHL, EL, GSL, TEC & ITL, contact Allison Hudson at 601-634-5233 or via email at Allison.B.Hudson@usace.army.mil . For questions concerning proposals to CERL, contact Jim Dowling at 217-373-4479 or via email at james.p.dowling@usace.army.mil or Andrea Krouse at 217-373-6746 or via email at andrea.j.krouse@usace.army.mil . For questions concerning proposals to CRREL, contact Wendy Adams at 603-646-4323 or via email at Wendy.A.Adams@usace.army.mil . Contact the technical personnel listed at the end of each topic area for questions concerning the topic areas themselves. Open to January 31, 2014.

Science, Technology, Engineering & Mathematics BAA
ERDC solicits basic research proposals in the general DoD STEM Education and Outreach Program from colleges, universities, and non-profit organizations. Depending upon the availability of appropriated funds, ERDC may: (1) Make multiple awards under this BAA; and (2) Consider options exercisable for multi-year performance. Area of performance for proposals may be limited to one of the selected locations listed above or may address multiple locations. Funding is limited and proposals are primarily sought in the not-to-exceed $30,000 range; however, larger awards may be considered when appropriate. Geographically targeted. Open to January 31, 2014.

Small University Grants Open 5-Year Broad Agency Announcement
Open to August 26, 2015

Nuclear Energy University Programs - Fellowship and Scholarship
This program supports education and training for future nuclear scientists, engineers and policy-makers who are attending U.S. universities and colleges in nuclear-related graduate, undergraduate and two-year study programs. These are zero-dollar awards that will be funded as students apply through the Department of Energy, Office of Nuclear Energy. Open until November 30, 2015.
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.

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.

Air Force Research Laboratory, Directed Energy Directorate

University Small Grants Broad Agency Announcement

This is a five-year, open-ended Broad Agency Announcement (BAA) to solicit research proposals for the United States Air Force Research Laboratory (AFRL) Directed Energy (RD) Directorate. This BAA is a university grant vehicle that can provide small grants of $100k or less to students/professors in a timely manner for the purpose of engaging U.S./U.S. territories’ colleges and universities in directed energy-related basic, applied, and advanced research projects that are of interest to the Department of Defense. Open to April 1, 2017.

United States Army Research Institute for the Behavioral and Social Sciences Broad Agency Announcement for Basic, Applied, and Advanced Scientific Research (FY13-18)

Announcement for Basic, Applied, and Advanced Scientific Research. This Broad Agency Announcement (BAA), which sets forth research areas of interest to the United States Army Research Institute for the Behavioral and Social Sciences, is issued under the provisions of paragraph 6.102(d)(2) of the Federal Acquisition Regulation (FAR), which provides for the competitive selection of 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 provisions of Public Law 98-369 (The Competition in Contracting Act of 1984) and subsequent amendments. The US Army Research Institute for the Behavioral and Social Sciences is the Army’s lead agency for the conduct of research, development, and analyses for the improvement of Army readiness and performance via research advances and applications.
of the behavioral and social sciences that address personnel, organization, training, and leader development issues. Programs funded under this BAA include basic research, applied research, and advanced technology development that can improve human performance and Army readiness. The funding opportunity is divided into two sections- (1) Basic Research and (2) Applied Research and Advanced Technology Development. The four major topic areas of research interest include the following: (1) Training; (2) Leader Development; (3) Team and Inter-Organizational Performance in Complex Environments; and (4) Soldier/Personnel Issues. Funding of research and development (R&D) within ARI areas of interest will be determined by funding constraints and priorities set during each budget cycle. **Open to February 5, 2018.**

**Research Interests of the Air Force Office of Scientific Research**
The Air Force Office of Scientific Research (AFOSR) manages the basic research investment for the U.S. Air Force (USAF). To accomplish this task, 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 of the BAA, Funding Opportunity Description. 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 five scientific directorates: Dynamical Systems and Control (RTA), Quantum & Non-Equilibrium Processes (RTB), Information, Decision, and Complex Networks (RTC), Complex materials and Devices (RTD), and Energy, Power, and Propulsion (RTE). The research activities managed within each directorate are summarized in Section I of the BAA. **Open until superseded.**
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

**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.

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