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New Faculty Guide to Competing for Research Funding
provides an invaluable tool to faculty writing research grants, or for use by research offices developing grantwriting workshops to help faculty write more competitive proposals.
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About the editor
Katherine E. Kelly, PhD, is a retired English professor from Texas A&M University. She is the author of several books and numerous articles and served as a contributing editor for an academic journal for five years. She provides editorial services to RD&GW News and to ARFS clients on proposals, journal articles, and manuscripts.

About the co-publishers
Mike Cronan, PE (Texas 063512, inactive) has 23 years of experience developing and writing successful proposals at Texas A&M University. He was named a Texas A&M University System Regents Fellow (2001-2010) for developing and writing A&M System-wide grants funded at over $100 million by NSF and other funding agencies. He developed and directed two research development and grant writing offices, one for Texas A&M’s VPR and the other for the Texas Engineering Experiment Station (15 research divisions state-wide).

Lucy Deckard (BS/MS Materials) worked in research development and grant writing at Texas A&M University and across the A&M System for nine years. She directed A&M’s New Faculty Research Initiative (2004-09), helping junior faculty System-wide jumpstart their research careers with federal agency funding. She served as associate director of two research development and grant writing offices. She founded ARFS in 2010.
Effective January 14, 2013, NSF made significant changes to the Proposal & Award Policies & Procedures Guide (PAPPG), (NSF 13-1), which includes the Grant Proposal Guide (GPG) and the Award & Administration Guide (AAG), of specific interest to those developing and writing proposals to that agency, or those research offices assisting in that process. These changes will impact the content and structure of several key proposal components, particularly the 1-page Project Summary and 15-page Project Description. Changes and elaborations on the broader impacts requirement will impact each of these key components. They are being implemented to eliminate a history of confusion about the intention of the broader impacts requirement, both within the research community and by NSF program staff and reviewers who apply the broader impacts requirement to proposals under review. (Note the NSF distinction that while the two merit review criteria remain unchanged (Intellectual Merit and Broader Impacts), guidance has been provided to clarify and improve the function of the criteria.)

The biggest change comes from revisions to the merit review criteria based on recommendations of the National Science Board’s report, "National Science Foundation’s Merit Review Criteria: Review and Revisions". These revisions are addressed in a companion article in this issue of the newsletter entitled, “How NSF’s Revised Merit Criteria for 2013 Will Impact Your Project Narrative.” Other changes appear in the PAPPG as well, e.g., within biosketches, “Products” now replaces “Publications.” But the most strategically important changes for applicants have been made to the project summary, project description, review criteria, and broader impacts, all of which lie at the core of a successful NSF proposal. Moreover, you will see these changes incorporated into all new NSF solicitations, program websites, and other electronic information systems at the agency. Understanding these revisions in the multiple programmatic contexts at NSF will be essential to your success at that agency.

Many of the changes in the PAPPG are process policy and administrative changes and will not be addressed herein, but the changes to the project summary, project description, broader impacts, and review criteria are substantive changes that will significantly impact the development and writing of any proposal submitted to NSF with a due date on or after January 14, 2013. Fortunately, several of these changes clarify and elaborate upon the characteristics of a successful proposal at NSF. Analyzing these changes will help researchers write more competitive proposals and hence enhance their success. Moreover, in the case of the project description, NSF’s detailed and specific discussion of what it expects to be included in the project narrative is very helpful, not only to those new to NSF or those with limited funding from that agency but also to those previously funded at NSF who want to maintain a high level of success in the future.

While it typically varies by solicitation, in general NSF gives great flexibility to the proposer in determining the organizational content, structure, and emphasis of the project...
narrative. While this less prescriptive approach has many benefits to those familiar with NSF’s narrative requirements, it is not always helpful for those less familiar with the agency. In this regard, you should also be aware of the core strategies essential to the fulfillment of NSF’s mission that have been included in the revised introduction to Chapter II of the GPG, as articulated in *Empowering the Nation Through Discovery and Innovation: NSF Strategic Plan for Fiscal Years (FY) 2011-2016*.

The NSF summary of what is organizationally different in the newly revised GPG specific to the Project Description is as follows:  

*Chapter II.C.2.d, Project Description,* has been revised to implement changes related to the Content and Results from Prior NSF Support sections recommended by the National Science Board (NSB). The Content instructions were updated to provide contextual information about proposal preparation and to include revised language related to broader impacts of the proposed activities from the ACRA and the Board’s report. In the past, the Project Description needed to include a description of broader impacts as an integral part of the narrative. The Project Description must now contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities. This section also was updated to indicate that Intellectual Merit and Broader Impact activities must be described in two separate sections in the summary of Results from Prior NSF Support.

However, **the most important information in the new GPG** (Project Description, II, d.(i)) relates to the questions NSF expects you to answer in your project description. Geologists like to observe, “If you don’t ask the right question, the rock won’t answer.” Any informed observation of NSF will lead to a similar expression: “If you don’t answer the right questions, NSF will not fund you.” Fortunately, NSF is more proactive than the geologists’ rock and actually tells you which questions you must answer to secure funding. NSF specifically expects that you will clearly elaborate and fully respond to the following:

- what you want to do,
- why you want to do it,
- how you plan to do it,
- how you will know if you succeed, and
- what benefits could accrue if your project is successful.

Furthermore, the Project Description should provide a clear statement of the work to be undertaken and must include statements describing:

- objectives for the period of the proposed work and expected significance;
- the relation of the proposed work to the longer-term goals of the PI's project; and
- the relation of the proposed work to the present state of knowledge in the field, to work in progress by the PI under other support, and to work in progress elsewhere.

In addition, the Project Description should outline the general plan of work, including the broad design of activities to be undertaken, and, where appropriate, a clear description of experimental methods and procedures. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well
These issues apply both to descriptions of the technical aspects of the proposal and to a statement of how the project may make broader contributions.

Also, the Project Description must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities. Broader impacts may be accomplished through the research itself, through the activities directly related to specific research projects, or through activities supported by but complementary to the project.

And finally, NSF values the advancement of scientific knowledge and activities that contribute to achieving socially relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics; improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

So there you have it—a template for success at NSF. These core questions are clear, brief, to the point, and easily memorized. If you want to be successful at NSF, start the first draft of your research narrative with each of these points in mind and organized in a way that makes for a logical sequence of narrative responses. In the aggregate, these responses will ensure a compelling and persuasive project description.

Moreover, most of these core NSF questions are fungible by research agency. They offer an excellent guide for writing any research proposal to any agency or foundation. Whether you are the author, reader, or volunteer reviewer of a proposal draft, these key questions represent the navigational waypoints that must be traversed in a proposal that transforms a compelling idea into a funded project.
How NSF’s Revised Merit Review Criteria for 2013 Will Impact the Writing of Your Project Narrative

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By Mike Cronan, co-publisher
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More than 13 years have passed since the last in-depth revision of NSF’s review criteria. The new revisions are substantive and based on recommendations of the National Science Board’s report, National Science Foundation’s Merit Review Criteria: Review and Revisions. The revisions to the review criteria now align better with the agency strategic plan, Empowering the Nation Through Discovery and Innovation - NSF Strategic Plan for Fiscal Years 2011-2016. In addition, NSF describes the revised review criteria as a response to persistent anecdotal reports of confusion related to the Broader Impacts review criterion and inconsistencies in the application of that criterion during the review process. The revisions apply to all proposals submitted to NSF on or after January 14, 2013. However, when submitting a proposal, be aware that Grants.gov does not compliance check documents as does Fastlane. (Note the NSF distinction that while the two merit review criteria remain unchanged (Intellectual Merit and Broader Impacts), guidance has been provided to clarify and improve the function of the criteria.)

Most importantly, NSF has revised the review criteria with the expressed intent to help principal investigators use them to write a more competitive proposal. Specifically, the revised review criteria should encourage PIs to describe their project in terms that clarify for reviewers whether and how the proposed research aligns with these new merit review criteria.

The framework for the revised criteria now specifically includes (1) three guiding review principles; (2) two review criteria; and (3) five review elements that apply equally to the two review criteria. In short, the Intellectual Merit (IM) and Broader Impacts (BI) review criteria together still capture the important elements that should guide the evaluation of NSF proposals. However, revisions have been made to the descriptions of the Broader Impacts criterion and its implementation. Moreover, the use of the review criteria is now informed by a guiding set of five core principles (elements). To this end, reviewer and panelist letters will now be required to (1) give due diligence to the three merit review principles; (2) evaluate against the two merit review criteria; and (3) consider the five core principles in the review of both criteria. Item 3 will have the most significant impact on how PIs write the research narrative and how reviewers evaluate it after January 14. The three components of this new framework are elaborated upon below.

Three Guiding Principles for Merit Review Criteria

1. All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
   a. [Comment: A paragraph on page 1 of your NSF Project Description should include a clear, specific, and succinct narrative statement describing how your proposed research embodies this principle. Do not address this principle with}
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generalities or unsupported claims. State and support your case for the significance of your research early in the paragraph.]

2. NSF projects, in the aggregate, should contribute more broadly to achieving societal goals.
   a. [Comment: NSF will leave it up to the PI to describe how the proposed research will benefit society. There will not be an NSF checklist addressing societal benefits; rather, NSF now clearly expects PIs to think about this principle within the context of the proposed research and answer it within the context, scale, and scope of the project. Keep in mind NSF’s use of the term “in the aggregate” here. Expectations for a center project will differ from those for a smaller, more narrowly focused research project, for example. The PI takes charge of addressing this principle in the proposal. This brings to mind the position in which Nobel physicist I. I. Rabi found himself after the end of WWII when he told his research colleagues that they were facing deep budget cuts to the laboratory: “Well, there is no more money available for equipment. Now we are going to have to start to think.” And so it will be for PIs deciding how to respond to this NSF review principle. NSF now expects that your narrative addressing societal goals within the broader Project Description will be a logical outcome of the proposed research holistically framed within that context rather than as an appendage tenuously tethered to the proposed project.]

3. Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects.
   a. [Comment: Here, too, context, scale, and scope are important factors to consider in either assessment or evaluation. Keep in mind as well that NSF differentiates between project outputs and outcomes. NSF views outputs as the concrete results at the end of a project. Outcomes are longer term results that, over time and in the aggregate of multiple proposals, allow NSF to determine whether and how a particular program is working. Specifically, PIs are expected to be accountable for carrying out the activities described in the funded project. Individual projects should include clearly stated goals, specific descriptions of activities that the PI intends to do, and a plan to document the outputs of those activities.]

Merit Review Criteria

When evaluating NSF proposals, reviewers should consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know whether they succeed, and what benefits would accrue were the project to succeed. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. [Comment: Keep in mind that while IM and BI are to be given “equal importance” in the review process, that does not necessarily mean they should be given “equal weight.” The NSB report that motivated the revisions did not assign “weight” to criteria,
describing them as “equally important.” This distinction between importance and weight should be observed when framing your research narrative. Once again, however, context, scale, and scope are important to making this determination when writing the Project Description. The “weight” given to IM and BI in the review process will depend on the proposed project. For example, different “weights” may be given by reviewers to the IM and BI criteria on proposals submitted under the same solicitation. Unlike mandatory sentencing, where judicial discretion is limited by law, NSF reviewers and program officers are allowed discretion and flexibility in the review process. For example, in some cases, the intellectual merit of the proposed research may, in itself, represent significant broader impacts due to its social benefits.]

To that end, reviewers are asked to evaluate all proposals against two criteria:

1. **Intellectual Merit**: The intellectual Merit criterion encompasses the potential to advance knowledge; and
2. **Broader Impacts**: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes. [See the companion article in this newsletter entitled What’s New about Broader Impacts in 2013 for a fuller discussion on this topic.]

**Five Review Elements**

The following elements should be considered in the review for both criteria [Comment: These five elements represent “the things NSF cares about,” according to the agency. They will be used by reviewers in conjunction with the review criteria to access a proposal. Once more, context, scale, and scope will affect how you respond to each of these five elements in writing your proposal narrative. As with all changes, how these five elements will be applied will likely evolve and mature over time. However, NSF does single out these five elements from all of the changes taking effect on January 14, 2013 as having the most significant impact on how a proposal should be written. So take them to heart. While a reviewer “grade of A+” on each of these elements may not be required for funding, it is nonetheless judicious to aspire to this goal. Regardless, your project narrative must establish early on how well your proposed project reflects the melding of these five elements with the two core merit review criteria and three guiding review principles.]:

1. What is the potential for the proposed activity to:
   a. advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   b. benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or institution to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities?
Merit Review Criteria Resources

Revised Merit Review Criteria Resources for the External Community
Webcast on Revisions to the Merit Review Criteria
NSF Merit Review Website

The resources identified below are provided to allow the research and education communities to prepare proposals in accordance with the revised criteria effective January 14, 2013.

- New Merit Review Website
- Revisions to the Merit Review Criteria
  - Merit Review FAQs
  - FastLane-Related Proposal & Award Policies & Procedures Guide (PAPPG) FAQs
  - Webcast: Revisions to the NSF Merit Review Criteria - October 2012
- Fact Sheet – What this means for Proposers
- Fact Sheet – What this means for Reviewers
NSF’s 310-page report Merit Review Criteria: Review and Revisions (December 14, 2011) provided the impetus for the revised merit review guidelines that take effect on or after January 14, 2013. This report reveals that, while the research community clearly understands the Intellectual Merit (IM) review criterion, it does not fully understand the Broader Impacts (BI) criterion, and, further, that both NSF program staff and reviewers have applied the BI criterion inconsistently during the review process. The report documents a strong feeling in the research community that the execution of the BI criterion during the review process has been flawed, and that the criterion is neither well defined nor clearly understood by proposers or reviewers. (While the two merit review criteria remain unchanged [IM and BI], the revisions provide guidance intended to clarify and improve how the criteria function.)

For example, according to the report, many proposers mistakenly interpreted the NSF list of BI examples as a prescribed “check list,” often assuming that all elements needed to be included in every proposal. To correct this, NSF has removed the list of examples illustrating BI activities likely to demonstrate broader impacts from the NSF website. In explaining the removal, NSF indicated it does not want to unduly influence proposers’ selection of their likely BI activities nor does it wish to imply that it prefers the example activities. Instead, the BI criterion requires researchers’ close and thoughtful attention to ensure its appropriateness to a project’s capacities, scope, and scale. Take this expunging of the BI examples from the NSF website to heart and begin the process of “personalizing” the BI criterion to your unique research context by using the revised guidelines, especially the new five elements that reviewers will now consider when applying the two core reviewer criteria.

According to NSF, BI may be accomplished through the research itself, through the activities directly related to specific research projects, or through activities supported by and complementary to the project. NSF’s goal is to encourage proposers’ thoughtful development of ideas so that they feature broader impacts as an “organic” feature of the proposed research. Hence, the PI is responsible for identifying the broader impacts that may result from a project and for describing how those proposed activities are appropriate for meeting the BI criterion.

In essence, a well-written broader impacts section should include a clearly described set of activities, including their contextual relevance to the proposed research; a well-justified rationale; and either an innovative or well-established approach to viewing and solving the problem under investigation. The proposer should have a well-organized strategy for accomplishing clearly stated goals; establish the qualifications of those responsible for the activities; and demonstrate sufficient resources for support. A plan should be in place to document the results. The take away message here, and in general at NSF, is that the agency expects the proposer to be sufficiently informed about BI to make a compelling case for the contextual relevance of the proposed BI activities to the proposed research. Keep in mind that BI is one of many areas where you can gain competitive advantage by taking the time to fully understand the criterion. After all, only you can truly judge how potential BI activities fit your
research context in the appropriate scope and scale and within your capacities and BI interests.

Take the time to learn about the BI criterion in detail to gain a nuanced understanding of its intent and purpose, and of its new framing within the three guiding review principles and five review elements. Truly understanding and appreciating the BI intent and purpose will then allow you to develop good ideas for BI activities in your proposal as required by the specific solicitation to which you are responding at NSF. Avoid “farming out” the BI activities of your proposal to someone without detailed knowledge of your research. Uninformed writers will simply offer you an “off the shelf” or “canned” BI write-up uninformed by your research context, or disconnected from your research scope and scale and your own BI interests and capacities. The BI activities you propose have to make sense within the overall context of your research activities and must stand up to scrutiny by reviewers and program officers. Moreover, under the newly revised guidelines related to BI, those assisting proposers in developing the BI section of the proposal must now rethink this criterion completely to ensure that their advice and assistance is consistent with the new frameworks.

Under the new guidelines, proposing BI activities drawn from an archive of BI narrative text taken from multiple proposals over multiple years will place your proposal at risk of failure. The newly required BI section of the project description discourages a “boilerplate portfolio” that will absolve the proposer from having to actually think about how best to develop and describe BI activities in the terms of the proposed research context. For example, using a “canned” BI narrative proposing to transfer your research into hands-on activities for middle schools that will impact 500 students will likely be seen as unrealistic at best by reviewers, particularly if you have no experience working with schools in the past, or clearly do not understand the nuances of working with school districts, STEM teachers, and their students in relation to STEM standards. It is, therefore, important to learn about BI so you do not get poorly reviewed as a consequence of proposing activities disconnected to the rationale, experience, relational context, scale, and scope of your project.

Finally, NSF notes that the data reviewed for the NSB report on the review process suggest that the methods for assessing the outcomes from BI have been unclear and inconsistent across projects and institutions. There was a strong sense that NSF should be doing more to determine whether or not the goals of the BI criterion are being realized. The agency report makes clear that meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of BI and the resources provided to implement projects. If the size of the activity is limited, evaluating that activity in isolation is not likely to be meaningful. Thus, the report notes, assessing the effectiveness of these activities may best be done at a level higher and more aggregated than that of the individual project.

However, the NSB report emphasizes that, even if assessment of BI outcomes for particular projects is done at an aggregated level, PIs are expected to take personal responsibility for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan for documenting the outputs of those activities.
Generalities in the research narrative suffocate the project description in much the same way that exposure to cyanide ions inhibits our ability to take up and use oxygen in the bloodstream. At lower doses, the symptoms of exposure to generalities and cyanide ions are similar—general weakness, confusion, headaches, listlessness, and the inability to focus. At higher doses, the toxicity caused by either generalities or cyanide ions creates more serious difficulties that quickly become life threatening. Fortunately, cyanide antidote kits are available for humans, but immediate treatment is required.

By comparison, the “generalities antidote kit” for proposals involves a multistep process tailored to the severity of the problem. The generalities antidote kit for the narrative requires that generalities be displaced by massive doses of clarity, specificity, and detail administered repeatedly until the due date, if there is to be any hope of salvaging an otherwise hopeless project description. As the English mathematician Alfred North Whitehead observed: “We think in generalities, but we live in detail.” The poet William Blake held a harsher view of generalities: “To generalize is to be an idiot. To particularize is the lone distinction of merit.” Unfortunately, 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. H. L. Mencken once observed on reviewing an overly generalized article that it read “like an army of words marching across the page in search of an idea.”

The overly generalized narrative often claims to offer great research benefits should the project be funded, but it nonetheless leaves the reader puzzled about the details of how the claim will actually be accomplished. This “trust me” narrative model has long been discredited by reviewers. In effect, generalities are to the research narrative what scrip is to legal tender—nothing more than a token or an IOU representing an implied promise to accomplish something important if funded, but leaving the actual performance details vague until the money arrives.

While the gold standard is no longer used as a monetary system, it is, by analogy, used by reviewers who expect claims of value to be backed up by specifics and detail in the narrative. If not provided with narrative detail, reviewers will suspect you are trying to sell them the Brooklyn Bridge, or ocean front property in Oklahoma. As Chicago architect Ludwig Mies van der Rohe observed, “the devil is in the details.” If so, to write a competitive proposal, be prepared to meet the devil. Otherwise, when reading your proposal, reviewers will feel like they are channeling Wendy’s 1984 “Where’s the beef?” advertisement now immortalized on YouTube.

Generalities are often ubiquitous in the research narrative of poorly conceptualized proposals, and are especially prevalent and damaging in those core sections of the proposal
that address background, statement of the research problem, and specific research aims/solutions, among other sections. There is a subtle distinction to be observed here: a poorly conceptualized proposal can be written correctly, in the narrow sense of being free of mistakes of grammar and usage, but nevertheless may fail to present a persuasive and convincing argument for funding. Moreover, generalities in the research narrative are not as easily fixed as are some of the more common problems associated with a proposal that can benefit from a good editor. An editor can help revise an existing narrative for greater clarity and organizational structure, but cannot provide the competitive conceptual content needed to persuade reviewers to fund the project. This explains why generalities present a very serious and often fatal threat to the competitiveness of a project narrative: they arise from a basic conceptual problem rather than from an editorial problem fixable by rewording existing text for clarity and succinctness.

The root cause of generalities in the research narrative is most often a failure to fully develop and mature the research ideas in the proposal itself. As the due date looms, it becomes critical to decide whether or not this failure can be corrected in time. It is not a problem fixable by a deep edit because the core ideas are not fully developed and are absent in the proposal itself. Editing cannot fix something that has not been expressed in the narrative to begin with. Attempting to do so would represent nothing more than what is commonly known as a “mortician’s edit”—minor cosmetic improvements to a lost cause similar to rearranging the deck chairs on the sinking Titanic. Problems associated with an overly generalized project description have to be corrected by the proposal’s authors. It is not a trivial task and requires that the principal authors perform a deep conceptual edit and rewrite of the project narrative whereby the missing specificity and detail are added and the ideas more fully matured. Sometimes this is possible before a deadline arrives; often it is not.

Fundamentally, generalities rob the narrative of the valuable space needed to make a convincing case for funding. Generalities are the ultimate freeloader in a project narrative. They bring nothing of value to the narrative, but rather suffocate the narrative by substituting the dispensable for the essential; by substituting the unfocused for the focused; the amorphous for the specific; a directional fog for directional clarity; boilerplate for contextual detail; silos for synergy, synthesis and integration; and by too often substituting slogans, buzz words, and jargon for ideas. Generalities devalue the currency of good ideas well stated.

These problems may be correctable if they are not pervasive and if they are diagnosed in time; however, the only real antidote requires an acknowledgement that the narrative lacks a clear and fully developed conceptual framework and is so heavily burdened by generalities pretending to be significant ideas that major and substantive rather than cosmetic doses of clarity, specificity, and detail are needed to transition the narrative from certain failure to potential success. This is neither an easy nor trivial task to accomplish.

Detection of offending generalities in the narrative is an important first step in saving an otherwise likely doomed narrative. For example, many proposal solicitations directly or implicitly require a discussion of the problem being addressed in the research narrative. Describing the problem succinctly, judiciously, and proportionally is key. For example, if you are writing a CAREER proposal in physics, do not assume that you must explain the key role played by the study of the hydrogen atom in all of twentieth-century physics as background to
your proposed research. Or, if you are proposing research related to global warming, do not spend time discussing the concepts of a spherical earth starting with Pythagoras. Reviewers will assume the earth is a globe. While these examples are amplified for effect, they represent one common failing of the too generalized project description.

Perhaps the generalities in a project narrative most difficult to correct appear when the narrative passively poses but fails to explain research questions, program goals, or project activities. For example, a narrative may fail to explain why the particular questions, goals, or activities described have been selected, what might be their significance or value-added benefits to the field of study, how they will be accomplished; and what possible outcomes and impacts they may have on the field. Generalities in the core research narrative too often signal a project that has not been fully conceptualized at the level needed to be competitive. One telltale sign of this failure appears in a research narrative, at both the section and paragraph level, that does not first describe a specific goal or goals, and then describe with more detail and specificity such key ingredients as the objectives, rationale, approach, impact and significance of the proposed activity.

While writing and organizational preferences will vary by author, persuasive writing at any scale (proposal, section, paragraph, sentence) will be characterized by clearly describing for readers and reviewers: (1) what you will do, (2) why you will do it, (3) how you will do it, (4) why it is significant, and (5) the value-added benefits or impact of doing it. These five generic questions will often be complemented by other core questions specific to a solicitation. However, too often in the poorly elaborated research narrative, the author disproportionately addresses the background of the research question being posed, overly elaborates on the current literature in the field, and woefully fails to address the foregoing five core questions in ways that clearly illuminate the value and significance of the proposed research.

Moreover, on large proposals, particularly center and center-level proposals, key program elements must be established in addition to the research core, such as components addressing educational activities, diversity, innovation, dissemination, societal impacts, management, and evaluation and assessment, specific to the particular agency and solicitation. Overly generalized narrative addressing these components can be just as detrimental to success as overly generalized research descriptions.

In these cases, overly generalized text may indicate that the required components are outside the experience and expertise of the core researchers developing the proposal, suggesting that the researcher may be thinking, “Evaluation and assessment? How hard can it be? I can make this stuff up. After all, it’s just an input/output problem.” Components requiring expertise from the social and behavioral sciences or education will almost certainly require input from faculty in those disciplines with a research and publication track record relevant to the specific component. Moreover, if a proposal requires a research-enabled social science or research-based educational component, keep in mind that social and behavioral sciences and education faculty are not disciplinarily fungible. Asking a social scientist or education researcher to join a proposal who does not have a research track record and relevant publications will not solve the problem of overly generalized narrative components.

Here, too, the absence of specificity and detail are the telltale signs of research ideas insufficiently developed to give a proposal a competitive chance to be funded.
Update: White House’s Advanced Manufacturing Partnership

In 2011, the White House announced a new Advanced Manufacturing Partnership, providing clues to future increases in research funding. Here, we revisit this initiative and recent reports that may set priorities for new funding opportunities.

In June of 2011, the White House launched a new Advanced Manufacturing Partnership (AMP), with the goal to bring together industry, universities and the federal government to invest in emerging technologies that will enhance our global competitiveness in manufacturing. Identified areas of emphasis were:

- Building domestic manufacturing capabilities in critical national security industries
- Reducing the time to develop and deploy advanced materials
- Investing in next-generation robotics
- Developing innovative energy-efficient manufacturing processes

Several coordinated multi-agency initiatives have emerged out of these emphasis areas, including the Materials Genome Initiative, the National Robotics Initiative, AMTech Technology Roadmaps and Planning Grants, Manufacturing Jobs Accelerator Grants, Manufacturing Demonstration Facilities, and Advanced Manufacturing Pilot Projects. An AMP National Program Office was established in December 2011, hosted by NIST with interagency staff and IPA/Fellows from industry and academia. In addition, a National Science and Technology Council Interagency Advanced Manufacturing working group, co-chaired by DOE, DOD, and NIST, was chartered in March 2011. Their report to Congress outlining a strategic plan to guide Federal programs and activities in support of advanced manufacturing research and development was released in February 2012. They recommend that Federal investments in advanced manufacturing be coordinated across agencies more effectively by “taking a portfolio perspective across agencies and calibrating accordingly.” The working group discussed, in particular, the fact that while federal investments in basic R&D related to manufacturing continue to yield good results, those technical innovations are not being reliably deployed into the Nation’s manufacturing sector. They identified a number of reasons for this problem, including investment barriers that may be too high for individual companies and long lifecycles, making the time to recoup costs of technology investment too long for many small and medium-sized manufacturing enterprises.

In addition, five AMP Workstream Study Groups were established: Manufacturing Policy, Technology Development, Shared Infrastructure and Facilities, Education and Workforce Development, and Outreach. These study groups submitted reports in July 2012. More on their recommendations and areas of expected increased investment are discussed below. While Objectives 4 and 5 are likely to be of the most interest to academic researchers looking for funding, it’s important for researchers to be aware of initiatives related to the other objectives.
since they offer opportunities for developing connections with industry and leveraging additional resources. Given the emphasis on transitioning innovations developed through Federally-supported basic research to small and medium-sized manufacturing enterprises (referred to as SMEs), any academic researcher planning to pursue funding related to advanced manufacturing would be well-advised to develop strong relationships with SMEs that may have an interest in the outcomes of that research.

Recommended National Strategic Plan for Advanced Manufacturing

In their 2012 report, the National Science and Technology Council Interagency AMP Working Group recommended a strategic plan with five objectives as follows:

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**Objective 1:** Accelerate investment in advanced manufacturing technology, especially by SMEs), by fostering more effective use of Federal capabilities and facilities, including early procurement by Federal agencies of cutting-edge products.

**Strategies:** Increase coordination of their investments related to advanced manufacturing with private and non-Federal investors. Purchase products made by advanced manufacturers early in the scale-up phase. Invest in targeted areas of critical importance to national security.

**Agencies:** They identified the following agencies that should be involved in implementing these strategies: Departments of Commerce, Defense, Energy, Homeland Security, and Transportation, and the General Services Administration (GSA), National Aeronautics and Space Administration (NASA) and the Small Business Administration (SBA).

**Initiatives supporting this objective:** The DOD Manufacturing Technology (ManTech) Program (including the Connecting American Manufacturing Program)

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**Objective 2:** Expand the number of workers who have skills needed by a growing advanced manufacturing sector and make the education and training system more responsive to the demand for skills.

**Strategies:** Support for the coordination of state and local education and training curricula with advanced manufacturing skill-set requirements. Expanded support for advanced manufacturing career and technical education programs spanning secondary and postsecondary levels, and apprenticeship opportunities through regional partnerships and industrial cluster programs.

**Agencies:** Department of Labor/ Education and Training Administration (DOL/ETA), Department of Education Office of Vocational and Adult Education (ED OVAE), and the National Science Foundation (NSF).

**Initiatives supporting this objective:** DARPA’s Manufacturing Experimentation and Outreach (MENTOR), NIST Manufacturing Extension Partnership (MEP), ED National Career Clusters, NSF
Advanced Technology Education, Grant Opportunities for Academic Liaison with Industry (GOALI), and Partnerships for Innovation: Accelerating Innovation Research Programs.

Objective 3: Create and support national and regional public-private, government-industry-academic partnerships to accelerate investment in and deployment of advanced manufacturing technologies.

Strategies: Facilitate SME engagement through partnerships. Expand investments in public-private partnerships in the advanced manufacturing industrial commons.

Agencies: Department of Defense (DOD), Department of Energy (DOE), Economic Development Administration (EDA), National Institute of Standards and Testing (NIST), National Science Foundation (NSF), and Small Business Administration (SBA).


Objective 4: Optimize the Federal advanced manufacturing investment by taking a portfolio perspective across agencies and adjusting accordingly.

Strategies: Coordinate Federal agency investments in the industrial commons. Target and balance investments in advanced materials, broad production technology platforms, advanced manufacturing processes, and design and data infrastructure.

Agencies: Department of Defense (DOD), Department of Energy (DOE), National Institute of Standards and Testing (NIST), National Science Foundation (NSF).

Initiatives supporting this objective: The Advanced Manufacturing National Program Office (which will provide an administrative mechanism to coordinate and manage these investments), the multi-agency Materials Genome Initiative (including the NSF DMREF and other programs to be discussed below), the multi-agency National Nanotechnology Initiative (note: NSF has released the new solicitation for the next-generation NNIN, with LOIs due April 1, 2013), the DOE Innovative Manufacturing Initiative, the USDA Biorefinery Assistance Program, the DARPA Manufacturing Initiative, and the multi-agency National Robotics Initiative.

Objective 5: Increase total U.S. public and private investments in advanced manufacturing R&D.

Strategies: Enhance and make permanent the Federal Research and Experimentation (R&E) tax credit in order to expand the scope of activities covered and benefit a larger number of manufacturers. Increase Federal investment for advanced manufacturing R&D.
Specifically, although it’s difficult to know what the final approved budget numbers will be given the current political climate, the President’s proposed FY 2013 Budget provides $2.2 billion (a 50% increase compared to 2011) for Federal advanced manufacturing R&D at NSF, DOE, NIST and other agencies. This includes:

- An additional $86 million above FY 2012 funding for NIST to expand research in areas such as smart manufacturing, biomanufacturing and nanomanufacturing
- An additional $21 million for NIST for the Advanced Manufacturing Technology Consortia program
- Doubling of the FY2012 amount for the Advanced Manufacturing Office within DOE’s Office of Energy Efficiency and Renewable Energy to $290 million
- An increase of $39 million above FY2012 for basic research at NSF.

Initiatives Supporting this Objective:
- NSF Designing Materials Revolutionize and Engineer our Future (DMREF)
  - Dear Colleague Letter – General for 2013
  - Dear Colleague Letter from Division of Mathematical Sciences for 2013
  - Dear Colleague Letter from Division of Chemistry for 2013

More resources
- “NIST and the AMP” powerpoint presentation
- Advanced Manufacturing Portal – brings together a wide variety of resources related to the AMP as well as other government supported advanced manufacturing initiatives.
- Acting Secretary of Commerce Rebecca Blank’s Remarks at the National Academies of Science MEP Conference
- Active Solicitations page from the Advanced Manufacturing Office (none at present)
- Materials Research Society Materials Genome Initiative Forum
- MGI News and Analysis MRS Bulletin
Research Grant Writing Web Resources

NORDP Research Development Resources

Rural e-News
Rural e-News is a compilation of funding opportunities, training and new information available on the web. The newsletter is emailed on the first day of every month to a network of more than 1,800 people and organizations across the country. The primary purpose of Rural e-News is reducing the isolation of those working in rural areas by providing up-to-date information on relevant topics for education and growth.

The Sustained Impact of Programs
Over the past decade, sustainability has become the focus for many government agencies and foundations that fund community-based programs and non-profit organizations. Increasingly, funders want to know how organizations and collaborations plan to sustain programs or services beyond the grant period.

Most definitions of sustainability, including the one provided in the previous section, focus on the continuity of a service or program. This perspective, focusing solely on the sustainability of programs and services, may understate the full range of impacts that a program may have, and it does not explicitly describe the potential for lasting effects in the community that are distinct from the continuation of a service. There are multiple ways that an initiative can impact a community long after services have been discontinued. This workbook (and the supporting worksheet and template) will guide you through a process of clarifying the long-term impacts that your program can have in the community and what resources will be needed to sustain those impacts.

U.S. Department of Health and Human Services’ Rural Initiative, the Rural Assistance Center
By thinking beyond the day-to-day activities and services to plan for sustainability early in the grant cycle, communities can better position their programs for long-term sustainability and leverage the investment of federal grant dollars to maintain successful programs that improve the health of rural Americans. The tools provided here are intended to help you consider the sustainability of programs that address community needs and to engage your partners and stakeholders in this planning process.


Updates to the NSF Proposal & Award Policies & Procedures Guide (PAPPG) Presentation - November 19, 2012

NSF Grants Conference hosted by George Mason University - October 22-23, 2012
• Introduction and NSF Overview
• Proposal Preparation
• NSF Merit Review Process
• Award Management
• Revised NSF Merit Review Process
• Crosscutting and Special Interest Programs
• Office of International Science and Engineering
• Office of the Inspector General
• Breakout Sessions:
  o Biological Sciences
  o Post-Award Monitoring and Compliance
  o Computer and Information Science and Engineering
  o Education and Human Resources
  o Engineering
  o Faculty Early Career Development (CAREER) Program
  o Geosciences
  o Mathematical and Physical Sciences
  o Merit Review 2.0
  o NSF Award Payment & Financial Report Processes
  o Office of Cyberinfrastructure
  o Office of Integrative Activities
  o Policies and Procedures Q&A
  o Science, Engineering & Education for Sustainability (SEES)
  o Social, Behavioral and Economic Sciences
  o Research.gov
Writing educational grants to federal agencies and foundations is helped by developing a knowledge base of proven and successful educational models and STEM standards at the K-12, community college, and university level.

**Colloquy on Minority Males in Science, Technology, Engineering, and Mathematics**

On August 8-12, 2010 the National Academy of Engineering (NAE), with funding from the National Science Foundation (NSF), convened the Colloquy on Minority Males in Science, Technology, Engineering, and Mathematics (STEM), following the release of several reports highlighting the educational challenges facing minority males. The NSF recognized the need to gather input from research communities that focus on minority males about how to frame investigations of gender-based factors that impact learning and choice in STEM education (both at the precollege and higher education levels) and the workforce for minority males. There was particular interest in framing a research agenda to study how interactions between minority males and societal and educational systems (both formal and informal) encourage or discourage the young men’s interest and persistence in STEM. In addition, NSF hoped to gain community input to inform the parameters of a future NSF research program that could effectively address minority male participation in STEM. The Colloquy was held at the Mt. Washington Conference Center in Baltimore, Maryland, with approximately 40 participants, most of them researchers in education, psychology, sociology, mathematics, and physics.

*Colloquy on Minority Males in Science, Technology, Engineering, and Mathematics* presents a summary of the Colloquy’s breakout and plenary discussions, which addressed (a) research questions articulated in the breakout groups together with theories and methodologies to begin to address these questions; and (b) considerations for a potential research solicitation for the NSF, with major areas of inquiry concerning access, participation, and success for minority males in STEM.

This report reflects the views of the individuals who participated in the plenary and breakout groups. It has been reviewed in draft form by persons chosen for their diverse perspectives and expertise in accordance with procedures approved by the National Academies' Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for quality and objectivity.
NSF Requires Project Reports in Research.gov on February 1
NSF awardees must stop submitting project reports in FastLane starting on February 1, 2013. On March 18, 2013, NSF will transfer its current project reporting service from FastLane to Research.gov. As part of this transition, FastLane reports must be frozen. To assist the community with this transition, the overdue date will be extended for all project reports that are currently scheduled to become overdue between January 31 and April 30, 2013. Note, this advisory does not apply to organizations already in the Project Reporting Pilot. A list of those organizations is accessible from the link below. Project Reporting on Research.gov
For additional assistance, contact the Research.gov Help Desk – 7 AM to 9 PM – EST, Monday through Friday at 1.800.381.1532 or by emailing rgov@nsf.gov. Research.gov System Notices

Funding Added to NAS Gulf of Mexico Program on Human Health and Environmental Protection
As part of Deepwater Horizon $4 billion court settlement between the federal government and BP, the U.S. Department of Justice has asked the National Academy of Sciences to establish a program focused on human health and environmental protection in the Gulf of Mexico. In response and in keeping with its mission, the NAS — a private, nonprofit institution chartered by Congress in 1863 to advise the government on matters of science — has agreed to bring its resources to bear on this important national priority. The NAS program will fund and carry out studies, projects, and activities over a 30-year period that draw upon the scientific, engineering, and health expertise of the NAS, National Academy of Engineering, Institute of Medicine, and National Research Council. It will seek to advance scientific and technical understanding to enhance the protection of human health and environmental resources in the Gulf Coast region including issues concerning the safety of offshore oil drilling and hydrocarbon production and transportation in the Gulf of Mexico and on the United States’ outer continental shelf. The program will also aim to contribute to the development of advanced environmental monitoring systems.

Dear Colleague Letter - DMREF proposals to the Division of Chemistry in fiscal year 2013
The Division of Chemistry (CHE) of the National Science Foundation (NSF) is pleased to invite proposals in 2013 for the NSF activity Designing Materials to Revolutionize and Engineer our Future (DMREF). DMREF is part of NSF’s second year of a national materials initiative entitled the Materials Genome Initiative for Global Competitiveness (MGI). MGI recognizes the importance of materials science to the well-being and advancement of society and aims to "deploy advanced materials at least twice as fast as possible today, at a fraction of the cost." The MGI national initiative integrates all components in the continuum of materials design, including materials discovery, development, property optimization, systems design and optimization, certification, manufacturing, and deployment, with each employing the toolset that is being developed within the materials innovation infrastructure. The toolset will integrate synergistically advanced computational methods with data-enabled scientific discovery and
innovative experimental techniques in such a manner as to revolutionize the approach to materials research and engineering.

DMREF comprises well-coordinated activities involving the Directorates of Mathematical and Physical Sciences, Engineering, and Computer & Information Science and Engineering. For further details and participating divisions please see the broadly aimed Dear Colleague Letter about DMREF in fiscal year 2013, posted for example on the MPS web page, NSF 13-025. As described in that Letter, success in the initiative requires a collaborative, synergistic, iterative approach that includes theory, computation, and experiments. This approach is the central principle of MGI. Consequently DMREF proposals may be reviewed jointly with divisions other than the one to which the proposal is submitted. Commonality of aims, of MGI principles, and of submission dates will facilitate joint review where appropriate. This is intended to make it easier for different disciplines to join in achieving the aims of MGI.

DMREF proposals submitted to the Division of Chemistry must:

- be submitted within the window 15 January - 15 February 2013, inclusive;
- be submitted to CHE as the division and to DMREF as the program;
- deal with problems in the range of issues described in the DMREF Dear Colleague letter, NSF 13-025
- explore fundamental chemical science that will advance the DMREF agenda;
- describe a research plan that meets the central MGI principle of closely coupled, iterative interplay among theory, computation, and experiment.

In addition,
- the title of a DMREF proposal should begin with the word, "DMREF."

Participants interested in submitting proposals are strongly encouraged to first contact any of the program officers listed in the main DMREF Letter. For CHE, please confer with Timothy Patten (tpatten@nsf.gov).

Frequently Asked Questions for NSF 13-518, INSPIRE

1. I have an idea that I think is appropriate for INSPIRE. How should I proceed?
2. I have an unconventional interdisciplinary idea that I have been reluctant to submit to a regular NSF review process because I think the reviewers will be too risk-averse to evaluate it favorably. Should I consider submitting this as an INSPIRE proposal?
3. Should I or should I not contact NSF program directors to discuss my idea before submitting the letter of intent (LOI)?
4. In other solicitations, LOIs are generally for NSF’s information only and are not reviewed. That is, a prospective proposal is not ruled out on the basis of the content of the LOI. Is this the case here, or is INSPIRE different in this regard?
5. Since the INSPIRE funding opportunities are pilots that may deviate from established policies, are they exempted from the January 2013 revisions of the NSF Proposal & Award Policies & Procedures Guide (PAPPG), or from the PAPPG changes to implement revised merit review criteria?
6. Does INSPIRE differ from other NSF programs in its application of the two merit review criteria of intellectual merit and broader impacts?
7. Will these pilot INSPIRE review processes displace the standard NSF review process?
8. In fiscal year 2012, what fraction of CREATIV inquiries (counterparts of INSPIRE Track 1 LOIs in 2013) resulted in invitations to submit a full proposal? For those that were not invited, what was the most common reason for the non-invitation?

9. If I am unable to obtain a full-proposal invitation based on NSF staff review of the content of my LOI, but I still want to submit an INSPIRE proposal, what can I do?

Dear Colleague Letter - EFRI Research Experience and Mentoring (REM)
The National Science Foundation (NSF) Directorate for Engineering (ENG) Office of Emerging Frontiers in Research and Innovation (EFRI) continually seeks to further the progress in EFRI topic areas while broadening participation of underrepresented groups in science, technology, engineering, and mathematics (STEM) fields. This letter is to call your attention to a pilot opportunity to pursue both of these goals through supplements to active EFRI research awards. Institutions with current EFRI research awards may apply for supplemental funding for this Research Experience and Mentoring (REM) pilot program to support costs associated with bringing Research Participants (RPs) into the laboratory over the summer to participate in research aligned with the goals of EFRI-supported research, and to extend the duration of structured mentoring into the academic year. Details of the EFRI program may be found at http://nsf.gov/funding/pgm_summ.jsp?pims_id=13708.

Introduction: NSF seeks to encourage EFRI-supported researchers to create carefully mentored research opportunities for people who may not otherwise become engaged in a research project, and to utilize contributions and talents of these participants to make further progress toward research goals. Ideally the experience will be mutually beneficial. Fresh eyes often bring fresh ideas. Research experiences are correlated with STEM success, while effective mentorship is impactful for all learners. An extensive 2011 study by The Committee on Science, Engineering, and Public Policy at the National Academies (Expanding Underrepresented Minority Participation) describes how mentorship is of even greater value for underrepresented populations in STEM. The National Science Board has also highlighted the value of strong, expert mentoring in the development of engineers in its 2007 report, Moving Forward to Improve Engineering Education.

The REM pilot program seeks to pursue this idea by offering the Principal Investigator (PI) flexibility to design the specifics of implementation of the research experience and mentoring plan in ways that most productively leverage local expertise and infrastructure already supported by NSF.

DCL: NSF-FHWA Coordination on Cyber Physical Systems for Highway Transportation
The National Science Foundation (NSF) and the Federal Highway Administration (FHWA) have a shared interest in advancing basic and applied research in Cyber Physical Systems (CPS), which are systems in which physical processes are tightly intertwined with networked computing. For transportation, CPS will provide the foundation necessary for a safe, efficient highway transportation system connecting vehicles, infrastructure, people, and goods in a vibrant, competitive economy.

The goal of the NSF CPS Program is to develop the core system science needed to engineer complex cyber-physical systems upon which people can depend with high confidence.
The FHWA Exploratory Advanced Research (EAR) Program translates advances in basic science in order to solve mission critical issues for highway transportation through partnerships with and beyond traditional highway research stakeholders. Successful advances in cyber-physical systems are critical for the FHWA and the entire U.S. highway transportation industry to meet increasingly complex and difficult goals from increasing safety, to reduce energy dependence, to support sustainable economic growth and increased quality of life.

FHWA has identified specific technology-based requirements to support ongoing and anticipated research road maps including for multi-modal integrated corridor management, arterial traffic management, traffic signal management and control, traffic incident and event management, and passenger and freight data management. These requirements will advance system capabilities in positioning, timing, and navigation, onboard and infrastructure-based sensors and actuators, with the aim of improving environmental awareness and responding to changing conditions, vehicle-infrastructure communications, shared human-machine control systems, data management and system performance assessment, and energy efficiency. Consideration of integration with legacy systems and equipment will be a critical component.

Investigators seeking NSF funding under Program Solicitation NSF 13-502 for basic scientific research in CPS also may be interested in an FHWA Exploratory Advanced Research (EAR) Program opportunity for funding in order to promote an effective transition from basic science to applied engineering in CPS for highway transportation. FHWA plans to post a broad agency announcement that includes the following cyber-physical system topics in early January 2013:

- High performance vehicle streams;
- New Approaches for Testing Connected Highway and Vehicle Systems;
- Innovative Applications for Emerging Real-Time Data; and
- Partial Automation for Truck Platooning.

Information about the announcement will be available under "Announcements" on the EAR Program web page (see) and will be listed on FedBizOpps.

**DCL - SaTC EAGERs Enabling New Collaborations Between Computer and Social Scientists**

NSF expects to fund a small number of Early Concept Grants for Exploratory Research (EAGERs) in the area supported by the Secure and Trustworthy Cyberspace (SaTC) program (see solicitation NSF 12-596: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504709). EAGER is a funding mechanism for supporting exploratory work in its early stages on untested, but potentially transformative, research ideas or approaches. This work may be considered especially "high risk - high payoff" in the sense that it, for example, involves radically different approaches, applies new expertise, or engages novel disciplinary or interdisciplinary perspectives.

With this DCL we wish to alert you that we are particularly interested in using the EAGER mechanism to encourage novel interdisciplinary research resulting from new collaborations between one or more Computer and Information Science and Engineering (CISE) researchers and one or more Social, Behavioral and Economic Science (SBE) researchers. (Research teams with a history of collaborating together should instead submit directly to the SaTC solicitation.) The proposed research should fit both the Trustworthy Computing and the Social, Behavioral and Economic Sciences perspectives within the SaTC solicitation.
Below are some examples of the types of topics that computer and social and behavioral scientists could conceivably study together under such an EAGER project. This list is by no means intended to be complete, nor is it meant to suggest what topics are of interest to the NSF. Instead, it is meant to give some notion of the broad spectrum of possibilities for such research. The respective role of social and computer scientists under different topics may vary—from fully interdisciplinary involvement of both, which would be ideal, to varying degrees of mutual consultation and resource provision.

- Incentive, communication, and profitability mechanisms of attackers.
- Modeling and experimentation to identify the strengths and weaknesses of incentive mechanisms for enhancing security, particularly in realistic cyber-contexts.
- Methods, including automated methods, for detecting deception or adverse intentions directly relevant to cyber-attacks.
- Social network analysis and other methods of detecting malware propagation, for instance via social media.
- Socio-technical solutions to reduce end-user risk exposure, such as crowdsourcing.
- Research to ascertain the tradeoffs between security and privacy and how better mixtures of these could be found or negotiated.
- Methods, including automated methods, to train, incentivize, or nudge end-users to improve their cybersecurity position.
- The impact of norms and other factors on promoting good citizenship with respect to cyberspace.
- End-user motivating factors that allow successful security evasion tactics and countermeasures.
- Cyber-security insurance: obstacles and solutions.
- The privacy needs of end-users and organizations and how these constrain or do not constrain cybersecurity efforts.
- Motivators and indicators of insider threat and countermeasures to such threat among end-users, user communities, national and international communities, and so forth.
- Factors behind susceptibility of subpopulations to cybercrime—e.g., youth, the elderly—and countermeasures.
- The impact of trust and institutional design on cybersecurity decisions.
- Incentives and motivators for cybersecurity in firms and other organizations.
- International norms, rules of engagement, and escalation dynamics of cyber-attacks and cyber-warfare.
- Systemic and structural factors that promote or undermine a secure cyberspace.

The above topics could involve an array of social science fields, including, but not limited to: economics, sociology, psychology, political science, science of organization (organizational research/management science), communication research, education research, linguistics, and anthropology. The subfields that may be relevant are many, and can include such areas as behavioral economics, behavioral decision theory, behavioral game theory, game theory, political psychology, social network analysis and theory, social psychology, cognitive psychology, online communication research, and criminology.
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.

Opportunities and Obstacles in Large-Scale Biomass Utilization: The Role of the Chemical Sciences and Engineering Communities: A Workshop Summary

Based on a one-day public workshop held in Washington, DC, Opportunities and Obstacles in Large-Scale Biomass Utilization: The Role of the Chemical Sciences and Engineering Communities: A Workshop Summary explores the current state of biomass utilization for bulk-production of sustainable fuels and chemicals. The discussion focused on the chemistry and chemical engineering opportunities to meet the aforementioned objectives. Both formal presentations and breakout working groups were components of the workshop in an effort to stimulate engaging discussion among participants from widely varying fields.

Exploring Health and Environmental Costs of Food: Workshop Summary

The U.S. food system provides many benefits, not the least of which is a safe, nutritious and consistent food supply. However, the same system also creates significant environmental, public health, and other costs that generally are not recognized and not accounted for in the retail price of food. These include greenhouse gas (GHG) emissions, soil erosion, air pollution, and their environmental consequences, the transfer of antibiotic resistance from food animals to human, and other human health outcomes, including foodborne illnesses and chronic disease. Some external costs which are also known as externalities are accounted for in ways that do not involve increasing the price of food. But many are not. They are borne involuntarily by society at large. A better understanding of external costs would help decision makers at all stages of the life cycle to expand the benefits of the U.S. food system even further. The Institute of Medicine (IOM) and the National Research Council (NRC) with support from the U.S. Centers for Disease Control and Prevention (CDC) convened a public workshop on April 23-23, 2012, to explore the external costs of food, methodologies for quantifying those costs, and the limitations of the methodologies.

Colloquy on Minority Males in Science, Technology, Engineering, and Mathematics

On August 8-12, 2010 the National Academy of Engineering (NAE), with funding from the National Science Foundation (NSF), convened the Colloquy on Minority Males in Science, Technology, Engineering, and Mathematics (STEM), following the release of several reports highlighting the educational challenges facing minority males. The NSF recognized the need to gather input from research communities that focus on minority males about how to frame investigations of gender-based factors that impact learning and choice in STEM education (both at the precollege and higher education levels) and the workforce for minority males. There was particular interest in framing a research agenda to study how interactions between minority males and societal and educational systems (both formal and informal) encourage or discourage the young men's interest and persistence in STEM. In addition, NSF hoped to gain
community input to inform the parameters of a future NSF research program that could effectively address minority male participation in STEM. The Colloquy was held at the Mt. Washington Conference Center in Baltimore, Maryland, with approximately 40 participants, most of them researchers in education, psychology, sociology, mathematics, and physics. Colloquy on Minority Males in Science, Technology, Engineering, and Mathematics presents a summary of the Colloquy’s breakout and plenary discussions, which addressed (a) research questions articulated in the breakout groups together with theories and methodologies to begin to address these questions; and (b) considerations for a potential research solicitation for the NSF, with major areas of inquiry concerning access, participation, and success for minority males in STEM.

This report reflects the views of the individuals who participated in the plenary and breakout groups. It has been reviewed in draft form by persons chosen for their diverse perspectives and expertise in accordance with procedures approved by the National Academies' Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for quality and objectivity.

NASA’s Strategic Direction and the Need for a National Consensus
In late 2011, the United States Congress directed the NASA Office of Inspector General to commission a "comprehensive independent assessment of NASA’s strategic direction and agency management." Subsequently, NASA requested that the National Research Council (NRC) conduct this independent assessment. In the spring of 2012, the NRC Committee on NASA’s Strategic Direction was formed and began work on its task. The committee determined that, only with a national consensus on the agency’s future strategic direction—along the lines described in the full NRC report—can NASA continue to deliver the wonder, the knowledge, the national security and economic benefits, and the technology that have been typified by its earlier history. NASA’s Strategic Direction and the Need for a National Consensus summarizes the findings and recommendations of the committee.
New Funding Solicitations Posted Since December 15 Newsletter

Agriculture and Food Research Initiative: Sustainable Bioenergy
This AFRI Challenge Area focuses on the priority to secure America's energy future. It supports the development of regional systems for the sustainable production of bioenergy and biobased products that contribute significantly to reducing dependence on foreign oil, have net positive social, environmental, and rural economic impacts, and are compatible with existing agricultural systems. The long-term outcome for this program is to implement regional systems that materially deliver liquid transportation biofuels to help meet the Energy Independence and Security Act (EISA) of 2007 goal of 36 billion gallons/year of biofuels by 2022 and reduce the National dependence on foreign oil. In order to achieve this outcome, this program will support single-function Research, multi-function Integrated Research, Education, and/or Extension Projects, and Food and Agricultural Science Enhancement (FASE) Grants that address one of the Program Area Priorities (see Sustainable Bioenergy RFA for details). **Required LOI January 28; full proposal April 3.**

NOAA Climate Program Office
NOAA seeks to marshal climate assets and partners towards the common goal of assessing regional needs and vulnerabilities and then supporting the development and delivery of timely climate services that aid adaptation and mitigation choices. RISA and CSI activities address the societal challenges identified in NOAA's Next-Generation Strategic Plan (NGSP): i) climate impacts on water resources; ii) coasts and climate resilience; iii) sustainability of marine ecosystems; and iv) changes in the extremes of weather and climate. These efforts support NOAA's vision to create and sustain enhanced resilience in ecosystems, communities, and economies, as outlined in the NGSP. **Due February 5.**

IES SBIR Fiscal Year 2013 Program Solicitations Are Now Open
Through its annual competition, the Institute's Small Business Innovation Research (SBIR) program provides funding to firms and partners for the development and evaluation of commercially viable education technology products. On December 20, 2012, the program released three Fiscal Year 2013 solicitations.

**Phase I:** Solicitation #ED-IES-13-R-0007 is a request for Phase I proposals for awards up to $150,000 for the development of prototypes of education technology products to improve student learning in education and special education settings. [Click here for this solicitation](#). The due date and time for the receipt of proposals is 2 P.M. EST on **February 5, 2013.**
Fast-Track: Solicitation #ED-IES-13-R-0006 is a request for Fast-Track (Phase I & II) proposals for awards up to $1,050,000 for development of education technology products designed to improve student learning in education and special education settings. Note: In order to apply for Fast-Track funding, applicants must submit both (1) a full SBIR Phase I proposal and (2) a Fast-Track proposal. SBIR Fast-Track proposals that are submitted without a full Phase I proposal will not be evaluated. Click here for this Fast-Track solicitation. The due date and time for the receipt of proposals is 2 P.M. EST on February 5, 2013.

Phase I for Games: Solicitation #ED-IES-13-R-0008 is a solicitation released by the Institute of Education Sciences (IES) in partnership with the Defense Advanced Research Projects Agency (DARPA). The solicitation requests proposals for the development and evaluation of commercially viable education technology games in select topic areas to support student learning and outcomes in education and special education settings. The four (4) topics within the solicitation include: (1) games for statistics and probability learning (IES topic); (2) games to support English learners (IES topic); (3) neuroplastic games for improving foreign language learning (DARPA topic); and (4) hybrid videogames/graphic novels to support computer science learning (DARPA topic). Click here for this Phase I solicitation. The due date and time for the receipt of proposals is 2 P.M. EST on February 5, 2013.

Support of Advanced Coal Research at U.S. Colleges and Universities
Through its annual Funding Opportunity Announcement (FOA) DE-FOA-0000584, entitled “Support of Advanced Coal Research at U.S. Colleges and Universities”, the University Coal Research (UCR) Program supports the Department of Energy’s (DOE) Office of Fossil Energy and the National Energy Technology Laboratory (NETL) mission by supporting long-term, high-risk meritorious fundamental research that advances the science of coal technologies at U.S. colleges and universities. Since its inception in FY1979, the UCR Program has maintained three objectives, to be achieved simultaneously, which are: (1) sustain a national university program of research in energy and environmental science and engineering related to coal through innovative and fundamental investigations pertinent to coal conversion and utilization; (2) to maintain and upgrade the coal research capabilities and facilities of U.S. colleges and universities; and (3) to support the education & training of our next generation of scientists and engineers. Due February 6.

FY 2013 National Network for Environmental Management Studies Fellowship Program
In recognition of the growing interest in environmental issues and careers, the EPA established the National Network for Environmental Management Studies (NNEMS) Fellowship Program in 1986 to encourage students to pursue environmental careers. The NNEMS program is a comprehensive fellowship program that provides students an opportunity to participate in a fellowship project that is directly related to their field of study. Under the NNEMS program, a range of fellowship activities are offered to help students increase their knowledge of environmental issues while refining their professional skills. The projects are specifically narrow in scope, allowing students to complete the research project while working full-time at the EPA during the summer or part-time during the school year. Typically, the research is conducted at
the EPA office, although other arrangements can be made in certain circumstances. Due February 8.

**ONR Asia-Pacific Technology and Education Program**
The primary goal of APTEP is to promote commerce and partnerships in the Asia-Pacific region through advancements in alternative energy research, technology development and education. This includes continuing development of world-leading U.S. research capabilities; a U.S. economic base providing technologies to meet Asia-Pacific region needs; and a U.S. workforce educated to develop and implement appropriate technologies. The technology development under this project would focus on creating new technologies or demonstrating the viability of applying existing technologies to new alternative energy products and processes in a general way, such as precompetitive technology development in the commercial sector. This is primarily expected to focus on dual-use technologies for the commercial marketplace but have relevance to the Navy’s mission and potential future Naval and DoD requirements. Due February 11.

**DARPA-BAA-13-11: Vetting Commodity IT Software and Firmware**
DARPA is soliciting innovative research proposals concerning techniques and tools for demonstrating the absence of backdoors and other hidden malicious functionality in the software and firmware shipped on commodity Information Technology (IT) devices. See the full DARPA-BAA-13-11 PDF document attached for further details. Due February 12.

**Telehealth Network Grant Program**
This announcement solicits applications for the Telehealth Network Grant Program (TNGP). The primary objective of the TNGP as noted in Section 330I(D)(1) is to demonstrate how telehealth programs and networks can improve access to quality health care services in rural, frontier, and underserved communities. TNGP networks are used to: (a) expand access to, coordinate, and improve the quality of health care services; (b) improve and expand the training of health care providers; and/or (c) expand and improve the quality of health information available to health care providers, and patients and their families, for decision-making. To further elaborate on the program’s statutory requirements noted above, applicants are encouraged to develop innovative applications that meet new and emerging needs in a changing health care delivery system with a focus on value and improved health care outcomes. Due February 13.

**Near East, South Asia, and Sub-Saharan Africa Undergraduate Exchange Program**
The Office of Academic Exchange Programs of the Bureau of Educational and Cultural Affairs announces an open competition for the administration of the FY 2013 Near East, South Asia, and Sub-Saharan Africa Undergraduate Exchange Program. The total amount of funding for this award will be up to $3,485,000 pending the availability of FY 2013 funds. Public and private non-profit organizations meeting the provisions described in Internal Revenue Code section 26 USC 501(c)(3) in the United States may submit proposals to organize and carry out academic exchange activities for students from underrepresented sectors in the Middle East, North Africa, South Asia, and Sub-Saharan Africa (eligible countries and locales are listed below in the
purpose section). For the first time, in FY2013, approximately 15 emerging student leaders from underrepresented sectors in Sub-Saharan Africa will be selected for participation in the NESA UGRAD Program. **Due February 15.**

**Summer Undergraduate Research Fellowship (SURF) NIST Gaithersburg Programs**

NIST Gaithersburg is soliciting applications from eligible colleges and universities in the U.S. and its territories, nominating undergraduate students to participate in the Summer Undergraduate Research Fellowship (SURF) NIST Gaithersburg Programs (SURF NIST Gaithersburg Programs). The SURF NIST Gaithersburg Programs will provide research opportunities for undergraduate students to work with internationally known NIST scientists, to expose them to cutting-edge research, and to promote the pursuit of graduate degrees in science and engineering. **Due February 15.**

**OJJDP FY 2013 Mentoring Best Practices Research**

This program seeks to enhance what is understood about mentoring as a prevention and intervention strategy for youth who are at risk of involvement or already involved in the juvenile justice system. While mentoring appears to be a promising intervention for youth, more evaluation work is needed to further highlight the characteristics and components of a mentoring program that are most effective. Research is also needed to demonstrate the specific components of mentoring programs that have a significant impact in reducing juvenile delinquency and offending. This solicitation will fund research studies that will inform the design and delivery of mentoring programs. OJJDP expects that the results of this effort will encourage a more effective utilization of resources and enhance the implementation of evidence-based best practices for juvenile mentoring. This program will be authorized by an Act appropriating FY 2013 funds for the Department of Justice. **Due February 19.**

**FY 2013 Coastal and Marine Habitat Restoration Grants**

The principal objective of the National Marine Fisheries Service's (NMFS) Coastal and Marine Habitat Restoration Project solicitation is to identify and support proactive restoration project(s), which use a habitat-based approach to foster species recovery and increase fish production. Proposals submitted under this solicitation will be selected based on their ability to demonstrate how the proposed habitat restoration actions will help recover threatened and endangered species listed under the Endangered Species Act (hereafter, Listed Species), sustain or help rebuild fish stocks managed under the Magnuson-Stevens Fishery Conservation and Management Act (hereafter, Managed Species), or benefit other coastal and marine species with a nexus to NMFS management. Successful proposals will 1) identify a habitat-based issue/concern limiting the recovery or sustainability of one or more target species (e.g. fish, marine mammals, sea turtles); 2) identify the project(s)’ outcome goal(s) and describe in detail the actions and on-the-ground habitat restoration project(s) to be undertaken to resolve the issue/concern and; 3) describe the measurable impact on the target species, including evaluation techniques. Proposals selected for funding through this solicitation will primarily be funded through cooperative agreements. Multi-year cooperative agreement awards will be considered, and additional releases of funds may be used to fund selected proposals through
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FY15 without further competition. Awards are dependent upon the amount of funds Congress makes available to NOAA for this purpose in the FY13-FY15 budgets. **NOAA anticipates approximately $20 million may be available over the next three years** to maintain selected awards, dependent upon the level of funding made available by Congress. NOAA anticipates typical awards will range from $500,000 to $5 million over three years. NOAA will not accept proposals with a budget of less than $100,000 or more than $10 million. One, two, or three year proposals will be accepted. Funds will be administered by the NOAA Restoration Center. **Due February 19.**

**Children, Youth and Families at Risk Sustainable Community Projects**
The National Institute of Food and Agriculture (NIFA), USDA announces the Children, Youth, and Families at Risk (CYFAR) funding program to improve the quality and quantity of comprehensive community-based programs for at-risk children, youth, and families supported by the Cooperative Extension System. The CYFAR program mission is to marshal resources of the Land-Grant and Cooperative Extension Systems to develop and deliver educational programs that equip limited resource families and youth who are at-risk for not meeting basic human needs with the skills they need to lead positive, productive, contributing lives. **Due February 20.**

**Collaborative Center for Aeronautical Sciences**
AFRL/RQAC has a mandate to support a wide range of computational requirements for future Air Force systems. However, the initial focus for this Collaborative Center will be on developing and integrating all of the computational tools required to perform reliable, high-fidelity, multi-disciplinary analysis of high speed flows, fine-scale unsteady flows, and computational methods. As such, the CCAS will need to perform research in the following technical areas: i. High Speed Aero-Physics (for example, thermal/chemical non-equilibrium, rarefied/continuum flow, MHD, hypersonic configurations, shock-shock and shock boundary layer interactions, scramjet flow path analysis, supersonic combustion, steady and unsteady heat transfer, conjugate heat transfer, thermal loads, flow control, etc.) ii. Fine-Scale Unsteadiness (for example, boundary layers, transition prediction, turbulence excitation/suppression, turbulence models, LES/DNS, separated flow, flow control, plasma/fluidic/mechanical actuation, secondary flow, shear layers, wake flow, acoustic/EM wave propagation, etc.) iii. Enabling CFD technologies (for example, nonlinear/nonlinear fluid-structure coupling, grid motion/adaptation, generalized overset techniques, high-order and robust algorithms, uncertainty quantification, grid/geometry sensitivities, error assessment, software V&V, computational model experimental validation, interoperable/framework computing, etc.) Technical point of contact is Charles Tyler, AFRL/RQVC, Program Engineer, (937) 674-4045, charles.tyler@wpafb.af.mil. **Due February 25.**

**Telehealth Resource Center Grant Program**
This announcement solicits applications for the Telehealth Resource Center Grant Program (TRCGP). The purpose of the TRCGP is to support the establishment and development of Telehealth Resource Centers (TRCs). The TRCGP expects to create centers of excellence that expedite and customize the provision of telehealth technical assistance across the country,
while at the same time working together to make available a wide range of expertise that might not be available in any one region. The TRCs provide technical assistance to health care organizations, health care networks, and health care providers in the implementation of cost-effective telehealth programs to serve rural and medically underserved areas and populations. The program seeks entities with proven successful records in providing technical assistance in the development of sustainable telehealth programs. This funding will support up to five Regional TRCs (RTRCs) serving as focal points for advancing the effective use of telehealth technologies in their respective communities and regions for clinical care. In addition, this funding will support one National TRC (NRTRC). Due February 25.

FY2013 Integrated Ocean Observing System Community Modeling to Support the Coastal and Ocean Modeling Testbed (COMT)
NOAA, along with the Integrated Ocean Observing System (IOOS®) stakeholders, views a community coastal and ocean modeling test environment as essential to a sustained and operational IOOS. A modeling environment was established with the Coastal and Ocean Modeling Testbed (COMT), http://testbed.ioos.us. The program priorities for this funding opportunity are to operate and continue to develop this community modeling environment while transitioning specific models, tools, toolkits and other capabilities to Federal operational facilities to improve understanding and prediction of consequences of coastal ocean extreme events and chronic conditions affecting the U.S. Ultimately, the goal is to protect lives and livelihoods for the public affected by any of these coastal ocean extreme events. Of particular interest are coastal ocean phenomena that intersect the mission goals of NOAA, other operational agencies and the IOOS® Regional Associations. NOAA seeks proposals for a single cooperative agreement for a non-Federal partner that will continue to advance the operation of the U.S. IOOS COMT under a community modeling environment. Due February 28.

Distance Education Grants Program for Institutions of Higher Education in Insular Areas
The purpose of this program is strengthen the capacity of Institutions of Higher Education in Insular Areas to carry out resident instruction, curriculum, and teaching programs in the food and agricultural sciences through distance education technology. The Distance Education Grants Program for Institutions of Higher Education in Insular Areas (DEG) is a NIFA-administered competitive grants program focused on improving formal, postsecondary agricultural sciences education. Due March 3.

Feed the Future Food Security Innovation Lab: Collaborative Research on Sorghum and Millet
The Leader Award will be for five years, with a maximum USAID funding level of $13,700,000 to be provided incrementally over that five-year period. In addition, the cumulative amount of Associate Awards issued during those five years will not exceed $10,000,000. Due March 8.

EPA/NSF Networks for Sustainable Molecular Design and Synthesis
This solicitation is jointly sponsored between the U.S. Environmental Protection Agency (EPA) and the National Science Foundation (NSF) Divisions of Chemistry and Chemical, Bioengineering, Environmental, and Transport Systems (CBET) to encourage synergistic
research activities and to enhance cooperation among the chemical sciences, materials research, geosciences, engineering, and biomedical and public health communities. The agencies jointly issue the solicitation, but will separately fund awards for Networks for Sustainable Molecular Design and Synthesis (NSMDS).

Networks for Sustainable Molecular Design and Synthesis are groups of two or more researchers working in trans-disciplinary fields to promote the development of safe and sustainable chemicals as well as safe and sustainable synthetic procedures. For this solicitation, "chemicals" refers broadly to any and all materials, inorganic and organic compounds, and individual chemicals or mixtures of chemicals (e.g., endocrine disruptors, chlorofluorocarbons, transition metal-based catalysts, macromolecules, and nanomaterials). Advances resulting from these Networks are expected to result in chemicals that are safer and more sustainable throughout their life cycle and thus, the replacement of rare, toxic, and expensive chemicals with earth abundant, benign, and renewable alternatives is anticipated. The Networks will facilitate safe design strategies, processes, and pathways (including catalytic pathways) that consume less fresh water, generate less waste, and use less energy than current practice. These new approaches will minimize hazards that arise not only from chemical structure and intended use, but also from their synthesis, production, consumption, reuse, and disposal.

Education, workforce development, and the translation or transfer of basic research results into social or economic benefits are critical aspects of NSMDS projects. Networks will develop strong mentoring and training activities (which include broadening participation elements) for undergraduate and graduate students as well as postdoctoral associates. Other educational activities, such as informal science communication and the education of K-12 students or the public, are encouraged. Where appropriate, intellectual property protection and a proactive plan to engage industry in technology transfer is encouraged.

It is expected that research teams in the NSMDS awarded under this solicitation will coordinate / communicate with the funded research networks from the EPA/NSF Networks for Characterizing Chemical Life Cycle (NCCLCs) solicitation (see: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504811). The researchers working in these two network groups are expected to conduct complementary research and; thus, will benefit from interaction with each other at annual EPA All-Investigators Meetings (also known as progress reviews). Due March 18.

EPA/NSF Networks for Characterizing Chemical Life Cycle
This solicitation is jointly sponsored by the U.S. Environmental Protection Agency (EPA) and the U.S. National Science Foundation (NSF) Division of Chemistry (CHE) to encourage synergy and enhance cooperation in examining the life cycles of synthetic chemicals and materials as they relate to their manufacture, use, transport, and disposal or recycle. The Networks for Characterizing Chemical Life Cycle (NCCLCs) will promote development of trans-disciplinary, systems- and molecular-level understanding of the life cycle of important (relevant) synthetic chemicals and materials (including nanomaterials) as these distribute and are potentially altered through use in society and interaction with the built and natural environments. For this solicitation, "chemicals" refers broadly to any and all materials, compounds, and individual chemicals or mixtures of chemicals, including nanomaterials. Advances resulting from these
Networks are expected to provide methods and tools for characterizing and predicting environmental and health implications of chemical manufacture and use across the life cycle.

Education, workforce development, and the translation or transfer of basic research results into social or economic benefits are critical aspects of NCCLC projects. Networks will develop strong mentoring and training activities (which include broadening participation elements) for undergraduate and graduate students as well as postdoctoral associates. Other educational activities, such as informal science communication and the education of K-12 students or the public, are encouraged. Where appropriate, intellectual property protection and a proactive plan to engage industry in technology transfer is encouraged.

It is expected that research teams in the NCCLC awarded under this solicitation will coordinate / communicate with the funded research networks from the EPA/NSF Networks for Sustainable Molecular Design and Synthesis (NSMDS) solicitation (see: http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504822). The researchers working in these two network groups are expected to conduct complementary research and; thus, will benefit from interaction with each other at annual EPA All-Investigators Meetings (also known as progress reviews). Due March 18.

University Transportation Centers Open Competition 2013
The Research and Innovative Technology Administration (RITA) of the U.S. Department of Transportation (US DOT) is seeking applications from non-profit institutions of higher education to operate National, Regional and Tier 1 University Transportation Centers (UTCs or Centers). The purpose of these Centers is to advance U.S. technology and expertise in the many modes and disciplines comprising transportation through the mechanisms of research, education, and technology transfer; to provide a critical transportation knowledge base outside the US DOT; and to address vital workforce needs for the next generation of transportation leaders. To accomplish this purpose, RITA plans to competitively select and fund for Fiscal Years 2013 and 2014 (subject to availability of funds): Five National UTCs, up to $3.0 million per Center per fiscal year; Ten Regional UTCs, one of which must be dedicated to comprehensive transportation safety, up to $2.75 million per Center per fiscal year; and up to 20 Tier 1 UTCs, up to $1.5 million per Center per fiscal year. A UTC must be located in the United States or territories. It may be a single university or a consortium of two or more universities. Each Center is required to obtain matching funds from non-federal sources. National and Regional UTCs must obtain matching funds in an amount at least equal to the US DOT grant amount. The match for Tier 1 UTCs is 50 percent, of the amount of the UTC grant, with an exemption for demonstration of financial hardship (see Exhibit A, Institutional Financial Hardship Form) by the applicant institution. These funds may be expended up to September 30, 2017. Due March 19.

Robert Noyce Teacher Scholarship Program
The Robert Noyce Teacher Scholarship Program seeks to encourage talented science, technology, engineering, and mathematics majors and professionals to become K-12 mathematics and science teachers. The Noyce Scholarship Track provides funds to institutions of higher education to support scholarships, stipends, and academic programs for undergraduate STEM majors and post-baccalaureate students holding STEM degrees who earn
a teaching credential and commit to teaching in high-need K-12 school districts. The NSF Teaching Fellowship/Master Teaching Fellowship Track provides funding to support STEM professionals who enroll as NSF Teaching Fellows in master's degree programs leading to teacher certification by providing academic courses, professional development, and salary supplements while they are fulfilling a four-year teaching commitment in a high-need school district. This track also supports the development of NSF Master Teaching Fellows by providing professional development and salary supplements for exemplary mathematics and science teachers to become Master Teachers in high-need school districts. Capacity Building Projects support the development of new programs and activities to increase the capacity for institutions to provide innovative teacher preparation programs that enable increasing numbers of STEM majors and STEM professionals to become effective K-12 mathematics and science teachers and to develop the capacity to prepare Master science and mathematics teachers. Due March 20.

**Biotechnology Risk Assessment Grants Program**
The purpose of the BRAG program is to support the generation of new information that will assist Federal regulatory agencies in making science-based decisions about the effects of introducing into the environment genetically engineered organisms (GE), including plants, microorganisms (including fungi, bacteria, and viruses), arthropods, fish, birds, mammals and other animals excluding humans. Investigations of effects on both managed and natural environments are relevant. The BRAG program accomplishes its purpose by providing Federal regulatory agencies with scientific information relevant to regulatory issues. See RFA for details. Due March 31.

**Applied Research and Development in Forensic Science for Criminal Justice Purposes**
With this solicitation, NIJ seeks proposals for applied research and development projects that will: (1) increase knowledge or understanding necessary to guide forensic science policy and practice or (2) result in the production of useful materials, devices, systems, or methods that have the potential for forensic application. The intent of the Applied Research and Development in Forensic Science for Criminal Justice Purposes Program is to direct the findings of basic scientific research, research and development in broader scientific fields applicable to forensic science, and ongoing forensic science research toward the development of highly discriminating, accurate, reliable, cost-effective, and rapid methods for the identification, analysis, and interpretation of physical evidence for criminal justice purposes. Due April 1.

**Basic Scientific Research to Support Forensic Science for Criminal Justice Purposes**
With this solicitation, NIJ seeks proposals for funding basic scientific research in the physical, life, and cognitive sciences that is designed to increase the knowledge underlying forensic science disciplines intended for use in the criminal justice system. Due April 1.

**NASA Undergraduate Student Instrument Project 2013**
The NASA Science Mission Directorate (SMD) is releasing this Undergraduate Student Instrument Project (USIP) Educational Flight Opportunity (EFO) to solicit U.S. university
proposals to develop an Earth or space science payload that will fly on a NASA suborbital vehicle, such as a sounding rocket, balloon, aircraft, or commercial suborbital reusable launch vehicle. SMD designed USIP to promote interest and proficiency in science, technology, engineering and mathematics (STEM) education and to develop careers in the STEM related fields through offering NASA’s unique suborbital research platforms for student educational flight opportunities. This EFO is intended to provide multidiscipline undergraduate student teams an exciting hands-on project, while at the same time promoting the technical and project management skills necessary to train the country’s future science and technology leaders. The maximum funding available from SMD for a proposed project, including the design, development, and testing of the science payload, is $50K. **Due April 5.**

**Office of Naval Research STEM Workforce**
The Office of Naval Research (ONR) is interested in receiving proposals for developing innovative solutions that directly support the development and maintenance of a robust STEM workforce. Successful efforts will be targeted towards one or more of the following: K-12, Undergraduate, Graduate STEM education. The goal of any proposed effort should be to provide "game changing" solutions that will establish and maintain a diverse pipeline of U.S. citizens who are interested in participating in Naval STEM education programs and who ultimately will be interested in STEM careers. This BAA also separately requests proposals for the evaluation of current and future Naval STEM programs. This includes implementing methodologies and processes for data collection, analysis, and reporting, as well as methods for effectively evaluating programs and calculating return on investment for chosen programs. Only proposals invited following review of corresponding white paper will be considered for review. **Due by September 30.**

**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 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.

Links to New & Open Funding Solicitations

• SAMHSA FY 2012 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
• NIAID Funding Blog
• EPA 2012 Science To Achieve Results (STAR) Research Grants
• NASA Open Solicitations
• Defense Sciences Office Solicitations
Solicitations Remaining Open from Prior Issues of the Newsletter

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

**EPSCoR Research Infrastructure Improvement Program: Track-2**
The Experimental Program to Stimulate Competitive Research (EPSCoR) is a program designed to fulfill the National Science Foundation's (NSF) mandate to promote scientific progress nationwide. The EPSCoR program is directed at jurisdictions that have historically received lesser amounts of NSF Research and Development (R&D) funding. Thirty-one jurisdictions including twenty-eight states, the Commonwealth of Puerto Rico, the U. S. Virgin Islands, and Guam currently are eligible to participate. Through this program, NSF establishes partnerships with government, higher education, and industry that are designed to effect lasting improvements in a state's or region's research infrastructure, R&D capacity and hence, its national R&D competitiveness. **Due January 30.**

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

**Sustainable Landscapes, Clean Energy and Adaptation**
USAID’s climate change program uses three pillars of funding—“Sustainable Landscapes” investments in land use practices that stop, slow, and reverse emissions from deforestation and degradation of forests and other landscapes; “Clean Energy” investments to establish a foundation for low carbon energy systems; and “Adaptation” to increase the resilience of people, places and livelihoods to a changing climate. This Addendum to the GDA APS seeks private sector partners that wish to collaborate with USAID on programs that realize these three pillars while pursuing their own business or philanthropic interests. **Due January 31.**

**Sparks! Ignition Grants for Libraries and Museums**
The Sparks! Ignition Grants for Libraries and Museums are a special funding opportunity within the IMLS National Leadership Grants program. These small grants encourage libraries, museums, and archives to test and evaluate specific innovations in the ways they operate and the services they provide. Sparks Grants support the deployment, testing, and evaluation of promising and groundbreaking new tools, products, services, or organizational practices. You may propose activities or approaches that involve risk, as long as the risk is balanced by significant potential for improvement in the ways libraries and museums serve their communities. Successful proposals will address problems, challenges, or needs of broad
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relevance to libraries, museums, and/or archives. A proposed project should test a specific, innovative response to the identified problem and present a plan to make the findings widely and openly accessible. **Due February 1.**

**Advanced Nursing Education Program**
This announcement solicits applications for advanced nursing education programs that address the health care needs of persons with multiple chronic conditions (MCC). Eligible applicants should describe how these advanced nursing education programs will be incorporated into an interprofessional education (IPE) model. Projects must engage other graduate health professionals and demonstrate the integration of IPE into the nursing curriculum. For purposes of this section, the term “advanced education nurses” means individuals trained in advanced degree programs including individuals in combined R.N./Master’s degree programs, post-nursing master’s certificate programs, or, in the case of nurse midwives, in certificate programs in existence on the date that is one day prior to the date of enactment in this section, to serve as nurse practitioners, clinical nurse specialists, nurse-midwives, midwives, nurse anesthetists, nurse educators, nurse administrators, public health nurses or other nurse specialists determined by the Secretary to require advanced nurse education. Advanced nursing education programs include master’s and doctoral degree programs, or in the case of certificate nurse-midwifery programs, those in existence on November 12, 1998. **Due February 1.**

**Global Biosecurity Engagement Activities**
The Department of State’s Office to Cooperative Threat Reduction (ISN/CTR) is pleased to announce an open competition for assistance awards through this Request for Proposals (RFP). ISN/CTR invites non-profit/non-governmental organizations and educational institutions to submit proposals for projects that will advance the mission of the Department’s Biosecurity Engagement Program (BEP). ISN/CTR has approximately $20,000,000 available in the current fiscal year to award multiple grants and cooperative agreements in this field. ISN/CTR prefers projects that cost less than $500,000, though awards may involve multiple projects that cumulatively exceed $500,000. **Due February 1.**

**AHRQ Conference Grant Program (R13)**
The Agency for Healthcare Research and Quality (AHRQ), announces its interest in supporting conferences through the AHRQ Conference Grant Program. AHRQ seeks to support conferences that help to further its mission to improve the quality, safety, efficiency, and effectiveness of health care for all Americans. The types of conferences eligible for support include [here](#). **Due February 1.**

**The Lewis and Clark Fund for Exploration and Field Research**
The Lewis and Clark Fund (initially supported by the Stanford Ascherman/Baruch Blumberg Fund for Basic Science, established by a benefaction from the late Stanford Ascherman, MD, of San Francisco) encourages exploratory field studies for the collection of specimens and data and to provide the imaginative stimulus that accompanies direct observation. Applications are invited from disciplines with a large dependence on field studies, such as archeology,
anthropology, biology, ecology, geography, geology, linguistics, paleontology, and population genetics, but grants will not be restricted to these fields. Graduate students and postdoctoral and junior scientists wishing to pursue projects in astrobiological field studies should consult the program description and application forms for the Lewis and Clark Fund in Exploration and Field Research in Astrobiology. Due by February 1.

Interdisciplinary Research in Hazards and Disasters (Hazards SEES)
The overarching goal of Hazards SEES is to catalyze well-integrated interdisciplinary research efforts in hazards-related science and engineering in order to improve the understanding of natural hazards and technological hazards linked to natural phenomena, mitigate their effects, and to better prepare for, respond to, and recover from disasters. The goal is to effectively prevent hazards from becoming disasters. Hazards SEES aims to make investments in strongly interdisciplinary research that will reduce the impact of such hazards, enhance the safety of society, and contribute to sustainability. The Hazards SEES program is a multi-directorate program that seeks to: (1) advance understanding of the fundamental processes associated with specific natural hazards and technological hazards linked to natural phenomena, and their interactions; (2) better understand the causes, interdependences, impacts and cumulative effects of these hazards on individuals, the natural and built environment, and society as a whole; and (3) improve capabilities for forecasting or predicting hazards, mitigating their effects, and enhancing the capacity to respond to and recover from resultant disasters. Due February 4.

SBIR/STTR FY 2013 Phase I Release 2
This Funding Opportunity Announcement describes two distinct funding opportunities for the U. S. Department of Energy Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs for Fiscal Year (FY) 2013. Phase I and Fast-Track (combined Phase I and Phase II). Under this FOA, Fast-Track applicants may not apply concurrently to the Phase I funding opportunity. The full text of the Funding Opportunity Announcement is located on FedConnect. Instructions for completing the Grant Application Package are contained in the full text of the FOA which can be obtained at: https://www.fedconnect.net/FedConnect/?doc=DE-FOA-0000801&agency=DOE
Due February 5.

Graduate Psychology Education (GPE) Program
This announcement solicits applications for the Graduate Psychology Education (GPE) Program. This program supports doctoral-level psychology education and training programs to prepare psychologists to address the behavioral health needs of vulnerable and underserved populations. For the purposes of this funding announcement, vulnerable and underserved populations include, but are not limited to, those populations in rural areas, children and adolescents, the elderly, victims of abuse, the chronically ill, disabled, returning war veterans, military personnel and their families, and tribal populations. The program will foster an integrated and interprofessional approach to addressing access to behavioral health care for vulnerable and underserved populations. Due February 8.
Higher Education Challenge Grants Program
Projects supported by the Higher Education Challenge Grants Program will: (1) address a State, regional, national, or international educational need; (2) involve a creative or non-traditional approach toward addressing that need that can serve as a model to others; (3) encourage and facilitate better working relationships in the university science and education community, as well as between universities and the private sector, to enhance program quality and supplement available resources; and (4) result in benefits that will likely transcend the project duration and USDA support. Due February 8.

Camille Dreyfus Teacher-Scholar Awards Program
The Camille Dreyfus Teacher-Scholar Awards Program supports the research and teaching careers of talented young faculty in the chemical sciences. Based on institutional nominations, the program provides discretionary funding to faculty at an early stage in their careers. Criteria for selection include an independent body of scholarship attained within the first five years of their appointment as independent researchers, and a demonstrated commitment to education, signaling the promise of continuing outstanding contributions to both research and teaching. The Camille Dreyfus Teacher-Scholar Awards Program provides an unrestricted research grant of $75,000. Due February 10.

Robert Wood Johnson Foundation Nurse Faculty Scholars
The goal of the Robert Wood Johnson Foundation Nurse Faculty Scholars (NFS) program is to develop the next generation of national leaders in academic nursing through career development awards for outstanding junior nursing faculty. The program aims to strengthen the academic productivity and overall excellence of nursing schools by providing mentorship, leadership training, and salary and research support to young faculty. Up to 12 awards of up to $350,000 each over three years will be available in this round of funding. Due February 12.

Summer Undergraduate Research Fellowship (SURF) NIST Boulder Programs
NIST Boulder is soliciting applications from eligible colleges and universities located in the U.S. and its territories nominating undergraduate students to participate in the Summer Undergraduate Research Fellowship (SURF) NIST Boulder Programs (SURF NIST Boulder Programs). The SURF NIST Boulder Programs will provide research opportunities for undergraduate students to work with internationally known NIST scientists, to expose them to cutting-edge research, and to promote the pursuit of graduate degrees in science and engineering. Due February 15.

Hispanic-Serving Institutions (HSI) Education Grants Program
This competitive grants program is intended to promote and strengthen the ability of Hispanic-Serving Institutions to carry out higher education programs in the food and agricultural sciences. Programs aim to attract outstanding students and produce graduates capable of enhancing the Nation's food and agricultural scientific and professional work force. Due February 18.
Major Research Instrumentation Program (MRI): Instrument Acquisition or Development
The Major Research Instrumentation Program (MRI) serves to increase access to shared scientific and engineering instruments for research and research training in our Nation's institutions of higher education, and not-for-profit museums, science centers and scientific/engineering research organizations. This program especially seeks to improve the quality and expand the scope of research and research training in science and engineering, by supporting proposals for shared instrumentation that fosters the integration of research and education in research-intensive learning environments. Each MRI proposal may request support for the acquisition (Track 1) or development (Track 2) of a single research instrument for shared inter- and/or intra-organizational use; development efforts that leverage the strengths of private sector partners to build instrument development capacity at MRI submission-eligible organizations are encouraged. Due February 21.

Challenge Grants for Two-year Colleges
The National Endowment for the Humanities invites two-year colleges to apply in a special Challenge Grant competition to strengthen their long-term humanities programs and resources. Two-year colleges are major educational assets that have too often been overlooked, even though over half of students in post-secondary education attend two-year institutions. The humanities can and should play a vital role in community colleges. The perspectives of history, philosophy, and literature can enrich the educational experience of students attending two-year colleges, deepening their understanding of questions related to differences among cultures, as manifested in diverse understandings of citizenship, politics, and ethics. NEH seeks to encourage two-year colleges to develop models of excellence that enhance the role of the humanities on their campuses. Due February 22.

Fiscal year 2013 NMFS-Sea Grant Fellowships in Marine Resource Economics
The Graduate Fellowship Program generally awards two new PhD fellowships each year to students who are interested in careers related to the development and implementation of quantitative methods for assessing the economics of the conservation and management of living marine resources. Fellows will work on thesis problems of public interest and relevance to NMFS under the guidance of NMFS mentors at participating NMFS Science Centers or Laboratories. The NMFS-Sea Grant Fellowships in Marine Resource Economics meets NOAA's Mission goal of "Protect, Restore and Manage the Use of Coastal and Ocean Resources Through Ecosystem-Based Management". Due February 22.

Plant Feedstock Genomics for Bioenergy: A Joint Research FOA USDA, DOE
The U.S. Department of Energy's Office of Science, Office of Biological and Environmental Research (BER), and the U.S. Department of Agriculture (USDA), National Institute of Food and Agriculture (NIFA), hereby announce their interest in receiving applications for genomics based research that will lead to the improved use of biomass and plant feedstocks for the production of fuels such as ethanol or renewable chemical feedstocks. Specifically, applications are sought for fundamental research on plants that will improve biomass characteristics, biomass yield, or sustainability. Systems biology approaches to identify genetic indicators enabling plants to be
efficiently bred or manipulated, or research to predict phenotype from underlying genotype that could lead to improved feedstock characterization and sustainability are also encouraged. Due February 25.

**NEA Literature Fellowships: Prose, FY 2014**
The NEA Literature Fellowships program offers $25,000 grants in prose (fiction and creative nonfiction) and poetry to published creative writers that enable the recipients to set aside time for writing, research, travel, and general career advancement. The NEA Literature Fellowships program operates on a two-year cycle with fellowships in prose and poetry available in alternating years. For FY 2014, which is covered by these guidelines, fellowships in prose (fiction and creative nonfiction) are available. Due February 28.

**Evolving Earth Foundation Student Grant Program**
This program provides grants to support college student research in the earth sciences. The emphasis will be on research topics that relate to the mission and priorities of the foundation. Please read a statement regarding our mission and priorities to determine whether your research is related. A total of ten grants per year are available, for amounts of up to $3000 per grant. Undergraduate students, graduate students, and post-doctoral researchers at accredited U.S. colleges and universities or research institutions are eligible to apply for grants. Due March 1.

**Global Chemical Security Engagement Activities**
The Department of State’s Office to Cooperative Threat Reduction (ISN/CTR) is pleased to announce an open competition for assistance awards through this Request for Proposals (RFP). ISN/CTR invites non-profit/non-governmental organizations and educational institutions to submit proposals for projects that will advance the mission of the Department’s Chemical Security Engagement Program (CSP). ISN/CTR has approximately $8,000,000 available in the current fiscal year to award multiple grants and cooperative agreements in this field. ISN/CTR prefers projects that cost less than $500,000, though awards may involve multiple projects that cumulatively exceed $500,000. Due March 3.

**NEH Summer Seminars and Institutes**
These grants support faculty development programs in the humanities for school teachers and for college and university teachers. NEH Summer Seminars and Institutes may be as short as two weeks or as long as five weeks. NEH Summer Seminars and Institutes extend and deepen knowledge and understanding of the humanities by focusing on significant topics and texts; contribute to the intellectual vitality and professional development of participants; build communities of inquiry and provide models of civility and excellent scholarship and teaching; and effectively link teaching and research in the humanities. An NEH Summer Seminar or Institute may be hosted by a college, university, learned society, center for advanced study, library or other repository, a cultural or professional organization, or a school or school system. The host site must be suitable for the project, providing facilities for scholarship and collegial interaction. These programs are designed for a national audience of teachers. Due March 5.
Landmarks of American History and Culture: Workshops for School Teachers
The Landmarks of American History and Culture program supports a series of one-week residence-based workshops for a national audience of K-12 educators. NEH Landmarks of American History and Culture Workshops use historic sites to address central themes and issues in American history, government, literature, art, music, and related subjects in the humanities. Each workshop is offered twice during the summer. Workshops accommodate forty school teachers (NEH Summer Scholars) at each one-week session. Due March 5.

Institutes for Advanced Topics in the Digital Humanities
These NEH grants support national or regional (multistate) training programs for scholars and advanced graduate students to broaden and extend their knowledge of digital humanities. Through these programs, NEH seeks to increase the number of humanities scholars using digital technology in their research and to broadly disseminate knowledge about advanced technology tools and methodologies relevant to the humanities. The projects may be a single opportunity or offered multiple times to different audiences. Institutes may be as short as a few days and held at multiple locations or as long as six weeks at a single site. For example, training opportunities could be offered before or after regularly occurring scholarly meetings, during the summer months, or during appropriate times of the academic year. The duration of a program should allow for full and thorough treatment of the topic. Due March 7.

Water Resources Research National Competitive Grants Program
Section 104g of the Water Resources Research Act of 1984 requires that this competitive grant program focus on water problems and issues of a regional or interstate nature beyond those of concern only to a single State and which relate to specific program priorities identified jointly by the Secretary of the Interior and the water resources research institutes. Objectives of this program also include the following A. Promote collaboration between the USGS and university scientists in research on significant national and regional water resources issues. Proposals exhibiting substantial collaboration between the USGS and the applicant are encouraged and will receive extra weight in the evaluation and selection process. Collaborative proposals should describe in detail the respective roles of the USGS and the applicant in the proposed work. Potential applicants seeking collaborative opportunities are encouraged to contact USGS Water Science Center Directors. Potential applicants are also encouraged to contact the Water Resources Research Branch Chiefs see Attachment F for contact information. B. Promote the dissemination and application of the results of the research funded under this program. C. Assist in the training of scientists in relevant water resource fields. Proposals that include a strong educational component student support are encouraged, as are proposals from faculty beginning their careers. The USGS and NIWR prefer that research supported by this program involve substantial collaboration between the USGS and university scientists. Collaboration can range from use of USGS data and information in the research to mutual involvement of USGS and university scientists on projects. Due March 7.
**Agriculture and Food Research Initiative (AFRI): NIFA Fellowships Grant Program**
The FY 2013 AFRI NIFA Fellowship RFA focuses on developing the next generation of research, education, and extension professionals in the food and agricultural sciences who will lead agriculture into the future by solving current and future challenges facing our society. The AFRI NIFA Fellowships Grant Program targets talented, highly-motivated doctoral candidates and postdoctoral trainees that demonstrate remarkable promise and the potential to become gifted education, extension, and research professionals in the United States. The NIFA Fellows are individuals who have the potential for remarkable accomplishments in agricultural science. The Program seeks to develop the technical and academic competence of doctoral candidates and the research independence and teaching competencies of postdoctoral students in the food, forestry and agricultural sciences, which are within NIFA’s challenge areas, through well-developed and highly interactive mentoring and training activities. Project types supported by AFRI within this RFA include single-function Research, Education, and Extension Projects and multi-function Integrated Research, Education, and/or Extension Projects. **Due March 7.**

**Institute for Historical Editing**
The National Historical Publications and Records Commission seeks proposals to improve the training and education of people training to be or working as historical editors. The Institute for Historical Editing can consist of both basic and advanced institutes. This program does not support requests from individuals for their own training, education, or professional advancement. Such requests will be ineligible. For a comprehensive list of the Commission’s limitations on funding, please see What we do and do not fund (http://www.archives.gov/nhprc/apply/eligibility.html). A grant normally is for one to three years and up to $275,000. The Commission expects to make one grant in this category, for a total of up to $275,000. **Due March 7.**

**FY 2013 Economic Development Assistance Programs**
EDA provides strategic investments that foster job creation and attract private investment to support development in economically distressed areas of the United States. Under this FFO, EDA solicits applications from both rural and urban areas to provide investments that support construction, non-construction, technical assistance, and revolving loan fund projects under EDA’s Public Works and Economic Adjustment Assistance programs. Grants made under these programs are designed to leverage existing regional assets to support the implementation of economic development strategies that advance new ideas and creative approaches to advance economic prosperity in distressed communities. **Funding cycles March 13, June 13 and September 13.**

**Next-Generation National Nanotechnology Infrastructure Network (NG NNIN)**
The National Nanotechnology Infrastructure Network (NNIN) will reach its ten year authorized award life at the end of Fiscal Year 2013. The National Science Foundation is announcing in this solicitation an open competition to establish a Next-Generation National Nanotechnology Infrastructure Network (NG NNIN) for Fiscal Years 2014-2018.
NNIN has enabled major discoveries, innovations, and contributions to education and commerce within all disciplines of nanoscale science, engineering, and technology through NSF support of a national network of university-based user facilities. These facilities have provided open access to leading-edge nanotechnology fabrication and characterization tools, instrumentation, and expertise for users across the nation from academia, small and large industry, and government. The core mission of NNIN has included national-level education and outreach programs to enable a diverse science and engineering workforce, the study of societal and ethical implications of nanotechnology including issues of environment, health, and safety, as well as important modeling and simulation capabilities.

The new competition for the NG NNIN will build on the concept of NNIN with a much broadened scope and user base. Support is being provided by all NSF Directorates and the Office of International Science and Engineering as an integral part of the NSF investment in Nanoscale Science and Engineering. **Required LOI April 1; full May 13.**

**Special Program Announcement for 2013: Basic Research Challenges in the Science of Autonomy**
The Office of Naval Research (ONR) basic research programs in autonomy address critical multi-disciplinary fundamental challenges that cut across different scientific and engineering disciplines and system domains (air, sea, undersea, and ground systems) with a focus on problems with particular naval relevance. Five new basic research focus areas have been identified and are “Understanding Satisficing in Human, Animal, and Engineered Autonomous Systems for Fast Decision-making with Limited Data,” “Cognitively Compatible Semantic and Visual Representation of Autonomous System Perceptual Data for Effective Human/Machine Collaboration,” “Mental Simulation as a Unifying Framework for Perception, Cognition and Control in Autonomous Systems and Dexterous Robots,” “Structured Machine Learning for Scene Understanding,” and “Integrated Autonomy for Long Duration Operations.” ONR seeks to initiate 6.1 Basic Research efforts in these five thrusts beginning in Government Fiscal Year 2013. **Due April 8.**

**Endangered Language Fund**
The Endangered Language Fund provides grants for language maintenance and linguistic field work. The work most likely to be funded is that which serves both the native community and the field of linguistics. Work which has immediate applicability to one group and more distant application to the other will also be considered. Publishing subventions are a low priority, although they will be considered. Proposals can originate in any country. The language involved must be in danger of disappearing within a generation or two. Endangerment is a continuum, and the location on the continuum is one factor in our funding decisions. **Due April 22.**

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

**ONR Electronic Warfare Technology**
The goal of Electronic Warfare (EW) is to control the Electro-Magnetic Spectrum (EMS) by exploiting, deceiving, or denying enemy use of the spectrum while ensuring its use by friendly forces. To that end, the Office of Naval Research (ONR) EW Discovery and Invention (D&I) program invests in Science and Technology (S&T) initiatives that will provide naval forces (including Navy and Marine Corps) with improved threat warning systems; Electronic warfare Support (ES); decoys and countermeasures against weapon tracking and guidance systems; Electronic Attack (EA) against adversary Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR); and Electronic Protection (EP) of our own weapons and C4ISR from intentional and unintentional interference. **Due May 7 (See BAA for White Paper Due Dates).**

**Digitizing Historical Records**
The National Historical Publications and Records Commission seeks proposals that use cost-effective methods to digitize nationally significant historical record collections and make the digital versions freely available online. Projects must make use of existing holdings of historical repositories and consist of entire collections or series. The materials should already be available to the public at the archives and described so that projects can re-use existing information to serve as metadata for the digitized collection. **Due June 11.**

**Consolidated Innovative Nuclear Research**
The Department of Energy’s (DOE) Office of Nuclear Energy (NE) conducts crosscutting nuclear energy research and development (R&D) and associated infrastructure support activities to develop innovative technologies that offer the promise of dramatically improved performance for advanced reactors and fuel cycle concepts while maximizing the impact of DOE resources. NE funds research activities through both competitive and direct mechanisms, as required to best meet the needs of NE. These efforts are essential to balancing NE’s R&D portfolio and encourage new nuclear power deployment with creative solutions to the universe of nuclear energy challenges. The competitive portion of NE’s R&D portfolio is accomplished in part by promoting integrated and collaborative research conducted by university, industry, international and national laboratory partners under the direction of Office of Nuclear Energy’s programs: Nuclear Energy University Programs (NEUP), elements of the Nuclear Energy Enabling Technologies (NEET) Crosscutting Technology Development Program, the Advanced Test Reactor (ATR) National Scientific User Facility (NSUF), and Small Business Innovative Research (SBIR) / Small Business Technology Transfer (STTR). Specifically, **NE designates up to 20 percent of funds appropriated to its R&D programs for R&D and infrastructure support at university and research institutions, through open, competitive solicitations.** Additionally, through the NEET Crosscutting Technology Development Program, NE provides direct and competitive awards for university, industry and national laboratory-led research that crosscuts the NE R&D portfolio. The primary objective of consolidating fiscal year (FY) 2013 competitive
research sought by NE in the area of innovative nuclear research into a single FOA is to promote efficiency and the effective use of resources. Due June 12.

**Agriculture and Food Research Initiative: Foundational Program**
The U.S. Department of Agriculture (USDA) established the Agriculture and Food Research Initiative (AFRI) under which the Secretary of Agriculture may make competitive grants for fundamental and applied research, education, and extension to address food and agricultural sciences (as defined under section 1404 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (NARETPA) (7 U.S.C. 3103)), as amended, in six priority areas. The six priority areas include: 1) plant health and production and plant products; 2) animal health and production and animal products; 3) food safety, nutrition, and health; 4) renewable energy, natural resources, and environment; 5) agriculture systems and technology; and 6) agriculture economics and rural communities. Due May 22.

**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)
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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.detrack.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.**

**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.**

**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.**

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

**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.**

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

**ARL Core Broad Agency Announcement for Basic and Applied Scientific Research for Fiscal Years 2012 through 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.**
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. (View Index of Articles)

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