



Research Development & Grant Writing Newsletter

Issue for January 15, 2023

Our Co-Publisher & Editors

Mike Cronan

[Mike Cronan](#), PE, has 23 years of experience developing and writing successful team 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 A&M Engineering Experiment Station (15 research divisions state-wide), including the Texas A&M College of Engineering.

Lucy Deckard

[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.

Katherine E. Kelly

[Katherine E. Kelly](#), Ph.D., a retired English professor from Texas A&M University, is the author of several books and numerous articles supported by research grants and served as a contributing editor for an academic journal for five years. She provides ARFS clients editorial services on proposals, journal articles, and manuscripts and presents seminars on grant writing and funding in the humanities.

About Us

Research Development & Grant Writing News © has been published monthly since 2010 for faculty and research professionals by [Academic Research Funding Strategies, LLC](#)

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Emily Creasy, head of [ELC Design](#), is our [graphics partner](#). In addition to redesigning our newsletter, she provides graphics services on proposals, presentations, books and papers. [Subscribe Online](#)

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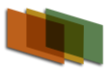


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Other Resources & Services

Lucy Deckard, BS/MS

For Webinars & Workshops

[Contact Here](#)

Katherine E. Kelly, PhD

Proposal Editing & Webinars in Humanities

[Contact Here](#)

ELC Designs

Graphics services for proposals, presentations, books and papers.

[Contact Here](#)

Have You Hired New Faculty?

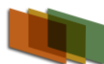
Get the 2nd Edition New Faculty Guide to Competing for Research Funding!

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Strategies for Planning, Developing, & Writing Large Team Grants

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Topics of Interest URLs

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User Note: URL links are active on date of publication, but if a URL link breaks or changes a Google search on the key words or titles, as below, will typically take you to a working link.

FY2023 Federal Research Funding Agency & Miscellaneous

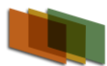
- [U.S. Congress boosts spending on earmarks to universities](#)
- [Diversity and STEM: New Data from NCSES](#)
- [2023 NSF POLICY OFFICE WEBINAR SERIES JANUARY 19, 2023](#)
- [Pilot will support select principal investigators in bringing their research to the market and society](#)
- [NSF and NobleReach Emerge partner on new effort to speed biotechnology development and translation](#)

National Science Foundation & Related

- [Designing Synthetic Cells Beyond the Bounds of Evolution \(Designer Cells\)](#)
- [Frontier Research in Earth Sciences \(FRES\)](#)
- [Dear Colleague Letter: Announcement of Important Updates to NSF Partnerships for Innovation \(PFI\) Solicitation](#)
- [Dear Colleague Letter: Special Guidelines for Submitting Proposals: NSF and DFG Opportunity for Collaborations in Physics](#)
- [Dear Colleague Letter: Research Experiences for Undergraduates \(REU\) and Research Experiences for Teachers \(RET\) Supplemental Funding in Computer and Information Science and Engineering](#)
- [Dear Colleague Letter: Computational and Data-Enabled Science for New Discovery](#)
- [Launching Early-Career Academic Pathways in the Mathematical and Physical Sciences](#)
- [Incorporating Human Behavior in Epidemiological Models \(IHBEM\)](#)
- [Dear Colleague Letter: Growing Research Access for Nationally Transformative Equity and Diversity \(GRANTED\) Conferences and Workshops](#)
- [Dear Colleague Letter: Visionary Interdisciplinary Teams Advancing Learning Prize Challenge](#)
- [Dear Colleague Letter: New to IUSE](#)

NIH Health Sciences & Related

- [International Centers of Excellence for Malaria Research](#)
- [Early-Stage Development of Informatics Technologies for Cancer Research and Management](#)
- [Advanced Development of Informatics Technologies for Cancer Research and Management](#)
- [Revisit Funding Opportunity Announcements Within 30 Days of the Due Date](#)
- [Check for Fit, Before You Submit!](#)
- [Top 4 Tips for Navigating Early Career Opportunities](#)
- [NIH All About Grants Podcast - Application Preparation Timelines](#)
- [2022: A Year in Review](#)
- [Reminder: FORMS-H Grant Application Forms & Instructions Must be Used for Due Dates On or After January 25, 2023 - New Grant Application Instructions Now Available](#)



- [Should Multiple DMS Plans Be Submitted With Each Application for Funding, Including Large, Multicomponent Awards?](#)
- [12 Days of Data Management and Sharing Tips & Resources](#)

National Academies and Other Scientific Associations

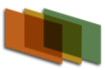
- [Deadly sharp points found in Idaho could be first American-made tools](#)
- [Animal Welfare Challenges in Research and Education on Wildlife, Non-Model Animal Species and Biodiversity: Proceedings of a Workshop](#)
- [Chemists in the Kitchen](#)
- [Our Most Downloaded 2022 Publications Collection](#)
- [Native Americans—and their genes—traveled back to Siberia, new genomes reveal](#)

Miscellaneous Federal Agency and Foundation News & Funding

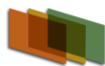
- [National Endowment for the Arts Announces First Round of Fiscal Year 2023 Grants](#)
- [New Innovator in Food & Agriculture Research Award](#)
- [Meta-Analysis Training Institute](#)

Federal Agency Research Funding Links

- AFRL: <https://www.afrl.af.mil/AFOSR/>
- ARL: <https://www.arl.army.mil/>
- CDMRP: <https://cdmrp.army.mil/funding/prgdefault>
- DARPA: <https://www.darpa.mil/work-with-us/opportunities>
- IARPA: <https://www.iarpa.gov/>
- ONR: <https://www.onr.navy.mil/en/work-with-us/funding-opportunities>
- DHS: <https://www.dhs.gov/how-do-i/find-and-apply-grants>
- DOJ: <https://www.justice.gov/grants>
- NASA: <https://nspires.nasaprs.com/external/>
- NEH: <https://www.neh.gov/>
- NEA: <https://www.arts.gov/>
- NIH: <https://grants.nih.gov/funding/index.htm>
- HHS: <http://www.hhs.gov/asrt/og/aboutog/grantsnet.html>
- NSF: <https://www.nsf.gov/funding/index.jsp>
- DOC: <https://www.commerce.gov/work-with-us/grants-and-contract-opportunities>
- NIST: <https://www.nist.gov/oaam/grants-management-division/nist-nofo-information>
- NOAA: <https://www.noaa.gov/organization/acquisition-grants>
- DoED: <https://www2.ed.gov/fund/grants-apply.html?src=go>
- DOE/OS: <https://www.energy.gov/science/office-science-funding/office-science-funding-opportunities>
- EERE: <https://www.energy.gov/eere/funding/eere-funding>
- DOE: <https://www.energy.gov/energy-economy/funding-financing>
- USDA: <https://www.nal.usda.gov/waic/funding>
- NIFA: <https://www.nifa.usda.gov/grants>
- EPA: http://www.epa.gov/ogd/competition/open_awards.htm



- NCER: <http://epa.gov/ncer/listserv/>
- FBO/BETA SAM: <https://fbohome.sam.gov/>
- Federal Register: <https://www.federalregister.gov/>
- Grants.gov: <https://www.grants.gov/web/grants/search-grants.html>
- CFDA: <https://www.investopedia.com/terms/c/catalog-of-federal-domestic-assistance-cfda.asp>



January 2023 Select List of Humanities, HSS, and Arts Opportunities & News

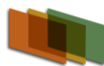
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by Katherine E. Kelly, PhD [article subtitle style]

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Check with organizations' websites for most current information

Due Date	Opportunity
January 2023, February 2023 (exact dates TBA). A new NEH Initiative sponsored by NEH director, Shelly C. Lowe--American Tapestry: Weaving Together Past, Present, and Future.	See story in this issue of the ARFS News. Through new funding opportunities at NEH, American Tapestry will encourage projects that elevate the role of civics in schools and public programs, promote media literacy, and use robust humanities research to examine threats to our democracy. American Tapestry will build capacity at museums, libraries, archives, historic sites, cultural centers, and colleges and universities, benefitting more communities while amplifying the untold stories of historically underrepresented groups. This initiative will also promote climate resilience in the cultural and educational sectors and encourage humanities research into the human toll of climate change, exploring its historical roots and cultural effects. https://www.neh.gov/news/american-tapestry-weaving-together-past-present-and-future?utm_medium=email&utm_source=govdelivery
Currently open. The National Park Service/NEA/NEH/IMLS. Save America's Treasures (SAT) grant program is now accepting applications.	The SAT grant program was first awarded funding in 1999 to help preserve nationally significant historic properties and collections that convey our nation's rich heritage. This grant program is divided into two parts: One for preservation projects (for properties listed in the National Register of Historic Places for national significance or designated a National Historic Landmark. The property may be listed on either individually or as contributing to a nationally significant district). These awards are managed by the National Park Service. One for projects involving collections (including artifacts, museum collections, documents, sculptures, and other works of art). These awards are managed by the Institute of Museum and Library Services. Application packages must be submitted using grants.gov in response to a notice of funding opportunity number under Assistance Listing (formerly CFDA) 15.929. https://www.nps.gov/subjects/historicpreservationfund/save-americas-treasures-grants.htm
Full proposal accepted at any time. NSF Directorate for Social, Behavioral,	The Archaeology Program supports anthropologically relevant archaeological research: the value of the proposed research must be justified within an anthropological context. The program sets no priorities by either geographic region, time period, or theoretical orientation. The investigator is responsible for explaining why the focus of their research is significant and



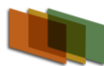
and Economic Sciences.	has the potential to contribute to anthropological knowledge. While the program neither limits nor defines specific categories of research, most applications either request funds for field research or the analysis of archaeological material through multiple approaches. The program also supports methodological projects that develop analytic techniques of potential archaeological value. NB: submission guidelines have changed. See: https://beta.nsf.gov/funding/opportunities/archaeology-program-doctoral-dissertation-research?utm_medium=email&utm_source=govdelivery
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Tuesday, January 17 from 3:00-4:00 PM ET	1/17/23 NEA "Grants for Arts Projects" webinar about the Media Arts funding priorities in the Grants for Arts Projects category on Tuesday, January 17 from 3:00-4:00 PM ET. You'll learn more about the qualities for a competitive application and engage in an informal question and answer session. An archive will be available. To register for the webinar, go to: https://www.arts.gov/news/events/grants-arts-projects-application-guidelines-media-arts-webinar
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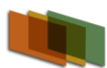
1/31/2023 PEN America - Emerging Voices Fellowship.	This virtual five-month mentorship program is for <u>early-career writers from communities that are traditionally underrepresented in the publishing world</u> . Twelve fellows will receive an honorarium of \$1,500. https://pen.org
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3/8/2023 NEA Literature Fellowships (Prose) (fiction & creative nonfiction).	The NEA offers \$25,000 grants to published creative writers that enable the recipient to set aside time for writing, research, travel, and general career advancement. Learn more about past recipients in the Literary Arts Impact section of the NEA website: https://www.arts.gov/grants/creative-writing-fellowships . Address questions to: Literary Arts Staff at 202.682.5034 or email LitFellowships@arts.gov .
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3/10/2023 Institute for Citizens and Scholars (1) Mellon/Mays Undergraduate Fellowship-- Advancement Program Fellows.	This program brings diverse perspectives to graduate studies and careers in the academy, ensuring these perspectives are shared within disciplines and with students. <u>Fellows are alumni of the Mellon Mays Undergraduate Fellowship (MMUF) program</u> and gather to prepare graduate school applications, receive funding for additional research, and professional support throughout their dissertation research. (2) The MMUF Travel & Research Grants provide eligible graduate students with the financial means to complete their research prior to the start of dissertation writing. Funding is for one summer or one semester of travel and/or research support. The grants provide eligible graduate students with the financial means to complete their research prior to the start of dissertation writing. Awards are based on the scholarly merit of the individual applications received. Learn more and apply online: https://ctzn-schlr.org/applytr
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4/27/23 NEA "Challenge America" Part 1 Submit to Grants.gov.	Challenge America offers support primarily to small organizations for projects in all artistic disciplines that extend the reach of the arts to groups/communities with rich and dynamic artistic and cultural contributions to share that are underserved . Challenge America features an abbreviated application, a robust structure of technical assistance, and grants for a set amount of \$10,000. Grants require a cost share/match of \$10,000 consisting of cash and/or in-kind contributions. Total project costs must be at least \$20,000 or greater. For the dates of additional webinars dedicated to various arts areas, see the NEA Newsletter "Art Matters" for Dec. 2022: nea_announce@arts.gov
5/2-5/16/23 NEA "Challenge America" Part 2.	Submit application to applicant portal. Before applying, your organization must create and maintain up-to-date registrations with both the System for Award Management (SAM) at SAM.gov and Grants.gov. For more information, go to: https://www.arts.gov/grants/challenge-america
RESEARCH GRANTS IN THE ARTS: Program Description. Various due dates starting March 27.	Research Grants in the Arts support research studies that investigate the value and/or impact of the arts, either as individual components of the U.S. arts ecology or as they interact with each other and/or with other domains of American life. With these guidelines, the NEA welcomes research proposals that address priority topics and possible questions as outlined in the agency's FY 2022-2026 research agenda. The priority topics are described below. Note: for each of the four topics, the research agenda also lists several "related sample questions" that may be used or adapted by applicants to the Research Grants in the Arts program. Applicants are strongly urged to consult this more detailed list. https://www.arts.gov/grants/research-awards/research-grants-in-the-arts/program-description
NEA RESEARCH LABS: Program Description. Various due dates starting March 27.	The NEA Research Labs program funds transdisciplinary research teams grounded in the social and behavioral sciences, yielding empirical insights about the arts for the benefit of arts and non-arts sectors alike. Established in FY 2017, the NEA Research Labs continue to build public knowledge about the arts and their contributions to individuals, communities, and society at large. Through this program, we are cultivating transdisciplinary research partnerships that are producing research findings and evidence-based tools of value not only to arts practitioners, but also to non-arts sectors such as healthcare, education, and business or management. Institutions of higher education and/or nonprofit research and policy organizations may submit applications to be NEA Research Labs. The NEA Research Labs program offers grant funding for longer-term research agendas. These agendas will include multiple research studies and activities that build and inform the field throughout the life of an NEA Research Lab. Applicants seeking grant funding for a specific and discrete research study should refer to the Research Grants in the Arts program guidelines. Each NEA Research Lab will design a transdisciplinary research agenda, conduct project activities to execute that



agenda, and prepare and disseminate reports and other products or services that will contribute substantively to a wider understanding of one of the following research areas of special interest to the NEA.

<https://www.arts.gov/grants/research-awards/nea-research-labs/program-description>

**NEH Awards for Faculty program.
Due April 12.**

NEH's **Fellowships** program was established over 50 years ago and was the first award offered by the Endowment. Since then, approximately seven thousand books have been written by NEH fellows. In the academic world, "getting an NEH" is a shorthand for receiving an NEH Fellowship, which indicates the award's widely respected reputation and prestige. Recognizing the specific needs of certain scholars, **Awards for Faculty** offer more flexible fellowships to those employed at Historically Black Colleges and Universities, Hispanic Serving Institutions, and Tribal Colleges and Universities. **Summer Stipends** offer two-month awards to allow scholars to take a shorter break to pursue focused research. **Public Scholar** awards encourage writing books for a wide readership. Placing NEH at the forefront of innovative methods in the humanities, **NEH-Mellon Fellowships for Digital Publication** support projects that require digital expression and digital publication. Books resulting from all of these grants regularly earn awards and recognition. NEH-funded work has been honored with Pulitzer Prizes, Bancroft Prizes, as well as awards from academic associations across the country and accolades from reviewers in major newspapers and literature journals. While Research Programs is the only NEH division to make awards to individuals, institutional grants are also available. **Collaborative Research** supports projects by teams of scholars. **Scholarly Editions and Scholarly Translations** provides funding for time-intensive editing projects such as the [Papers of George Washington](#), and **Fellowship Programs at Independent Research Institutions** provides American scholars access to unique collections at American centers for humanities research around the world.

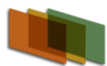
<https://www.neh.gov/divisions/research>

NEWS

[ACLS Announces Informational Webinars for 2022-23 Fellowships](#)

The American Council of Learned Societies (ACLS) is pleased to offer information sessions for potential applicants to our fellowship and grant programs, hosted by ACLS program officers. Register for upcoming webinars focusing on programs with September and October deadlines below.

<https://www.acls.org/news/2022-applicant-webinars/>



Recent Funding and Advocacy News in the Humanities and Arts

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By Katherine E. Kelly, PhD

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The National Endowment for the Humanities (NEH) and the National Endowment for the Arts (NEA) are each receiving \$207 million, a \$27 million increase over the FY22 enacted level (Source:

<https://www.appropriations.senate.gov/imo/media/doc/FY23%20Omnibus%20Full%20Summary.pdf>)

The National Humanities Alliance (NHA) has analyzed the omnibus spending bill for fiscal year 2023 and offers the following highlights:

--the National Endowment for the Humanities has received the largest yearly increase ever given to the agency.

--The National Archives and Records Administration (NARA) and NARA's grant-giving arm, the National Historical Publications and Records Commission have both received significant increases. NARA's budget has increased by \$39.21 million, bringing its total to \$427.52 million. NHPRC received \$12 million, a \$5 million increase. After years of little to no budget increases, this has come as especially welcome news.

--A large increase of \$26.8 million has gone to the Institute of Museum and Library Services, bringing the agency's overall budget to \$294.8 million.

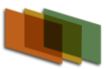
--A smaller increase has been directed to the Department of Education's international education programs Title VI (\$75.4 million, a \$3.5 million increase), and Fulbright-Hays (\$10.3 million, a \$500,000 increase). For more information, see the National Humanities Alliance funding chart at:

https://assets.nationbuilder.com/nhalliance/pages/1748/attachments/original/1671562616/FY23_Funding_Chart_Final.pdf?1671562616

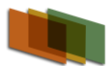
How does the NHA advocate for the humanities? As NHA's Alex Klein reported in the summer of 2022, the NHA works each year with our advocacy partners and allies on the Hill to cultivate sign-ons to Dear Colleague Letters requesting increased funding for various humanities programs. These letters are led by specific Representatives and Senators, and we encourage additional members to sign on, lending their support to the appropriations request. As a result of these efforts, two of these letters saw an increase in signers during 2022.

Klein continues, "We continued to work closely with the Federation of State Humanities Councils and Representative David Price's office on the NEH Dear Colleague Letter, offering edits to update the letter and make it fit the global moment. The House NEH DCL, which requested at least \$204 million for the NEH in FY 23, argued that increased funding will not only allow the agency to keep funding important humanities work in every congressional district but is necessary to help us continue to better understand geopolitical contexts as history unfolds around us. The letter received 142 signatures.

"Similarly in the Senate, we worked closely with Senator Jack Reed's office and our arts advocacy colleagues to update the Senate NEH/NEA letter which received a total of 44 signatures, four more



signatures than last year. The letter, which requested at least \$204 million for both the NEH and the NEA in FY 23, highlighted the important work that both agencies fund to help our nation's veterans."



Give a Wide Berth to Potential Plagiarism

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By Mike Cronan, PE, co-publisher

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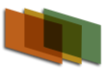
In last month's article, *NSF Observations on Plagiarism*, we did a deep dive into the recent NSF/OIG report "[Observations from NSF Plagiarism Investigations and Strategies to Prevent Plagiarism](#)" (Report No. OIG I-18-0002-PR March 4, 2022). In the report, NSF provides insight into plagiarism as it relates to NSF-funded research and offers **plagiarism prevention strategies to educational institutions** based on the agency's experience investigating plagiarism allegations. One NSF recommendation suggests that institutional research offices "*design a proposal writing course for inexperienced grant writers that teaches both **successful proposal writing skills and research integrity**, and require that those new to proposal writing enroll.*"

This is a good idea, particularly since there are common mistakes made in the writing of proposals that have the potential, albeit unintended, to cross the line into plagiarism, or at least bump up hard against it. One way to avoid drifting into plagiarism is to avoid using prior narrative sections from older proposals, or narrative text created as so-called boilerplate by other known or unknown authors. Writing a successful proposal narrative that advances new ideas in a compelling way is hard work. It will not be made easier by the use of off-the-shelf text or boilerplate text written by yourself or others for prior, similar efforts, no matter how alike the research and/or educational objectives may seem to be.

Moreover, Word's copy and paste function often poses a danger to a potentially fundable proposal in ways more worrisome than plagiarism. For example, the use of narrative sections copied from your prior proposals (successful or unsuccessful), or boilerplate, imposes a distorting structure on the ideas and organization of the new proposal narrative. A successful research narrative should evolve logically, consistently, proportionally, and synergistically from a new research idea. **A new idea will be distorted when forced to fit prior narrative sections or organizational structures.** This occurs on team proposals, particularly large proposals with multiple contributing authors, when **no one person is in editorial charge** of the narrative, including reviewing and approving narrative contributions from team members. It occurs more frequently on proposals being **revised for resubmission** where there may be a weary reluctance to start anew and an overreliance on using too much of the original narrative for the resubmittal.

The disadvantages of boilerplate text to a proposal's success are many, but to avoid boilerplate, it's important to understand the meaning of the term. While various professions may use the term to refer to various types of text, in most cases it refers to inferior, off-the-shelf writing, often of unknown origin, that operates as a **static**, plug-in set of phrases, sentences, paragraphs, or conceptual outlines. By definition, boilerplate fails to change or to reflect the **evolving set of new ideas** associated with the successful proposal. One common source of boilerplate is the generalized research and educational text posted to websites.

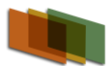
Boilerplate is frozen in time, whereas the successful research proposal originates with a good idea that evolves during the development and writing of the proposal narrative to make an original and compelling case for funding. Even excellent writing has a short shelf life. In fact, most often by the startup period of a grant, perhaps six to twelve months after the submission of the proposal, the



successful narrative is typically dated and showing signs of age. If you are maturing research and educational ideas, then the ideas you have six months in the future should be better evolved than the ones you have now.

While faculty should avoid boilerplate, they can become knowledgeable about successful models for some of the common sections required in a proposal, particularly in larger proposals, such as those related to institutional infrastructures, access to equipment, instrumentation and facilities, plans for undergraduate research or post-doc mentoring, management plans, diversity plans, data management plans, and the like.

Bottom line: if you are proposing new research ideas, express the significance of those new ideas in **newly-crafted** narrative sections. Successful proposals are not renovations of the past but a creation for the future.



Advice and Resources for Your NSF MRI Proposal

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By Lucy Deckard, co-publisher

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In the December issue, we discussed recent changes to the NSF Major Research Instrumentation (MRI) program. In this article, we've updated our guidance on how to prepare a strong MRI proposal to reflect the new solicitation.

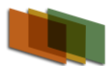
NSF's [Major Research Instrumentation \(MRI\) program](#) is a long-standing program that funds acquisition or development of instrumentation ranging from \$100K to \$4 million. (For non-PhD granting institutions and for researchers in the social, behavioral and economic sciences and in mathematics, requests less than \$100K are allowed.) This program provides an excellent opportunity for universities to enhance their research infrastructure by purchasing or developing instruments that can enable new research and education activities at their campuses and in their region. The current solicitation is available [here](#). In the past, MRI proposals were typically due January 1 – 19th each year, but NSF plans to transition the annual submission window to mid-October to mid-November. As a result, for 2023 only, there are two submission windows: January 16 – February 21, 2023 and October 16 – November 15, 2023.

MRI Overview

MRI grants now come in two “flavors” – an **instrumentation acquisition grant**, which funds the purchase of off-the-shelf instrumentation, and an **instrument development grant**, which funds development of an innovative, new instrument. NSF also now designates **three tracks**: Track 1 proposal request **less than \$1.4 M**, and Track 2 proposals request **\$1.4M - \$4M**, and Track 3 proposals focus on equipment that conserve or reduce the consumption of helium and request **\$100K - \$4M**. Track 1 proposals for instruments supporting research in mathematics or social, behavioral and economic sciences, and from non-Ph.D.-granting institutions of higher education can request less than \$100K. The number of proposals that can be submitted by an institution is limited; each institution can submit up to a total of four MRI proposals, no more than two of which can be a Track 1 proposal, no more than one of which can be a Track 2 proposal, and no more than one of which can be a Track 3 proposal. If you're interested in submitting an MRI, be sure to check with your grants office to find out the procedure for selecting which proposals will be submitted from your institution. (Often, institutions run an internal competition to select who can submit.)

MRI instrument acquisition grants can be used to buy multiple pieces of equipment that are needed for a single purpose, such as a transmission electron microscope and a microwafering saw required to prepare the specimens, but it cannot be used to buy multiple pieces of equipment to outfit a lab (for example, a differential scanning calorimeter, a thermomechanical analyzer and a rheometer for a thermal analysis lab). It also cannot be used to buy general purpose equipment such as fume hoods, cryogenic storage systems, etc.

MRI instrument development grants are for projects to develop new instruments that provide novel capacity that can enable new research. These kinds of grants are, in essence, for applied development projects. Note that in order to qualify as a development grant, the instrument to be developed must be novel, so simply planning to build an instrument rather than purchase it is not enough.



You must designate a division within NSF (not the Office of Integrative Activities) to review your proposal. If you feel that more than one division may support the research enabled by the instrument, you may designate a secondary division. If you feel specialized expertise is needed to review your proposal, be sure to suggest appropriate reviewers with the required knowledge using the designated form.

The project description for an MRI proposal is limited to 15 pages and must include the following sections (the solicitation includes suggested page counts for each section):

- **Instrument location and type** - see the solicitation for detailed instructions on this section
- **Research activities to be enabled** - detailed description of the researchers who will use the instrument, the students who will be involved, and the research that will be enabled
- **Description of research instrumentation and needs** - describe the instrument, its capabilities and the need for the instrument
- **Broader Impacts, including Impact on research and training infrastructure** - how the instrument will enhance training and broaden participation
- **Management plan** - for acquisition proposals, how will the instrument be managed (who decides who can use the instrument, how will it be maintained, do you have the expertise at the institution to run the instrument, etc.)? For development proposals, what is your plan for developing and constructing the instrument?

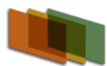
Be sure to structure your Project Description with the above sections ***in the order requested*** in the solicitation. It can be tempting to reorder these sections because it's a bit illogical to have to discuss the research enabled before you describe the instrument. Resist this temptation! Reviewers are expecting to see the sections in the order requested, and if you don't follow that order, you will confuse your reviewer. Remember that a confused reviewer is not a happy reviewer, and your reviews will likely suffer as a consequence.

At the end of this article, we provide detailed outlines for the Project Description (one for Acquisition proposals, and one for Development proposals) that breakdown the solicitation requirements (along with our comments and suggestions). Following that, we include a checklist to help you make sure you've included all the required components.

What are Reviewers Looking For?

When developing your MRI proposal, remember that NSF is looking for maximum impact for the funds it is investing. For **acquisition proposals**, this means the requested instrument will:

- enable important research of interest to NSF
- have multiple users (from multiple disciplines and institutions, if possible)
- significantly impact education
- improve the ability to broaden participation in STEM by women, underrepresented minorities, and other groups underrepresented in STEM)
- be well-used and well-maintained
- improve your institution's capabilities to conduct leading-edge research and provide leading-edge research experiences for undergraduate students.

**For development proposals:**

- The instrument to be developed is needed and will provide significant improvements in capability or performance compared to existing instruments
- There is a larger user community that strongly needs the instrument
- Your plan for developing the instrument is well thought-out, detailed and realistic.
- Your team has the expertise and resources needed to construct the instrument.
- If you have students on your budget, their involvement is needed to construct the instrument, and the experience contributes to their training as the next generation of instrumentalists.
- The cost of the new technology appropriate

Avoid Common Mistakes**Inadequate discussion of the science the instrument will enable**

A common mistake is not explicitly describing what new research the instrument will enable that is not currently possible. Often, PIs ask potential users to send a description of the research they will conduct with the instrument. The PI then collects these descriptions, which are often standard text that the researcher copied from other proposals or documents. These descriptions discuss each participating faculty's research but don't specifically describe how the new instrument will impact the research and what the expected new outcomes might be. This is not enough for an MRI proposal! Instead, each user should describe clearly in their research description specifically how access to the proposed instrument will enhance their research and enable results that would not otherwise be possible. What is it that the researcher can't do now that she could do if she had access to the instrument? Why is this research important? So, for example, instead of writing,

"Dr. x performs research on xyz. She has found ...[standard description of her research project(s)] and results...],

write,

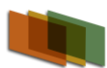
"Dr. x performs research on xyz ... [description of her research and its significance]. Because there is no [requested instrument] at ABC University, her students must travel 2 hours each way to Big State University to conducted needed measurements This has resulted in ...[describe problems]. If the proposed instrument is acquired, this will enable them to accomplish...."

Or

"... because our current instrument has only X nanometer resolution, this has prevented Dr. X from ...[describe research she can't do or questions she can't answer]. If the requested instrument with 0.X nanometer resolution is acquired, this would enable her to ..."

In this way, your proposal will paint a clear picture for reviewers of how the requested instrument will impact research at your institution and for users at other institutions.

It is often a good idea to include in the *Description of Research Instrumentation and Needs* section sample measurements made using a similar instrument, showing the value of the instrument in terms of improved precision, resolution, etc. and perhaps comparing it to measurements taken using your current instrument. If there is already an instrument like the one you are requesting in your institution or at a nearby institution, be sure to explain why that instrument won't meet your needs (e.g., it is already fully subscribed, or travel to the other institution is impractical or too time-consuming).



While it isn't required that the research to be conducted with the instrument is funded by NSF, it is certainly helpful to show that the instrument will enhance NSF-funded projects. If that's not possible, you'll want to make the argument that the research is of interest to NSF, and some of it may be funded by NSF in the future.

For instrument development proposals, the proposal should make a strong argument that the newly-developed instrument **will enable exciting new science of interest to NSF**. Depending on the Directorate, it may also be important to discuss how the instrument might be commercialized.

Too few or inappropriate users of the Instrument

The kiss of death for an MRI acquisition proposal is to give the impression that an instrument will be used only by a single faculty researcher or a small group of faculty within a department. NSF has a limited amount of funds to award, so they want each grant to impact a significant number of researchers in multiple departments and institutions, if possible (of course, this will depend in part on the type of instrument and your discipline). If you're in a research-intensive institution, it's especially important to reach out to smaller, non-research-intensive institutions in your region. If these institutions don't have active research that would require the instrument, they often can still be involved in educational activities involving the instrument. That said, this is not a numbers competition, and it is better to have 7 users with strong research credentials and a strong argument about how the instrument will enhance their research than to have 20 users with a weak argument.

Failure to address education and diversity

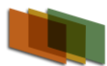
In order to be competitive, an acquisition MRI must have a strong education and outreach component. Example activities include involving undergraduates in using the instrument or in analyzing data from the instrument, integrating the instrument or data from the instrument in a course, involving high school teachers, K-12 students, community college students, and students from minority-serving, or predominantly undergraduate institutions in research with the instrument. **Many predominantly undergraduate institutions have been successful** in winning MRI grants by including a strong education component and describing how the new instrument will enhance their research infrastructure. However, it's important to keep in mind that the instrument should be needed primarily for research, not primarily as an educational instrument (for example, don't propose an instrument that will be used primarily for a lab course).

Requesting Extra Bells and Whistles

Be careful to request funds for the instrument that is needed to conduct the research described, but not more. Reviewers are quick to jump on extra "bells and whistles" on an instrument that add to the price tag and aren't justified by the research described in the "Research Enabled" section. If, for example, you want to add an attachment that provides a capability that only one of your instrument users will need, be sure the description of that research is particularly compelling and specifically discusses how that capability will enhance the research. If none of your major users has a current need for the extra capability, avoid the temptation to add the attachment on speculation that it will be needed in the future.

Inadequate Management Plan

Reviewers will want to know if you have a place for the instrument, funds to keep it maintained, a qualified operator, and plans for how to share the instrument with multiple users. All of this should be described in your management plan; be sure to spend time on this, as a poor management plan can sink an otherwise good MRI proposal.



Address details such as how access to the instrument will be managed, particularly access by researchers from other institutions. There are two things that you want to convince reviewers *will not* happen: 1) the instrument is not really shared but is instead dominated by the PI or by a small cadre of users; 2) there are not enough resources or expertise at the institution to keep the instrument running and maintained after the funding period, and the instrument ends up sitting unused. Predominantly undergraduate institutions should pay special attention to this section since reviewers may be more concerned about whether your institution has the space and resources to keep the instrument maintained.

Be careful to make it clear that you have a plan to fairly share the instrument. As PI, you may think you're doing everyone else a favor by volunteering to take sole responsibility of managing the instrument, but to a reviewer it may look like you plan to dominate the instrument, and other users won't get fair access to it. A typical successful approach is to form a committee composed of the PI and co-PIs that meets regularly to make decisions related to the distribution of instrument time, dealing with maintenance, etc.

You'll also want to discuss how you'll pay for consumables and other expenses. Will there be a user fee? If so, how much will it be? If you plan to accept guest users from other institutions (which is often a good idea), outline your procedure for doing that. Will potential guest users submit a short proposal describing how they will use the instrument? What will the criteria be for evaluating these proposals? Will you assess a higher user fee for guests? How will you publicize the fact that the instrument is available to outside users?

For instrument development proposals, be sure that you have a well-thought-out plan for developing the instrument. In many ways, an instrument development proposal is very much like a research proposal except that the result will be a novel instrument. Therefore, you'll need to describe your plan for developing the instrument in similar detail to that you'd use if you were describing a research plan.

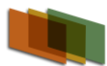
Development Proposals: Inadequate Work Plan in the Management Plan Section

Note that NSF recommends up to a 5-page Management Plan (as opposed to a 2-page Management Plan for Acquisition proposals). This is because, in addition to the content described above, this section must include a detailed discussion of how the design, construction and commissioning phases will be managed as part of the Management Plan. Often, PIs fail to include enough detail describing their step-by-step plan for developing the instrument, including milestones and a description of the roles and skills of team members. (Remember that the skills required to develop an instrument may be quite different from those required to use the instrument in research. Don't make the mistake of forgetting to include people with those skills in your team.)

Other issues

More Expensive Instruments

It's important to be aware that the review process for MRI proposals varies depending on the amount requested. While smaller proposals are reviewed within the Directorate, larger proposals are generally subjected to additional review at higher levels across NSF. This means that larger proposals will be reviewed by reviewers from a variety of disciplines; therefore, you should make sure that the arguments you make and the description of the science enabled is compelling and accessible to reviewers who are outside your field. In addition, for instruments over \$1 million, NSF uses the



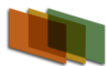
additional review criterion, “What will the instrument’s impact be at the National level and on the research community of interest?”

Institutional Commitment

Cost share is not allowed in this competition and is not expected to be required for the next 5 years (see our December article for a discussion about this change). On the other hand, institutional commitment is a review criterion, and PIs often ask, what’s the difference between cost share and institutional commitment? One important distinction is that cost share can only come from items that are legitimate project costs as defined by NSF, but there are a lot of other expenses that are required to ensure that an instrument will be installed and maintained over the long term. For example, a space must be provided, and that space may require refurbishment, enhanced electrical service and so on, but NSF will not pay for “bricks and mortar” on this grant. If your institution commits to providing that space, that would be considered institutional commitment, not cost share. The instrument will need to be maintained, and a technician may be needed to run it after the three-year NSF funding period; NSF will expect an institutional commitment to provide those resources to keep the instrument running and in good repair unless you have another source to cover those expenses.

Restrictions on Content of Letters

In recent years, NSF has become much more restrictive about what can be included in a letter from a collaborator who will use your instrument (probably to prevent PIs from using the letters as a way to work around the Project Description page limit). See the NSF Proposal & Award Policies & Procedures Guide ([PAPPG](#)) for the exact text that can be used, with blanks provided for the required information. Some collaborators may think they’re doing you a favor by adding additional text to their letters. Don’t allow them to do that; no other information is allowed in these letters.



General MRI Project Description Outline (**Acquisition**) – 15 pages

(Be sure to check solicitation for full instructions)

a. Information about the Proposal

a1. Instrument Location and Type

- Instrument Location (fill in the blank)
- Concise description of instrument being acquired (1 separate line)

b. Research Activities (approx. 9 pages).

- (My suggestion) Provide a brief overview briefly describing the instrument, summarizing the need, and putting forward your most compelling arguments (e.g., the amount the funding your users have, or the impact on your institution's or region's research capabilities, etc.)
- Describe the research and research training activities and projects that will be enabled by the desired instrumentation, and sources of support, if any.
- In narrative or tabular form, list by **research area**, **number** and **type** (e.g., senior personnel, postdoctoral fellows, graduate students, undergraduate students) the personnel who will use the instrumentation for research and research training on a regular basis.
- This section must include Results from Prior NSF Support if any of the PI/co-PIs have received NSF support **for shared research instrumentation** in the last 5 years. If not MRI support, then include any applicable Results from Prior NSF Support per [PAPPG guidelines](#))

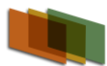
(Review Criteria: The extent to which the proposed project will make a substantial improvement in the organization's capabilities to conduct leading-edge research, to provide research experiences for undergraduate students using leading-edge capabilities, and to broaden the participation in science and engineering research (especially as lead PIs) by women, underrepresented minorities, persons with disabilities and/or early-career investigators. The extent to which the instrument is used for multi-user, shared-use research and/or research training. The extent to which the proposed project will make a substantial improvement in the organization's capabilities to conduct leading-edge research, to provide research experiences for undergraduate students using leading-edge capabilities, and to broaden the participation in science and engineering research (especially as lead PIs) by women, underrepresented minorities, persons with disabilities and/or early-career investigators.)

c. Description of the Research Instrumentation and Needs (approx. 2 pages)

- Provide a technical description of the requested instrumentation, including manufacturer and model number. Proposers are strongly encouraged to submit manufacturers' quotes for instrument acquisition proposals (in supp docs).
- Explain why equipment is essential and appropriate
- A listing and/or description of related instrumentation currently available at or near the submitting organization and justification for instrument in this context; if a similar instrument is at or near the performing organization, explain why another instrument is needed
- Provide preliminary results from existing equipment, or appropriate calculations or models to show the performance (e.g., sensitivity, capacity, stability, resolution or signal-to-noise ratio) to be achieved by the new instrument.
- Justify the necessity and adequacy of the new instrumentation for the proposed research projects, with reference to existing instruments.

d. Broader Impacts, including Impact on Research and Training Infrastructure (Suggested length, 2 pages)

- Description of how the instrumentation will improve institution's capabilities to conduct leading-edge research.
- Describe the potential impact of the instrument on infrastructure goals of institution.
- How the instrumentation will attract researchers and students, particularly *underrepresented* groups and *women* pursuing advanced degrees in science and engineering, and improve the quality of their research training.



- How the instrument will be used by students, including how it can provide research experiences for undergrad students and how their education will be enhanced.
- **Proposals requesting over ~\$1.4M:**
 - Address potential impact of the instrument on the research community at the local and national level.
 - Discuss concrete plans for enabling access by external users, including those from non-PhD institutions and/or MSIs.
 - Describe the uniqueness of the instrument.

Review criteria: The extent to which the proposed project will make a substantial improvement in the organization's capabilities to conduct leading-edge research, to provide research experiences for undergraduate students using leading-edge capabilities, and to broaden the participation in science and engineering research (especially as lead PIs) by women, underrepresented minorities, persons with disabilities and/or early-career investigators. For instrument acquisition proposals of \$1.4 million or above (Track 2), the potential impact of the instrument on the research community of interest at the regional or national level, if appropriate.

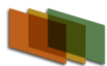
e. Management Plan (*Suggested length, 2 pages*)

- Detailed business and management plans with information on space, technical staffing for operation.
- Describe the facility in which the instrument will be housed.
- Maintenance and operation projections (About how much of the time do you anticipate the instrument will be in use? What will the maintenance costs be?)
- How and by whom the requested instrumentation will be operated and maintained over the project period of three years and long-term (a **letter** of commitment to operations and maintenance is required in Supp. Docs).
- Technical expertise needed to maintain and operate the instrument with anticipated costs (if the expertise is not currently available, describe how it will be obtained).
- Procedures for allocating instrument time, if appropriate, and describe plans for attracting new users. (Will there be a user fee? If so, about how much will it be? Will you set up a committee to review applications for use? Organizational commitments regarding housing and costs associated with instrument maintenance and operations.)

(Review Criteria: Whether the management plan demonstrates sufficient commitment and technical expertise for effective scheduling and usage of the instrument. The organization's commitment to ensuring successful operations and maintenance over the expected lifetime of the instrument.

f. Intellectual Merit (*My suggestion, 1 paragraph*)

- Summarize the new knowledge that is expected to be enabled by this instrument and how it will push disciplines forward (and/or answer important questions).



General MRI Project Description Outline (Development) – 15 pages

(Be sure to check solicitation for full instructions)

a1. Instrument Location and Type

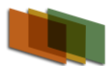
- Instrument Location (fill in the blank)
- Concise description of instrument being acquired (1 separate line)

a2. Justification for submission as a Development proposal - (*Suggested length, 1 page*)

- Describe how the end result will be a stable, shared-use instrument rather than technology development
- Describe the new capabilities this instrument will have that are not currently available from an instrument provided by a vendor
- Describe how the instrument development will require and benefit from the diverse skills of your team
- Briefly describe potential risks in achieving the required specifications and the need for a mitigation plan
- Address any other criteria (described in bullets as questions in the solicitation) that apply (*Review Criterion: The appropriateness of submission as a development proposal.*)

b. Research Activities to be Enabled (*Suggested length, ~4 pages*)

- Overview of project (*My suggestion*)
 - Instrument to be developed, enhanced capabilities and exciting research these will enable, general approach, team that will accomplish this – Note: at high funding levels, the scientific impact has be very strong and exciting; **this is where we get the reviewers excited!** (~ 2 paragraphs)
 - Note: the solicitation does not require this, but I think it's important to lay the groundwork before going into detail, and we can sneak this overview in here.
- Intellectual Merit (this must be separately labeled but is a continuation of your argument above – what is the new knowledge that will be enabled by this instrument?)
- Table of potential users with columns something like: Name/Research Topic/# Senior Personnel/# Postdocs/# Grad students/ # Undergrads
- Major users of instrument and descriptions of their research and what new/improved research the instrument will enable. Each major user should contribute a narrative (*less than 3/4 page each*) following the general format:
 - **Section Heading:** Topic or title of research, Name of researcher, Department and Institution, Agency/ies from which they have received funding for this topic
 - Description of the research and why it is significant/exciting/of interest to NSF (even if it's not currently funded by NSF) – include here the details of the funding described in the heading (funding agency, title of project, \$ amount, funding period) – good also to cite publications coming out of this research. {Note: there is very little room for background/SOA/problem statement, so this should be very concise and kept to the minimum required for reviewers to understand the research.}
 - Description of what they can't do now that they could do if they had access to the proposed instrument with its new capabilities (this can be scientific and can also be logistical but I'd recommend emphasizing new science that's enabled). Note: this part is critical and needs to be concise and easy for the reviewers to find.
 - Description (in concise sentence or two) of what the impact of this new/improved research will be.
 - Results of Prior NSF Support



- Include this if the PI or any of the co-PIs participated as PI or co-PIs in NSF MRI awards within the last 5 years. If the above doesn't apply, report on Results from Prior NSF Support per [PAPPG guidelines](#)

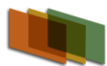
c. Description of the Research Instrumentation and Needs (NSF suggests up to 5 pages, but it may make sense to make this shorter and use the extra space in Section e if you anticipate a complex development project)

Overview paragraph giving and overview of the general design concept and development strategy, steps to be accomplished and expertise available to make this work (a flow chart might be appropriate here)

- Rationale for the new instrument and design concept and why it is needed ([Review criteria: The need for development of a new instrument. Will the proposed instrument enable enhanced performance over existing instruments, or new types of measurement or information gathering? Is there a strong need for the new instrument in the larger user community?](#))
 - Limitations of currently available systems (imaging results from one of these systems demonstrating limitations might be appropriate here)
 - What is your new approach, challenges that will be addressed or questions that must be answered in order to develop the new system, and why do you think it will work?
 - Detailed description of expected capabilities of the new system with justification (calculations, etc.)
 - Preliminary results if available
- Likely availability of new instrument for shared use after award period
 - How functional will the instrument be at the end of the award period?
 - Do the logistics make it practical for shared use?
 - What will the cost of the new technology be? ([Review Criterion: The appropriateness of the cost of the new technology.](#))

d. Broader Impacts including Impact on Research and Training Infrastructure – NSF suggests up to 2 pages.

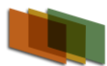
- How the instrument will attract researchers and improve the institution's ability to do leading-edge research
- Potential impact of the instrument on the research community of interest at the regional or national level (**Note: this is required for grants over \$1 million**)
- How instrument will improve the quality of student education, research and training
 - ⇒ **Note:** This section needs to have details in order to be effective: don't just say undergrads will be involved; say how many, what they will do, etc. Similarly, don't just say results will be incorporated into the curriculum; say what results, which classes, what level, how many students are in those classes, etc.
 - Discuss impact on students working directly on instrument development, operations, etc. (connect to any funding requested for student support if applicable), and how it will prepare them to be the next generation of instrumentalists (focus on skills they will learn here) ([Review Criterion: If direct support for student involvement in development efforts is requested, reviewers will be asked to evaluate the involvement in terms of both project needs and training the next generation of instrumentalists.](#))
 - Impact of availability of the instrument on education and research experiences of students (this should include undergrads as well as graduate students)
 - Will students use instrument as part of their research?
 - Will results obtained using the instrument be incorporated into the curriculum in some way?
 - Discuss outreach/diversity activities that will be undertaken and/or enhanced by the availability of the instrument **Note:** You need a strong argument about enhancing diversity (involvement of women, minorities, persons with disabilities in STEM) – don't just blow this off!



- Any collaborations with Minority Serving Institution or Predominantly Undergrad Institution faculty and students? Note: if you have ongoing collaborations with faculty at MSIs or PUIs, you could leverage those.
- Could this instrument or its results be used in any ongoing REUs?
- Are there any K-12 outreach programs that might collaborate with you in some way to showcase the instrument or results (e.g., SWE's summer camps for girls or other STEM outreach activities)?

e. Management Plan – NSF suggests 5 pages for instrument development proposals

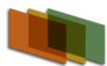
- Project plan organized by tasks, e.g., as follows
 - Task 1: Name of task and person(s) who will lead task
 - Objective of task and expertise need to accomplish the tasks ([Review Criterion: The availability of appropriate technical expertise to design and construct the instrument.](#))
 - Detailed description of how task will be accomplished
 - Description of parts and materials
 - Estimated deliverables, associated timelines and anticipated costs
 - Any expected challenges, risks and how they will be addressed
 - Task 2, etc. as above
 - A discussion of risks and potential methods for mitigating the risks and for re-analyzing and modifying the project plan to keep it within scope, schedule and budget
 - Schedule and milestone chart (maybe Gantt or similar) ([Review criterion: Does the plan have a realistic, detailed schedule? Are mechanisms in place to deal with potential risks?](#))
- The organization of the project staff and methods of assessing performance
 - For each member of the team, include a description of the responsibilities and explain why a given position is necessary for the completion of the design and construction of the new equipment (Note: I think the intention here is to make sure that faculty are not just put on this when they aren't really doing the work of designing and building the instrument.)
- Plans for making the instrument design readily available to other researchers
- Plans for long-term operations and maintenance of the instrument
 - Who will manage the system? (Maybe a committee?)
 - How will expenses be covered? (refer to letter documenting TAMU's commitment to funding operations and maintenance)
 - How will you decide how to allocate time on the instrument?
 - How will you attract and support new users?
 - Information on anticipated usage and downtime if appropriate



NSF Major Research Instrumentation Checklist

Here are a few things you'll want to double check as work on your proposals.

- ☐ **Are you following the rules of the current [PAPPG](#)?**
- ☐ **Are you following the definitions for “tracks”?** For many years, MRI tracks were defined based on whether you were proposing to acquire or develop an instrument. While that distinction still exists, restrictions on the number of submissions from an organization are now based on the dollar amount **not** whether you're submitting a development or acquisition proposal. See the [solicitation](#) for details.
- ☐ **Are you following the Project Description section page-length guidelines provided by NSF in the solicitation?** In the MRI solicitation, NSF suggests page lengths for most of the sections (with suggested lengths differing depending on whether it's an acquisition or development proposal). These page lengths are voluntary, and you may have a legitimate reason not to follow them based on your specific situation, but remember that the page lengths are a strong indicator of how much detail reviewers will be looking for in each section. If your section lengths vary significantly from those suggested by NSF, you should consider whether you are addressing what the solicitation is asking for in each section.
- ☐ **If you're proposing a development MRI, have you made a convincing argument that your project is, indeed, development?** Sometimes it's obvious that a project fits into the “development” category, but other times it can be a bit unclear (for example, when you are buying off-the-shelf items and assembling them). See the list of questions in the solicitation under “a2” and discuss all of the criteria that apply in this section of your proposal. Remember that if you don't convince NSF that your proposal is, indeed, a development proposal, you will have lost the battle for funding before the reviewers read the rest of the proposal.
- ☐ In your Research Activities to be Enabled section, are you including **information about the personnel who will benefit** from the instrumentation by type (faculty, postdocs, grad students, undergrads), by number, and by research area?
- ☐ Are you including **information on the funding** for specific projects or users that will benefit from the instrument?
- ☐ In the descriptions of research that will benefit from the instrument, does the researcher **state explicitly what will be enabled or how the research will be improved** in comparison to what is possible now, rather than just describing research that uses the particular type of instrument that you plan to buy or develop?
- ☐ Did you include **Results of Prior NSF Support** in the Research Activities to be Enabled Section? Did the PI and co-PIs who have had NSF support discuss the results as required in the [PAPPG](#), focusing on previous MRIs if applicable, and on other NSF projects if not applicable (note that each PI/co-PI is only required to talk about one NSF-funded project)?
- ☐ In your Description of Research Instrument Needs section, if you are proposing to acquire an instrument, have you specified **a vendor and model number** as well as any additional attachments or options? Do you have a quote from the vendor that reflects these specifications exactly?
- ☐ Are the **capacities of the instrument you are asking for clearly justified by the projects** you describe in your Research Activities to be Enabled, especially if a cheaper version of the instrument (or a version without certain options or attachments) is available? Expect reviewers to scrutinize options and attachments, so be extra careful about justifying them in terms of the projects that will use the instrument.
- ☐ In the **Broader Impacts** section, do you propose activities that will enhance undergraduate education, allow sharing outside your institution (if possible) and broaden participation in science and engineering? If your proposal requests more than \$1.4M, do you have a well-thought-out plan for sharing your instrument at the regional or national level, and for recruiting users from, for example,

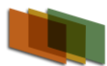


PUIs or MSIs? Lip service is not enough (including just putting up a website saying you will share the instrument); you need to have a clear process and proactive plan.

- ☐ If you're proposing to develop a new instrument, do you have a **clear and detailed work plan** that describes who will do what when, the expertise of the team members, and risks and mitigation strategies?
- ☐ If you're proposing to acquire an instrument, does your **management plan** state clearly the procedures for allocating time on the instrument, approving users from outside your institution, assessing user fees to cover consumables and maintenance (if applicable), and who will run the instrument? If your instrument will go into an existing core facility, this is relatively easy, but if not, be careful to provide enough detail to reassure reviewers that you will have the processes in place to ensure the instrument will be properly maintained, used and shared.
- ☐ If you're proposing an instrument development project, are you including plans to **disseminate the new design** to other researchers or commercially? Remember that the impact of the instrument development usually comes from making the new instrument design available to the research community, not just using it at your institution.
- ☐ In the **budget justification**, did you fill out the required cost share table provided in the solicitation? Give yourself plenty of time to do this and work with your pre-award staff to get this done.
- ☐ Did you get the required **institutional letters**, including a letter that 1) documents the performing institution's commitment to ensuring successful operations and maintenance over the expected lifetime of the instrument, 2) lists the **MRI awards made to the organization—regardless of whether the PI or co-PIs were involved**—with a start date in the previous five calendar years and briefly describe the status of the instrumentation obtained from each award?
- ☐ Did you get letters from individuals who will use the instrument, and do these letters **follow the form specified in the solicitation** without any changes or additions beyond filling in the blanks?
- ☐ Did you go through **the checklist in the solicitation** to make sure you remembers all required components?

Other Resources

[NSF MRI presentation](#)



Seven Newly Posted DOE/SC Workforce FOAs

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By Mike Cronan, PE, co-publisher

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The seven Funding Opportunity Announcements (FOA) addressed below were issued by DOE's Office of Science (SC) **January 9**. These seven FOAs are very closely related **but they are not the same**. They differ by due dates, required pre-application, narrative organization and page length, etc. Moreover, each is described in a FOA **specific** to program. It is important to make sure you are addressing the **correct FOA specific to your program of interest**. To avoid confusion go to the **"Related Documents"** tab for each FOA. **All seven programs share a common preamble but all seven project descriptions under that common preamble are different**. These are listed below along with the required page limit and organizational structure of each of the seven FOAs.

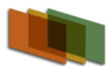
The common preamble: "Reaching a New Energy Sciences Workforce (**RENEW**) aims to build foundations for Office of Science (SC) research and training at institutions historically underrepresented in the SC research portfolio. **RENEW leverages SC's unique national laboratories, user facilities, and other research infrastructures to provide undergraduate and graduate training opportunities for students and academic institutions not currently well represented in the U.S. science and technology (S&T) ecosystem**. The hands-on experiences gained through RENEW will open new career avenues for participants, forming a nucleus for a future pool of talented young scientists, engineers, and technicians with the critical skills and expertise needed for the full breadth of SC research activities. Principal Investigators, key personnel, and students and postdocs of RENEW awards will be invited to participate in ASCR researcher meetings and/or SC-wide professional development and collaborator events.

Advanced Scientific Computing Research - Reaching a New Energy Sciences Workforce (ASCR-RENEW) DE-FOA-0002942

The goal of ASCR's RENEW program is to increase participation of underrepresented groups in the advanced scientific computing workforce and to increase participation of underrepresented institutions in advanced scientific computing workforce training. ASCR announces its interest in receiving applications for collaborative projects to enhance training opportunities for students and postdoctoral researchers from underrepresented groups and at institutions that are currently underrepresented in the ASCR portfolio[1] such as non-R1[2] institutions of higher education and minority serving institutions[3], including Historically Black Colleges and Universities. Submission Deadline for **Pre-Applications: February 21, 2023 (A Pre-Application is required); Closing Date for Applications: April 18, 2023**

The following organization of the **10-page** Project Narrative is suggested:

Background/Introduction: Explanation of the importance and relevance of the proposed work as well as a review of the relevant literature; **Project Objectives:** This section should provide a clear, concise statement of the specific objectives/aims of the proposed project; **Proposed Methods and Activities:** Please describe your proposed opportunities for students and postdoctoral researchers (if any), including the number of participants, the activities they will be engaged in, the specific work to be carried out by the participants and how it advances the project and helps to build a diverse, equitable, and inclusive research community. Please indicate the frequency of meetings and interactions, and the



goals and objectives for the participants Collaboration and Mentorship Plan: Please describe the skills that participants will acquire and what opportunities they will have for networking and professional development. Please include a mentoring plan for students and postdoctoral researchers and describe how responsibilities will be shared among collaborators at different institutions. Your narrative should demonstrate an awareness of the challenges to reaching project goals and specify how those challenges will be mitigated. What resources will be provided by your departments, institutions, or other agencies to support these efforts? How will these resources be coordinated?

BER - Reaching a New Energy Sciences Workforce (BER-RENEW) Department of Energy - Office of Science DE-FOA-0002929

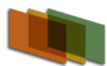
The DOE SC program in BER hereby announces its interest in receiving applications for RENEW grants that will target student experiential training and building capacity in BER-relevant programs at non-R1 Minority-Serving Institutions (MSIs)[1], including Historically Black Colleges and Universities (HBCUs). Funding may be requested to support experiential training and mentoring activities in partnership with DOE National Laboratories conducting BER-relevant science and/or with one or more of BER's research efforts at the DOE National Laboratories and/or the Bioenergy Research Centers (BRCs). BER has a goal to broaden and diversify institutional representation in its research portfolio. BER recognizes there are many academic scientists at institutions not currently supported by BER who have limited familiarity with BER programs and research support; BER further recognizes that such barriers to engagement in research and student training can be surmounted by fostering partnerships and collaborations, particularly with BER-supported long-term research activities, and supporting institutional capacity building activities. To help provide technical assistance for student experiential training and advance the goal of broadening institutional participation, this funding opportunity announcement (FOA) will provide funding for institutions to: 1) develop biological and environmental science training capacity and research at non-R1 MSIs; and 2) foster sustained undergraduate and graduate student training and participation in BER-relevant research through new collaborations. **Submission Deadline for Pre-Applications: February 21, 2023 at 5:00 pm ET. A Pre-Application is required. Submission Deadline for Applications: April 25, 2023**

The following organization of the **10 page** Project Narrative is suggested:

Background/Introduction: Explanation of the importance and relevance of the proposed work as well as a review of the relevant literature, if applicable; **Project Objectives:** This section should provide a clear, concise statement of the specific objectives/aims of the proposed project; **Proposed Research and Methods:** Describe the methods and resources to be used to achieve the project objectives, including description of the incorporation of experiential training and mentoring of undergraduate and/or graduate students; **Project Effectiveness:** Describe how the effectiveness of the training activities will be formatively evaluated and, if necessary, the project approach modified in order to maximize impactful training outcomes of the project and benefits to the student participants; **Timetable of Activities:** Timeline for all major activities including milestones and deliverables; **Team Management and Responsibilities:** Description of the roles and responsibilities of all research team members (funded and unfunded) and plans for communication and coordination among team members

Fusion Energy Science - Reaching A New Energy Sciences Workforce (FES-RENEW) Department of Energy - Office of Science DE-FOA-0002937

The goal of the FES-RENEW program is to increase participation of underrepresented groups in FES's fusion and plasma science and technology research portfolio. FES is fully committed to advancing a diverse, equitable, and inclusive research community, which is key to providing the



scientific and technical expertise for U.S. scientific leadership. Critical to this initiative are institutional efforts for recruiting diverse participation and creating and maintaining positive, inclusive, and professional research and learning environments, including but not limited to providing mentoring and professional development resources to students and early career researchers and fostering a sense of belonging among all research personnel. **Submission Deadline for Pre-Applications: February 20, 2023 at 5pm ET. A Pre-Application is required. Submission Deadline for Applications: April 10, 2023.**

The following organization of the **12 page** Project Narrative is suggested:

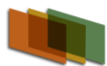
Project Objectives: This section should provide a clear, concise statement of the specific objectives/aims of the student program and the proposed research that the students will be performing; **Background/Introduction:** Explanation of the importance and relevance of the proposed research as well as a review of the relevant literature. This section should briefly sketch the background leading to the application, including any preliminary studies that are relevant, critically evaluate existing knowledge, and specifically identify the scientific knowledge gaps that the proposed research is intended to fill. Institutional experience in developing student programs and other relevant activities should be mentioned (and described in more detail in the Recruitment and Inclusion section below). This section should also explain the importance of the proposed research described in the application and its potential scientific impact, as well as the impact of the proposed student programs. **Proposed Research and Methods:** Identify the hypotheses to be tested (if any) and details of the methods to be used, including the integration of experiments with theoretical and computational research efforts if relevant. Please describe your proposed opportunities for students, postdoctoral researchers, and faculty to plan and conduct research with partnering institutions including the number of participants, the research topics they will be engaged in, the specific work to be carried out by the participants, and how it advances the research topic and helps to build a diverse, equitable, and inclusive research community. Please indicate the frequency of meetings and interactions, and the goals and objectives for the participants.

Nuclear Physics - Reaching A New Energy Sciences Workforce (NP-RENEW) Department of Energy - Office of Science DE-FOA-0002939

The NP program hereby announces its interest in receiving applications for the RENEW initiative. **In FY 2021, NP initiated a Traineeship program aimed at reducing barriers to broader workforce diversity, with emphasis on proposals that leveraged potential workforce** at Minority Serving Institutions (MSIs) and Historically Black Colleges and Universities (HBCUs). This FOA will continue to include traineeships, which come with financial support and stipends for the trainees. Previous traineeships have offered networking opportunities and mentoring support to foster a strong sense of science identity among participants and expand awareness of career opportunities. **Submission Deadline for Pre-Applications: February 20, 2023. A Pre-Application is optional/encouraged. Submission Deadline for Applications: April 17, 2023.**

The following organization of the **15 page** Project Narrative is suggested:

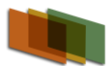
Background/Introduction: Explanation of the importance and relevance of the proposed work as well as a review of the relevant literature. Please provide a brief introduction to the experience of the primary participants relevant to the topics within the application. This can include research activities, relevant accomplishments of the major participants, the methods used, and the setting within which the work will be carried out. Identify specific capabilities and characteristics that support the goals of this program; **Progress Report (for Renewal Applications Only):** The Project Narrative of a renewal application must include a separate section that includes a description of results of the work



accomplished during the current project period (since the last new or renewal award), an analysis of how the results relate to the activities proposed to be undertaken during the renewal period, and a description of any changes that affected the overall direction of the research being performed. Please include tracking information with the current status of current and past trainees and an overall summary of the satisfaction of the trainees with the program including negative and positive outcomes. Include an estimate of any remaining funds from the current project period at its anticipated end; **Project Objectives, Proposed Research and Methods:** This section should provide a clear, concise statement of the specific objectives/aims of the proposed project. **This should be the bulk of your narrative.** For applications requesting support for traineeships, please describe your proposed program of workforce development including the number of participants, the NP research topics you will be engaged in, the specific work to be carried out by the participants and how it advances the research topic, frequency of meetings and interactions among participants, and the goals and objectives for the participants. Include a description of the skills that participants will acquire and what opportunities they will have for networking and professional development. Please **describe** how responsibilities will be shared among participants or with external collaborators. **Describe** any further strategies that will be employed to ensure participants develop a sense of belonging within the community and begin to internally identify themselves as members or potential future members of the nuclear physics community. For renewal applications, please describe how lessons learned from the current award period have been accounted for in the proposed activities. For applications that include requests for funding of research time for postdocs, please **describe** the research goals for the postdoc and how the career development of the postdoc will be supported while participating in the program. A plan must be provided for the mentorship of the postdoc. Please **describe** how responsibilities will be shared among participants and/or external collaborators. o For applications requesting support for an expansion of research at MSIs, either through a faculty expansion or a joint endeavor with faculty exchanges, please include a more extensive description of the activities and methods and how they will complement and enhance the research capacity of the participating MSI while supporting the mission of NP. Please **describe** how responsibilities will be shared among participants or with external collaborators. The proposal should **describe** how local and external resources will be combined with the proposed funding to create a long-term, sustainable, positive impact on the research capabilities of the MSI. **Describe** what if any opportunities the participants will have for community engagement or retention including any activities aimed at increasing the awareness within under-represented communities of nuclear physics as a field as well as career opportunities within nuclear physics. Your narrative should **demonstrate** an awareness of the challenges to reaching these goals and specify how those challenges will be mitigated. What resources will be provided by your departments, institutions, or other agencies to support these efforts? How will these resources be coordinated? Include a **description** of how activities will be coordinated and tracked and how the success of the program will be evaluated.

Isotope R&D And Production- Reaching A New Energy Sciences Workforce (DOE IP-RENEW)
Department of Energy - Office of Science DE-FOA-0002928

As a part of the RENEW initiative, DOE IP hereby announces its interest in receiving applications from Minority Serving Institutions (MSIs) seeking to participate in a training, research, and development program related to the mission space of DOE IP. Successful applications will incorporate isotope science and technology relevant coursework for undergraduate and/or graduate students, as well as research and/or isotope production experiences at DOE IP supported isotope production sites to expose students to potential career paths and foster the development and training of the next generation of workforce in isotope related science. Awards are envisioned to be led by an MSI and include a minimum of one DOE IP isotope production site as a subaward recipient, acting as a resource in training, research, and development efforts. Successful applicants will **describe** activities



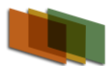
including student recruitment, development of collaborative networks in support of trainee experiences, organization of virtual and/or in-person workshops and meetings for trainees and mentors, establishing peer support groups for students, training for mentors, and trainee career advancement assistance. **Submission Deadline for Pre-Applications: February 21, 2023. A Pre-Application is required. Submission Deadline for Applications: March 31, 2023.**

The following organization of the **25 page** Project Narrative is suggested:

Background/Introduction: Please provide a brief introduction to previous, current and ongoing isotope science related research, accomplishments of your institution and proposed collaborators, the methods used, the setting within which this research is carried out, and the opportunities available for students. Please include a description of any relevant past experiences in workforce development, mentoring of students, and/or involvement of undergraduate and/or graduate students in isotope related research and/or production. Identify specific capabilities and characteristics that support the goals of this FOA; **DOE IP RENEW Framework:** Identify the collaborating institutions within this effort, particularly the minimum of one DOE IP production and processing site, and any additional MSIs (including the lead institution). Identify which institutions will provide the diverse pool of candidates for the traineeship, anticipated number of participants, and availability of relevant coursework. **Describe** your plans for recruiting undergraduate and/or graduate students and provide in Appendix 8 as described below. Provide examples of relevant coursework and other relevant opportunities that will be provided by the degree-granting institution. Identify which DOE IP site(s) will provide exposure to a breadth of activities in isotope production and processing. **Describe** opportunities that DOE IP sites will provide to trainees to expose them to a breadth of isotope production and processing activities. **Describe** opportunities that will be provided for students at different sites to converse and engage with one another. **Describe** what each institution contributes to the collaboration. What resources will be provided by your department or institution, to support these efforts? How will these resources be coordinated? What is the plan for distribution of funds from this solicitation to collaborating institutions and for what activities?; **Proposed DOE IP RENEW Program:** This section should be the bulk of your narrative. Please **describe** your proposed program of research including the DOE IP-related research they will be engaged in, and the goals and objectives for the participants. Include a description of the skills that participants will acquire and what opportunities they will have for networking and professional development. Explain how such personnel will be trained in the conduct of research and mentored. Please **describe** any training or professional development in being a mentor that will be offered along with the responsibilities of mentors, and how those will be shared with co-mentors, if applicable; include of a discussion of frequency of meetings and interactions. Finally, please include a discussion of the credible metrics by which you will gauge programmatic success and make any necessary mid-effort adjustments.

Basic Energy Sciences - Reaching a New Energy Sciences Workforce (BES-RENEW)
Department of Energy - Office of Science DE-FOA-0002953

The goal of the Basic Energy Sciences (BES) RENEW program is to increase participation of groups underrepresented in BES's research portfolio. BES is fully committed to advancing a diverse, equitable, and inclusive research community, which is key to providing the scientific and technical expertise for U.S. scientific leadership. This program will provide training and research opportunities for students, postdoctoral researchers, and faculty from non-R1 [1] minority serving institutions (MSIs) [2], including Historically Black Colleges and Universities (HBCUs), currently underrepresented in the BES portfolio [3]. Using the current data available, a list of eligible institutions is provided at <https://science.osti.gov/grants/Applicant-and-Awardee-Resources/Institution-Designations>. The hands-on experiences gained through research internships at BES's world-unique national laboratories and user facilities, or at R1 partner MSIs, can open new career avenues for the

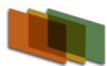


participants through enhancement of the critical skills and expertise needed for the full breadth of BES research activities. **Submission Deadline for Pre-Applications: February 21, 2023. A Pre-Application is required. Pre-Application Response Date: March 24, 2023.**

The following organization of the **15 page** Project Narrative is suggested: **Background/Introduction:** Explanation of the importance and relevance of the proposed work as well as a review of the relevant literature. This section should briefly sketch the background leading to the application, including the impact of the proposed research internships on Promoting an Inclusive and Equitable Research (PIER) environment at the participating institutions. It should discuss any preliminary studies that are relevant, critically evaluate existing knowledge, and specifically identify the scientific knowledge gaps that the proposed research is intended to fill. Institutional experience in mentoring programs and other relevant activities should be mentioned in the PIER plan (see Appendix 5) and described in more detail in the Implementation of the PIER Plan section below; **Project Objectives:** This section should provide a clear, concise statement of the specific scientific, internship, mentoring, and inclusion objectives of the proposed project; **Implementation of the PIER plan:** The primary focus of the RENEW program is to provide hands-on training for individuals and institutions not currently well-represented in the U.S. science and technology ecosystem via research internships at national laboratories and user 21 facilities or at R1 partner MSIs. While the PIER plan (see appendix 5) describes activities and strategies to promote equity and inclusion, this section should elaborate **how** they are integrated and implemented in your proposed research. The implementation of the PIER plan should discuss **how** your team: - **plans** to recruit and retain students and postdoctoral researchers including individuals from diverse backgrounds and groups historically underrepresented in BES research, - **helps** to establish a positive, inclusive, and professional training and research environment, - **fosters** a sense of belonging among all team members, - **addresses** barriers to participation by individuals from historically underrepresented groups, and - offers mentoring and professional development opportunities to all team members. Applicants are encouraged to discuss the PIER plan implementation throughout the application; **Proposed Research and Methods:** Identify the scientific hypotheses to be tested (if any) and details of methods to be used including the integration of experiments with theoretical and computational research efforts if relevant. **Please describe:** - Opportunities for students, postdoctoral researchers, and faculty to plan and conduct research at the lead institution, as well as partner institutions, noting the research topics and the number of participants. - The work to be carried out by the participants, and the skills participants will acquire. - **How** training and mentoring responsibilities will be shared among all team members, including those at the partner institutions. Please indicate the frequency of meetings and interactions. - Additional strategies to ensure participants internally identify themselves as valuable members of your research team, the BES community, and the entire scientific community.

Reaching a New Energy Sciences Workforce for High Energy Physics (RENEW-HEP) **Department of Energy - Office of Science DE-FOA-0002949**

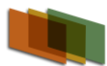
Reaching a New Energy Sciences Workforce (RENEW) aims to build foundations for Office of Science (SC) research and training at institutions historically underrepresented in the SC research portfolio. RENEW leverages SC's unique national laboratories, user facilities, and other research infrastructures to provide undergraduate and graduate training opportunities for students and academic institutions not currently well represented in the U.S. science and technology (S&T) ecosystem. The hands-on experiences gained through RENEW will open new career avenues for participants, forming a nucleus for a future pool of talented young scientists, engineers, and technicians with the critical skills and expertise needed for the full breadth of SC research activities. Principal Investigators (PIs), key personnel, and students and postdoctoral researchers supported by RENEW awards will be invited to participate in HEP researcher meetings and/or SC-wide professional development and collaborator



events. **Submission Deadline for Letters of Intent: February 21, 2023. A Letter of Intent is optional/encouraged. Submission Deadline for Applications: March 31, 2023**

The project narrative must not exceed a page limit of **15 pages organized as:**

Background/Introduction: Please provide a brief introduction to your research, the accomplishments of your group, the methods used, the setting within which this research is carried out, and the opportunities available for trainees within your group. Please include a description of any relevant past experiences in workforce development, mentoring of students, and/or involvement of undergraduates in particle physics research. Identify specific capabilities and characteristics that support the goals of this program; **Proposed Research Traineeships:** This should be the bulk of your narrative. Please **describe** your proposed program of research traineeships including the number of participants, the particle physics research or support topics they will be engaged in, the specific work to be carried out by the participants and how it advances the research topic, frequency of meetings and interactions, and the goals and objectives for the participants. Practical, active, hands-on research participation are most favored. Research experiences that include such opportunities at DOE national laboratories are encouraged. Include a description of the skills that participants will acquire and what opportunities they will have for networking and professional development. Please **describe** how responsibilities will be shared with co-mentors if applicable. Also **describe** any further strategies that will be employed to ensure participants develop a sense of belonging within the community and begin to internally identify themselves as members or potential future members of the particle physics community. Your narrative should demonstrate an awareness of the challenges to reaching these goals and also specify how those challenges will be mitigated. What resources will be provided by your departments, institutions, or other agencies to support these efforts? How will these resources be coordinated? ; **Infrastructure Applications:** Please provide a detailed description of the plan to build and/or develop research infrastructure at the institution(s). Include a description of how activities will be coordinated and tracked and how the success of the program will be evaluated. **Describe** planned strategies to involve the institution(s) into the HEP research portfolio and if partnering, **describe** how an institution not in currently in HEP will be impacted from the partnership with an institution that currently is. Please specify what local resources and/or external resources will be used to further develop the institutions research capabilities



The First Response to a BAA Is Often a White Paper

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By Mike Cronan, PE, co-publisher

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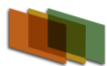
A search of Grants.gov on keyword “BAA” will generate a list of 67 currently open Broad Agency Announcements (BAA) with closing dates over the next five years. BAAs are issued with closing dates and then often reissued. During the open period, BAAs are often modified to meet the funding agency’s evolving research priorities. The path to funding under the BAA mechanism most often begins with a white paper. While some BAAs may state “*white paper recommended but not mandatory*,” it would clearly be a fool’s errand requiring significant obtuseness to parse that choice. ***If you are responding to a BAA, prepare to write a white paper and don’t waste time pondering whether you should or shouldn’t.***

Fortunately, if you’ve seen one white paper, you have, in a sense, seen them all. ***The organizational format and core questions that need to be addressed are largely generic, regardless of funding agency or research.*** So it is fairly easy to get a mental template of what a white paper should look like by looking through a few BAAs and noting the Content and Form of Application Submission Guidelines specific to a white paper.

For example, two BAAs recently posted to Grants.gov will illustrate: FY23 Department of Navy (DON) Science, Technology, Engineering & Mathematics (STEM), [Education and Workforce Program](#) administered by the Office of Naval Research (ONR) and the DEVCOM Analysis Center [Broad Agency Announcement](#) For Applied Research Department of Defense Dept of the Army -- Materiel Command, as noted in below abbreviations. Reading through the below bulleted points and concluding observations on white papers largely encompasses the important points to keep in mind when writing a white paper to any agency.

ONR STEM [EDUCATION AND WORKFORCE PROGRAM](#)

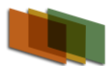
- Prospective awardees **MUST begin by submitting a white paper using FedConnect.**
- Based on assessment of the white paper, applicants will either be **invited or not invited** to submit a grant application.
- Proposals submitted without an invitation will **not be reviewed and subsequently will be rejected.**
- This BAA seeks only applications that are **relevant and responsive** to the Funding Opportunity Description in Section II. A.
- White papers that fail to address the areas listed in the Funding Opportunity Description will be **rejected and not considered further.**
- Include program titles at the start of the **white paper as part of the 4- Page Document.**
- **Technical Approach and Justification (1.5-Page Maximum):** A description of the proposed effort.



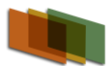
- The project **idea, technical rationale, and approach** must **identify a problem(s)**, arguments to substantiate claims made, and proposed approach to address the issue.
- The **applicant's capacity** must be discussed as it relates to achieving success in the project. The project **must address the FOA description** stated in Section II.A, including proposed DEI efforts.
- **Future Naval Relevance (0.5 Page Maximum)**-A description of potential Naval relevance and contributions of the effort to the **agency's specific mission**.
- **Naval Partnerships (0.5 Page Maximum)** – Applicants should briefly describe how they plan to go about identifying and arranging partnerships with NSSOs as well as provide a table identifying any potential Naval partners, including the organization, name, contact information (email and phone number) and role in program where applicable.
- **Management Approach (0.5 Page Maximum)** – Provide a description of the management approach to carry out the program successfully.
- **Metrics of Evaluation (0.5 Page Maximum)** – A description of a set of program-specific **measures of performance and measures of effectiveness** appropriate to the goals of the project.
- **Rough Order of Magnitude (0.5 Page Maximum)** - White Paper submissions shall include a table of rough order of magnitude cost showing requested funding per year, total cost, and suggested spending priorities to satisfy Section II.
- Submissions: ONR utilizes FedConnect for the submission of white papers. To access FedConnect, go to <https://www.fedconnect.net/FedConnect/default.htm> .

DEVCOM ANALYSIS CENTER **BROAD AGENCY ANNOUNCEMENT**

- Whitepapers for initial concept reviews and full proposals are sought from **institutions of higher education**, nonprofit organizations, state and local governments, foreign organizations, foreign public entities, and for-profit organizations (i.e., large and small businesses) for scientific research that supports the DAC mission.
- The DAC BAA generally conforms to the **portfolio structured around research area-based mission execution**.
- Whitepapers and full proposals are expected to be for **cutting-edge innovative research that could produce discoveries with a significant impact to enable new and improved** Army technologies and related operational capabilities and related technologies.
- DAC has published the following public website listing **all current DAC research topics**: <https://www.army.mil/article/261533> .
- Upon receipt, a whitepaper will be reviewed by the DAC TPOC (**Technical Point of Contact**) and a recommendation will be provided to the applicant with **either “encouraged to submit a proposal” or “not encouraged to submit a proposal”** based on the review and availability of funding.



- Submit a Whitepaper to a DAC TPOC for review.
- Interested applicants are **strongly encouraged to make a preliminary inquiry** by first contacting the DAC TPOC (Technical Point of Contact) to discuss your ideas and the interests of DAC.
- DAC TPOCs are available to discuss the general need for the type of research effort contemplated and availability of funding before an interested applicant expends extensive effort in preparing a whitepaper or full proposal.
- The TPOC names, telephone numbers, and email addresses are listed with each research topic at the DAC BAA topics website, <https://www.army.mil/article/261533>.
- **PURPOSE OF WHITEPAPERS:** Prospective proposers are **strongly encouraged** to submit whitepapers prior to the submission of a complete, more detailed proposal. The purpose of whitepapers is to minimize the labor and cost associated with the production of detailed proposals that have very little chance of being selected for funding.
- Whitepapers are not full proposals and are meant to provide the DAC TPOC with enough information to determine if there is interest on the part of DAC to receive a full proposal.
- **WHITEPAPER CONTENT:** Whitepapers do not have a prescribed format but are not expected to exceed **five (5) total pages** and are encouraged to be submitted as a single portable document format (PDF) document.
- The whitepaper should include at a minimum the title of the whitepaper, name of the individual and organization submitting the whitepaper, the research topic name, topic identification (ID) number, and the TPOC name against which the whitepaper is submitted.
- Whitepapers should focus on describing the **objective and approach of the proposed research, including how it is innovative, and how it could substantially increase the scientific state of the art.**
- Whitepapers should contain a brief cost estimate to understand a rough order of magnitude of the proposal cost, and any biographical information to highlight applicant's qualifications and experience.
- **SUBMISSION OF WHITEPAPERS:** Whitepapers should be **submitted via email** to the TPOC identified in the topic proposed against. Whitepapers submitted via email are encouraged to be submitted as a **single PDF file** as an email attachment. If no TPOC is specifically listed, prospective applicants can submit information and questions via email to: DACBAA@army.mil for advice and assistance before preparing and submitting a whitepaper. In the email subject line, include the phrase "**BAA Whitepaper Submission**," and the research topic name and topic ID number listed at the website.
- **REVIEW OF WHITEPAPERS:** DAC TPOCs will receive and consider all whitepapers submitted and will provide a response with either "encouraged to submit a proposal" or "not encouraged to submit a proposal".



- Full Proposal Preparation and Submission--Proposals must be submitted in order for the applicant to be considered for funding. **Applicants are strongly encouraged to submit whitepapers.**

OBSERVATIONS ON WHITE PAPERS

One purpose of a white paper is to preclude unwarranted effort on the part of an applicant whose proposed work is not of interest to the agency, and to preclude an unwarranted effort by the agency in setting up a review process for a proposal that does not fit its **mission priorities**. ***On this point, keep in mind that a white paper that receives an expression of non-interest from an agency does not necessarily mean the research idea itself does not merit funding, but that the research idea does not fit the agency's research or program area current priorities.*** As a consequence, it's warranted to submit the white paper to another agency or program that may be a better fit.

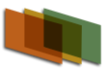
Writing a compelling white paper of a few or several pages ***requires significant writing, organizational, and editing skills to get it right.*** Mark Twain understood this when he began his correspondence to a friend by stating, *"If I had had more time, I would have written you a shorter letter."* This pretty much sums it up when it comes to white papers. An abbreviated document that distills the essence of a research idea down to a few pages ***leaves no room for ideas poorly expressed or organized, or for writing that is inflated, or for syntactic ambiguity, or for a narrative crying out for a tight edit,*** all of which the iconic journalist and English language scholar H. L. Mencken nailed in his description of an article submitted for publication as *"an army of 10,000 words marching across the page in search of an idea."*

Just as a proposal is fundamentally written and organized differently than an academic research article, so a white paper must be written differently than a proposal, although some of the narrative attributes of a well written white paper would be welcome in many proposals.

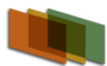
White papers have value because they force the author to ***make a compelling case for research funding within a few pages.*** This forces the author to clearly and precisely address the ***key points to be made in the first paragraph of a white paper by describing, if not instructed otherwise in the BAA,*** *what you propose to do, why you propose to do it, how you propose to do it, your capacity and expertise for success, why the proposed research is significant to the mission of the funding agency, how the proposed research will advance and impact specific research goals and objectives of the agency, why your research is at the forefront of current research being done in the mission areas of the funding agency, and the value-added mission benefits your proposed research will bring to the agency.* Moreover, to get an agency invitation to submit a large proposal, your white paper may need to explain your long-range research vision and your integrative management plan to ensure project success.

These same points will have to be addressed in a successful full proposal as well, but in the white paper, the PI must address them early and convincingly. This major challenge is compounded by the fact that PIs often struggle to describe their research under these key points and are more comfortable describing what they propose to do without explaining how their plan ***maps tightly to the funding agency mission.*** PIs should anticipate devoting a lot of thought and discussion to addressing these key points succinctly in the white paper.

Of course, the plus side to this challenge is that those who successfully transit a white paper gate have been forced to address the most difficult aspects of describing their research early on in the process.



Meeting this challenge gives the researcher an advantage well beyond the white paper when submitting some version of the research to other solicitations and agencies. Remember, the most common reason full proposals are declined for funding is that the author(s) failed to address fully the above points in the project description. The more experience PIs have in addressing these key points under the tight constraints imposed by white papers, the better able they will be to write higher quality and more successful full proposals.



Too Much “Why” and Not Enough “How”

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Reprinted from July 2014

By Lucy Deckard, co-publisher

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Put yourself in the place of a reviewer. You’ve already read three proposals. It’s getting late, and you’re getting just a little grumpy, and you start reading a proposal that starts this way:

“The world is in urgent need of an invisibility cloak. If the US had an invisibility cloak, we would enjoy unquestioned military superiority. Without an invisibility cloak, we have numerous problems, such as being shot at. In the last 200 years, over 400,00 people have been shot at and killed because they didn’t have invisibility cloaks. In Afghanistan alone, if our military had access to an invisibility cloak, it would have saved 30,000 lives.”

... and it goes on like that for two pages. You read on to the Background/State of the Art section, and it reads:

“In the past, people have tried being invisible by using camouflage, but that has not been very effective [6–8]. Maneuvering at night is also a strategy that has been tried, with mixed results [9–12]...etc.”

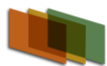
and the PI continues to describe all the ways that people have tried to make themselves hard to see. As a (somewhat grumpy) reviewer, what are you thinking? Probably something along the lines of, *“Of course it would be nice to have an invisibility cloak – I’m not an idiot – but **how are you going to do that?**”* If the PI doesn’t get around to explaining how he’s going to make that invisibility cloak until page 5, he has lost the reviewer by then. Worse yet, the PI may only provide a relatively vague plan for how he will accomplish this goal and continue to focus on all the wonderful benefits of the expected outcome of the project.

This is an extreme example, but it is emblematic of a mistake that PIs often make. If they’re proposing to develop a new technology that will result in more efficient solar cells, they spend the first few pages discussing the importance of energy independence and improving the efficiency of solar cells. If they are proposing a new instructional strategy to improve undergraduate physics education, they spend the first few pages talking about how important it is to improve students’ understanding of physics. Generally, the importance of these goals is self-evident; the question is *how* are they going to accomplish those laudable goals, but that explanation is buried deep in the proposal.

In cases such as these, it’s sufficient to include one or two brief statements (ideally with statistics or hard facts) that make the case for the importance of your ultimate goal, and then move on to describing *how* you’ll accomplish that goal, what’s different or innovative about your approach, and why you’re likely to be successful when others have not been.

Understand Your Reviewer

Sometimes you really do need to convince the reviewer that your project goal is worth pursuing. In those cases, you should devote considerable effort to convincing the reviewer that, for example, it really is important to develop a better way to read fingerprints. But if the benefits of your ultimate goal are likely to be obvious to the reviewer, it’s a waste of valuable space to belabor the obvious. This highlights the importance of understanding the likely backgrounds and knowledge of your reviewers.



To take the previous example, if your reviewer will probably be a law enforcement expert with considerable background in the vagaries of reading fingerprints, it may be obvious to her why we need a better way to read fingerprints. On the other hand, if your reviewer will be a computer scientist who specializes in image analysis and has no background in fingerprints, you may need to make the case that this research is worth pursuing.

Effectively Communicating Impact and Significance

This is not to say that you don't need to communicate the impact and significance of your proposed research. However, that's usually best accomplished by connecting your particular research objectives and outcomes to the overall goal we've been discussing. So, for example, if you're proposing to conduct research to improve the efficiency of a photovoltaic cell, rather than spending a page discussing the importance of energy independence and improving solar technology, quickly move from one or two sentences making those points to explicitly describing how much improvement in efficiency you expect to attain if your project is successful and how that efficiency improvement would impact solar energy technology and our energy independence, with specific numbers and statistics.

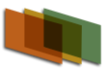
Many researchers are by nature cautious and may be reluctant to make specific claims about the expected outcomes and impact of their project. As a result, they hedge their bets by using vague or tepid terms. For example, PIs often say that their research will "improve" performance, efficiency, etc. of a system, material, or method without ever stating by how much. For example, if your research is expected to improve efficiency of a photovoltaic cell, will it be a 50% improvement? A 5% improvement? A 0.0002% improvement? How will this improvement help to achieve the stated goal of improving the performance of solar technology? The reviewer is just left to wonder. As a result, the PI has stated a broadly laudable goal but then failed to convincingly connect the proposed project and its outcomes to that goal. No amount of exposition on the importance of the broad goal will convince the reviewer to fund the project because the PI is not answering the central question in the reviewer's mind: How are you going to achieve that goal?

Clearly, you don't want to make outlandish claims that invite the reviewers to question your honesty or competence, but you need to make the case that, if your project is successful, the payoff will be worth the \$500K or whatever amount of taxpayer dollars you're requesting. To make that case, you may need to include calculations, refer to preliminary data, or in other ways rigorously justify the potential impact of your research. Use your limited space to do this rather than expound on the broadly understood benefits of reducing our dependence on foreign oil.

Placing Your Project in the Context of the State of the Art

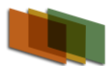
Similarly, when you describe the current state of the art, it's important to focus on what others have done to address your particular research questions or problem rather than continuing to focus on motivation. In other words, if you're proposing to develop an invisibility cloak, don't discuss all the ways that people have tried to make themselves hard to see. Instead talk about other researchers' efforts to make invisibility cloaks and previous work to address particular research questions that must be answered in order to make an invisibility cloak. One NSF reviewer described this section, not as a "Literature Review" or "State of the Art" section, but as a "What the Literature Brings to this Project" section.

To do this, you must identify the key research questions or critical problems that your proposed research will address. If a key problem in making an invisibility cloak is incorporating Pixie dust in the fibers so that all the particles are facing with the magic side out, then you would discuss at length what



others have done related to incorporating dust in textiles and orienting dust particles, what is not known, and what you will build on from that previous work. If the key problem is that the Pixie dust won't stay in the cloak but instead falls out, you'd discuss what others have done to adhere dust to textiles.

A basic rule of thumb when writing these sections of your proposal is to put yourself in the place of the reviewer and think, "If I were reading this, what questions would I want answered?" Often, those questions are more focused on the "how" of your project rather than the "why."



Faculty Writing Groups in the Humanities

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Reprinted from March 15, 2020

By Katherine Kelly, PhD, Humanities Editor

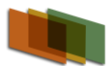
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Two apparently contradictory conditions prevail for humanities scholars: a strong trend towards interdisciplinary scholarship and a tradition of researching and writing alone. Collaboration, it seems, occurs both pre- and post-writing, when contributors from either the same or various fields share ideas, and then drafts. In between these group episodes, the grant applicant returns to solitude to compose or edit the completed drafts into a seamless whole. Drafting is typically a solitary activity, but reviewing and revising proposal drafts is best shared among members of a carefully chosen group. Not surprisingly, the make-up of the group will determine whether or not it encourages an open sharing of ideas, strong writing, and a clear pathway for improving upon a draft.

In many cases, writing group members are drawn from willing colleagues and friends. But if we could create the ideal writing group, what might it look like? The attributes of a high-quality writing group are likely to resemble those of an effective NEH review panel: one or more members with expertise in the applicant's field; one or more members with expertise in an allied academic discipline; members with success at competing for grants; good communication skills; a commitment to collegiality; a clear sense of academic excellence; and dedication to the task at hand. Members will be on the lookout to avoid homophily (a bias towards work resembling one's own) and cronyism (a preference for friends or colleagues regardless of merit).

Admittedly, the peer review guidelines for NEH reviewers are far more rigorous, formal, and consequential than those for a writing group, but the closer a proposal writing group can come to mimicking the procedures and norms of an NEH review panel, the more their advice is likely to help prepare the applicant to produce a competitive proposal. For example, it's especially important that at least one member of a writing group should represent a field allied but not identical to the applicant's, as this is likely to be the case with an actual proposal panel review. Using discipline-specific jargon in a grant proposal is likely to alienate reviewers from even allied fields, and therefore not only to annoy them but also to fail to convince them that the proposal deserves funding. This problem can be avoided by writing for the intelligent generalist who defines special vocabulary as it's introduced. Consider this example from Peter Burke's *History and Social Theory*, where he offers a brief, folksy definition of a complex term: "Another criticism of both the Marx and the Spencer models is that they give too small a place to culture, treating it more or less as a superstructure, the icing on the cake, rather than treating it as a force for social change (as many scholars do today)." Burke is willing to simplify his definition of a complex term in order to press on with his stated business of describing how historians have theorized the notion of cultural patterns.

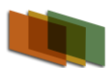
Effective writing group members will also listen to the other members with greater knowledge and/or experience in the area of the proposal's topic, and they will remain willing to challenge one another's opinions, should they feel the need to do so. For that matter, the face-to-face meeting is critical to the group's success. In her study of evaluative culture, *How Professors Think*, Michelle Lamont notes that debate among scholarly reviewers "plays a crucial role in creating trust: fair decisions emerge from a dialogue among . . . types of experts, a dialogue that leaves room for discretion, uncertainty, and the



weighing of a range of factors and competing forms of excellence.” In the case of a proposal writing group, in-person meetings help develop and harness what Lamont calls the emotion work of evaluation, which comes from the commitment to embrace, respond to, and help improve a colleague’s ideas and expression.

In cases where a writing group member comes from a widely different academic culture than that of the proposal author—for example, a political scientist has been invited to join a writing group made up of literary scholars evaluating a proposal involving literature—the political scientist should be offered the opportunity to consider and then accept or reject the method used by the proposal’s author. If the method is rejected, that member would either sit out or remove herself from the group. In cases of large cultural differences between disciplines, an extra effort may be needed to ensure that all group members understand and respect one another’s approaches to seeking new knowledge. As Lamont writes, “In the social sciences and the humanities, the more scientific and more interpretive disciplines favor very different forms of originality.” It’s a good idea to select and arrange writing group members carefully to ensure compatibility--but not uniformity--of scholarly discipline, norms, and methods. Including a reasonable diversity of disciplines or sub-disciplines in a writing group prepared for such diversity can provide the kind of audience that will help emerging and established scholars to clarify and grow their proposals.

The proposal writing group is one particular example of a faculty accountability writing group. Many universities have been encouraging faculty and graduate students to form these groups to produce more and better writing with less stress. These groups are not limited to reviewing proposals, but are designed to help motivate faculty to write on a regular basis. Indiana University at Bloomington is just one of many campuses that now offers Faculty Accountability Writing Groups (FWGs). Their program is based on two principles: (1) daily writing produces better quality work while also minimizing stress, and (2) group accountability helps reinforce motivation. Weekly writing-based workshops focus on faculty needs throughout the disciplines. Accountability groups support process, community, and productivity. For example, a three-hour writing group will be divided between group discussion (30 minutes) focused on motivation and structuring time, and two-plus hours devoted to writing. Faculty participants in these groups have reported increased writing and reduced stress.



Funding Rates: Actual and Real

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Reprinted from July 2014

By Mike Cronan, co-publisher

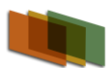
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The noted Harvard scientist Stephen Jay Gould's profound essay "*The Median Isn't the Message*" on cancer survival and statistics has a relevance more far reaching than just those trying to make sense of cancer survival statistics. It has relevance to many other areas where we use statistics to inform our decision making process, including research grant writing. In the latter case, to paraphrase Gould, it might be said that in research grant writing "*The Funding Rate Isn't the Message*." The **actual** funding rate calculation (*Proposals Funded/ Total Proposals*) always includes "*The Good, The Bad, and The Ugly*" in the denominator when determining funding success. It therefore gives a more pessimistic outlook than does the more optimistic **real** funding success rate.

The **real funding success rate** is based on an informed and judicious estimation that purges "**the bad and the ugly**" from the funding rate calculation, much as Clint Eastwood did in the movie of the same name. Of course in grant writing, as opposed to the Spaghetti Western, "**the bad and the ugly**" are not gunslingers competing for a fortune in buried gold but something much worse—poorly planned, poorly developed, and poorly written proposals that violate Louis Pasteur's axiom that "*Fortune favors the prepared mind*." **In other words, the "funding dice" are loaded, so to speak, to favor the well-prepared proposal.**

Specifically, the funding (or success) rate of federal agency research proposals for a given time period, typically the agency fiscal year, is calculated by dividing the number of new awards made in a fiscal year by the total number of awards (both funded and declined) reviewed for funding. **And who has not peered long and deeply into this simple calculation in hopes of discerning some deeper pattern that better foretells the future of a planned proposal.** Here grant writers are somewhat like the Ancient Roman Augurs, religious officials who observed the flight of birds, interpreting the flight patterns as an indication of divine approval or disapproval of a proposed action, such as whether or not to fund a proposal submitted to the *Roman Science Foundation*. Even today, some in the research development community claim some reviewers still employ this ancient practice to make funding decisions, but these claims are mostly anecdotal.

Regardless, the real focus of your attention when considering funding success rates needs to be on the denominator—the sum of both funded and declined proposals. The larger the denominator for a constant numerator the smaller the success rate. For example, if 100 proposals are submitted and 18 are funded, the success rate is 18%. In other words, 82 were not funded for a failure rate of 82%. However, success rate calculations assume, for statistical purposes, an equivalency among all declined proposals, i.e., they lump together "*The Good, The Bad, and The Ugly*." See an example of this below from the NSF Directorate for Biological Sciences showing the Division of Molecular and Cellular Biosciences (MCB) with a success rate of 12%. Moreover, success rates specific to many NSF institutional solicitations such as the ERC, STC, IGERT (now NRT), AGEP, ADVANCE, etc. are often under 4%.



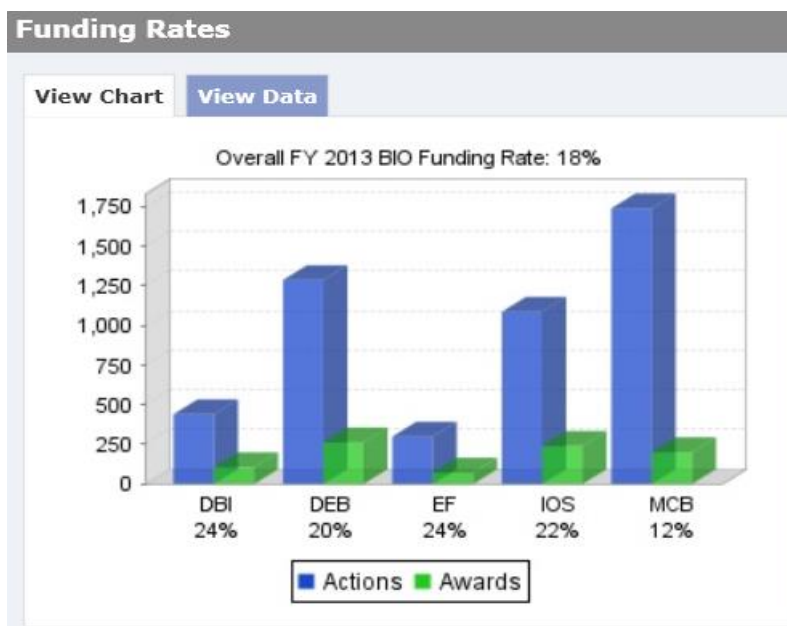
However, the applicant's focus needs to be on the number of declined proposals. The next step in this process is to parse out the number of competitive declined proposals from the number of noncompetitive declined proposals ("*the bad and the ugly and the truly horrid*"), the latter with no chance of being funded. For example, if you talk to those who frequently review proposals, you will soon learn that a significant number of proposals submitted don't have a snowball's chance of being funded; yet, for statistical purposes, they are treated as the equivalent of proposals that are well reviewed and clustered close to the funding line but declined.

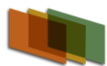
Therefore, it is not an unrealistic rule of thumb to assume that the **real** funding rate of any competition may be two or three times the **actual** funding rate calculated by simply dividing the number of proposals funded by the total number of proposals reviewed for funding. Just making the **very conservative assumption** that 50% of the proposals received for any competition are sufficiently flawed so as to preclude any possible chance of funding will, by halving the denominator, double the real funding rate.

The important point here, as with the referenced Gould essay, is **not to let very simplistic statistical calculations**, such as those published by research agencies, **dissuade you from submitting a very good idea for funding**. Of course, this presupposes that your research team has an idea of significant importance to the funding agency and that you are able to plan, develop, and write a proposal that makes it competitive for funding. While a competitive proposal is not always funded, submitting competitive proposals consistently over time will increase your long-term funding success, raising it well higher than the average funding rate.

In the end, it all comes down to making sure that when you plan, develop, and write a proposal, you do so with a **commitment to achieving perfection in every aspect of the proposal**—the ideas, the writing, the organization, etc. If you do these things exceptionally well, then taking at face value the oft-quoted statistics of funding success will underestimate significantly your likelihood of being funded—by agency, directorate, division, program, or specific solicitation.

NSF Directorate for Biological Sciences





Research Grant Writing Web Resources

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Food Safety Outreach Competitive Grants Program Webinar

In this webinar recorded December 19, 2022, the USDA National Institute of Food and Agriculture (NIFA) discusses the FY 2023 Request for Applications (RFA) for the Food Safety Outreach Competitive Grants Program (FSOP). Learn about FSOP priorities and requirements and other essentials for applying to the program. Topics include: (i) an overview of the FSOP, (ii) introduction of the new Technical Assistance - Grant Writing Skills Project program area (iii) adhering to the RFA and the evaluation criteria, and (iv) grant writing fundamentals. Program Contact: Dr. Jodi Williams, jodi.williams@usda.gov

ESTCP FY 2024 Solicitation

ESTCP released a solicitation on January 6, 2023, requesting proposals for demonstrations of environmental and installation energy technologies. Funding is available through a Broad Agency Announcement (BAA), DoD Call for Proposals, and Call for Proposals for Federal Organizations Outside DoD.

Below are instructions for submitting a pre-proposal. The Department of Defense personnel should refer to the FY24 DoD instructions, personnel from other Federal organizations should refer to the FY24 Federal Instructions, and personnel from private industry and universities should refer to the FY24 Broad Agency Announcement (BAA) Instructions. To view the Broad Agency Announcement, visit the website [here](#).

The topics referenced by this solicitation request proposals related to the ESTCP program areas of Climate Resilience, Environmental Restoration, Installation Energy and Water, Munitions Response, Resource Conservation and Resilience, and Weapons Systems and Platforms. The due date for all pre-proposals is March 9, 2023 by 2:00 p.m. ET. The topics are listed in the next section of this page.

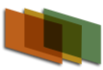
Please note that the icon in the upper right-hand corner of each topic area description denotes the applicable solicitation with the pentagon icon identifying the topic area as applicable to the DoD Call for Proposals, the capitol icon denoting the Call for Proposals for Federal Organizations Outside DoD, and the building icon denoting the BAA.

ESTCP Director Dr. Kimberly Spangler, Deputy Director Dr. Andrea Leeson, and the ESTCP Program Managers **will conduct a [webinar](#) on January 20, 2023 from 1:00-2:30 p.m. ET**. This briefing offers valuable information for those interested in new ESTCP funding opportunities. During the online seminar, participants may ask questions about the funding process, the current ESTCP solicitation, and the proposal submission process. Pre-registration for this webinar is required. If you have difficulty registering, please contact the ESTCP Support Office at serdp-estcp.webinars@noblis.org or by telephone at 571-372-6565.

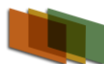
12 Days of Data Management and Sharing Tips & Resources

As we get closer to the **January 25, 2023 effective date of the new NIH Data Management and Sharing (DMS) Policy**, here are 12 tips and resources we would like to gift you—

- [1-page flyer](#) on the who, what, where, and when of the DMS Policy
- [2-part webinar series](#) on understanding the DMS Policy and digging deeper into what's required



- [**3 key steps**](#) to implement the DMS Policy
- [**4 sample DMS Plans**](#) to assist as you develop a plan for your research, and an [**optional format page**](#)
- [**5 minutes**](#) is all it takes to determine what sharing policies apply to your research with this [**decision tool**](#)
- [**6 elements**](#) recommended for a robust DMS Plan, a key component for your funding application
- [**7 examples of allowable costs**](#) for data management and sharing
- [**8+ slides**](#) in our Implementing the DMS Policy slide deck
- [**Fewer than 9 key differences**](#) between the 2003 data sharing policy vs. the new DMS policy, illustrated on the policy comparison table
- [**10 activities**](#) that generally do and do not generate scientific data, including a [**complete list of activity codes**](#) generally subject to the DMS Policy
- [**11+ FAQs**](#) to address your questions, and [**who to contact**](#) for more information
- [**Dozens of NIH-supported data repositories**](#) and resources to help you [**find**](#) an appropriate repository for your research.



Educational Grant Writing Web Resources

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STEPS TO APPLYING FOR IES GRANTS

1. **Identify** a current funding opportunity that matches your research interests and identify the relevant [letter of intent and application deadlines](#) and **sign up** for IES [newsflashes](#) to stay informed.
2. **View** a [funding opportunities webinar](#) to learn more about the application process and choosing an appropriate funding opportunity and **attend** our [virtual office hour](#) sessions for general, group discussions.
3. **Download** the [Application Submission Guide](#), as well as the appropriate [Request for Applications](#) and [application package](#) (Search for ALN 84.305 or ALN 84.324).
4. **Submit** your [Letter of Intent](#) (optional but strongly encouraged).
5. **Register** (or update) your organization on [Grants.gov](#) and [SAM.gov](#). Read the Department's [Fact Sheet](#) for information about the Federal government's transition from DUNS Number to Unique Entity Identifier (UEI).
6. **Submit** your application to [Grants.gov](#) before the application [deadline](#).

STANDARDS AND REVIEW

The Standards and Review Office (SRO) is responsible for the scientific peer review process for the grant applications.

- [SRO Website](#)
- [Peer Review Process](#)
- [List of Peer Reviewers](#)

ONLINE RESOURCES FOR APPLICANTS

[On-demand webinars](#)

[Virtual office hours](#)

[Newflashes](#)

[Frequently asked questions](#)

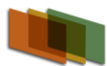
[Cost analysis/cost-effectiveness analysis](#)

[Data management plans](#)

[General resources for researchers](#)

Please read an [Overview of IES Research and Research Training Grants Programs](#) to learn more about research and training programs supported by IES. You can also learn more about grants funded by IES by using our [project search tool](#).

Need Help? For general inquiries, [contact IES](#). For questions about specific funding opportunities, contact the [National Center for Education Research](#) (84.305 RFAs) or the [National Center for Special Education Research](#) (84.324 RFAs).



Unsolicited Grant Opportunities

The Institute of Education Sciences (IES) will consider unsolicited applications for research, evaluation, and statistics projects that would make significant contributions to the mission of the organization.

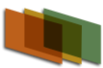
Under this announcement, we will consider applications for projects that are **not eligible under our FY2023 grant competitions**, both open and closed, described at <https://ies.ed.gov/funding/>. **The applicant must demonstrate that the project was not eligible under one of our FY2023 grant competitions.** In addition, we do *not* provide funds for projects that consist solely of program delivery or the provision of services to students. Activities supported by IES must be relevant to U.S. schools.

The National Center for Education Research is not holding the following competitions in FY2023: Education Research Grants Program (ALN 84.305A), Statistical and Research Methodology in Education (ALN.305D), and Research Grants Focused on Systematic Replication (ALN 84.305R). The National Center for Special Education is not holding the following competition in FY2023: Research Grants Focused on Systematic Replication in Special Education (ALN 84.324R). IES **will not consider applications under this unsolicited announcement that in prior years would have been eligible under those competitions.**

FY 2023 Unsolicited Grant Opportunities announcement:

 [Download, view, & print as a Word document](#) (22 KB)

 [Download, view, & print as a PDF](#) (150 KB)



Agency Research News

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Top 10 Problems Reviewers Cite in NIH Applications

As you prepare your grant application, avoid these common pitfalls! Here is a list of the most frequent problems reviewers in the NIH Center for Scientific Review (CSR) cite when they critique grant applications:

- Lack of new or original ideas
- Absence of an acceptable scientific rationale
- Lack of experience in the essential methodology
- Questionable reasoning in experimental approach
- Uncritical approach
- Diffuse, superficial, or unfocused research plan
- Lack of sufficient experimental detail
- Lack of knowledge of published relevant work
- Unrealistically large amount of work proposed
- Uncertainty concerning future directions

New AHRQ Notice of Funding Opportunity Invites Applications for the Creation of Learning Health System Embedded Scientist Training and Research (LHS E-StaR) Centers

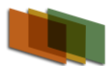
A new notice of funding opportunity (NOFO) co-sponsored by AHRQ and PCORI invites applications for the creation of Learning Health System Embedded Scientist Training and Research (LHS E-StaR) Centers. Each Center will support the professional development of scientists to conduct patient-centered outcomes research and comparative effectiveness research that will accelerate progress toward an integrated learning health system and build a critical and sustainable LHS research workforce. This program aims to train embedded health system scientists and produce a cadre of LHS scientists, LHS mentors, and rapid learning projects that will accelerate advances in knowledge, health system performance, and patient outcomes. Learn more and apply by March 24, 2023:

<https://grants.nih.gov/grants/guide/rfa-files/RFA-HS-23-001.html>

Dear Colleague Letter: New to IUSE

With this Dear Colleague Letter (DCL), the National Science Foundation's (NSF's) Division of Undergraduate Education (DUE) in the Directorate for STEM Education (EDU) encourages the submission of proposals to the Improving Undergraduate STEM Education (IUSE: EDU) Program from institutions that have not had prior funding from the IUSE: EDU Program. Proposers are encouraged to consider submission to Level 1 of the Engaged Student Learning track or to the Institutional and Community Transformation Capacity-Building track of the IUSE: EDU Program. Information about the objectives and expectations for Engaged Student Learning and Institutional and Community Transformation projects can be found in the IUSE: EDU program solicitation, [NSF 23-510](#).

Proposals in the Engaged Student Learning track of the IUSE: EDU Program focus directly on students or serve students through faculty professional development and related activities. Engaged Student Learning projects can contribute to developing the STEM and STEM-related workforce, advancing a disciplinary STEM field, broadening participation in STEM, educating a STEM-literate public, improving K-12 STEM education through undergraduate preservice STEM teacher preparation, encouraging life-long learning, and/or building STEM capacity in higher education. Institutional and Community



Transformation proposals focus on systemic change that may be measured at the departmental, institutional, or multi-institutional level or across communities of STEM educators and/or educational researchers. All IUSE: EDU projects are expected to increase knowledge about effective STEM education. This may be achieved by proposing one or more knowledge-generating questions and investigating them with thorough project evaluation or more formal research methods. Prospective investigators are encouraged to contact an NSF Program Officer to discuss their ideas.

Proposers are encouraged to reference the *Common Guidelines for Education Research and Development* ([NSF 13-126](#)), a publication designed to help with developing and framing education-related projects. This publication was developed jointly by the NSF and the Institute of Education Sciences in the U.S. Department of Education. It describes several types of studies that can increase knowledge about student learning. The Common Guidelines may be accessed at [NSF 13-126](#). A set of supporting FAQs is also available at [NSF 13-127](#).

Proposals responding to this DCL should be submitted by published due dates for the IUSE: EDU Program. When responding to the DCL, please begin your proposal title with "New to IUSE: EDU DCL:". Submissions should follow the [NSF Proposal & Award Policies & Procedures Guide](#) (PAPPG) and the guidelines in the IUSE: EDU [program solicitation](#).

Principal investigators with questions pertaining to this DCL may contact:

Ellen Carpenter, Program Director, elcarpen@nsf.gov

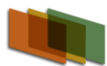
Jill Nelson, Program Director, jnelson@nsf.gov

Dear Colleague Letter: MPS-NCI Supporting new Areas of Knowledge (SPARK): Cancer as a Living Material – New Ideas and New Connection

The National Science Foundation's (NSF) Division of Materials Research (DMR) in the Directorate for Mathematical and Physical Sciences (MPS) announces a new collaboration with the Division of Cancer Biology (DCB) and the Center for Cancer Training (CCT) of the National Cancer Institute (NCI) at the National Institutes of Health (NIH). This collaboration emerged from a series of Square-Table workshops ^[1, 2] between MPS and DCB, including a workshop on Living Materials. This workshop highlighted an opportunity to accelerate an emerging interdisciplinary field in which cancer can be studied as a living material. Inspired by this workshop, this Dear Colleague Letter (DCL) seeks to encourage submission of supplemental funding requests to existing NSF awards to promote convergence between materials researchers and cancer researchers to study cancer as a living material and promote new collaborations, cross-training, and exchange of expertise via:

1. the support for visiting graduate students and/or postdoctoral researchers bringing materials science expertise to cancer labs or cancer research expertise to materials science labs. One or both labs must have current NCI or NSF funding in order to receive supplement funding to support the visiting researcher(s).
2. the initiation of new collaborative research between materials researchers and cancer researchers; and/or
3. the development of workshops or collaboration building events that promote exchange of ideas or convergence in materials research and cancer research.

A living material can be defined as a composite of engineered materials and living cells that is adaptive, self-assembling, self-replicating and modulating its properties or function in response to its environment. Many fundamental scientific questions remain outstanding in the development of truly living materials. These questions include understanding the dynamic interactions between



extracellular matrix material and cells, harnessing control of that interface in response to external stimuli to modulate characteristics of the whole composite, and frontier questions of emergent structures far-from-equilibrium.

Cancer exhibits characteristics of a prototypical living material with its emergent structure, modulation of that structure and properties in response to external stimuli, and modification of its local environment to promote and safeguard the emergent structures. In viewing cancer through this lens, researchers may advance the understanding and development of novel adaptive living materials that are cancer-inspired. These living materials may be applied to non-biomedical applications, aid in elucidating properties of living materials *per se*, or lead to increased understanding of cancer properties. In turn, researchers may further the development of functionalized materials that reflect the heterogeneous and dynamic nature of cancer *in vivo*. Further, this effort and outcomes coordinate government efforts to advance biotechnology and biomanufacturing towards innovative solutions in health, climate change, energy, food security, agriculture, supply chain resilience, and national and economic security ^[3].

WEBINAR

A webinar will be hosted by NSF on **January 19th, 2023**, that will provide details on this collaborative effort featuring National Science Foundation Program Officers from the Directorate of Mathematical and Physical Sciences (MPS) as well as Program Officers from the Division of Cancer Biology (DCB) and the Center for Cancer Training (CCT) of the National Cancer Institute (NCI).

In addition, this webinar will provide context-setting talks to stimulate and encourage materials researchers as well as cancer-sciences communities to develop new, forward-thinking research approaching cancer as a prototypical living material that can inform the understanding and development of living materials for broad applications. This research may in turn further the development of advanced biomaterials for cancer biology research applications.

Link to the webinar registration (Registration required):

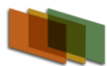
https://nsf.zoomgov.com/webinar/register/WN_2UOrCb-8RGytfkiM_kZSPw

Contact for webinar inquiries:

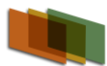
Allison Smith
Program Analyst,
Division of Materials Research,
Directorate of Mathematical and Physical Sciences, National Science Foundation

SUPPLEMENTAL FUNDING TO EXISTING NSF OR NCI AWARDS

- Prior to submission of a supplemental funding request, PIs must provide a brief 1-2-page description of the proposed effort to the NSF or NCI Program Director listed later in this DCL and to the cognizant NSF or NCI Program Officer for the award to be supplemented. Descriptions must be submitted via email by **February 9th, 2023**.
- Supplemental funding requests can only be submitted after invitation by the cognizant NSF or NCI Program Officer. **The email inviting the submission must be included in the supplemental funding request.** Uninvited requests for supplemental funding will be returned without review.



- The initial brief descriptions and the supplemental funding requests will be shared with the MPS-NCI Working group to provide an assessment of the initial description and an internal review of submitted invited requests.
- All NCI supplemental-funding requests will be subject to administrative review. NCI will conduct administrative reviews of applications and will support the most meritorious applications submitted for consideration, based upon the availability of funds. NCI grant mechanisms eligible for supplemental funding include R01, U01, R61 and R33 awards.
- All requests for supplements to NCI grants must be submitted electronically through eRA Commons, see [NOT OD-20-128](#) more information. Applicants are strongly encouraged to notify the NCI Program Director assigned to the parent award that a request has been submitted in response to this Notice of Special Interest (NOSI) in order to facilitate efficient processing of the request.
- At least one full year on the current NCI or NSF award to be supplemented must remain at the time of submission. Projects in no-cost extension will not qualify for this funding opportunity.
- Supplement budget requests must reflect the actual needs of the proposed **one-year project** and should not exceed \$50,000 in direct costs for the entire project. Funding is subject to limitations of available funds supplemental-funding and requests will be subject to the NSF's merit review process, as described in the *NSF Proposal and Award Policies and Procedures Guide* ([PAPPG](#)).
- All NSF supplemental funding requests must follow the guidance specified in the PAPPG Chapter VI.E.5, which includes, in addition to the budget and budget justification, the following sections: 1) a summary of the proposed work, and 2) justification of the need for supplemental funds. In addition, the request must include, as a single-copy document, a copy of the email inviting submission of the supplemental funding request.
- The deadline for submission of invited supplemental funding requests is **March 10th, 2023**.



Agency Reports, Workshops & Research Roadmaps

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Protecting U.S. Technological Advantage

U.S. leadership in technology innovation is central to our nation's interests, including its security, economic prosperity, and quality of life. Our nation has created a science and technology ecosystem that fosters innovation, risk taking, and the discovery of new ideas that lead to new technologies through robust collaborations across and within academia, industry, and government, and our research and development enterprise has attracted the best and brightest scientists, engineers, and entrepreneurs from around the world. The quality and openness of our research enterprise have been the basis of our global leadership in technological innovation, which has brought enormous advantages to our national interests.

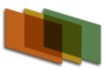
In today's rapidly changing landscapes of technology and competition, however, the assumption that the United States will continue to hold a dominant competitive position by depending primarily on its historical approach of identifying specific and narrow technology areas requiring controls or restrictions is not valid. Further challenging that approach is the proliferation of highly integrated and globally shared platforms that power and enable most modern technology applications.

To review the protection of technologies that have strategic importance for national security in an era of openness and competition, Protecting U.S. Technological Advantage considers policies and practices related to the production and commercialization of research in domains critical to national security. This report makes recommendations for changes to technology protection policies and practices that reflect the current realities of how technologies are developed and incorporated into new products and processes.

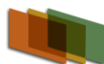
Understanding the Aging Workforce: Defining a Research Agenda

The aging population of the United States has significant implications for the workforce - challenging what it means to work and to retire in the U.S. In fact, by 2030, one-fifth of the population will be over age 65. This shift has significant repercussions for the economy and key social programs. Due to medical advancements and public health improvements, recent cohorts of older adults have experienced better health and increasing longevity compared to earlier cohorts. These improvements in health enable many older adults to extend their working lives. While higher labor market participation from this older workforce could soften the potential negative impacts of the aging population over the long term on economic growth and the funding of Social Security and other social programs, these trends have also occurred amidst a complicating backdrop of widening economic and social inequality that has meant that the gains in health, improvements in mortality, and access to later-life employment have been distributed unequally.

Understanding the Aging Workforce: Defining a Research Agenda offers a multidisciplinary framework for conceptualizing pathways between work and nonwork at older ages. This report outlines a research agenda that highlights the need for a better understanding of the relationship between employers and older employees; how work and resource inequalities in later adulthood shape opportunities in later life; and the interface between work, health, and caregiving. The research agenda also identifies the need for research that addresses the role of workplaces in shaping work at older ages, including the



role of workplace policies and practices and age discrimination in enabling or discouraging older workers to continue working or retire.



New Funding Opportunities

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Content Order

New Funding Posted Since December 15 Newsletter

URL Links to New & Open Funding Solicitations

Solicitations Remaining Open from Prior Issues of the Newsletter

Open Solicitations and BAAs

User Note: URL links are active on date of publication, but if a URL link breaks or changes a Google search on the key words will typically take you to a working link. Also, entering a grant title and/or solicitation number in the Grants.gov search box will work as well.

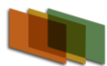
New Funding Solicitations Posted Since December 15 Newsletter

Animal and Biological Material Resource Centers (P40) (Clinical Trials Not-Allowed)

This FOA encourages grant applications for Animal and Biological Material Resource Centers. These Centers provide support for special colonies of laboratory animals, as well as other resources such as informatics tools, reagents, cultures (cells, tissues, and organs) and genetic stocks that serve the biomedical research community in a variety of research areas on a local, regional, and national basis. The goal of projects supported by this FOA is to provide research resources that facilitate optimization and enhancement of scientific rigor, transparency, and experimental reproducibility of biomedical research. Proposed Animal and Biological Material Resource Centers must have broad application to multiple NIH Institutes or Centers (ICs) to align with the ORIP's NIH-wide mission (<https://orip.nih.gov/about-orip>). This funding opportunity is designed to support both continuation of existing resources and to develop new ones when appropriate. Prior to preparing an application, all applicants are strongly encouraged to consult with Scientific/Research staff to be advised on appropriateness of the intended resource plans for this program, competitiveness of a potential application, and ORIP's program priorities. **Due January 21 and after.**

Emerging Mathematics in Biology (eMB)

The Emerging Mathematics in Biology (eMB) program seeks to stimulate fundamental interdisciplinary and potentially transformative research pertaining to the development of innovative mathematical/statistical/computational theories, tools, and modeling approaches to investigate challenging questions of great interest to biologists and public health policymakers. It supports research projects in mathematical biology that address challenging and significant biological questions through novel applications of traditional, but nontrivial, mathematical tools and methods or the development of new theories particularly from foundational mathematics and/or computational/statistical tools, including Artificial Intelligence/Deep Learning/Machine Learning (AI/DL/ML). With an emphasis on innovative uses of foundational mathematics with the potential of infusion of AI, to advance our understanding of complex and heterogeneous biological systems at all scales (molecular, cellular, organismal, population, ecosystems, etc.), the Emerging Mathematics in Biology program seeks to support innovative projects from strong interdisciplinary teams with the objective to develop innovative mathematical tools for enhanced understanding of biological systems.



Examples of research challenges include, but are not limited to Applications of foundational mathematics in genomics and other applications; Mathematical foundations for the uses of AI/DL/ML theory and methods in biomathematics; Improved modeling approaches and tools for emerging and reemerging infectious diseases; Modeling of the effects of climate change and clean energy on biological systems; Neuroscience; Applications of mathematics in biotechnology. This solicitation is to encourage new collaborations between mathematical, computer, and biological scientists as well as to support innovative research activities by well-established existing teams. **Due March 23.**

Biodiversity on a Changing Planet (BoCP)

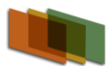
The BoCP program is a cross directorate and international program led by NSF that invites submission of interdisciplinary proposals addressing grand challenges in biodiversity science within the context of unprecedented environmental change, including climate change. Successful BoCP proposals will test novel hypotheses about functional biodiversity and its connections to shifting biodiversity dynamics on a changing planet, with an emphasis on integrative research into the complex intersections among climatic, geological, paleontological, and biological processes. Integrative research is likely to combine multiple perspectives--including organismal, species, ecological, evolutionary, phylogenetic, geological, and/or paleontological approaches-- at various scales. Proposals that seek to improve predictive capability about functional biodiversity across temporal and spatial scales by considering the linkages between past, present, and future biological, climatic, and geological processes are also encouraged. While this focus complements several core programs at NSF, it differs by requiring an integrative approach to understanding functional biodiversity as it relates to shifting biodiversity dynamics under changing environmental conditions.

The program supports both US-only collaborative proposals and proposals with international partnerships with the National Natural Science Foundation of China (NSFC), the São Paulo Research Foundation (FAPESP) of Brazil, and the National Research Foundation (NRF) of South Africa. International collaborative proposals are to be submitted jointly, with the US PIs submitting to NSF and the collaborating Chinese, Brazilian, or South African PIs submitting to their appropriate national funding agencies. **Dur March 29.**

Future of Work at the Human-Technology Frontier: Core Research (FW-HTF)

In 2016, the National Science Foundation (NSF) unveiled a set of "Big Ideas," 10 bold, long-term research and process ideas that identify areas for future investment at the frontiers of science and engineering (see https://www.nsf.gov/news/special_reports/big_ideas/index.jsp). The Big Ideas represent unique opportunities to position our Nation at the cutting edge of global science and engineering leadership by bringing together diverse disciplinary perspectives to support convergence research. As such, when responding to this solicitation, even though proposals must be submitted to the Directorate for Engineering (ENG) Office of Emerging Frontiers and Multidisciplinary Activities (ENG/EFMA), once received, the proposals will be managed by a cross-disciplinary team of NSF Program Directors.

The overarching vision of this program is to support multi-disciplinary research to sustain economic competitiveness, to promote worker well-being, lifelong and pervasive learning, and quality of life, and to illuminate the emerging social and economic context and drivers of innovations that are shaping the future of jobs and work.



For the purposes of this solicitation, work is defined as mental or physical activity to achieve income, profit, or other tangible benefits. A proposal for a research grant in this program must focus on advancing fundamental understanding of future work and work outcomes for workers and society.

The specific objectives of the Future of Work at the Human-Technology Frontier program are to (1) facilitate inter-disciplinary or convergent research that employs the joint perspectives, methods, and knowledge of behavioral science, computer science, economics, engineering, learning sciences, research on adult learning and workforce training, and the social sciences; (2) develop deeper understandings of how human needs can be met and values respected in regard to how new technologies, conditions, and work experiences are changing; (3) support deeper understanding of the societal infrastructure that accompanies and leads to new work technologies and new approaches to work and jobs, and that prepares people for the future world of work; (4) encourage the development of a research community dedicated to designing intelligent technologies and work organization and modes inspired by their positive impact on individual workers, the work at hand, the way workers learn and adapt to technological change, creative and inclusive workplaces (including remote locations, homes, classrooms, or virtual spaces), and benefits for social, economic, educational, and environmental systems at different scales; (5) promote deeper basic understanding of the interdependent human-technology partnership to advance societal needs by advancing design of intelligent technologies that operate in harmony with human workers, including consideration of how adults learn the new skills needed to interact with these technologies in the workplace, and by enabling broad and diverse workforce participation, including improving accessibility for those challenged by physical, learning or cognitive impairment and other visible and invisible disabilities; and (6) understand, anticipate, and explore ways of mitigating potential risks including inequity arising from future work at the human-technology frontier.

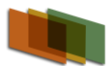
Proposals to this program should describe inter-disciplinary or convergent research that addresses technological, human, and **societal dimensions of future work**. Technological innovations should be integrated with advances in cognitive and behavioral sciences, computer science, economic science, engineering, learning sciences, education, research on adult learning and workforce training, and the social sciences. Proposals that address the impact of large-scale disruptions such as the Covid-19 pandemic on the future of jobs and work are also of interest. Submissions are encouraged from institutions in EPSCOR jurisdictions (<https://beta.nsf.gov/funding/initiatives/epscor/state-websites>) and emerging research institutions, as defined in the CHIPS & Science Act, Section 10002(5) ([42 USC 18901\(5\)](#)). **Due March 30**

EPA-R-OEJECR-OCS-23-02 Environmental Justice Government-to-Government Program

EPA is issuing this solicitation requesting applications for projects that support and/or create model state, tribal, local, and territorial government activities that lead to measurable environmental or public health results in communities disproportionately burdened by environmental harms and risks. These projects will help transform disadvantaged and underserved communities into healthy, thriving communities capable of addressing the environmental and public health challenges they have historically faced, as well as current and future challenges. **Due Date April 10.**

Environmental Justice Collaborative Problem-Solving Cooperative Agreement Program

EPA is issuing this solicitation to request applications for projects supporting community-based nonprofit organizations (CBOs) in their efforts to collaborate and partner with other stakeholders (e.g., local businesses and industry, local government, medical service providers, academia, etc.) to develop



solutions that will significantly address environmental and/or public health issue(s) in communities disproportionately burdened by environmental harms and risks. These projects will help transform disadvantaged and underserved communities into healthy, thriving communities capable of addressing the environmental and public health challenges they have historically faced, as well as current and future challenges. **Due Date April 10.**

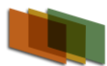
Solicitations Remaining Open from Last Newsletter

Formal Methods in the Field (FMitF)

The Formal Methods in the Field (FMitF) program aims to bring together researchers in formal methods with researchers in other areas of computer and information science and engineering to jointly develop rigorous and reproducible methodologies for designing and implementing correct-by-construction systems and applications with provable guarantees. FMitF encourages close collaboration between two groups of researchers. The first group consists of researchers in the area of formal methods, which, for the purposes of this solicitation, is broadly defined as principled approaches based on mathematics and logic to system modeling, specification, design, analysis, verification, and synthesis. The second group consists of researchers in the "field," which, for the purposes of this solicitation, is defined as any area within computer and information science and engineering that currently does not benefit from having established communities already developing and applying formal methods in their research. All proposals must make a strong case for why formal methods is appropriate for the field area, and why it is one that does not currently benefit from formal methods. **Due February 15.**

Research and Mentoring for Postbaccalaureates in Biological Sciences

The Research and Mentoring for Postbaccalaureates (RaMP) in Biological Sciences program invites the submission of proposals to establish networks to support full-time research, mentoring, and training for recent college graduates who have had few or no research or training opportunities during college in research fields typically supported by the Directorate of Biological Sciences (BIO). A strategic focus of the National Science Foundation is to foster the growth of a globally-competitive and diverse research workforce. To that end, proposals submitted to this program are expected to create strong evidence-based, inclusive and culturally-aware mentorship programs that will advance the goal of creating a competitive and highly representative science, technology, engineering and mathematics (STEM) workforce in the U.S. with a focus on the biological sciences. Projects are expected to train individuals for a range of potential career pathways in the biological sciences including: research-focused M.S. or Ph.D. graduate programs; entry-level positions in industry, federal, tribal, or state agencies, education and research centers, or not-for-profit science-based organizations; or other STEM careers. Individuals from groups underrepresented in STEM, first generation college students, and students at under-resourced institutions frequently have limited opportunities to participate in the undergraduate research experiences that are necessary to be competitive for graduate programs or other STEM career pathways. This program will provide postbaccalaureate research experiences for cohorts of trainees, either in ongoing research programs, existing research networks, or in new research projects designed specifically for the RaMP networks. Studies of capacity-building and training across diverse disciplines have emphasized the importance of inclusive training via cohort mentoring and networks of individuals working together towards a common purpose. **Due Feb. 16.**



FOA-AFRL-AFOSR-2022-0007 FY22 DEFENSE ESTABLISHED PROGRAM TO STIMULATE COMPETITIVE RESEARCH (DEPSCoR) - CAPACITY BUILDING (CB) Department of Defense Air Force Office of Scientific Research

The Department of Defense (DoD) announces the fiscal year 2022 (FY22) Defense Established Program to Stimulate Competitive Research (DEPSCoR) – Capacity Building. The program is sponsored and managed by the Basic Research Office, Office of the Under Secretary of Defense for Research and Engineering (OUSD [R&E]), awarded by the Air Force Office of Scientific Research (AFOSR), and administered through the Office of Naval Research (ONR). The DoD plans to award FY22 DEPSCoR appropriations through this announcement. DEPSCoR's objectives are to:

- (1) increase the number of university researchers in eligible States/Territories capable of performing science and engineering (S&E) research responsive to the needs of the DoD; and
- (2) enhance the capabilities of institutions of higher education (IHE) in eligible States/Territories (listed below) to develop, plan, and execute S&E research that is relevant to the mission of the DoD, and competitive under the peer-review systems used for awarding Federal research assistance;
- (3) increase the probability of long-term growth in the competitively awarded financial assistance that IHE in eligible States/Territories receive from the Federal Government for S&E research.

Consistent with these long-term objectives of building research infrastructure, the DoD intends to competitively make, and fund from fiscal year 2022 appropriations, multiyear awards for capacity building in IHEs with research areas relevant to the DoD's mission and which are important to national security. The Basic Research Office anticipates up to \$4 million in total funding will be made available for this program to fully fund and award between one to four grants up to \$1 million (total cost) each. Each grant award will be funded up to \$500,000 (total cost) per year for two (2) years. The award is subject to funding availability. The Basic Research Office reserves the right to select and fund for award all, some, part, or none of the proposals received. There is no guarantee of an award. **Closing Date for Applications: Feb 21, 2023**

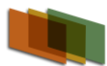
Global Emergency Response and Recovery Partner Engagement: Expanding Efforts and Strategies to Improve Rapid Response to Public Health Emergencies Globally

This NOFO supports the implementation of programs and activities targeted at increasing the capacity of public health emergency partners to rapidly respond to support populations affected by humanitarian emergencies and conflict settings. Its purpose is to improve the ability to detect and respond to threats early and develop long-term, sustainable programs to rebuild resilience during and after an emergency. This NOFO will establish an Approved-But-Unfunded (ABU) list of recipients, providing a portfolio of partners that can work anywhere in the world. CDC will fund partners to respond to emergencies that require federal support to effectively respond to, manage, and address identified public health threats. **Due March 4.**

Notice of Intent to Issue Funding Opportunity Announcement No. DE-FOA-0002779 - Bipartisan Infrastructure Law: Additional Clean Hydrogen Programs (Section 40314): Regional Clean Hydrogen Hubs Department of Energy Golden Field Office Closing Date for Applications

Close **March 10, 2023; Estimated Total Program Funding: \$8,000,000,000**

The Department of Energy (DOE) Office of Clean Energy Demonstrations (OCED) intends to issue a Funding Opportunity Announcement (FOA) entitled "Regional Clean Hydrogen Hubs" (H2Hubs) in



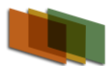
collaboration with the Energy Efficiency and Renewable Energy's (EERE) Hydrogen and Fuel Cell Technologies Office (HFTO) and the DOE Hydrogen Program, which includes multiple offices engaged in hydrogen related technologies across DOE. OCED anticipates issuing the FOA in the September/October 2022 timeframe, and the FOA will be funded by the Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL). The specific provisions for regional clean hydrogen hubs are set forth in Section 40314 of the BIL, which amends Title VIII EAct 2005 by adding a new "Section 813 - Regional Clean Hydrogen Hubs." Section 813(a) defines the term "regional clean hydrogen hub" as "a network of clean hydrogen producers, potential clean hydrogen consumers, and connective infrastructure located in close proximity." Investment in building out the hydrogen (H2) economy is a significant portion of the BIL funding at DOE. The BIL authorizes and appropriates \$8.0 billion over the five-year period encompassing fiscal years 2022 through 2026 to support the development of at least four H2Hubs that: - Demonstrably aid achievement of the clean hydrogen production standard developed under section 822(a) of Energy Policy Act of 2005 (EAct 2005); - Demonstrate the production, processing, delivery, storage, and end use of clean hydrogen; and - Can be developed into a national clean hydrogen network to facilitate a clean hydrogen economy. The FOA will incorporate a range of equity considerations including energy and environmental justice, labor and community engagement, consent-based siting, quality jobs, and inclusive workforce development to support the Biden Administration's decarbonization goals of a 50-52% reduction in greenhouse gas (GHG) emissions from 2005 levels by 2030, a carbon-pollution-free power sector by 2035, and a net-zero GHG emissions economy by 2050. The H2Hubs will be a key part of the National Clean Hydrogen Strategy and Roadmap, also required in the BIL, and will be instrumental in meeting national decarbonization goals, including the development and deployment of clean hydrogen technologies. **Close March 10, 2023.**

Strengthening Global Capacity for Molecular Surveillance and Outbreak Response for Foodborne, Waterborne, and Fungal Diseases

The purpose of this NOFO is to strengthen global capacity for molecular surveillance and outbreak response for foodborne, waterborne, and fungal diseases. The Surveillance and Outbreak Response strategy will include the following activities: 1) Waterborne Disease Surveillance Strengthening and Outbreak Response; 2) Genomic surveillance, data systems and outbreak response for fungal diseases; 3) Enteric disease surveillance strengthening, including case confirmation. The Capacity Building strategy will include the following activities: 1) Country-level Water, Sanitation, and Hygiene (WASH) programs capacity building; 2) Wastewater and Environmental Surveillance capacity building; 3) Regional capacity building for Whole Genome Sequencing (WGS), bioinformatics, lab diagnosis and outbreak preparedness; 4) Country-level WGS and lab diagnosis capacity building and 5) Epidemiology and Laboratory Workforce development for foodborne, waterborne, and fungal diseases. Locations of activities will vary, based on CDC priority, but will include multiple regional and country-level locations. **Due April 2.**

Open Solicitations and BAAs

[BAA's remain open for one or more years. During the open period, agency research priorities may change or other modifications are made to a published BAA. If you are submitting a proposal in response to an open solicitation, as below, check for modifications to the BAA at Grants.gov or by



utilizing [Modified Opportunities by Agency](#) to receive a Grants.gov notification of recently modified opportunities by agency name.]

Broad Agency Announcement for the Army Rapid Capabilities Office

This Broad Agency Announcement (BAA), W56JSR-18-S-0001, is sponsored by the Army Rapid Capabilities Office (RCO). The RCO serves to expedite critical capabilities to the field to meet Combatant Commanders' needs. The Office enables the Army to experiment, evolve, and deliver technologies in real time to address both urgent and emerging threats while supporting acquisition reform efforts. The RCO executes rapid prototyping and initial equipping of capabilities, particularly in the areas of cyber, electronic warfare, survivability and positioning, navigation and timing (PNT), as well as other priority projects that will enable Soldiers to operate and win in contested environments decisively. This BAA is an expression of interest only and does not commit the Government to make an award or pay proposal preparation costs generated in response to this announcement. Questions concerning the receipt of your submission should be directed:

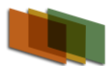
<http://rapidcapabilitiesoffice.army.mil/eto/>

Technical questions will be sent to the appropriate Technical Points of Contact (TPOC), topic authors, and/or Subject Matter Experts (SMEs) to request clarification of their areas of interest. No discussions are to be held with offerors by the technical staff after proposal submission without permission of the Army Contracting Command-Aberdeen Proving Ground (ACC-APG) Contracting Officer. **Open to March 23, 2023.**

W911NF-18-S-0005 U.S. Army Research Institute for the Behavioral and Social Sciences Broad Agency Announcement for Basic, Applied, and Advanced Research (Fiscal Years 2018-2023)

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) announces the ARI FY18-23 Broad Agency Announcement for Basic, Applied, and Advanced Scientific Research. This Broad Agency Announcement, which sets forth research areas of interest to the United States Army Research Institute for the Behavioral and Social Sciences, is issued under the provisions of paragraph 6.102(d)(2) of the Federal Acquisition Regulation (FAR), which provides for the competitive selection of proposals. Proposals submitted in response to this BAA and selected for award are considered to be the result of full and open competition and in full compliance with the provisions of Public Law 98-369 (The Competition in Contracting Act of 1984) and subsequent amendments. The U.S. Army Research Institute for the Behavioral and Social Sciences is the Army's lead agency for the conduct of research, development, and analyses for the improvement of Army readiness and performance via research advances and applications of the behavioral and social sciences that address personnel, organization, training, and leader development issues. Programs funded under this BAA include basic research, applied research, and advanced technology development that can improve human performance and Army readiness.

Those contemplating submissions of a proposal are encouraged to contact the ARI Technical Point of Contact (TPOC) for the respective topic area cited in the BAA. If the R&D warrants further inquiry and funding is available, submission of a proposal will be entertained. The recommended three-step sequence is (1) telephone call to the ARI TPOC or responsible ARI Manager, (2) white paper submission, (3) full proposal submission. Awards may be made in the form of contracts, grants, or cooperative agreements. Proposals are sought from educational institutions, non-profit/not-for-profit organizations, and commercial organizations, domestic or foreign, for research and development



(R&D) in those areas specified in the BAA. The U.S. Army Research Institute for the Behavioral and Social Sciences encourages Historically Black Colleges and Universities/Minority Serving Institutions (HBCU/MSI) and small businesses to submit proposals for consideration. Foreign owned, controlled, or influenced organizations are advised that security restrictions may apply that could preclude their participation in these efforts. Government laboratories, Federal Funded Research and Development Centers (FFRDCs), and US Service Academies are not eligible to participate as prime contractors or recipients. However, they may be able to participate as subcontractors or Subrecipients (eligibility will be determined on a case-by-case basis). **Open to April 29, 2023.**

FA8650-17-S-6001 Science and Technology for Autonomous Teammates (STAT)

The objective of Science and Technology for Autonomous Teammates (STAT) program is to develop and demonstrate autonomy technologies that will enable various AF mission sets. This research will be part of Experimentation Campaigns in: 1 -Multi-domain Command and Control; 2-Intelligence, Surveillance, Recognizance (ISR) Processing Exploitation and Dissemination (PED); and 3- Manned-Unmanned combat Teaming to demonstrate autonomy capabilities to develop and demonstrate autonomy technologies that will improve Air Force operations through human-machine teaming and autonomous decision-making. The technology demonstrations that result from this BAA will substantially improve the Air Force's capability to conduct missions in a variety of environments while minimizing the risks to Airmen. The overall impact of integration of autonomous systems into the mission space will enable the Air Force to operate inside of the enemy's decision loop.

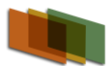
STAT will develop and apply autonomy technologies to enhance the full mission cycle, including mission planning, mission execution, and post-mission analysis. Particular areas of interest include multi-domain command and control, manned-unmanned teaming, and information analytics. The technology demonstrations that result from this BAA will substantially improve the Air Force's capability to conduct missions in a variety of environments while minimizing the risks to Airmen. The overall impact of integration of autonomous systems into the mission space will enable the Air Force to operate inside of the enemy's decision loop. This effort plans to demonstrate modular, transferable, open system architectures, and deliver autonomy technologies applicable to a spectrum of multi-domain applications. Development efforts will mature a set of technologies that enable airmen to plan, command, control, and execute missions with manageable workloads. The software algorithms and supporting architectures shall:

- Ingest and understand mission taskings and commander's intent
- Respond appropriately to human direction and orders
- Respond intelligently to dynamic threats and unplanned events

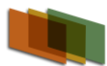
Chosen technologies will be open, reusable, adaptable, platform agnostic, secure, credible, affordable, enduring, and able to be integrated into autonomous systems. The program will be comprised of various technologies developed by AFRL and Industry, integrated into technology demonstrations and deliverables with all the necessary software, hardware, and documentation to support AFRL-owned modeling and simulation environments for future capability developments. Thus, all technology development efforts must adhere to interface designs and standards. **Open to July 23, 2023.**

ARMED FORCES PEST MANAGEMENT BOARD (AFPMB)

The Armed Forces Pest Management Board (AFPMB), an agency of the Department of Defense (DoD), is soliciting pre-proposals for original and innovative research designed to develop new interventions



for protection of deployed military personnel from diseases caused by arthropod-borne pathogens and to improve control of bed bugs and filth flies. Diseases of significant concern include Lyme disease, malaria, dengue fever and other arboviruses. The program supports development of: (1) new toxicants or the adaptation of existing toxicants to medically relevant pests; (2) new insecticide application techniques; (3) new personal protection tools that prevent human-vector contact; (4) decision support tools and (5) novel vector surveillance tools that focus on improved control outcomes. Ideally the research would support **Advanced Technology Development** (see [DoD Financial Management Regulation Volume 2B, Chapter 5](#), DoD RDT&E Budget Activity 3) of new insecticides or improved formulations of existing insecticides for vector control, new technology or enhanced modalities of personal protection from biting arthropods, or improved efficacy and sustainability of equipment for vector surveillance and application of pesticides for vector control in a military operational environment. Research should be product-oriented, consisting of advanced research related to a particular technology or new capability, evaluation of experimental products for military uses, or research directed towards development of an existing prototype product for commercial manufacture. Research should include semi-field or field evaluation of prototype products. Research should not include testing and evaluation of commercial products. Any pesticide end use products described in the proposed research should be destined for registration by the U. S. Environmental Protection Agency (EPA). The research must be primarily applicable to the military, products should be transferable to civilian uses. The program consists of competitive grants open to principal investigators (PIs) from academia, industry, and local or state government agencies. Federal Agencies (including DoD) may apply subject to appropriate regulations. This BAA is intended to solicit pre-proposals for AFPMB for those parts of development not related to a specific system or hardware procurement in accordance with Title 2, Subtitle A, Chapter II, Part 200 CFR. The purpose of this BAA is to identify the best available science, and as such, there are no set-asides associated with any awards resulting from this BAA. Specific areas of interest are described in the "Areas of Interest" section of this BAA. This Announcement provides a general description of project areas, including specific areas of interest, general information, evaluation and selection criteria, and proposal preparation instructions. All documentation and or attachments that are required with the submission of a full proposal, if requested, are described in the Mandatory Proposal Forms section of this announcement. Awards are typically made under grants; however, other funding opportunities may be considered. **Open to Oct. 31, 2024**



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- **Training for Faculty** - [Online and in-person workshops, self-paced online courses, and proposal development retreats and bootcamps](#) on how to find and compete for research funding from NSF, NIH, DoE and other government agencies as well as foundations.
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- **Editing and proof reading** - proposals, journal articles, book manuscripts
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