

Research Development & Grant Writing News

Volume 10, Issue 1: September 15, 2019

©Please do not post to open websites©

Table of Contents

- [Topics of Interest URLs](#)
- [Humanities Funding: A Travel Guide with a Stop at the National Humanities Center](#)
- [Selected URLs for Humanities, Social Sciences, and Arts \(HSSA\) Funding](#)
- [What Is Your Great Idea and Why Is It Important?](#)
- [Applying for the DARPA Young Faculty Award](#)
- [Gain an Advantage in Funding Success by Reviewing Project Abstracts](#)
- [FFAR Annual Report Offers Key Insights into Competing for Agricultural Research](#)
- [Communications on Interdisciplinary Team Grants](#) (Reprinted from Dec. 15, 2016)
- [Research Grant Writing Web Resources](#)
- [Educational Grant Writing Web Resources](#)
- [Agency Research News](#)
- [Agency Reports, Workshops & Roadmaps](#)
- [New Funding Opportunities](#)
- [About Academic Research Funding Strategies](#)

Subscribe to RD&GWN [here](#).

[Katherine E. Kelly, PhD](#): Editing in the Humanities & Humanities Related Social Sciences

Have You Hired New Faculty?
2nd edition [New Faculty Guide to Competing for Research Funding!! Order Here](#)

Our Large Team Grant eBook!
[Strategies for Planning, Developing, and Writing Large Team Grants Order Here](#)

Research Development & Grant Writing News ©

Published monthly since 2010 for faculty and research professionals by

**[Academic Research Funding Strategies, LLC](#)
[Mike Cronan](#) & [Lucy Deckard](#), co-Publishers**

Copyright 2019. All rights reserved.

[Subscribe Online \(Hotlink\)](#)

Queries: mjcronan@gmail.com

©Please do not post to open websites©

About the co-publishers

[MIKE CRONAN, PE](#) (Texas 063512, inactive) 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](#) (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.

About the Editor

[KATHERINE E. KELLY](#), Ph.D., is a retired English professor from Texas A&M University. She 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 **editorial services** to [RD&GW News](#) and to ARFS clients on proposals, journal articles, and manuscripts.

Research Development & Grant Writing News

Topics of Interest URLs

(Back to [Page 1](#))

[THE SKILLED TECHNICAL WORKFORCE: Crafting America's Science & Engineering Enterprise](#)
[White House releases R&D priorities for 2021](#)
[OSTP Director Details R&D Priorities for Trump's Next Budget Request](#)
[NSF's Plan for Operations During a Lapse in Appropriations, August 1, 2019](#)
[NIH's Anti-Sexual Harassment Policies for Awardees \(Revised 8-16-19\)](#)
[New "All About Grants" Podcast on NIH's Anti-Sexual Harassment Policies for Awardees](#)
[Thoughts on How Institutions Can Promote a Culture of Research Integrity](#)
[New Centralized Notification for Unfunded Applications](#)
[Higher Education in Science and Engineering](#)
[NSF Physics Funding Mechanisms Reviewed in New Reports](#)
[Physics Frontiers Centers](#)
[Microbusinesses Spent \\$4.8 Billion on R&D Performance in the United States in 2016, According to New Survey](#)
[Microbusiness R&D and Innovation: 2016](#)
[Enhancing Diversity in Life Sciences: HHMI Hanna Gray Early Career Fellowships](#)
[Notice of Informational Webinar on the NIH Maximizing Opportunities for Scientific and Academic Independent Careers \(MOSAIC\) Program Funding Opportunity Announcements \(UE5 and K99/R00\)](#)
[Thoughts on How Institutions Can Promote a Culture of Research Integrity](#)
[Division of Chemistry Newsletter, NSF Summer 2019](#)
[Dear Colleague Letter: MPS/DMS-EPSRC Lead Agency Opportunity in Mathematical Sciences](#)
[Request for Applications to become a 2020-2019 ARIS Fellow](#)
[The Sigma Xi Grants in Aid of Research](#)
[Dissertation Research in Architecture, Architectural History, Designed Environment, Urban Planning, Theory, Criticism: Manny Award - LOI](#)
[Improving Undergraduate STEM Education: Education and Human Resources \(IUSE: EHR\)](#)
[Inclusion Across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science \(NSF INCLUDES\) - NSF INCLUDES Planning Grants](#)
[RWJF Early Career Research: Advancing Equity, Diversity, Inclusion in Policy and Law Research:](#)
[Uncovering a Hidden Zika Outbreak in Cuba](#)
[NSF/Intel Partnership on Foundational Microarchitecture Research \(FoMR\)](#)
[National Defense Authorization Act for Fiscal Year 2020: House and Senate Proposals](#)
[Postdoctoral Research Fellowships in Biology \(PRFB\)](#)
[American Assoc of Univ Women AAUW Fellowships: Dissertation; Postdoctoral; Summer/Short-Term Research](#)
[Google Faculty Research in Computer Science, Engineering, Related Fields](#)
[SSRC Mellon International Dissertation Research Fellowship Program in Humanities and Humanistic Social Sciences](#)
[NAEd-Spencer Postdoctoral Education Research Fellowship](#)
[NAEd-Spencer Dissertation Fellowship for Projects Relevant to Education](#)
[Earhart Graduate Fellowships for Women in Aerospace-related Fields](#)
[The Good Food Industries Inaugural Competitive Research Grant Program](#)
[Newcombe Doctoral Dissertation Fellowships to Study Ethical or Religious Values in Humanities, Social Sciences](#)
[The Institute for Aegean Prehistory \(INSTAP\) 2020 Grant Program](#)
[Research Grants in the Arts](#)
[NIH Grants and Funding site!](#)
[NASA University Student Research Challenge](#)
[NASA Space Technology Graduate Research Opportunities](#)
[NSF Physics Funding Mechanisms Reviewed in New Reports](#)
[The Amazing Brain: Mapping Brain Circuits in Vivid Color](#)
URLs Continue Next Page

Research Development & Grant Writing News

[N00173-19-S-BA01 NRL Long Range Broad Agency Announcement \(BAA\) for Basic and Applied Research](#)

[Examining Different Industry Classification Methods for Business R&D](#)

[Emerging Frontiers in Research and Innovation 2020 \(EFRI-2020\)](#)

[Important Writing Skills for Careers in the Environmental Industry](#)

[NASA Directed to Map Out 'Moon-to-Mars' Plans](#)

[Trends in Graduate Student Financing: Selected Years, 2003–04 to 2015–16](#)

[NIH bolsters funding for HIV implementation research in high-burden U.S. areas](#)

[NIH announces six inaugural Genomic Innovator Awards](#)

[NSF commits \\$36 million to uncovering Rules of Life that will drive next-generation research](#)

[Retraction Watch](#)

[ECA: Study of the US Institutes for Scholars](#)

[NEA: Sound Health Network - Understanding Connections between Music and Wellness](#)

[DARPA Semantic Forensics \(SemaFor\)](#)

[DARPA ReSource Program - Technologies to Convert Plastics, etc. into Food or Strategic Chemicals](#)

[Doctoral Dissertation Research on Crafts, Art, Design, Contemporary Culture](#)

[Review and Update of U.S. Coast Guard Vessel Stability Regulations and Guidance](#)

Humanities, Humanities-Related Social Sciences, and Arts (HSSA) Funding: A Travel Guide with a Highlighted Stop at the National Humanities Center

Copyright 2019 Academic Research Funding Strategies. All rights reserved.

A Review by Katherine E. Kelly, PhD

[\(Back to Page 1\)](#)

Katherine E. Kelly is a retired English professor from Texas A&M University. She 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 editorial services to ARFS clients on proposals, journal articles, and manuscripts.

A search for support in the fields of humanities, humanities-related social sciences, and arts (HSSA) will take applicants on scenic highways, through small and large towns, and across deserts as they seek out funding sources that match closely with their projects. In contrast, applicants in STEM fields travel via major highways and might pay a few tolls for streamlined journeys to funding. The HSSA applicant needs to be prepared for the decentralized nature of an HSSA funding search. It requires determination, persistence, and creativity to systematically survey and analyze all possible routes to funding.

For example, Grants.gov, the mother of all support databases for STEM fields, will yield the major **federal** agencies supporting arts and humanities—NEA and NEH—and it will list all federal opportunities that might apply to humanities-related social sciences—the Departments of Education, Health and Human Services, Justice, Labor, and State, as well as the Institute of Museum and Library Services, and the National Archives and Records Administration. But it will not list the large number of **non-federal academic institutions, professional associations, and private or nonprofit funding sources** dotting the national landscape.

In this issue, we'll visit the **National Humanities Center** in North Carolina's Research Triangle—a privately incorporated, nonprofit, and independent institute without a university or federal affiliation. Their website, <https://nationalhumanitiescenter.org/>, describes the focus of their fellowships: "Most . . . fellowships are unrestricted. Several, however, are designated for particular areas of research, including fellowships for environmental studies, English literature, art history, Asian studies, theology, and for early-career female philosophers. The Center also invites applications from scholars in interdisciplinary fields, including African-American studies, area studies, bioethics, cultural studies, history of science and technology, film and media studies." In addition:

- **All fellowships are residential**, requiring successful applicants to reside close to and work in the Center for the duration of the fellowship. The Center will provide housing suggestions and advice.
- **In addition to all fields of the humanities**, the Center also accepts applicants in the natural and social sciences, the arts, the professions, and public life, provided those projects are informed by and contribute significantly to humanities scholarship.
- **Successful candidates** usually will have published at least one single-author monograph or a significant body of peer-reviewed scholarship. The Center is unable to fund projects that are collections or primary sources, edited volumes or collaborative works (unless all collaborators apply individually and are also awarded a fellowship for the project),

Research Development & Grant Writing News

creative projects (such as works of fiction or poetry), or explicitly pedagogical works (such as syllabi and textbooks). Any projects insufficiently advanced beyond the dissertation project are also deemed ineligible. The Center does not fund post-docs, so the applicant must be working on a second significant project beyond the dissertation. There is no upper age limit, but senior candidates must be actively engaged in scholarly research which will eventuate in significant publication. Fluency in written and spoken English is required.

- **Award amounts** are individually determined, according to the needs of the Fellow and the Center's ability to meet them. The Center seeks to provide half salary up to \$65,000. Other grants or institutional support that Fellows will receive during their fellowship may also affect the amount of the Center's stipend.
- **N.B. The NHC is currently offering four fellowships for scholars from Historically Black Colleges and Universities (HBCUs) with funding from the Andrew W. Mellon Foundation. For detailed information, go to:**
<https://nationalhumanitiescenter.org/become-a-fellow/hbcu-applicants/> For the 2020–21 residential fellowship competition, applications are available via the NHC online system as of July 1, 2019. All fellowship applications are due October 10, 2019.
- **Schedule:** The 2020–21 National Humanities Center fellowship competition will open on July 1, 2019 and close on October 10, 2019.

Selected URLs for Humanities, Social Sciences, and Arts (HSSA) Funding

Copyright 2019 Academic Research Funding Strategies. All rights reserved.

A Review by Katherine E. Kelly, PhD

[\(Back to Page 1\)](#)

Katherine E. Kelly is a retired English professor from Texas A&M University. She 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 editorial services to ARFS clients on proposals, journal articles, and manuscripts.

Our goal here is not to direct readers to the most comprehensive listing of funding opportunities, but to select university funding pages that list some of the most reliable national, state-level, and private funding sources. Be sure to ask within your own department or college who has funded the work of your colleagues; interview those colleagues and request a copy of their proposal. Ask them how the process unfolded. Double-check all deadlines listed by visiting each sponsor's website. Future issues of ARFS News will feature a more complete profile of selected federal and private agencies that fund HSSA.

- **Boston University--List of Humanities Fellowships, Grants, and Awards.**
<https://www.bu.edu/cas/faculty-staff/faculty-staff-handbook/research/research-resources/humanities-fellowships-and-grants-deadlines/> (comprehensive). Go to individual award websites listed for most current information, including deadlines.
- **University of Colorado, Boulder--Select Arts and Humanities Funding Opportunities.**
<https://www.colorado.edu/researchinnovation/research-development/funding/arts-humanities-funding-resources> (comprehensive)
- **Duke University--Research Funding** https://researchfunding.duke.edu/search-results?&opportunity_category%5B0%5D=256 (Very comprehensive). Funding table includes: Award deadline (where appropriate), title, funding agency, discipline, eligibility, award amount, date posted.
- **Humanities Indicators--**<https://www.humanitiesindicators.org/content/indicatordoc.aspx?i=11>
This site does not list awards; instead, it shows trends in past and current federal budgets for the HSSA.
- **University of Kansas, Hall Center for the Humanities--Research & Grant Development Office (RGDO). Humanities, Arts, and Social Sciences Funding Resources**
<https://hallcenter.ku.edu/funding-resources> (comprehensive). Offers links to Microsoft Word documents describing each award listed. Additional links to more awards offered (e.g., Humanities Centers, Major Arts Funding Agencies) are listed on left side of the webpage above.
- **NYU Grants and Proposals—Arts and Humanities**
<https://guides.nyu.edu/c.php?g=276605&p=1847929> (selective)
- **Swarthmore—Humanities Opportunities by Date** <https://www.swarthmore.edu/sponsored-programs/humanities-opportunities-date> (selective)
- **Washington University St. Louis--Funding for research** <https://research.wustl.edu/funding/> (selective) Competitive External Funding Opportunities
- **William and Mary--Humanities Funding Sources A-Z** (comprehensive)
<https://www.wm.edu/offices/sponsoredprograms/funding/humanities/index.ph>

What Is Your Great Idea and Why Is It Important?

Copyright 2019 Academic Research Funding Strategies. All rights reserved.

By Mike Cronan, co-publisher

[\(Back to Page 1\)](#)

Everything you need to know about writing funded research grants is encapsulated in and motivated by how well prepared you are to answer this iconic question-- *What is Your Great Idea and Why is It Important?* This question lies at the heart of every funding solicitation by every funding agency supporting research in every possible discipline. It is such a simple question, but yet so deeply probing, that its significance is often not fully appreciated. And when it is addressed in the proposal narrative, its treatment often lacks the focus and clarity it requires to answer the “*why and how questions*” at its core. Keep in mind that many proposals are poorly reviewed because they overemphasize what they are going to do and underemphasize how they will do it--both correctable errors addressed through better narrative outlines and planning, as well as better writing.

What you will do can be thought of as an inspirational or visionary introduction to your proposed project that should appear **in the first narrative section** that will be read by reviewers and program officers (e.g., “Our proposed research will inform future spacecraft design about the materials needed to give astronauts on a three-year Mars mission protection from two forms of radiation: solar proton events and galactic cosmic radiation.”). However, **what you propose to do** must be quickly validated in the research narrative by a detailed description of **how you will do it**. The former is a laudatory goal, but the latter is where the rubber meets the road; without it, the project is merely an unrealized pipe dream.

Unfortunately, a **what we will do statement** without a convincing **how we will do it statement** is commonly cited by reviewers and program officers as a reason for declining to fund a proposal. Or, in this instance, how you will protect astronauts from cosmic radiation on the long journey to Mars is what the reviewers want to know in order to make an informed funding decision, not to mention the critical importance of the **how statement** to the astronauts making the journey.

In this regard, the beginning of your research or project narrative must address (1) why is the research significant to the field, or the discipline, or the agency mission; (2) how does the proposed research fit in the context of other cutting-edge work in the field, and how does it advance that research; and (3) how do you plan to accomplish your research goals and objectives. and how does your research hypothesis or research questions advance the field.

Moreover, addressing the above questions is becoming increasingly challenging as federal research agencies have an **expectation of transformational rather than incremental research**. Or, under the rules of the old children’s game, “Mother May I,” whereby you request permission to take some number of giant, regular, or baby steps, either forward or backward, the federal agency research “mother” (e.g., NSF, NIH, DARPA) is interested only in funding requests for giant or transformational steps forward . . . no regular or baby steps need apply.

While this advice appears straight forward, it is too often unrealized in proposal narratives, particularly in those written by new and more junior faculty. Well-funded senior faculty would not be well-funded senior faculty if they ignored this advice. If there is a lesson for new faculty seeking funding support to advance their research and hence promotion and

Research Development & Grant Writing News

tenure, **this is it**. But while it is an easy lesson to learn, it is a challenging one to put in practice for several reasons.

For example, many proposal authors get out in front of their skis by drafting a proposal narrative before they've written **a well-organized project outline** based on the agency's goals and objectives described in the funding solicitation. This outline helps the applicant offer reviewers and program offices **a logical, stepwise process** that describes what you will do, why you will do it, how you will do it, the significance of doing it, and the applicant's capacity for doing it.

The **common error in this example** is that, without a well-considered and logically ordered narrative outline, the critical first descriptions of "*what, why, how*" become mixed together in a narrative hodgepodge that reviewers will struggle to understand. In many cases, they won't understand it because they will become quickly impatient and annoyed rather than receptive to a funding recommendation. Writing a proposal without a guiding narrative outline often leads to text that jumps back and forth among key topics, failing to present the kind of sustained and logically ordered argument that warrants funding.

Another reason why these key questions may be challenging to answer, and one more serious and refractory to correction, is that the **proposed research itself is not yet ready for prime time**. For example, it may still be in an early developmental stage, or it may be a potentially important research area without a competitive research team in place, or it may only partially address the goals and objectives of the funding solicitation and therefore fail to respond fully to the solicitation, or the applicant may be lacking sufficient preliminary data or publications to make a strong case for funding, and so on.

The bottom line here is that being prepared to answer this question--*What is Your Great Idea and Why is It Important?*—is a **fundamental prerequisite for a funded proposal**. If you struggle with answering that question, you will have to determine the source of the struggle—is it with organizing your great idea, or is the struggle with the development of the idea itself?. In grant writing, it is not a philosophical question of "*what came first the chicken or the egg*"; it is ***always the case that a fully developed great idea comes first and the funding will follow***.

The inverse of this is the **scourge of reviewers and program officers alike**—the "**trust me proposal**," i.e., ***give me the money and trust me to develop a great idea***. Reviewers are selected because they have a unique expertise in the field; asking them to review a "trust me" proposal as if they just "fell off the turnip truck" would be a grievous miscalculation.

Applying for the DARPA Young Faculty Award

Copyright 2019 Academic Research Funding Strategies. All rights reserved.

By Lucy Deckard, co-publisher

(Back to [Page 1](#))

The Defense Advanced Research Projects Agency Young Faculty Award ([DARPA YFA](#)) is one of the relatively numerous agency grant programs specifically for early-career faculty. However, the DARPA YFA is different from other programs like the [NSF CAREER](#) or [ONR Young Investigator Program](#) in a number of ways.

- **Eligibility** requirements are broader than most early-career programs. Eligibility is extended to Associate Professors (tenured as well as tenure-track), as well as Assistant Professors, as long as you have been tenured **no longer than 3 years**. (If you work at a non-profit research institution that does not award tenure, you must be within 12 years of receiving your Ph.D. Otherwise, there is no restriction regarding how long it has been since your Ph.D. was awarded.) You may be a Foreign National without U.S. Residency as long as you work at a U.S. institution and meet the other eligibility criteria (see page 18 of the [solicitation](#)).
- DARPA includes an optional initial phase in which potential PIs can submit a **1-page Executive Summary** to obtain feedback on whether the topic is of interest to DARPA. This provides faculty the opportunity to avoid the time and effort of preparing a full proposal for a topic that isn't of interest to DARPA. This year's deadline for submitting and **Executive Summary is coming up fast, on September 18th, 2019**. (Note that this step is optional, and you can submit a full proposal even if you receive negative feedback, or if you don't submit an Executive Summary.) The full proposal is due November 19, 2019
- Each competition, the YFA solicitation designates a number of Topic Areas (TAs) of interest. **Proposals must address at least one of these TAs**. (This year's solicitation lists 27 TAs.)
- In contrast to most grant programs for early-career faculty, it's not critical that you talk to the program manager or have a previous relationship with the funder. In fact, one of DARPA's goals for this program is to encourage the next generation of excellent researchers to work on topics of interest to DARPA. This means that DARPA is interested in working with researchers who have no previous history with DARPA. That said, it's a good idea to do some research so that you understand DARPA's thinking and language related to your proposal topic, as we'll discuss below. Note also that the optional Executive Summary phase serves a similar purpose as a discussion with the program manager since it will allow you to get feedback on DARPA's interest in your proposed idea.
- Most other awards provide 3 to 5 years of funding. The YFA provides a 2-year base grant (up to \$500K) with a potential additional year (up to \$500K) that may be awarded by DARPA based on exceptional performance. This shorter funding period is consistent with

Research Development & Grant Writing News

DARPA's general outlook: they fund high-risk, high-payoff ideas, but if an idea isn't working, they quickly "cut bait" and move on to another idea.

- The one-page Executive Summary must be anonymized, meaning you should not include any information that identifies you or your institution. This optional preliminary phase is all about your *idea*, not your publications or track record.

DARPA and the Crazy Idea

As we have mentioned in previous articles, DARPA's culture is very different from that of the rest of the Department of Defense. DARPA mission is to help the US to be the instigator, not the victim, of "technical surprise." This word, "surprise" says it all. DARPA is trying to identify and catalyze breakthroughs and disruptive concepts, not just promote scientific or technical progress. In other words, they're looking for the out-of-the-box, "this is crazy but it just might work" kinds of ideas. In DARPA's words, they're looking for "revolution, not evolution."

For a researcher pursuing funding from DARPA, this means that you must make a strong argument for how your idea is highly innovative and potentially game-changing. You need to scrutinize both your idea and the language you use to describe that idea. If your project is the next logical step in an established line of research, it's probably not going to be considered "out-of-the-box" enough for DARPA.

Similarly, if you describe your idea using careful academic language, you run the risk of underselling how innovative it is. This is the time to take off your cautious academic hat and put on your enthusiastic salesperson hat. Explain clearly and enthusiastically how this idea could provide a breakthrough for the problem at hand, and describe how what you're proposing is *fundamentally different* from what others working on this problem have tried.

Speak to DARPA in Their Language

While it's important to convince DARPA that your idea is innovative, it's also important to demonstrate that you understand the problem, DARPA's thinking on that problem, and what DARPA has funded so far. You can do this by doing a little research and using their terminology in your proposal.

Once you've identified the Topic Area you will address, look for information on DARPA initiatives in that topic. If you have colleagues funded by DARPA, talk to them. Go to the "[Our Research](#)" tab on DARPA's website and search programs by topic. Once you find programs that relate to your topic, follow those breadcrumbs by looking at reports, conferences, or workshops that have come out related to that topic. Search on other programs run by that Program Manager. In this way, you can start to understand how DARPA is framing the problem, the approaches they have tried, and the terminology they use.

Plan Your Project for Quick Results

A consequence of DARPA's focus on high-risk projects is that most projects they fund will fail. To avoid "throwing good money after bad," DARPA is quick to stop funding an idea that isn't working out. As we mentioned earlier, this is one reason that base funding is only for 24 months. This means that as a YFA PI, you should plan your project so that you can quickly generate evidence that your idea might work.

Research Development & Grant Writing News

Recognize that you may need to fight your natural inclination as an academic to follow a careful, rigorous (and slow) approach in favor of a somewhat “quick-and-dirty” approach in order to at least demonstrate a proof of concept. This is not the time to conduct an extensive testing program to understand underlying mechanisms in detail if the result after 24 months is likely to be that more research is needed to determine if your idea will work. Think about what deliverable you could achieve within 24 months that would excite your Program Manager and justify further funding, and plan your project accordingly.

Finally, if you have an idea that you think would be of interest to DARPA, remember that even if you don’t win the YFA, applying is a great way to get your idea in front of a DARPA program manager.

More YFA Resources

- [Slides for YFA Proposers Day Webinar](#)
- [YFA Administrative FAQ](#)
- [YFA Topic Area FAQ](#)
- Email address to submit a question for the FAQ: YFA2020@darpa.mil . (All questions must be in English and must include the name, email address, and the telephone number of a point of contact.)

Gain an Advantage in Funding Success by Reviewing Project Abstracts

Copyright 2019 Academic Research Funding Strategies. All rights reserved.

By Mike Cronan, co-publisher

[\(Back to Page 1\)](#)

Reading abstracts of recently funded research projects at federal agencies is the grant writing equivalent of college coaches and athletes reviewing game videos to gain a future strategic advantage. Of course, in reviewing project abstracts, you are not competing with the project PIs who have already been funded under the program. Rather, you are competing against unknown PIs in an upcoming competition and ***seeking to gain a funding advantage over them by distilling from the abstracts common denominators present in all or many of the currently funded projects.*** To identify common denominators among currently funded projects and to compare those to the funding solicitation guidelines offers one more important piece of information that can be used to write a more informed and hence more competitive project description. It would be equally important to access the abstracts of proposals declined for funding and identify common dominators among them. Unfortunately, that is not going to happen.

While the project abstracts will have unique project goals, objectives, and research plans, all funding agencies, both basic and applied, have priority strategic investment strategies that help them achieve their research mission objectives through funded awards. In turn, ***successful proposals all share one common characteristic***, regardless of agency: they make a ***clear and compelling case that the proposed research will bring significant value-added benefits to the agency mission and/or advance the disciplinary field in some important way(s).*** Getting a sense of how that was done using the abstracts, funding solicitation, and agency mission statements as resource documents offers one more insight needed, among many, to write a funded proposal made successful by aligning your research with the agency's mission priorities and advancing them in significant ways.

This is where reviewing abstracts of funding projects comes into the equation for planning, developing, and writing a successful proposal. Specifically, reviewing abstracts of recently funded projects gives researchers yet another source of information about the interests of a funding agency by presenting review panels' and program officers' selections of successful proposals. ***Reading the abstracts of funded projects will give you a more nuanced understanding of the funding agency culture and expectations specific to a solicitation***, or cluster of solicitations, within a disciplinary domain. Abstracts from the most current past funding cycles are typically the most informative because annual grant solicitations often evolve over time. This is particularly true when reading abstracts of research, educational, and institutional initiatives funded by programs with long-running annual solicitations, such as those at NIH and NSF.

It should be noted here that analyzing abstracts of funded projects is an invaluable learning tool for new faculty as well as faculty moving into new areas of research at agencies that are new to them. It is something that research offices can suggest to faculty who come to them looking for insight or assistance with writing a proposal. For example, NSF's currently

Research Development & Grant Writing News

open *Improving Undergraduate STEM Education: Education and Human Resources* ([IUSE: EHR](#)) program is a “core NSF undergraduate STEM education program that seeks to improve the effectiveness of undergraduate STEM education for both majors and non-majors. The program is open to application from all institutions of higher education and associated organizations.”

It is clear from the solicitation that NSF expects a large number of proposals from a broad spectrum of institutions and organizations to submit to this program, hence the [links](#) to online Webinars and Q&A sessions specific to submitting a proposal. However, two of the links are especially important for potential applicants: [What Has Been Funded \(Recent Awards Made Through This Program, with Abstracts\)](#) and [Map of Recent Awards Made Through This Program](#). These are especially valuable given the general nature of the solicitation and the need for applicants to get a better understanding of what **specific program activities** have been supported in the past in a way that helps flesh out the solicitation. This is especially true **where solicitation language is more aspirational than informative, a not uncommon conundrum for those writing proposals to NSF**. Similarly, the decades-old [Advanced Technological Education \(ATE\)](#) program has gone through numerous transformations over the past 30 years; therefore, if you are trying to determine the current focus of the program, your best program insight would more likely come from [What Has Been Funded \(Recent Awards Made Through This Program, with Abstracts\)](#) and talking to a current PI listed for a recently funded ATE rather than reviewing abstracts from proposals funded several program generations ago.

Project abstracts serve as an excellent complement to the program solicitation by giving **concrete examples** of successful applicant responses to the research goals and objectives defined in the solicitation. After all, funding solicitations run **the gamut from very prescriptive and specific with regard to agency goals to very open ended and general**, with the latter challenging potential applicants who must correctly gauge the most competitive research to put forward.

In some cases, particularly with institutional and educational initiatives, reviewing the abstracts of projects funded during the past two years **reveals a core of programmatic elements and activities common to all successful proposals**. That is, clear common denominators to all funded projects, or most of them, exist and can be discovered. This is particularly the case for educational programs funded by NSF.

In other cases, again, most often for educational and institutional grants or hybrid research and educational grants (cross cutting at NSF), reading ten or twenty abstracts of recently funded projects may reveal common program models or programmatic components viewed by program officers and reviewers as effective for achieving the goals and objectives of the particular solicitation.

For instance, the [NSF Research Experiences for Undergraduates](#) (REU) program is a very long-standing annual solicitation. The mentoring plan will comprise a core component of a successful proposal. Effective mentoring plans include proven mentoring activities. Reviewing the REU abstracts ([What Has Been Funded \(Recent Awards Made Through This Program, with Abstracts\)](#)), along with the REU literature, will help the new applicant understand which models the agency favors, and equally important, gain insight into the models the agency program officers might not favor. Moreover, reading abstracts of funded proposals specific to STEM, or that have a STEM component, may give you more insight into what winning applicants put

Research Development & Grant Writing News

forward as successful educational models that reflect best practices, evidence-based models, and dissemination plans.

Moreover, in many cases, abstracts include contact information for the principal investigators, including email addresses. On educational and institutional grants, in particular, the PI may be willing to share observations related to developing a competitive proposal to the particular program, and may even agree to share a copy of the funded proposal, reviewers' comments, and outcomes of annual performance reviews. PIs are more often willing to share information about educational and institutional grants than about a research grant where you may be viewed as a funding competitor. In many cases, e.g., NSF educational grants, the funding agency expects those funded to disseminate results related to "best practices" in such areas as K-12 education and undergraduate research.

In the final analysis, reading abstracts of funded projects can help researchers, both in education and research, better judge whether their proposal plans are in the ball park of what has been funded in the past or whether their ideas are far afield. Moreover, particularly at an agency like NSF that is continuously expanding its education and research boundaries, reading abstracts can also help determine whether an idea has already been well funded by the agency through various proposals and therefore may be in line for implicit "sunsetting" by the program managers and reviewers who are looking for the next new educational model or research direction.

In conclusion, most NSF program solicitations you might consider will have a link on the program website to "Recent Awards" made under the program; alternatively, you can search at the NSF [Award Search Database](#). It is also helpful to look at the NSF awards made by state to get an idea of award distribution nationally [HERE](#). At NIH, look for award information at [REPORTER](#).

As further examples, the [Current Research Information System](#) (CRIS) is the USDA's documentation and reporting system for ongoing and recently completed research and education projects in agriculture, food and nutrition, and forestry. CRIS provides an additional resource for searching specific topics and key words. For NOAA, go [HERE](#). For DOE go [HERE](#). If you are looking for other award databases, a good starting point is a Google search string "NAME OF AGENCY OR PROGRAM Award Database," or some variant, including your unique specifics, keeping in mind the geologist's adage "If you don't ask the right question, the rock won't answer." ***Sometimes it may take a little Google sleuthing to find abstracts at some agencies, but it is well worth the effort.***

Foundation for Food and Agriculture Annual Report Offers Key Insights into Competing for Agricultural Research

Copyright 2019 Academic Research Funding Strategies. All rights reserved.

By Mike Cronan, co-publisher

[\(Back to Page 1\)](#)

The 40-page [FFAR Annual Report](#) offers some excellent competitive insights into how to better position yourself for funding success in the increasingly broad area of research in the agricultural sciences. This research area is no longer the exclusive domain of USDA, but now includes such major federal funding agencies as NSF, DOE, and NIH, and thereby also includes such disciplines as engineering, computational sciences, and medicine, among others. In one way, you might think of USDA, NSF, NIH, and DOE as agencies whose domain of research interests have expanded to overlap significantly with USDA, as the complexity of scientific research in the agricultural sciences has grown significantly.

As noted in a companion article in this issue (*"Gain a Funding Success Advantage from Project Abstracts"*), all four of the above agencies do an excellent job of posting abstracts of funded projects to their websites. As discussed in the article, reading abstracts of funded projects offers important competitive insights to those seeking funding under the same or similar funding solicitations by allowing the applicant to better identify the **common denominators of successful** projects funded under a specific competition.

Moreover, it contributes to a more informed answer that is the lynchpin of every funded proposal: **"How does your research advance the state of the art in the field today?"** Being able to argue that your research is at the forefront in the field requires your understanding of the current state of the art in the field. Abstracts can be one aspect of many that help inform your answer to this key question. Another is agency reports such as this one from the [Foundation for Food and Agriculture Research](#). **FFAR's six Challenge Areas** listed below aim to solve large-scale food and agriculture problems, while understanding broad implications and impacts. Many may remember the FFAR Executive Director, Dr. Sally Rockey, prior to September 11, 2015, as the originator of the very informative NIH Blog, "Rock Talk," now continued as the [Open Mike](#) blog.

- The **Soil Health Challenge Area** enriches soil by building knowledge, fueling innovation and enabling the adoption of improved soil management.
- The **Sustainable Water Management Challenge Area** increases water availability and water efficiency for agricultural use, reduces agricultural water pollution and develops water reuse technologies.
- The **Next Generation Crops Challenge Area** develops non-traditional crops and creates new economic opportunities for conventional crops that will increase future crop diversity and farm profitability.

Research Development & Grant Writing News

- The **Advanced Animal Systems Challenge Area** supports sustainable animal systems through innovative technologies, environmentally sound production practices and advancements in animal health and welfare.
- The **Urban Food Systems Challenge Area** enhances our ability to feed populations through urban and peri-urban agriculture, bringing local food to these venues.”
- The **Health-Agriculture Nexus Challenge Area** supports innovative, systems-level approaches that reduce food and nutritional insecurity and improve human health in the United States and around the globe.”

The above challenge areas ***point you in a general direction*** from the so-called “*thirty thousand foot level*,” but writing a competitive proposal benefits enormously from some “***ground level*” details that come into much better focus** when reading abstracts of funded projects or similar descriptions, such as those presented in this report for projects funded by FFAR during 2018. In many ways, this is similar to scoping out funding from any other private foundation wherein the annual report becomes an excellent source of background information and detail that help you better map your research to the foundation’s mission. Basically, this exercise remains the same, whether it’s directed to federal or state agencies, or to private foundations. It’s the best method for determining ***how to best align your research to the agency mission*** in a way sufficient to get a positive funding recommendation.

You might think of all this as playing darts. The outer most circle of the dart board is inclusive of all inner circles and is the general area of interest, but project abstracts ***provide the detail*** that will help you better hit the bull’s eye. They do this by giving examples of agency-funded project activities that the agency and reviewers have determined ***best represent what the general goals and objectives of the program look like when fully dressed in specific details***. In this report, FFAR provides ***overviews of 50 grants funded during 2018***. These descriptions need to be read by those who wish to better their chances of FFAR funding. Studying abstracts of successful proposals tells applicants ***what success looks like at FFAR***. Adapting that discovery to the language of your own proposal gives you a distinct advantage.

Specific to the funding process, “FFAR issues a Request for Application (RFA) to solicit ideas from the broadest group of researchers. Some of FFAR’s programs issue RFAs annually and others are a one-time opportunity. The highest quality proposals in terms of technical merit and impact are selected for funding through a vigorous scientific review process.” FFAR also awards funding through prizes, direct grants, and consortia, ***but the RFA process will be the most likely avenue for funding for university faculty and others in the agricultural sciences***.

Twenty eight of the forty pages of this report describe projects funded in 2018. If you want to enhance your competitive chances at FFAR, read these descriptions in detail, keeping in mind common elements of success and how the goals and objectives of these funded projects contribute to the FFAR mission.

Communications on Interdisciplinary Team Grants

Copyright 2019 Academic Research Funding Strategies. All rights reserved.

Reprinted from December 15, 2016

By Mike Cronan, co-publisher

[\(Back to Page 1\)](#)

"What we've got here is failure to communicate." This iconic quote directed by the prison warden to a prisoner that refused to be broken played by Paul Newman in the classic 1967 film *Cool Hand Luke* could well represent the post mortem pronouncement on an unfunded interdisciplinary team proposal. ***After a fundable idea, team communications on interdisciplinary proposals is an essential ingredient for success.*** Many large proposals ***cry out for a project communications plan as part of the management strategy.*** Such a plan oils the operational interactions among numerous team members often at collaborating institutions; promotes consensus-based decision making; and ensures the timely and orderly distribution of important information across the project team. In many ways, creating a communications plan for large-team proposals is as important as creating one for a funded project, and perhaps more so, since poor communications can significantly impact the funding decision in a negative way.

It is often the case in large-team proposals that no matter how well the proposal development and writing has been planned, end game stressors prior to the due date can change an orderly process into an asymmetrical one. This can result in the ***last several days prior to the due date becoming increasingly disorganized***, at least in the perception of those responsible for producing the final research narrative and project budget. Those in research offices likely have "war stories" of this happening, perhaps putting them in mind of the William Butler Yeats poem *The Second Coming*, where he writes "*Things fall apart; the centre cannot hold; **Mere anarchy is loosed upon the world.***"

Single-institution team proposals are challenging enough, for example, but multi-institutional team proposals often reach another order of magnitude. They present challenges related to team dynamics and multiple institutional administrative protocols, especially when they are structured like an NSF collaborative proposal requiring multiple coordinated/concurrent submittals across numerous institutions. Regardless, the challenges of organizing a successful proposal development effort increase exponentially as a function of team size and institutional partners.

In these instances, one entry point into proposal development disorder, or perhaps the "anarchy" Yeats describes, arises in the final production stages of the research narrative and budget. Under deadline pressures, these final stages transform what should be a sequential and orderly process of information exchange into a chaotic, asymmetric process among participants. In short, this is where the "failure to communicate" enters the process, which most often means the failure of **coordinated communications**.

One of the more challenging forms of anarchy to be addressed by those responsible for finalizing the project narrative comes with producing numerous, daily draft iterations of the research narrative. Numerous iterations converging on narrative perfection are a fundamental requirement of funding success, but it can't be achieved without some major stressors. These stressors, for example, include end game narrative revising to meet page limits; rewriting narrative sections to better hone the vision, goals, and objectives of the project; improving

Research Development & Grant Writing News

tables and figures and ensuring they match the research narrative; and maintaining a consensus-based narrative revision process in a compressed timeline in a large-team environment.

In the final days of a proposal, consensus-based decision making on draft iterations (edits, rewrites, comments, visuals, etc.) occurs in a significantly compressed timeline for response turnaround. This is difficult because the principal investigators and senior project personnel typically have other time commitments as well, e.g., teaching, service, graduate students, research labs, etc., that compete for their time. Some members of the research team may be able to respond quickly and others not to the orderly flow of numerous draft iterations.

In these instances, one common cause of disorder occurs when, on a daily basis, numerous participants in the project respond to numerous iterations of the project narrative and ***too often in an asynchronous manner***, i.e., one team member responds to Draft 8 while others proceed to Draft 9 or even to Draft 6.

The proposal equivalent to the adage “*a day late and a dollar short*” is “*a day late and a draft short*.”

It may be that fewer than 24 hours separates Draft 9 from Draft 6, but in end game proposal submissions, ***24 hours is an eternity***. Moreover, when there is no discussion on naming each subsequent draft iteration, team members often make track-edit changes and then re-name the new file “*Draft 9 v.2*” or “*Draft 9.5*” until your head is swimming in a “Dewey Decimal System” of multiply named and numbered narrative drafts.

There is likely no perfect inoculation against end game stressors, but they can be significantly ameliorated. For example, all contributors can continuously update proposal drafts to reflect nearness to the due date by putting in place team communications protocols known to all in making changes to the current draft. This protocol names one person as the keeper of the master narrative draft. This is the only person who can make changes to the master document based on a series of track-edit revisions offered by team members. This ensures that all team members know the protocol for naming each new draft iteration, and it gradually reduces the number of team members permitted to suggest draft revisions and re-writes to those whose narrative contributions are critical to the proposal’s success. A day or two prior to the due date, the finalizing of the research narrative needs to be placed in the hands of the PI and a few key team members.

The bottom line here is to keep in mind that your original proposal development plan changes over time and as the due date draws near it is helpful to ***reexamine the plan to ensure it is sufficiently organized to withstand the many stressors related to team communications that come with finalizing the research narrative and the budget***.

Research Grant Writing Web Resources

([Back to Page 1](#))

What You Need to Know About NIH Grants, Straight from the Source at the NIH Regional Seminar

"What better way to learn about NIH grants policy and processes than straight from the source? The [NIH Regional Seminar on Program Funding and Grants Administration](#) provides an array of pre-seminar workshops and sessions over the course of three days, all presented by 70 NIH & HHS review, program, grants and policy experts! Check out some of these topics designed to help you understand the NIH grants process, such as:

- Application Preparation and Submission
- Understanding NIH Funding Mechanisms
- Human Subjects and Animals in Research
- Peer Review Mock Study Section
- Research Integrity
- Grants Policy and Compliance
- Budget Basics for Administrators and Investigators
- Navigating NIH Programs to Advance Your Career
- Inventions, Patents, Copyrights, & Data Sharing
- RePORT and Online Resources
- And so much more!

In addition to approximately 45 different session and workshop topics to choose from, you also have the opportunity to meet with our experts 1:1 to address your specific questions. Make plans to join your peers from all over the world and [register today](#) for the Fall 2019 NIH Regional Seminar in Phoenix, Arizona, November 6-8, 2019. See the tentative agenda, hotel/travel details, and more on the [NIH Regional Seminar site](#)."

NIH/NSF Joint Program

The [Ecology and Evolution of Infectious Diseases Initiative \(EEID\)](#), a joint National Institutes of Health (NIH)-National Science Foundation (NSF) program, supports efforts to understand the underlying ecological and biological mechanisms that govern relationships between human-induced environmental changes and the emergence and transmission of infectious diseases. Upcoming application deadline: November 20, 2019

- [Notice of NIH Participation in the Ecology and Evolution of Infectious Diseases Program \(NOT-TW-19-007\)](#), including details on the interests of NIH partners
- [Ecology and Evolution of Infectious Diseases \(EEID\) information, revision notes and synopsis](#) from the NSF

Research Development & Grant Writing News

Educational Grant Writing Web Resources

[\(Back to Page 1\)](#)

THE SKILLED TECHNICAL WORKFORCE: Crafting America's Science & Engineering Enterprise

Director's Biennial Report to Congress (FY2017-18)

The Institute of Education Sciences (IES) has released our Director's Biennial Report to Congress for Fiscal Years 2017-18. IES is focusing on its mission as an applied research agency. IES has invested—and will continue to invest—in basic research, but as a science and statistical agency housed in the U.S. Department of Education, the Institute's work focuses on improving the outcomes of learners throughout the life cycle. This means an emphasis on translating research for widespread use.

Implementing the Next Generation Science Standards: Strategies for Educational Leaders

"The Next Generation Science Standards embody a new vision for science education grounded in the idea that science is both a body of knowledge and a set of linked practices for developing knowledge. The authors describe strategies that they suggest school and district leaders consider when designing strategies to support NGSS implementation."

STEM Integration in K-12 Education: Status, Prospects, and an Agenda for Research

"Leaders in business, government, and academia assert that education in the STEM subjects (science, technology, engineering, and mathematics) is vital not only to U.S. innovation capacity but also as a foundation for successful employment, including (but not limited to) work in the STEM fields. K-12 STEM education, including standards and assessments, has tended to focus on the individual subjects, most often science and mathematics. The T and E of STEM have received relatively little attention. However, recent reform efforts, like the Next Generation Science Standards (NGSS), are stressing STEM connections - in the case of NGSS, between science and engineering.

STEM Integration in K-12 Education examines current efforts to connect the STEM disciplines in K-12 education. This report identifies and characterizes existing approaches to integrated STEM education, both in formal and after- and out-of-school settings. The report reviews the evidence for the impact of integrated approaches on various student outcomes, and it proposes a set of priority research questions to advance the understanding of integrated STEM education. STEM Integration in K-12 Education proposes a framework to provide a common perspective and vocabulary for researchers, practitioners, and others to identify, discuss, and investigate specific integrated STEM initiatives within the K-12 education system of the United States.

STEM Integration in K-12 Education makes recommendations for designers of integrated STEM experiences, assessment developers, and researchers to design and document effective integrated STEM education. This report will help to further their work and improve the chances that some forms of integrated STEM education will make a positive difference in student learning and interest and other valued outcomes."

Agency Research News

([Back to Page 1](#))

[Don't Forget to Link Your ORCID iD to Your eRA Commons Profile](#)

We encourage everybody from graduate students to senior scientists to [register for an ORCID account](#) and [link it to their eRA Commons personal profile](#). Starting October 1, 2019, ORCID identifiers will be **required** for individuals supported by institutional research training, career development, and other research education awards. xTrain appointments will not be accepted for agency review if potential appointees do not have an ORCID iD linked to their eRA personal profile. ORCID iDs will also be required for PD/PIs on individual fellowship and career development applications submitted for due dates on or after January 25, 2020. For more details, see the full [Guide Notice](#) or the [recent Open Mike blog](#) on this topic.

[Reminder: xTRACT Use Required in FY 2020](#)

Beginning with RPPRs due on or after October 1, 2019 (FY 2020), recipients must use the xTRACT system to create the required training tables for submission with NIH and AHRQ T15, T32, T90/R90, and TL1 progress reports. While it is not mandatory to use xTRACT for new and renewal applications for the specified types of training grants, it may be required in future years. Check out our resources on xTRACT such as the user guide, instructional videos, and FAQs, available on the [eRA website](#). For more details on its required use and implementation, see the full [Guide Notice](#).

[Higher Education in Science and Engineering](#)

Executive Summary

Key takeaways:

- Containing a diversity of institutions, the U.S. higher education system serves a range of students and strives to meet many societal goals.
- Science and engineering (S&E) fields continue to grow across degree levels. In numbers and as a percentage of total degrees, S&E degrees increased at the associate's, bachelor's, master's, and doctoral levels between 2000 and 2017.
- Many groups of Americans remain underrepresented among S&E degree recipients.
- The United States remains the destination for the largest number of internationally mobile students worldwide. However, over the past 2 years, the total number of international students enrolled in U.S. institutions has declined.
- Among the major S&E degree-producing countries worldwide, China has seen a rapid increase in its S&E degree production over time, compared with a more moderate rise in the United States and the European Union.

The U.S. higher education system consists of diverse academic institutions—including research and doctorate-granting universities, primarily undergraduate institutions, minority-serving institutions, community colleges, and others, including some that span multiple categories—that train students in S&E across degree levels and fields. A small number of institutions awarded three-quarters of doctorates, nearly half of master's degrees, and 40% of bachelor's degrees in S&E fields in 2017. These institutions are also where most university

Research Development & Grant Writing News

research is performed (see the forthcoming *Science and Engineering Indicators 2020* report “Academic Research and Development”): integration of academic S&E research and doctoral education is a key feature of the U.S. system.

More students are earning S&E degrees. In numbers and as a percentage of total degrees, S&E degrees increased at the associate’s, bachelor’s, master’s, and doctoral levels between 2000 and 2017. In addition, community colleges train students in S&E and related fields including technologies, contributing to the pool of talent that earns higher degrees and to the development of the skilled technical workforce.

While the costs of higher education have increased over time, the percentages of bachelor’s and doctoral degree recipients who graduate with debt have remained roughly the same over the last 10 years. Among graduate students, sources of financial aid differ dramatically between master’s and doctoral students. In 2017, one-third of S&E master’s students received funding, in contrast to around 90% of S&E doctoral students. Most S&E doctoral students rely on multiple funding sources (e.g., institutional, federal) and mechanisms (e.g., research and teaching assistantships and fellowships). The federal role in S&E graduate training remains important, although it has diminished over time. In 2017, the federal government supported 15% of full-time S&E graduate students (down from nearly 21% in 2004), including around one-quarter of doctoral students.

Many groups of Americans remain underrepresented among S&E degree recipients. Women are at or approaching parity with men at most degree levels overall, but within fields, long-standing differences persist, especially in engineering, computer sciences, and mathematics and statistics. Blacks are underrepresented at all degree levels; Hispanics and American Indians and Alaska Natives are underrepresented at all but the associate’s level. Members of different racial and ethnic groups are more likely to earn S&E degrees, especially doctorates, from for-profit institutions, which may have consequences for debt levels and career outcomes.

The U.S. higher education system remains a top destination for foreign S&E students. Although 2018 marked a second year of decline in the total number of foreign students studying in the United States, the decline was small (less than 1%), and more undergraduate and graduate students were studying S&E fields. Four countries—China, India, South Korea, and Saudi Arabia—account for more than half of foreign students in the United States. The number of Chinese S&E graduate students studying in the United States has continued to increase (by 11% over the last 2 years), whereas the number of Indian S&E graduate students sharply declined (by 22% over the last 2 years).

Foreign students account for about one-third of U.S. S&E doctorate recipients, a relatively stable proportion over time. They account for half or more of the doctorate recipients in engineering, computer sciences, and economics. China, India, and South Korea are the top three source countries for foreign recipients of U.S. S&E doctoral degrees. In comparison, students on temporary visas earn a smaller share (around 5%) of S&E bachelor’s degrees; however, the number of these students has more than doubled over the last 10 years. Other nations’ higher education systems have become increasingly competitive. S&E first university degrees awarded by Chinese institutions doubled to 1.7 million between 2005 and 2015, far outpacing most other countries, including the United States. Institutions in the United States award more S&E doctoral degrees than any other nation. However, in natural sciences

Research Development & Grant Writing News

and engineering, China surpassed the United States in 2007 as the world's largest producer of doctoral degrees and has remained so since.

[Dear Colleague Letter: An Update to the Approach for the Provision of Marine Seismic Capabilities for the U.S. Research Community](#)

This Dear Colleague Letter provides updated information regarding the National Science Foundation's (NSF) Division of Ocean Sciences (OCE) support of the marine seismic community need for long-term sustainable access to seismic data collection capability. This Dear Colleague Letter supersedes [NSF 18-061](#).

NSF/OCE is implementing the following actions to ensure continued access to capabilities comparable with those available via the R/V *Marcus G. Langseth*:

1. Operations of R/V *Marcus G. Langseth* will be extended through the end of fiscal year 2021 (September 30, 2021) when dry-docking of the vessel is scheduled. The dry-docking activity which would be necessary for continued operations will not be conducted and instead the vessel will be retired.
2. NSF is accepting proposals to [PD 17-1620](#) for use of the R/V *Langseth* during the period October 1, 2020 to September 30, 2021 for operations in the eastern Pacific. The focus of the additional period of *Langseth* operations is on providing opportunities for early career researchers to develop their skills, particularly as Principal Investigators (PIs).
3. NSF seeks to avoid a hiatus in seismic research opportunities after retirement of R/V *Langseth* by facilitating access to the active source seismic capabilities available in the commercial and international sectors through two mechanisms, that are not mutually exclusive.
 - a. NSF will solicit proposals in Fall 2019 for an award to establish a seismic vessel facilitator whose role will be to work with PIs in identifying potential commercial sector vessels with the needed seismic capabilities and developing contract documentation needed to support the submission of research proposals. It is expected that the facilitator will be in place before the retirement of the R/V *Langseth*.
 - b. NSF will accept research proposals that utilize international vessels in parallel with proposals utilizing commercial sector vessels.

Research Development & Grant Writing News

Agency Reports, Workshops & Research Roadmaps

(Back to [Page 1](#))

THE SKILLED TECHNICAL WORKFORCE: Crafting America's Science & Engineering Enterprise

Increasing Student Success in Developmental Mathematics: Proceedings of a Workshop

The Board on Science Education and the Board on Mathematical Sciences and Analytics of the National Academies of Sciences, Engineering, and Medicine convened the Workshop on Increasing Student Success in Developmental Mathematics on March 18-19, 2019. The Workshop explored how to best support all students in postsecondary mathematics, with particular attention to students who are unsuccessful in developmental mathematics and with an eye toward issues of access to promising reforms and equitable learning environments.

The two-day workshop was designed to bring together a variety of stakeholders, including experts who have developed and/or implemented new initiatives to improve the mathematics education experience for students. The overarching goal of the workshop was to take stock of the mathematics education community's progress in this domain. Participants examined the data on students who are well-served by new reform structures in developmental mathematics and discussed various cohorts of students who are not currently well served - those who even with access to reforms do not succeed and those who do not have access to a reform due to differential access constraints. Throughout the workshop, participants also explored promising approaches to bolstering student outcomes in mathematics, focusing especially on research and data that demonstrate the success of these approaches; deliberated and discussed barriers and opportunities for effectively serving all students; and outlined some key directions of inquiry intended to address the prevailing research and data needs in the field. This publication summarizes the presentations and discussion of the workshop.

White House releases R&D priorities for 2021 Priority EXAMPLES Below

- For FY2021, the **five R&D budgetary priorities** in this memorandum ensure that America remains at the forefront of scientific progress, national and economic security, and personal wellbeing, while continuing to serve as the standard-bearer for today's emerging technologies and Industries of the Future. This memorandum also describes **five high-priority crosscutting actions** that span all five R&D budgetary priorities and require departments and agencies to coordinate, collaborate, and partner with one another and with the other sectors of the S&T enterprise to maximize success.
- The 2018 **National Defense Strategy** calls for leadership in research, technology, invention, and innovation to "ensure we will be able to fight and win the wars of the future. As adversaries leverage emerging and disruptive technologies to threaten the Nation, it is imperative that we invest in R&D to remain at the leading edge of S&T, maintain military superiority, remain agile in the face of existing and new threats, and keep the American people safe.
- **Advanced Military Capabilities:** Relevant departments and agencies should invest in R&D to deliver the advanced military capabilities that will help meet emerging threats and protect American security into the future, including offensive and defensive

hypersonic weapons capabilities, resilient national security space systems, and modernized and flexible strategic and nonstrategic nuclear deterrent capabilities.

- **Critical Infrastructure Resilience:** Departments and agencies should invest in critical infrastructure R&D that improves resilience to natural disasters and physical threats, including extreme terrestrial events, cyber and electromagnetic pulse attacks, and exploitation of supply chain vulnerabilities. Departments and agencies should prioritize investments in space weather R&D according to the 2019 *National Space Weather Strategy and Action Plan*² and, where applicable, pay specific attention to improving research to operations and operations to research capabilities.
- **Energy:** Departments and agencies should invest in early-stage, innovative research and technologies that show promise for harnessing American energy resources safely and efficiently, inclusive of nuclear, renewable, and fossil energy. Federally funded energy R&D should continue to reflect an increased reliance on the private sector to fund later-stage research, development, and commercialization of energy production and storage technologies, including supporting user facilities that can improve multisector collaboration. Relevant department and agencies should invest in nuclear energy R&D, including further development of advanced reactor technologies and reestablishing an American fast neutron irradiation capability through the versatile advanced test reactor.
- **Biomedicine:** Departments and agencies should prioritize R&D investments aimed at combating the opioid crisis, rapid detection and containment of infectious diseases, anti-microbial resistance, chronic disease prevention and treatment, gene therapy, neuroscience, medical countermeasures and public health preparedness, eradicating HIV/ AIDS once and for all, and enhancing the independence, safety, and wellness of aging Americans and individuals with disabilities. Departments and agencies should coordinate and collaborate with each other and with public and private stakeholders to ensure that existing and new sources of medical and health-related data are handled in the best interest of patients with regards to security, interoperability, privacy, accessibility, and portability.
- **Bioeconomy:** The American Bioeconomy represents the infrastructure, innovation, products, technology, and data derived from biologically-related processes and science that drive economic growth, promote health, and increase public benefit. The increasing economic value and public benefits derived from the research, innovation, and applications in the biological and agricultural sciences need to be better measured, promoted, and safeguarded. Departments and agencies should prioritize evidence-based standards and research to rapidly establish microorganism, plant, and animal safety and efficacy for products developed using gene editing, to better accelerate biotechnology product adoption and socially responsible use. Additionally, departments and agencies should focus on R&D that enables biotechnology, omics, scientific collections, biosecurity, and data analytics to drive economic growth across multiple sectors including healthcare, pharmaceuticals, manufacturing, and agriculture.

Research Development & Grant Writing News

New Funding Opportunities

([Back to Page 1](#))

Content Order

New Funding Posted Since August 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 August 15 Newsletter

Biosensing

The Biosensing program is part of the Engineering Biology and Health cluster, which also includes 1) the Biophotonics program; 2) the Cellular and Biochemical Engineering program; 3) the Disability and Rehabilitation Engineering program; and 4) the Engineering of Biomedical Systems program. The Biosensing program supports fundamental engineering research on devices and methods for measurement and quantification of biological analytes. Examples of biosensors include, but are not limited to, electrochemical/electrical biosensors, optical biosensors, plasmonic biosensors, and paper-based and nanopore-based biosensors. In addition to advancing biosensor technology development, proposals that address critical needs in biomedical research, public health, food safety, agriculture, forensic, environmental protection, and homeland security are highly encouraged. Proposals that incorporate emerging nanotechnology methods are especially encouraged. **Proposals accepted anytime.**

Research in the Formation of Engineers

The NSF Engineering (ENG) Directorate has launched a multi-year initiative, the Professional Formation of Engineers, to create and support an innovative and inclusive engineering profession for the 21st century. Professional Formation of Engineers (PFE) refers to the formal and informal processes and value systems by which people become engineers. It also includes the ethical responsibility of practicing engineers to sustain and grow the profession in order to improve quality of life for all peoples. The engineering profession must be responsive to national priorities, grand challenges, and dynamic workforce needs; it must be equally open and accessible to all. Professional Formation of Engineers includes, but is not limited, to:

- Introductions to the profession at any age;
- Development of deep technical and professional skills, knowledge, and abilities in both formal and informal settings/domains;
- Development of outlooks, perspectives, ways of thinking, knowing, and doing;

Research Development & Grant Writing News

- Development of identity as an engineer and its intersection with other identities; and
- Acculturation to the profession, its standards, and norms.

The goal of the Research in the Formation of Engineers (RFE) program is to advance our understanding of professional formation. It seeks both to deepen our fundamental understanding of the underlying processes and mechanisms that support professional formation and to demonstrate how professional formation is or can be accomplished. Ultimately RFE aims to transform the engineer-formation system, and thus the impact of proposed projects on this system must be described. Principal Investigators (PIs) should provide a roadmap detailing how they envision the proposed research will eventually broadly impact practice within the engineer-formation system, even if these activities are not within the scope of the submitted proposal. **Proposals Accepted Anytime.**

Biophotonics

The Biophotonics program is part of the Engineering Biology and Health cluster, which also includes: 1) the Biosensing program; 2) the Cellular and Biochemical Engineering program; 3) the Disability and Rehabilitation Engineering program; and 4) the Engineering of Biomedical Systems program. The goal of the Biophotonics program is to explore the research frontiers in photonics principles, engineering and technology that are relevant for critical problems in fields of medicine, biology and biotechnology. Fundamental engineering research and innovation in photonics is required to lay the foundations for new technologies beyond those that are mature and ready for application in medical diagnostics and therapies. Advances are needed in nanophotonics, optogenetics, contrast and targeting agents, ultra-thin probes, wide field imaging, and rapid biomarker screening. Low cost and minimally invasive medical diagnostics and therapies are key motivating application goals. Research topics in this program include:

- Macromolecule Markers: Innovative methods for labeling of macromolecules. Novel compositions of matter. Methods of fabrication of multicolor probes that could be used for marking and detection of specific pathological cells. Pushing the envelope of optical sensing to the limits of detection, resolution, and identification.
- Low Coherence Sensing at the Nanoscale: Low coherence enhanced backscattering (LEBS). N-dimensional elastic light scattering. Angle-resolved low coherence interferometry for early cancer detection (dysplasia).
- Neurophotonics: Studies of photon activation of neurons at the interface of nanomaterials attached to cells. Development and application of biocompatible photonic tools such as parallel interfaces and interconnects for communicating and control of neural networks.
- Microphotonics and Nanophotonics: Development and application of novel nanoparticle fluorescent quantum-dots. Sensitive, multiplexed, high-throughput characterization of macromolecular properties of cells. Nanomaterials and nanodevices for biomedicine.
- Optogenetics: Novel research in employing light-activated channels and enzymes for manipulation of neural activity with temporal precision. Utilizing nanophotonics, nanofibers, and genetic techniques for mapping and studying in real-time physiological processes in organs such as the brain and heart. Innovative proposals outside of these specific interest areas may be considered. However, prior to submission, it is recommended that the PI contact the program director to avoid the possibility of the proposal being returned without review.

Proposals Accepted Anytime

Research Development & Grant Writing News

PD-20-1491 Cellular and Biochemical Engineering National Science Foundation

The Cellular and Biochemical Engineering (CBE) program is part of the Engineering Biology and Health cluster, which also includes: 1) the Biophotonics program; 2) the Biosensing program; 3) the Disability and Rehabilitation Engineering program; and 4) the Engineering of Biomedical Systems program.

The Cellular and Biochemical Engineering program supports fundamental engineering research that advances understanding of cellular and biomolecular processes. CBE-funded research may lead to the development of enabling technology for advanced biomanufacturing in support of the therapeutic cell, biochemical, biopharmaceutical, and biotechnology industries.

Fundamental to many research projects in this area is the understanding of how biomolecules, subcellular systems, cells, and cell populations interact, and how those interactions lead to changes in structure, function, and behavior. A quantitative treatment of problems related to biological processes is considered vital to successful research projects in the CBE program. The program encourages highly innovative and potentially transformative engineering research leading to novel bioprocessing and biomanufacturing approaches. The CBE program also encourages proposals that effectively integrate knowledge and practices from different disciplines while incorporating ongoing research into educational activities.

Major areas of interest for the program include:

- Metabolic engineering and synthetic biology for biomanufacturing, including the design of synthetic metabolic components and synthetic cells,
- Quantitative systems biotechnology,
- Microbiome structure, function, synthesis, and maintenance,
- Protein and enzyme engineering, and
- Single cell and population dynamics and modeling in the context of biomanufacturing.

Proposals Accepted Anytime

NSF/Intel Partnership on Foundational Microarchitecture Research (FoMR)

The NSF/Intel Partnership on Foundational Microarchitecture Research will support transformative microarchitecture research targeting improvements in instructions per cycle (IPC). This solicitation seeks microarchitecture technique innovations beyond simplistic, incremental scaling of existing microarchitectural structures. Specifically, FoMR seeks to advance research that has the following characteristics: (1) high IPC techniques ranging from microarchitecture to code generation; (2) “microarchitecture turbo” techniques that marshal chip resources and system memory bandwidth to accelerate sequential or single-threaded programs; and (3) techniques to support efficient compiler code generation. Advances in these areas promise to provide significant performance improvements that continue the trends characterized by Moore’s Law. **Due Nov. 15-20.**

NSF/DOE Partnership in Basic Plasma Science and Engineering

The National Science Foundation (NSF), with participation of the Directorates for Engineering, Geosciences, and Mathematical and Physical Sciences, and the Department of Energy, Office of Science, Fusion Energy Sciences are continuing the joint Partnership in Basic Plasma Science

Research Development & Grant Writing News

and Engineering begun in FY1997 and renewed several times since. As stated in the original solicitation (NSF 97-39), which is superseded by the present solicitation, the goal of the Partnership is to enhance basic plasma science research and education in this broad, multidisciplinary field by coordinating efforts and combining resources of the two agencies. The current solicitation also encourages submission of proposals to perform basic plasma experiments at NSF and/or DOE supported user facilities, including facilities located at DOE national laboratories, designed to serve the needs of the broader plasma science and engineering community. **Due November 18.**

Semantic Forensics (SemaFor), DARPA - Information Innovation Office

The Semantic Forensics (SemaFor) program will develop technologies to automatically detect, attribute, and characterize falsified multi-modal media assets (text, audio, image, video) to defend against large-scale, automated disinformation attacks. Statistical detection techniques have been successful, but media generation and manipulation technology is advancing rapidly. Purely statistical detection methods are quickly becoming insufficient for detecting falsified media assets. Detection techniques that rely on statistical fingerprints can often be fooled with limited additional resources (algorithm development, data, or compute). However, existing automated media generation and manipulation algorithms are heavily reliant on purely data driven approaches and are prone to making semantic errors. For example, GAN-generated faces may have semantic inconsistencies such as mismatched earrings. These semantic failures provide an opportunity for defenders to gain an asymmetric advantage. A comprehensive suite of semantic inconsistency detectors would dramatically increase the burden on media falsifiers, requiring the creators of falsified media to get every semantic detail correct, while defenders only need to find one, or a very few, inconsistencies. SemaFor seeks to develop innovative semantic technologies for analyzing media. Semantic detection algorithms will determine if media is generated or manipulated. Attribution algorithms will infer if media originates from a particular organization or individual. Characterization algorithms will reason about whether media was generated or manipulated for malicious purposes. These SemaFor technologies will help identify, deter, and understand adversary disinformation campaigns. **Due November 21.**

Improving Undergraduate STEM Education: Education and Human Resources National Science Foundation

The fields of science, technology, engineering, and mathematics (STEM) hold much promise as sectors of the economy where we can expect to see continuous vigorous growth in the coming decades. STEM job creation is expected to outpace non-STEM job creation significantly, according to the Commerce Department, reflecting the importance of STEM knowledge to the US economy. The National Science Foundation (NSF) plays a leadership role in developing and implementing efforts to enhance and improve STEM education in the United States. Through the NSF Improving Undergraduate STEM Education (IUSE) initiative, the agency continues to make a substantial commitment to the highest caliber undergraduate STEM education through a Foundation-wide framework of investments. The IUSE: EHR is a core NSF STEM education program that seeks to promote novel, creative, and transformative approaches to generating and using new knowledge about STEM teaching and learning to improve STEM education for undergraduate students. The program is open to application from all institutions of higher

Research Development & Grant Writing News

education and associated organizations. NSF places high value on educating students to be leaders and innovators in emerging and rapidly changing STEM fields as well as educating a scientifically literate public. In pursuit of this goal, IUSE: EHR supports projects that seek to bring recent advances in STEM knowledge into undergraduate education, that adapt, improve, and incorporate evidence-based practices into STEM teaching and learning, and that lay the groundwork for institutional improvement in STEM education. In addition to innovative work at the frontier of STEM education, this program also encourages replication of research studies at different types of institutions and with different student bodies to produce deeper knowledge about the effectiveness and transferability of findings. IUSE: EHR also seeks to support projects that have high potential for broader societal impacts, including improved diversity of students and instructors participating in STEM education, professional development for instructors to ensure adoption of new and effective pedagogical techniques that meet the changing needs of students, and projects that promote institutional partnerships for collaborative research and development. IUSE: EHR especially welcomes proposals that will pair well with the efforts of NSF INCLUDES (https://www.nsf.gov/news/special_reports/nsfincludes/index.jsp) to develop STEM talent from all sectors and groups in our society. For all the above objectives, the National Science Foundation invests primarily in evidence-based and knowledge-generating approaches to understand and improve STEM learning and learning environments, improve the diversity of STEM students and majors, and prepare STEM majors for the workforce. In addition to contributing to STEM education in the host institution(s), proposals should have the promise of adding more broadly to our understanding of effective teaching and learning practices. The IUSE: EHR program features two tracks: (1) Engaged Student Learning and (2) Institutional and Community Transformation. Several levels of scope, scale, and funding are available within each track, as summarized in Table 1. Table 1: Overview of Engaged Student Learning and Institutional and Community Transformation tracks, levels, and deadlines. **Due dates vary Dec. 4 and February 4.**

Security and Preparedness (SAP)

The Security and Preparedness (SAP) Program supports basic scientific research that advances knowledge and understanding of issues broadly related to global and national security. Research proposals are evaluated on the criteria of intellectual merit and broader impacts; the proposed projects are expected to be theoretically motivated, conceptually precise, methodologically rigorous, and empirically oriented. Substantive areas include (but are not limited to) international relations, global and national security, human security, political violence, state stability, conflict processes, regime transition, international and comparative political economy, and peace science. Moreover, the Program supports research experiences for undergraduate students and infrastructural activities, including methodological innovations. The Program does not fund applied research. In addition, we encourage you to examine the websites for the National Science Foundation's Accountable Institutions and Behavior (AIB) and Law and Science (LS) programs. **Due January 15.**

[DE-FOA-0001999 Carbon Storage Assurance Facility Enterprise \(CarbonSAFE\): Site Characterization and CO2 Capture Assessment Department of Energy National Energy Technology Laboratory](#)

Research Development & Grant Writing News

The overall objective of this Funding Opportunity Announcement is to accelerate wide-scale deployment of Carbon Capture, Utilization and Storage (CCUS) through assessing and verifying safe and cost-effective anthropogenic CO₂ commercial-scale storage sites, and carbon capture and/or purification technologies. **Due January 15.**

Accountable Institutions and Behavior (AIB)

The Accountable Institutions and Behavior (AIB) Program supports basic scientific research that advances knowledge and understanding of issues broadly related to attitudes, behavior, and institutions connected to public policy and the provision of public services. Research proposals are expected to be theoretically motivated, conceptually precise, methodologically rigorous, and empirically oriented. Substantive areas include (but are not limited to) the study of individual and group decision-making, political institutions (appointed or elected), attitude and preference formation and expression, electoral processes and voting, public administration, and public policy. This work can focus on a single case or can be done in a comparative context, either over time or cross-sectionally. The Program does not fund applied research. The Program also supports research experiences for undergraduate students and infrastructural activities, including methodological innovations. In addition, we encourage you to examine the websites for the National Science Foundation's Law and Science (LS) and Security and Preparedness (SAP) programs. **Due January 15.**

Fiscal Year 2020 Consolidated Innovative Nuclear Research

This FOA is open to U.S. universities, national laboratories, and industry. Research consortiums may be composed of diverse institutions including academia, national laboratories, non-profit research institutes, industry/utilities, and international partners. Research teams should strive to achieve the synergies that arise when individuals with forefront expertise in different methodologies, technologies, disciplines, and areas of content knowledge approach a problem together, overcoming impasses by considering the issue from fresh angles and discovering novel solutions. DOE-NE strongly encourages diversifying its research portfolio through effective partnerships with industry, underrepresented groups, and MSI, which may receive funding support from the project. International partners are encouraged to participate, however no U.S. government funding will be provided to entities incorporated outside of the United States. DOE-NE will evaluate the benefit and contribution of any such proposed partnerships as part of its program relevancy evaluation and scoring. See eligibility requirements in the body of the FOA document to be sure you can apply. **Open to Feb. 12 2020**

N00173-19-S-BA01 NRL Long Range Broad Agency Announcement (BAA) for Basic and Applied Research

The NRL's Broad Agency Announcement (BAA) issued under the provisions of paragraphs 35.016 and 6.102(d)(2) of the Federal Acquisition Regulations (FAR). Proposals may range from theoretical studies to proof-of-concept to include fabrication and delivery of a prototype. However, this is limited to research procurements for which it would be impossible to draft an adequate RFP in sufficient detail without restraining the technical response and thus hindering competition rather than expanding it. BAA topics include all NRL sites located in the

Research Development & Grant Writing News

Washington, DC area, the Stennis Space Center, MS, and Monterey, CA. Proposals submitted in response to a BAA announcement that are selected for award are considered to be the result of full and open competition and are in full compliance with the provisions of Public Law 98-369, "The Competition in Contracting Act of 1984."

NRL is interested in receiving proposals for the research efforts described under this BAA. This announcement is an expression of interest only and does not commit the Government to make any award or to pay for any proposal preparation costs. The cost of proposal preparation for response to a BAA is not considered an allowable direct charge to any resultant contract or any other contract; however, it may be an allowable expense to the normal bid and proposal indirect cost specified in FAR 31.205-18. **Open to Sept. 10, 2020.**

Solicitations Remaining Open from Prior Issues of the Newsletter

International Research Experiences for Students

The International Research Experiences for Students (IRES) program supports international research and research-related activities for U.S. science and engineering students. The IRES program contributes to development of a diverse, globally-engaged workforce with world-class skills. IRES focuses on active research participation by undergraduate or graduate students in high quality international research, education and professional development experiences in NSF-funded research areas. The overarching, long-term goal of the IRES program is to enhance U.S. leadership in research and education and to strengthen economic competitiveness through training the next generation of research leaders. This solicitation features three mechanisms; proposers are required to select one of the following tracks to submit their proposal. Track I focuses on the development of world-class research skills in international cohort experiences. Track II is dedicated to targeted, intensive learning and training opportunities that leverage international knowledge at the frontiers of research. Track III supports U.S. institutional collaborations to develop, implement and evaluate innovative models for high-impact, large-scale international research and professional development experiences for U.S. graduate students. Student participants supported by IRES funds must be citizens, nationals, or permanent residents of the United States. Students do not apply directly to NSF to participate in IRES activities. Students apply to NSF-funded investigators who receive IRES awards. To identify appropriate IRES projects, students should consult the directory of active [IRES awards](#). All PIs, co-PIs and Senior Personnel on IRES proposals must be from U.S. based institutions., **Due September 24.**

Agriculture and Food Research Initiative Competitive Grants Program

Applications to the FY 2019 Agriculture and Food Research Initiative - Sustainable Agricultural Systems (SAS) [Request for Applications](#) (RFA) must focus on approaches that promote transformational changes in the U.S. food and agriculture system within the next 25 years. NIFA seeks creative and visionary applications that take a systems approach, and that will significantly improve the supply of abundant, affordable, safe, nutritious, and accessible food, while providing sustainable opportunities for expansion of the bioeconomy through novel animal, crop, and forest products and supporting technologies. These approaches must

Research Development & Grant Writing News

demonstrate current and future social, behavioral, economic, health, and environmental impacts. Additionally, the outcomes of the work being proposed must result in societal benefits, including promotion of rural prosperity and enhancement of quality of life for those involved in food and agricultural value chains from production to utilization and consumption. **Due September 26.**

DOE-Office of Science's Science Undergraduate Laboratory Internships, Spring 2020

The Science Undergraduate Laboratory Internship (SULI) program encourages undergraduate students and recent graduates to pursue science, technology, engineering, and mathematics (STEM) careers by providing research experiences at the Department of Energy (DOE) laboratories. Selected students participate as interns appointed at one of 17 participating DOE laboratories/facilities. They perform research, under the guidance of laboratory staff scientists or engineers, on projects supporting the DOE mission. **Deadline, October 7.** [Read the full announcement.](#)

REQUEST FOR PRE-APPLICATION Specialty Crop Research Initiative (SCRI)

This notice identifies the objectives for SCRI projects, deadlines, funding information, eligibility criteria for projects and applicants, and application forms and associated instructions. NIFA requests pre-applications for the Specialty Crop Research Initiative (SCRI) for fiscal year (FY) 2020 to solve critical United States specialty crop issues, priorities, or problems through the integration of research and extension activities that use systems-based, trans-disciplinary approaches.

The intent of the SCRI program is to address the needs of the various specialty crop industries through the promotion of collaboration, open communication, the exchange of information, and the development of resources that accelerate application of scientific discovery and technology. The SCRI program will give priority to projects that are multistate, or multi-institutional, or trans-disciplinary (as defined in Appendix III), and include clearly defined mechanisms to communicate results to producers and the public. The anticipated amount available for support of this program in FY 2020 is approximately \$80 million.

Projects must address at least one of five focus areas:

- Research in plant breeding, genetics, genomics, and other methods to improve crop characteristics
- Efforts to identify and address threats from pests and diseases, including threats to specialty crop pollinators
- Efforts to improve production efficiency, handling and processing, productivity, and profitability over the long term (including specialty crop policy and marketing)
- New innovations and technology, including improved mechanization and technologies that delay or inhibit ripening
- Methods to prevent, detect, monitor, control, and respond to potential food safety hazards in the production efficiency, handling and processing of specialty crops. **Due October 15.**

Long-Term Ecological Research (LTER): New Urban Site

To address ecological questions that cannot be resolved with short-term observations or experiments, NSF established the Long-Term Ecological Research Program (LTER) in 1980. Two

Research Development & Grant Writing News

components differentiate LTER research from projects supported by other NSF programs: 1) the research is located at specific sites chosen to represent major ecosystem types or natural biomes, and 2) it emphasizes the study of ecological phenomena over long periods of time based on data collected in five core areas. Long-term studies are critical to achieve an integrated understanding of how components of ecosystems interact as well as to test ecological theory. Ongoing research at LTER sites contributes to the development and testing of fundamental ecological theories and significantly advances understanding of the long-term dynamics of populations, communities and ecosystems. It often integrates multiple disciplines and, through cross-site interactions may examine patterns or processes over broad spatial scales. Recognizing that the value of long-term data extends beyond use at any individual site, NSF requires that data collected by all LTER sites be made publicly accessible.

The LTER program has long recognized the importance of humans in ecological systems and is especially interested in how human activities in urban settings interact with natural processes to determine ecological outcomes. Factors that control urban ecosystems are not only environmental, but also social and economic. These factors and their interactions need to be considered to understand urban ecosystems over long time frames and broad spatial scales.

Preliminary due Dec. 4

National Science Foundation Research Traineeship (NRT) Program

A letter of intent is required and must be submitted by an Authorized Organizational Representative during the submission window for subsequent full proposal submission and review. There is a requirement to address organizational partnerships in the letter of intent. The letter of intent requires prescribed language that all partner organizations have been informed by the lead organization that their involvement may impact their organizational eligibility limits or that no partner organizations, aside from an evaluator, will be involved in the project. There are supplementary letter requirements. Full proposals must include required letters from the lead institution (support letter) and NRT-eligible partner organizations (letters of collaboration).

For FY2019 and FY2020, the NRT Program requests proposals in any interdisciplinary research theme of national priority, with special emphasis on the six research areas within [NSF's 10 Big Ideas](#). The NSF research Big Ideas are Harnessing the Data Revolution (HDR), The Future of Work at the Human-Technology Frontier (FW-HTF), Navigating the New Arctic (NNA), Windows on the Universe: The Era of Multi-Messenger Astrophysics (WoU), The Quantum Leap: Leading the Next Quantum Revolution (QL), and Understanding the Rules of Life: Predicting Phenotype (URoL). Proposals that align with one of the NSF Research Big Ideas should contain a title to reflect that alignment, as described in the program solicitation (e.g. NRT-HDR: title or NRT-QL: title). **See solicitation for letter of intent and proposal due dates.**

Graduate Research Fellowship Program (GRFP)

The purpose of the NSF Graduate Research Fellowship Program (GRFP) is to help ensure the vitality and diversity of the scientific and engineering workforce of the United States. The program recognizes and supports outstanding graduate students who are pursuing full-time research-based master's and doctoral degrees in science, technology, engineering, and mathematics (STEM) or in STEM education. The GRFP provides three years of support for the

Research Development & Grant Writing News

graduate education of individuals who have demonstrated their potential for significant research achievements in STEM or STEM education. NSF especially encourages women, members of underrepresented minority groups, persons with disabilities, veterans, and undergraduate seniors to apply. **Multiple due dates beginning October 21.**

Advanced Computing Systems & Services: Adapting to the Rapid Evolution of Science and Engineering Research

The intent of this solicitation is to request proposals from organizations willing to serve as service providers (SPs) within the NSF Innovative High-Performance Computing (HPC) program to provide advanced cyberinfrastructure (CI) capabilities and/or services in production operations to support the full range of computational- and data-intensive research across all of science and engineering (S&E). The current solicitation is intended to complement previous NSF investments in advanced computational infrastructure by provisioning resources, broadly defined in this solicitation to include systems and/or services, in two categories:

- Category I, Capacity Systems: production computational resources maximizing the capacity provided to support the broad range of computation and data analytics needs in S&E research; and
- Category II, Innovative Prototypes/Testbeds: innovative forward-looking capabilities deploying novel technologies, architectures, usage modes, etc., and exploring new target applications, methods, and paradigms for S&E discoveries. **Due November 5.**

Materials Research Science and Engineering Centers (MRSEC)

Solicitation: [NSF 19-517](#) Institutional Limit: 1

Only one MRSEC preliminary proposal may be submitted by any one organization as the lead institution in this competition. An institution proposing research in several groups should submit a single MRSEC proposal with multiple Interdisciplinary Research Groups (IRGs). A MRSEC proposal must contain a minimum of 2 IRGs and a maximum of 3 IRGs. The IRGs in a center may be thematically related, or they may address different aspects of materials science typically supported by DMR. A single center at an organization allows efficient usage of resources, including common infrastructure, and better coordination of education and other activities of the center. Institutions that were awarded a MRSEC in the FY 2017 competition as the lead institution are **not** eligible to submit a MRSEC proposal as a lead institution in this competition. MRSEC full proposals may be submitted by invitation only. **Due Date: November 26, 2019**

Critical-Zone Collaborative Network

NSF seeks proposals to establish an adaptive and responsive research network that supports investigations of the Earth's Critical Zone. This network will consist of two components that will work together to advance knowledge, education, and outreach in this convergent science:1) Thematic Clusters of fixed or temporary locations will conduct basic research on significant, overarching scientific questions concerning the structure, function, and processes of the Critical Zone. These U.S.-based Clusters could include existing observatories engaged in collecting environmental data, other monitoring locations that have been in operation for extended periods of time, and new sites that will support the scientific goals of the Cluster;2) A

Research Development & Grant Writing News

Coordinating Hub that will oversee the compatibility and archiving of the data resulting from the Thematic Clusters, coordinate outreach and community-building activities, support the use of network facilities by outside researchers, and plan for infrastructure needs of the network. This solicitation invites proposals for either of the two components: 1) Thematic Cluster or 2) Coordinating Hub. The Thematic Clusters will carry out interdisciplinary research on scientific questions and manage part of the network infrastructure; the Coordinating Hub will serve as the national center for the network. The infrastructure of the network will be accessible to other research teams pursuing research in the Critical Zone. **Due Dec. 2.**

Access to Historical Records: Major Initiatives FY 2021

The National Historical Publications and Records Commission seeks projects that will significantly improve public discovery and use of major historical records collections. The Commission is especially interested in collections of America's early legal records, such as the records of colonial, territorial, county, and early statehood and tribal proceedings that document the evolution of the nation's legal history. For more information about how to become an invited applicant, please see the [Preliminary Proposal announcement](https://www.archives.gov/nhprc/announcement/preliminary-proposal/prelim.html). (<https://www.archives.gov/nhprc/announcement/preliminary-proposal/prelim.html>) All types of historical records are eligible, including documents, photographs, born-digital records, and analog audio and moving images. Projects may:

- Digitize historical records collections, or related collections, held by a single institution and make them freely available online
- Provide access to born-digital records
- Create new freely-available virtual collections drawn from historical records held by multiple institutions
- Create new tools and methods for users to access records

The NHPRC welcomes collaborative projects, particularly for bringing together related records from multiple institutions. Projects that address significant needs in the field and result in replicable and scalable approaches will be more competitive. We also encourage organizations to actively engage the public in the work of the project. Applicants should also consult [Access to Historical Records: Archival Projects](#) program, which has different requirements and award amounts. For a comprehensive list of Commission limitations on funding, please see: "What we do and do not fund" (<http://www.archives.gov/nhprc/apply/eligibility.html>). Applications that consist entirely of ineligible activities will not be considered. **Due July 9, 2020.**

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.]

[HR001119S0071, DSO Office-wide Broad Agency Announcement, Department of Defense DARPA - Defense Sciences Office 2020 BAA](#)

Research Development & Grant Writing News

The mission of the Defense Advanced Research Projects Agency (DARPA) Defense Sciences Office (DSO) is to identify and create the next generation of scientific discovery by pursuing high-risk, high-payoff research initiatives across a broad spectrum of science and engineering disciplines and transforming these initiatives into disruptive technologies for U.S. national security. In support of this mission, the DSO Office-wide BAA invites proposers to submit innovative basic or applied research concepts that address one or more of the following technical domains: (1) Frontiers in Math, Computation and Design, (2) Limits of Sensing and Sensors, (3) Complex Social Systems, and (4) Anticipating Surprise. Each of these domains is described below and includes a list of example research topics that highlight several (but not all) potential areas of interest. Proposals must investigate innovative approaches that enable revolutionary advances. DSO is explicitly not interested in approaches or technologies that primarily result in evolutionary improvements to the existing state of practice. **Open to June 12, 2020.**

BAA-AFRL-RQKMA-2016-0007 Air Force Research Laboratory, Materials & Manufacturing Directorate, Functional Materials and Applications (AFRL/RXA) Two-Step Open BAA

Air Force Research Laboratory, Materials & Manufacturing Directorate is soliciting White Papers and potentially technical and cost proposals under this two-step Broad Agency Announcement (BAA) that is open for a period of five (5) years. Functional Materials technologies that are of interest to the Air Force range from materials and scientific discovery through technology development and transition, and support the needs of the Functional Materials and Applications mission. Descriptors of Materials and Manufacturing Directorate technology interests are presented in the context of functional materials core technical competencies and applications. Applicable NAICS codes are 541711 and 541712. **Open to April 20, 2021.**

Army Research Office Broad Agency Announcement for Basic and Applied Scientific Research

This BAA sets forth research areas of interest to the ARO. This BAA is issued under FAR 6.102(d)(2), which provides for the competitive selection of basic and applied research proposals, and 10 U.S.C. 2358, 10 U.S.C. 2371, and 10 U.S.C. 2371b, which provide the authorities for issuing awards under this announcement for basic and applied research. The definitions of basic and applied research may be found at 32 CFR 22.105. Proposals submitted in response to this BAA and selected for award are considered to be the result of full and open competition and in full compliance with the provision of Public Law 98-369, "The Competition in Contracting Act of 1984" and subsequent amendments. **Open to April 30, 2022.**

FA9453-17-S-0005 Research Options for Space Enterprise Technologies (ROSET)

The Air Force Research Laboratory (AFRL) Space Vehicle Directorate (RV) is interested in receiving proposals from all offerors to advance state of the art technology and scientific knowledge supporting all aspects of space systems including payload adapters, on-orbit systems, communications links, ground systems, and user equipment. Efforts will include basic and advanced research, advanced component and technology development, prototyping, and system development and demonstration and will span the range from concept and laboratory experimentation to testing/demonstration in a relevant environment. Specific tasks include design, development, analysis, fabrication, integration, characterization,

Research Development & Grant Writing News

testing/experimentation, and demonstration of hardware and software products. **Open to September 22, 2022.**

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 submission 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

Research Development & Grant Writing News

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.**

Academic Research Funding Strategies, LLC ([Page 1](#))

<http://academicresearchgrants.com/home>

ph: 979-201-5520

LDeckard@academicresearchgrants.com

mjcronan@gmail.com

What We Do--

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

- Strategic Planning - Assistance in [formulating research development strategies and building institutional infrastructure](#) for research development (including special strategies for Emerging Research Institutions, Predominantly Undergraduate Institutions and Minority Serving Institutions)
- Training for Faculty - Workshops, seminars and webinars on [how to find and compete for research funding](#) from NSF, NIH, DoE and other government agencies as well as foundations. Proposal development retreats for new faculty.
- Large proposals - Assistance in [planning, developing and writing institutional and center-level proposals](#) (e.g., NSF ERC, STC, NRT, ADVANCE, IUSE, Dept of Ed GAANN, DoD MURI, etc.)
- Assistance for [new and junior faculty](#) - help in identifying funding opportunities and developing competitive research proposals, particularly to NSF CAREER, DoD Young Investigator and other junior investigator programs
- Assistance on your project narrative: in-depth reviews, rewrites, and edits
- Editing and proof reading of journal articles, book manuscripts, proposals, etc.
- Facilities and Instrumentation - Assistance in identifying and competing for [grants to fund facilities and instrumentation](#)
- Training for Staff - [Professional Development](#) for research office and sponsored projects staff

Workshops by Academic Research Funding Strategies

We offer workshops on research development and grant writing for faculty and research professionals based on all published articles.

[\(View Index of Articles\)](#)

Copyright 2019 Academic Research Funding Strategies. All rights reserved.