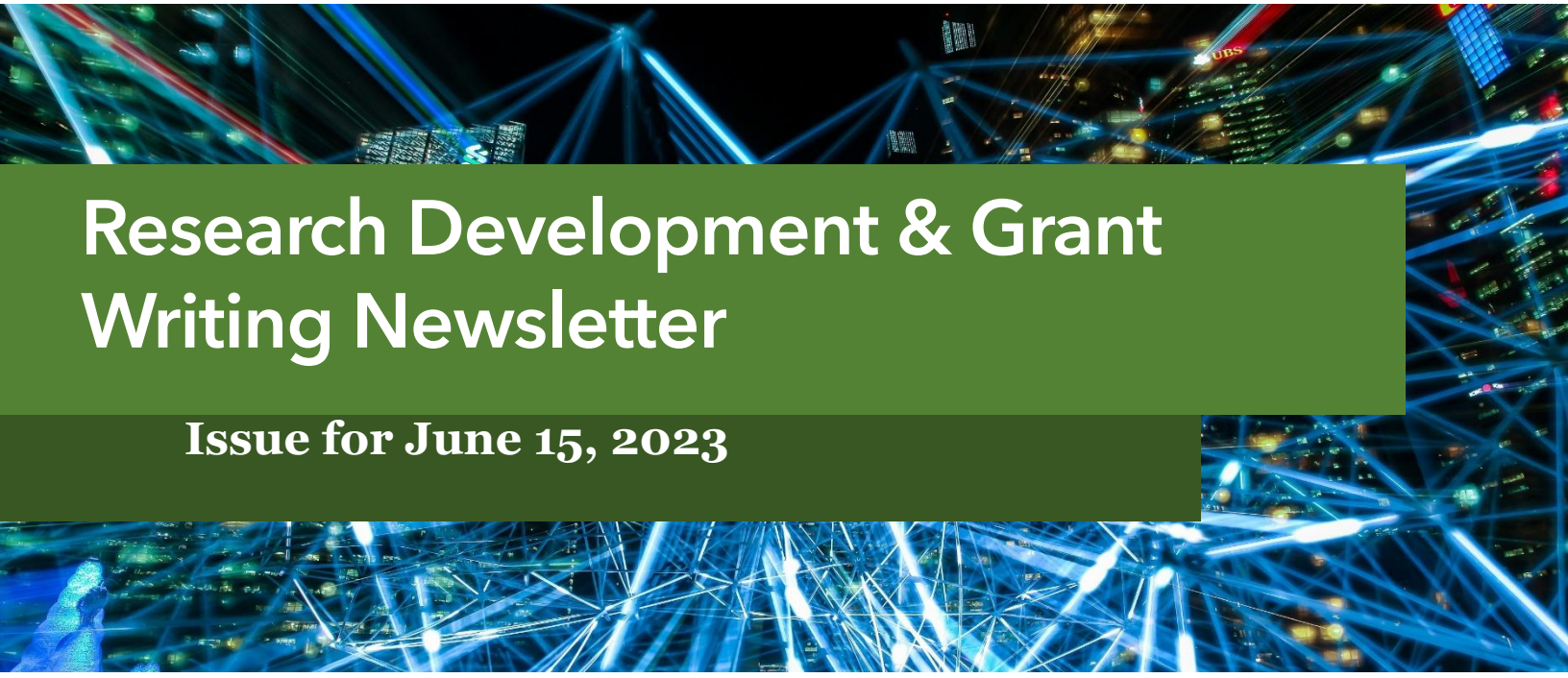

Research Development & Grant Writing Newsletter

Issue for June 15, 2023

Our Co-Publisher & Editors

Mike Cronan

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

Lucy Deckard

Lucy Deckard (BS/MS Materials) worked in research development and grant writing at Texas A&M University and across the A&M System for nine years. She directed A&M's New Faculty Research Initiative (2004-09), helping junior faculty System-wide jumpstart their research careers with federal agency funding. She served as associate director of two research development and grant writing offices. She founded ARFS in 2010.

Katherine E. Kelly

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

About Us

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

Co-Publishers

Mike Cronan & Lucy Deckard

Humanities Editor

Katherine E. Kelly

Newsletter Design

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

Table of Contents

Rosa Belle Jordan's Moon, a novel by Mike Cronan, available on Amazon

!! Notice to Subscribers !!

!!! Annual subscriptions to *Research Development & Grant Writing News* expire with this June 15 issue. To resubscribe for 2023-24 (July 15-June 15) !!!

please GO HERE.

https://academicresearchgrants.com/newsletter

Other Resources & Services

Lucy Deckard, BS/MS

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Topics of Interest URLs

Table of Contents

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

!!! Annual subscriptions to Research Development & Grant Writing News expire with this June 15 issue. To resubscribe for 2023-2024 (July 15-June 15) !!!

https://academicresearchgrants.com/newsletter

FY2023 Federal Research Budget/Funding Agency & Miscellaneous

- FY 2023 The National Sexual Assault Kit Initiative: Training and Technical Assistance Program
- Report on the Condition of Education 2023
- Digest of Education Statistics
- National Center for Education Statistics (NCES)
- "The Linguists," Documenting Vanishing Voices, Premieres at Sundance
- Pfizer Medical Education RFP Evaluating Neurologic Impact of Sickle Cell Disease
- Lymphoma Research Foundation announces Requests for Proposals
- NIH Research Enhancement Award (R15)…What You Need to Know!
- The Max and Victoria Dreyfus Foundation
- EPA's Office of Brownfields and Land Revitalization
- Historically Black Colleges and Universities - Excellence in Research (HBCU- EiR)
- Dear Colleague Letter: NSF and NEH Collaborates with Canada's 2023 International Joint Initiative for Research on Climate Change Adaptation and Mitigation Competition

National Science Foundation & Related

- !! FastLane System Decommissioning !!
- NSF 101: Graduate and postdoctoral researcher funding opportunities
- DCL: Guidelines Collaborative Proposals under U.S. NSF and DST
- DCL: GEO Funding to Link Geosciences and Human Health (GeoHealth INTERN)
- Dear Colleague Letter: Advancing Microelectronics Education
- Dear Colleague Letter: Clean Energy Technology RAISE or EAGER Proposals
- DCL: HS Student Research Assistantships in the Social, Behavioral and Economic Sciences
- Dear Colleague Letter: Conference Proposals on Clean Energy Topics
- Discovery Research PreK-12 (DRK-12)
- Special Guidelines for Submitting Collaborative Proposals under the U.S. NSF/GEO - DFG/Geosciences Lead Agency Opportunity on collaborative Research on Climate Change
- Centers of Research Excellence in Science and Technology (CREST Centers)
- Geoinformatics (GI)
- (CA-1) Cooperative Agreement General Conditions
- Special Guidelines for Submitting Collaborative Proposals under the U.S. NSF/GEO - DFG/Geosciences Lead Agency Opportunity on collaborative Research on Climate Change
- Centers of Research Excellence in Science and Technology (CREST Centers)

NIH Health Sciences & Related

- High-Risk, High-Reward Research Program
- Investigator-Initiated Research in Genomics and Health Equity (R21 Clinical Trial Optional)
- Investigator-Initiated Research in Genomics and Health Equity (R01 Clinical Trial Optional)

- Research Supplements to Promote Diversity in Health-Related Research
- More Early Stage Investigators Supported in FY 2022
- Safeguarding Integrity and Collaborations: Not "Either-Or" but "Both-And"
- Learn More About UNITE's Progress Towards Ensuring Equity and Opportunity in Biomedical Research

USDA/NIFA & Related

- Agriculture Innovation Mission for Climate (AIM for Climate) Summit
- NIFA Seeking Nominations for the 2023 Seaman A. Knapp Lecture
- Agriculture in the K-12 Classroom
- Research Facilities Act Program (RFAP)
- June 15 – 2 p.m. EDT: Learn How to Write a Strong USDA SBIR/STTR Application
- June 20 – 2 p.m. EDT: Agriculture Economics and Rural Communities RFA Technical Assistance Webinar
- July 6 – 2 p.m. EDT: Division of Animal Systems Technical Assistance Webinar for AFRI Programs
- July 26 – 2:30 p.m. EDT: Rapid Response to Extreme Weather Events Across Food and Agriculture Systems Technical Assistance: Live FAQ Session
- Organic Certification Cost Share Programs

National Academies and Other Scientific Associations

- Native Americans—and their genes—traveled back to Siberia, new genomes reveal
- Pollinator Habitat Conservation Along Roadways, Volume 10: Midwest
- Pollinator Habitat Conservation Along Roadways, Volume 11: Northeast
- Pollinator Habitat Conservation Along Roadways, Volume 12: Northern Plains
- Pollinator Habitat Conservation Along Roadways, Volume 9: Mid-Atlantic

Miscellaneous Federal Agency and Foundation News & Funding

- National Endowment for the Arts Announces First Round of Fiscal Year 2023 Grants
- Beer was the backdrop to Danish Golden Age masterpieces
- 2024 National Geological & Geophysical Data Preservation Program

Federal Agency Research Funding Links

- AFRL: https://www.afrl.af.mil/AFOSR/
- ARL: https://www.arl.army.mil/
- CDMRP: https://cdmrp.army.mil/funding/prgdefault
- DARPA: https://www.darpa.mil/work-with-us/opportunities
- IARPA: https://www.iarpa.gov/
- ONR: https://www.onr.navy.mil/en/work-with-us/funding-opportunities
- DHS: https://www.dhs.gov/how-do-i/find-and-apply-grants
- DOJ: https://www.justice.gov/grants
- NASA: https://nspires.nasaprs.com/external/
- NEH: https://www.neh.gov/
- NEA: https://www.arts.gov/
- NIH: https://grants.nih.gov/funding/index.htm

- HHS: http://www.hhs.gov/asrt/og/aboutog/grantsnet.html
- NSF: https://www.nsf.gov/funding/index.jsp
- DOC: https://www.commerce.gov/work-with-us/grants-and-contract-opportunities
- NIST: https://www.nist.gov/oaam/grants-management-division/nist-nofo-information
- NOAA: https://www.noaa.gov/organization/acquisition-grants
- DoED: https://www2.ed.gov/fund/grants-apply.html?src=go
- DOE/OS: https://www.energy.gov/science/office-science-funding/office-science-funding-opportunities
- EERE: https://www.energy.gov/eere/funding/eere-funding
- DOE: https://www.energy.gov/energy-economy/funding-financing
- USDA: https://www.nal.usda.gov/waic/funding
- NIFA: https://www.nifa.usda.gov/grants
- EPA: http://www.epa.gov/ogd/competition/open_awards.htm
- NCER: http://epa.gov/ncer/listserv/
- FBO/BETA SAM: https://fbohome.sam.gov/
- Federal Register: https://www.federalregister.gov/
- Grants.gov: https://www.grants.gov/web/grants/search-grants.html
- CFDA: https://www.investopedia.com/terms/c/catalog-of-federal-domestic-assistance-cfda.asp
- ARPA-E Funding Opportunity Announcements

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

by Katherine E. Kelly, PhD, Humanities Editor

Table of Contents

Check with organizations' websites for most current information

Due Date	Opportunity
6/27/2023 NEA Zoom office hours for answering questions about submitting a competitive application for the **Grants for Arts Projects** (see July 6, below).	For **"Tips for Literary Arts Projects,"** go to: https://files.constantcontact.com/c0b608cd001/291de07d-2000-4a65-828b-3953ea15d2db.pdf Grants for Arts Projects is the NEA's largest grants program for organizations, providing comprehensive and expansive funding opportunities for communities. We welcome applications from a variety of eligible organizations, including first-time applicants; from organizations serving communities of all sizes, including rural and urban areas; and from organizations with small, medium, or large operating budgets. We fund arts projects in the following disciplines: Artist Communities, Arts Education, Dance, Design, Folk & Traditional Arts, Literary Arts, Local Arts Agencies, Media Arts, Museums, Music, Musical Theater, Opera, Presenting & Multidisciplinary Arts, Theater, and Visual Arts. Go to "Artistic Disciplines" at the site listed below for detailed information about each discipline's project types and application deadlines. https://www.arts.gov/grants/grants-for-arts-projects/program-description
6/28/2023 NEH Optional Draft for Fellowship Programs at Independent Research Institutions (final deadline 8/9/2023).	These programs support institutions that provide fellowships for advanced humanities research in the U.S. and abroad, foster communities of intellectual exchange among participating scholars, and provide access to resources that might otherwise not be available to the participating scholars. Fellowship programs may be administered by independent centers for advanced study, libraries, and museums in the U.S.; American overseas research centers; and American organizations that have expertise in promoting humanities research in foreign countries. Individual scholars apply directly to the institutions for fellowships. https://www.neh.gov/grants/research/fellowship-programs-independent-research-institutions
6/28/2023 NEH Public Impact Projects at Smaller Organizations.	Small and mid-sized cultural organizations are keepers of history and culture, sources of lifelong learning, and community place makers. Public Impact Projects grants seek to assist you in meeting your community's needs by expanding the scope, reach, and excellence of your public programs. This program aims to meet small and mid-sized organizations where you are by

	supporting projects that are appropriate in scope and content to each organization's resources and community needs. https://www.neh.gov/program/public-impact-projects-smaller-organizations
7/1/23 ACLS inaugural Open Access Book Prize for authors and **Arcadia Open Access Publishing Award** for publishers opens on this date	ACLS is launching these prizes to expand free and open access to scholarly books in the humanities – removing obstacles to ensure that students, instructors, librarians, and anyone in the world can access important research and information on literature, history, music, art, and other related fields. The awards are made possible by a generous grant from Arcadia. In its initial competition, the first-of-its-kind $20,000 ACLS Open Access Book Prize will be awarded to two authors of open access monographs published between 2017 and 2022. The publishers of the winning titles will receive the Arcadia Open Access Publishing Award in the amount of $30,000 to support forthcoming books that would not otherwise be published open access. https://www.acls.org/programs/open-access-book-prize/
7/3/23 (hereafter 7/1) Archaeology Program Senior Research Awards (NSF).	The Archaeology Program supports anthropologically relevant archaeological research to increase understanding of past behaviors. This means that the value of the proposed research can be justified within an anthropological context. It is the responsibility of the investigator to explain convincingly why the focus of their research is significant and has the potential to contribute to anthropological knowledge. The program sets no priorities by either geographic region or time period or by theoretical orientation or question. https://www.nsf.gov/pubs/2023/nsf23566/nsf23566.htm?WT.mc_ev=click&WT.mc_id=&utm_medium=email&utm_source=govdelivery
7/5/2023 NEH Optional Draft for Public Humanities Project Proposal Due (final deadline 8/9/2023).	For organizations**.** Public Humanities Projects supports projects in three categories--Exhibitions, Historic Places, and Humanities Discussions--and at two funding levels (Planning and Implementation). Proposed projects may include complementary components: for example, a museum exhibition might be accompanied by a website or mobile app. Project topics may be international, national, regional, or local in focus, but locally focused projects should address topics that are of regional or national relevance by drawing connections to broad themes or historical questions. Email draft to your current program officer or send it to: **publicpgms@neh.gov.** https://www.neh.gov/grants/public/public-humanities-projects
7/6/23 NEA Grants for Arts (Part 1).	Submit to Grants.gov. Grants for Arts Projects is NEA's largest grants program for organizations, providing comprehensive and expansive funding opportunities for communities. Applicants may request cost share/matching grants ranging from $10,000 to $100,000. Designated local arts agencies eligible to subgrant may request from $30,000 to $150,000 for subgranting programs in the Local Arts Agencies discipline. A minimum cost share/match equal to the grant amount is required. We fund arts projects in the following disciplines: Artist Communities, Arts Education, Dance, Design, Folk & Traditional Arts, Literary Arts, Local Arts Agencies, Media Arts, Museums,

	Music, Musical Theater, Opera, Presenting & Multidisciplinary Arts, Theater, and Visual Arts. https://www.arts.gov/grants/grants-for-arts-projects/program-description
7/6/2023 NEA deadline for nonprofit organizations	applying to the FY 2024 Grants for Arts Projects funding opportunity in the Public Engagement & Professional Development category. **https://www.arts.gov/grants/grants-for-arts-projects/program-description**
7/8/2023 The Federation of State Humanities Councils, the National Humanities Alliance, & NEH are offering…	"Equitable Access Grants" to support attendance and travel expenses for the 2023 National Humanities Conference in Indianapolis, IN, Oct. 25-29. Grants will reimburse travel, lodging, registration, etc., for US-based humanities students, professionals, and scholars. Institutional affiliation not required. Applications from individuals from marginalized populations and communities are encouraged. **http://www.nhallince.org/**
7/11-18/23 NEA Grants for Arts (Part 2)	**7/11-18/23 NEA Grants for Arts (Part 2) Submit proposal to Applicant Portal. https://www.arts.gov/grants/grants-for-arts-projects**
7/14/23 NEH Fellowships Open Book Program (publishers).	This program is a limited competition designed to make outstanding humanities books digitally available to a wide audience. By taking advantage of low-cost e-book technology, the program will allow teachers, students, scholars, and the public to read humanities books that can be downloaded or redistributed for no charge. Open to publishers who have published within the last seven years (or will publish during the period of performance) a book supported by selected NEH programs. To see the list of qualifying programs, go to: https://www.neh.gov/grants/odh/FOBP?utm_medium=email&utm_source=govdelivery
7/18/2023 NEH Humanities Collections and Reference Resources.	This Division of the NEH advances scholarship, education, and public programming in the humanities by helping libraries, archives, museums, and historical organizations across the country steward important collections of books and manuscripts, photographs, sound recordings and moving images, archaeological and ethnographic artifacts, art and material culture, and digital objects. The program strengthens efforts to extend the reach of such materials and make their intellectual content widely accessible. Awards also support the creation of reference resources that facilitate the use of cultural materials, from works that provide basic information quickly to tools that synthesize and codify knowledge of a subject for in-depth investigation.

	https://www.neh.gov/grants/preservation/humanities-collections-and-reference-resources?utm_medium=email&utm_source=govdelivery
7/27/2023 Optional Draft deadline for NEH Dialogues on the Experience of War (final deadline 9/7/2023).	This program supports the study and discussion of humanities sources that address the experiences of military service and war from a wide variety of perspectives. Dialogues projects encourage veterans and nonveterans to reflect collectively on such topics as civic engagement, veteran identity, the legacies of war, service, and homecoming. Project teams should include humanities scholars, military veterans, and individuals with relevant experience. Dialogues projects must include: Discussion programs and Preparatory programs. A pre-recorded webinar will be posted on this page by June 16, 2023. **A virtual Q&A is scheduled for 1:00 pm Eastern on June 29, 2023.** https://www.neh.gov/grants/education/dialogues-the-experience-war
8/3/23 NEA Our Town	(Part 1: submit to Grants.gov) is a creative placemaking grants program, using arts, culture, and design to strengthen communities and advance local priorities such as health, community development, environment/climate, and public safety, among other community issues and aspirations. https://www.arts.gov/grants/our-town
8/9/2023 & 1/10/20-24 NEH Public Humanities Projects (two distinct application deadlines).	For organizations. This program supports projects that bring ideas of the humanities to life for general audiences through public programming. Projects must engage humanities scholarship to analyze significant themes in disciplines such as history, literature, ethics, and art history. Awards support projects intended to reach broad and diverse public audiences in non-classroom settings in the United States. Public Humanities Projects supports projects in three categories (Exhibitions, Historic Places, and Humanities Discussions), and at two funding levels (Planning and Implementation). Proposed projects may include complementary components: for example, a museum exhibition might be accompanied by a website or mobile app. **https://www.neh.gov/grants/public/public-humanities-projects**
8/9/2023 & 1/10/2024 NEH Media Projects (two distinct application deadlines).	For organizations. This program supports the development production, and distribution of radio programs, podcasts, documentary films, and documentary film series that engage general audiences with humanities ideas in creative and appealing ways. Projects must be grounded in humanities scholarship and demonstrate an approach that is thoughtful, balanced, and analytical. Media Projects offers two levels of funding: Development and Production. A pre-recorded webinar will be posted to the site listed below by June 5, 2023. You can link to a webinar from a previous application deadline featuring NEH program officers, who provide information about Media Projects grants and tips for applying. https://www.neh.gov/program/media-projects

8/10-17/23 NEA Our Town	**(Part 2: submit completed grant to applicant portal).** **https://www.arts.gov/grants/our-town**
8/31/23 Deadline for Requesting The American Council of Learned Societies feedback on applications for the HBCU Faculty Fellowship and Grant Program.	Final deadline: 11/2/23. This program provides awards that attend to the specific teaching, research, and service contexts of their institutions. ACLS offers support for HBCU faculty who wish to apply for these fellowship and grant opportunities. Please sign up on the website https://www.acls.org/programs/acls-hbcu-faculty-fellowship-and-grants/ to receive notifications of webinars, office hours, and/or application feedback opportunities. ACLS will provide feedback on draft applications on a rolling basis over the course of the summer 2023. Program officers will review complete or incomplete drafts of proposals, workplans, and budgets submitted by August 31, 2023. This optional review is not part of the formal selection process and has no bearing on the final funding decision. All drafts should be sent as Word or PDF attachments to fellowships@acls.org. https://www.acls.org/programs/acls-hbcu-faculty-fellowship-and-grants/
9/1/23 NEH Dialogues on the Experience of War (for organizations) NB:	**The following description of this program dates from 2022. This can be used until NEH posts the 2023 description at the site listed below.** This program supports the study and discussion of humanities sources that address the experiences of military service and war from a wide variety of perspectives. Project teams should include humanities scholars, military veterans, and individuals with relevant experience. Dialogues projects may take a wide variety of forms, including: Bridge programs for veterans seeking to further or resume their education; Community discussion series hosted by veterans' organizations and cultural institutions such as museums or theaters; Undergraduate or graduate courses that train students to lead discussions on campus or in the local community; Seminars for members of the public; Reading and discussion programs for veterans in the justice system or in group housing, etc. To play a recorded you tube webinar and/or to read successful narrative proposals for this program, visit the link below. The webinar provides examples and explanation in support of the Notice of Funding Opportunity guidelines for the 2022 funding cycle: https://www.neh.gov/grants/education/dialogues-the-experience-war?utm_medium=email&utm_source=govdelivery
9/7/23 NEH The Dialogues on the Experience of War	(As due date approaches, check for possible updated information.)This program supports the study and discussion of humanities sources that address the experiences of military service and war from a wide variety of perspectives. In recognition of the importance of the humanities in helping Americans to understand the meaning and experiences of military service and war, Dialogues projects encourage veterans and civilians to reflect collectively on such topics as civic engagement, veteran identity, the legacies of war, service, and homecoming. Project teams should include humanities scholars, military veterans, and individuals with relevant experience. Dialogues projects must include: (1) Discussion programs: The convening (in

	person or virtual) of at least two sustained discussion series focused on humanities resources and themes that address the experiences of war and military service. Dialogues discussion groups may include exclusively veterans (including a subset of veterans such as students or residents of a group facility); civilians; military-affiliated persons; or any mix of these groups; and (2) Preparatory programs: The creation of an in-person or virtual preparatory program to recruit, train, and mentor a sufficient number of individuals to serve as discussion leaders for the series. For more program resources, including a webinar devoted to this program and sample narratives, go to: https://www.neh.gov/grants/education/dialogues-the-experience-war?utm_medium=email&utm_source=govdelivery
9/13/2023 ACLS HBCU Fellowships and Grants Program Webinar & Office Hours 3:30-4:30 pm ET.	Register at: https://acls-org.zoom.us/webinar/register/WN_Uj4Ufg7IQkGVAvXCitC5Kg#/registration. For more information, go to: https://www.acls.org/programs/acls-hbcu-faculty-fellowship-and-grants/ Additional office hours for applicants and administrators June 21, 12:00 – 1:00 PM EDT; July 17, 2:00 – 3:00 PM EDT; August 17, 11:00 AM-12:00 PM EDT; September 20, 2:00-3:00 PM EDT; October 23, 4:00-5:00 PM
9/20/23 NEH Summer Stipend	**Program** is intended to stimulate new research and publication in the humanities. Summer Stipends support continuous, full-time work on a humanities project for a period of two consecutive months. NEH funds may support recipients' compensation, travel, and other costs related to the proposed scholarly research. Applicants holding tenured or tenure-track positions at institutions of higher education **must be nominated by their institutions** unless they are exempt from this requirement. Advanced graduate students may seek funding for a project based on a completed dissertation. In such cases, the proposal narrative must acknowledge that the proposal is to revise a dissertation and explain how the new project moves beyond the original. NB: Ensure your Grants.gov registration and password **are current**. NEH will not grant deadline extensions for lack of registration. For sample narratives and more information, go to: https://www.neh.gov/grants/research/summer-stipends
10/18/23 (anticipated deadline; optional Draft Review: Submit draft materials to spotlight@neh.gov by September 28, 2022 to receive feedback from program officers before the final	**Check website for exact dates) NEH The Spotlight on Humanities in Higher Education** program (for organizations) supports the exploration and development of small projects that would benefit underserved populations through the teaching and study of the humanities at small- to medium-size two- and four-year institutions of higher education. NEH especially welcomes applications from Native American and Indigenous institutions, Historically Black Colleges and Universities, Hispanic-Serving Institutions, Asian American and Native American Pacific Islander-Serving Institutions, Tribal Colleges and Universities, minority-serving institutions, community colleges, rural colleges and universities, schools that have a majority-minority undergraduate enrollment, and those that serve significant numbers of first-generation and nontraditional students. The Spotlight program supports activities such as

deadline. You do not need to have a fully developed program idea or near complete application to submit materials for review and feedback.	curricular or program development, expert consultations, speakers' series, student research, creation of teaching resources, and community engagement. Projects may benefit students, faculty, the institution or organization, and/or the community. The Spotlight program features a simplified application and streamlined application process. You may **request support at one of two levels: Exploration or Development**. For more information and to view a pre-recorded webinar about the program, go to: https://www.neh.gov/program/spotlight-humanities-higher-education?utm_medium=email&utm_source=govdelivery
11/2/23 ACLS announces a new HBCU Faculty Fellowship and Grant Program.	This program supports the work of humanities and interpretive social sciences faculty at Historically Black Colleges and Universities by providing awards that attend to the specific teaching, research, and service contexts of their institutions. The program will offer two types of awards: (1) Grants of up to $10,000 for research project development, with a grant term of 12 to 15 months, and (2) Fellowships of up to $50,000 to support more sustained time and engagement with a significant research project, with an award term of 12 to 27 months. For more information, go to: https://www.acls.org/programs/acls-hbcu-faculty-fellowship-and-grants/

NEWS

ND How to contact the NEH: program officers are available to talk about your public program idea, how to strengthen your humanities content, figure out the best funding level, and more. To request a consultation, send an email to publicpgms@neh.gov, or to your current program officer.

ND NEH is adding new climate-focused funding opportunities and continuing the agency's longstanding commitment to supporting humanities institutions and scholars as they protect our cultural collections from the effects of climate change, document environmental history, and create new resources and educational programs focused on environmental humanities. Check the NEH website for more information: https://www.neh.gov/program/climate-smart-humanities-organizations-0 https://www.neh.gov/grants/preservation/research-and-development https://www.neh.gov/program/cultural-and-community-resilience

9/1/2023 ACLS Looking for support for your "Digital Justice" project? ACLS has been awarded a $3.3 million grant by the Mellon Foundation to continue its Digital Justice Grant Program, beginning with the next competition opening in September 2023. https://www.acls.org/news/mellon-foundation-awards-3-3-million-to-acls-to-continue-its-digital-justice-grant-program/

Prior News

6/27/23 NEA Grants for Arts Project II: Media Arts Applicant Q&A Session. Register in advance at the URL below. Join us at 3:00pm ET for an informal "office hours" style Q&A Zoom session. NEA staff will be available to answer questions about applying for these grants. https://www.arts.gov/news/events/grants-arts-projects-media-arts-applicant-qa-session-6-27-23

6/27/23 NEA Grants for Arts Projects: Literary Arts Applicant Q&A Session 2:00 pm ~ 03:00 pm ET. Register in advance via the URL below. After registering, you will receive a confirmation email containing information about joining the meeting. Review the application guidelines ahead of time

and check out the FY24 Grant for Arts Projects webinar, which provides a helpful orientation to the process. https://www.arts.gov/news/events/grants-arts-projects-literary-arts-applicant-qa-session-6-27-23

6/27/23 NEA Our Town Applicant Q&A 1:00 pm ~ 02:00 pm ET. Join for an informal "office hours" style Q&A Zoom session. NEA staff will be available to answer questions about applying for an Our Town grant. Register in advance via the URL below. If you have questions ready, please include those in your registration. After registering, you will receive a confirmation email containing information about joining the meeting. https://www.arts.gov/news/events/our-town-applicant-qa-6.27.23

7/6/23 NEA Grants for Arts (Part 1). Submit to Grants.gov. Grants for Arts Projects is NEA's largest grants program for organizations, providing comprehensive and expansive funding opportunities for communities. Applicants may request cost share/matching grants ranging from $10,000 to $100,000. Designated local arts agencies eligible to subgrant may request from $30,000 to $150,000 for subgranting programs in the Local Arts Agencies discipline. A minimum cost share/match equal to the grant amount is required. We fund arts projects in the following disciplines: Artist Communities, Arts Education, Dance, Design, Folk & Traditional Arts, Literary Arts, Local Arts Agencies, Media Arts, Museums, Music, Musical Theater, Opera, Presenting & Multidisciplinary Arts, Theater, and Visual Arts. https://www.arts.gov/grants/grants-for-arts-projects/program-description

7/11-18/23 NEA Grants for Arts (Part 2) Submit proposal to Applicant Portal. https://www.arts.gov/grants/grants-for-arts-projects

7/12/23 NEA Grants for Arts Projects II: Media Arts Applicant Q&A Session 3:00 pm ~ 4:00 pm ET. Register in advance. After registering, you will receive a confirmation email containing information about joining the meeting. https://www.arts.gov/news/events/grants-arts-projects-media-arts-applicant-qa-session-7-12-23

7/20/23 NEA Our Town Applicant Q & A. 01:00 pm ~ 02:00 pm ET. Register in advance. After registering, you will receive a confirmation email containing information about joining the meeting. https://www.arts.gov/news/events/our-town-applicant-qa-7.20.23

8/3/23 NEA Our Town (Part 1: submit to Grants.gov) is a creative placemaking grants program, using arts, culture, and design to strengthen communities and advance local priorities such as health, community development, environment/climate, and public safety, among other community issues and aspirations. https://www.arts.gov/grants/our-town

8/10/23 NEA Our Town Part 2 Application Q & A 2:00 pm ~ 03:00 pm ET. Staff will be available to answer questions specific to Part 2 of the Our Town application. Interested parties **must have already submitted and received a tracking number for Part 1** of the application prior to this session. Register in advance via: https://www.arts.gov/news/events/our-town-part-2-application-qa-8.10.23

8/10-17/23 NEA Our Town Part 2: submit completed grant to applicant portal). https://www.arts.gov/grants/our-town

Applying for an NEH Humanities Initiative at Your College or University

By Kate Kelly, PhD, Humanities Editor

Table of Contents

If your institution would like to strengthen humanities teaching and study via traditional in-person or hybrid teaching methods using a conventional or digital format, consider applying to the NEH for this program. The next anticipated deadline is approximately May 7, 2024. The maximum award amount is $150,000 and the program can take place over one to three years. The most important criteria to be met by applicants is that the program and resources must focus on the humanities: they must address a core topic or themes drawn from history, philosophy, religion, literature, or humanities-informed composition and writing skills.

The expected products to be developed through this program include community partnerships, curriculum development or revision; faculty development; and teaching resources. Proposals may call for limited projects or large, long-term projects. NEH offers an optional draft review of proposals for this program and, in 2023, also offered a live Question and Answer session. Check the website periodically for 2024 information: https://www.neh.gov/program/humanities-initiatives-colleges-and-universities

It can be helpful to know what actual Initiatives have looked like. Here are some examples taken from the NEH website (URL above) with various themes, lengths, and budgets:

● "**Native American and Indigenous Studies in the General Education Curriculum**. This is a three-year curricular and faculty development project in conjunction with the Seneca Nation to incorporate the teaching of Native American and Indigenous Studies into general education classes required for all first-year students."

● "**Enhancing the Digital Humanities as Experiential Undergraduate Research**. A two-year project to build the college's digital humanities capacity through undergraduate research about campus history. Lycoming College will enhance its digital humanities capacity through a collaborative faculty- and student-researched digital history of the College. Serving as a pilot, this project will establish the procedural groundwork and technical platforms for future, expanded undergraduate digital humanities research and products."

● "**Advancing a Public Humanities and Arts Collaborative and Associated Curriculum**--A sixteen-month grant to support the development of curricular programs in public humanities. Roger Williams University (RWU) seeks funding to support a sixteen-month effort by the RWU Public Humanities and Arts Collaborative (The Co-Lab) to initiate programming in support of: 1) developing and enhancing courses contributing to a new community-engaged public humanities minor and graduate certificate, 2) supporting faculty in community-engaged public humanities teaching and, 3) convening a consortium of public humanities scholars and community organizations in the southeastern New England region investigating issues of race and racial equity."

● "**Identity, Transformation, and Agency: The Humanities Inside Oregon's Only Prison for Women**. A two-year project to expand the university's Higher Education in Prison program. We will design and implement a 6 course (24 credit hour) humanities sequence around the theme of Identity,

Transformation and Agency for incarcerated women, trans-identified and gender nonconforming people at the Coffee Creek Correctional facility to enrich and expand Portland State University's Higher Education in Prison Program. Faculty from six departments (Anthropology, Black Studies, Chicano & Latino Studies, English, Indigenous Nations Studies, and Philosophy) will participate in a community of practice to create a student-centered, engaging, and rigorous curriculum along a Liberal Studies degree pathway."

Consulting with NEH very early in drafting a proposal can give applicants an advantage in creating a successful application (look for such an invitation on the NEH website). The application process itself is extensive but clearly described on the website, and NEH warns applicants that Narrative Attachments cannot exceed 8 single-spaced pages. The website also includes frequently asked questions about this program and includes sample application narratives.

It's worthwhile to look at these narratives not because they should be copied but because they ***model some possible ways to answer the questions essential to the proposal's narrative***. A relatively new program that has been offered for only three years, it receives an average of 82 applications each year with a funding ratio of 16% (similar to many of the other NEH awards). Thirteen awards are made each year. ***Yours can be among those funded if the application process begins early***, the NEH website about this program is read carefully and repeatedly, and all of the participants in the process communicate with one another during the planning and writing of the proposal.

What is Use-Inspired Science and Why Do You Need to Know That?

By Mike Cronan, PE, co-publisher

Table of Contents

This past year you may have noticed NSF programs focused on "**use-inspired research"** popping up as plentifully as dandelions in spring. While perhaps not as important in the overall scheme of our lives as Taylor Swift's repeated crashing of Instagram and Ticketmaster is to our grandchildren, ***it is important to those wanting to competitively position themselves for future funding directions at NSF***.

As we have often mentioned in this newsletter, NSF has a long and increasingly expanding lexicon of key concepts that form the foundation of new program directions. Back in the 1980s, it was simply a focus on the "***integration of research and education***." Now the NSF lexicon of key conceptual terms motivating the Foundation's long-range strategic research and education plans rivals the Oxford English Dictionary in size and scope.

Point being, faculty and research offices need to have a clear understanding of what NSF, and other funding agencies such as NIH, mean when they use the term "**use-inspired research**" in a funding solicitation, particularly in more recent solicitations, where "**use-inspired research**" is **a** major if not **the** major conceptual framework to be addressed in the research narrative. **Bottom line**: if you are not clear about what the terms mean to NSF, then you will not be able to argue convincingly in your project description how and why the research you propose meets the solicitation's **use-inspired research** goals and objectives.

Use-inspired science, according to the National Academies, "consists of scientific investigations whose rationale, conceptualization, and research directions are driven by the potential use to which the knowledge will be put. It sometimes involves the 'application' of other 'basic' or 'fundamental' science, but it also includes investigations that advance or even transform scientific disciplines or that create entirely new scientific fields."

That noted, the best way to fully understand the many definitional nuances of the term "use-inspired research" as used by NSF is to see it described by NSF in **various contexts**–reports, funding solicitations, Dear Colleague Letters, references, etc.

Or, as NSF notes in one context, "*Use-inspired research is defined as research and training that is intentionally co-designed by teams of scientists and engineers, practitioners, and users to address the nation's environmental, societal, and economic challenges and grow a diverse and versatile STEM workforce*."

For example, in a **workshop context**, the Building Bridges to Use-Inspired Research and Science-Informed Practices workshop notes that "Participants of the workshop will co-develop structures and processes that can guide how diverse organizations support and value **use-inspired science**, and will **explore current and future opportunities** within NSF with the potential to create use-inspired tracks within the Directorate for Biological Sciences and the Office of Integrative Activities. Our vision for this workshop is to support researchers across career stages who want to take advantage of new funding

and partnership opportunities within and associated with the new Technology, Innovation, and Partnership Directorate at NSF and to support government and private organizations who want their science needs to be more broadly understood and incorporated into research priorities."

In the **context of a funding solicitation,** Global Centers (GC) Use-Inspired Research Addressing Global Challenges in Climate Change and Clean Energy**, "**The **Global Centers** program is an NSF-led effort, implemented in partnership with like-minded international funders, to **encourage and support large-scale collaborative research on use-inspired themes in climate change and clean energy**." In this context, the "**use-inspired**" nature of the research refers to ***project outcomes leading to foreseeable benefits to society***. "These outcomes should help the assessment and/or mitigation of climate-change impacts on society, people, and communities, and/or the development of clean-energy solutions

NSF Convergence Accelerator

With the NSF Convergence Accelerator, NSF's goal is to PILOT A NEW NSF CAPABILITY to accelerate use-inspired convergence research in areas of national importance…The NSF Convergence Accelerator supports use-inspired, goal-oriented, basic research, encouraging rapid advances through partnerships that include multiple stakeholders (e.g., industry, academic, not-for-profits, government entities, and others). The NSF Convergence Accelerator brings teams together in a cohort that are all focused on a common research goal of national importance, but which may be pursuing many different approaches (CA Topics).

In conclusion, spending sufficient time exploring *how NSF uses the term use-inspired research in various contexts*, especially to better position yourself or your institution for success in upcoming funding solicitations where this concept is the driving factor, is well worth the time spent.

Plagiarism, Fabrication, and Falsification

By Mike Cronan, PE, co-publisher

Table of Contents

The Tangled Web of Plagiarism, Fabrication, and Falsification

History is silent on whether or not Sir Walter Scott was serving as the Inspector General of NSF when he made his iconic observation on research misconduct, "*Oh what a tangled web we weave when first we practice to deceive*," but it is clear that pursuing allegations of research misconduct – **plagiarism, fabrication, and falsification** – continues to be **a focus of the NSF OIG's investigative work**. This is addressed in the NSF *Office of Inspector General's Semi-Annual Report to Congress*, released last week and covering the first half of fiscal year 2023, and is highlighted below in selected abbreviations of the 24-page report.

Moreover, the fate of those found guilty of research misconduct by NSF's OIG is not a happy one. NSF sanctions, as well as additional sanctions by the home institution, can be severe. Even less severe sanctions, perhaps NSF agency debarment only lasting for one or two years, ***still make it difficult to imagine a future research career that has not been seriously compromised***.

The bottom line, **research misconduct is entirely self-inflicted,** and hence avoidable. This is the case for all of those who commit it thinking they can escape notice and benefit unfairly over others by ***intentional fabrication and falsification***. However, particularly in research misconduct related to **plagiarism**, research offices can play a major role in helping prevent faculty from ***unintentionally falling into this rabbit hole***.

Keep in mind, the OIG report calls out those investigated and found guilty of research misconduct, but those are a subset, ***and do not include those investigated but not charged***. The goal of ethical researchers is to be sufficiently informed about what constitutes research misconduct to prevent ever crossing that bright line and triggering an inquiry.

That said, it may be worth devoting a workshop or informational seminar sponsored **by research offices** to address the issue of research misconduct and use the "case studies" from the NSF OIG report as examples, or similar examples from NIH (below). When it comes to research misconduct, a charge by the NSF OIG not only impacts the specific faculty member but the institution as well. ***The NSF OIG is not shy about naming names of both the perpetrators and those that employ them***. A seminar on research misconduct by research offices would help inoculate faculty and the institution against being called out by NSF OIG on research misconduct. As the well-known Research Development Officer Miguel de Cervantes famously noted "*Forewarned is forearmed*."

At NIH, as at NSF, misconduct in proposing, performing, reviewing, or reporting research falls into three categories:

- **Fabrication**: making up data or results and recording or reporting them;
- **Falsification**: manipulating research materials, equipment, or processes, or changing or omitting data or results so the research is not accurately represented in the research record;
- **Plagiarism**: appropriating another person's ideas, processes, results, or words without giving appropriate credit, as elaborated upon in below NIH links--

- **Test Your Knowledge – Interactive Video of Research Misconduct Case Studies**
- **Research Misconduct & Detrimental Research Practices Webinar on October 14**
- **New "All About Grants" Podcast – Research Misconduct**
- **Trends in Extramural Research Integrity Allegations Received at NIH**
- **NIH All About Grants Podcast: Responsible Conduct of Research and Training**

University Settles Allegations of Non-Disclosure . As part of a civil settlement agreement, a **university agreed to pay more than $875,000** to resolve potential False Claims Act liability. The university **failed to disclose a professor's affiliations with and support from a foreign government** in proposals submitted to several agencies, including NSF… DOJ issued a press release about this case.

NSF Suspended 14 Awards to a University for Failure to Disclose Foreign Affiliations for Multiple Principal Investigators. We identified 14 active awards where the university and its PIs did not disclose foreign-funded projects or organizational affiliations in their NSF proposals. Based on our recommendation, NSF suspended the awards pending the completion of our investigation. This investigation is part of a larger review to determine whether U.S. institutions are complying with NSF's requirements that PIs and Co-PIs disclose all forms of current and pending sources of funding.

Professor Suspended Government-Wide for Failure to Disclose Material Information to NSF. Based on our recommendation, NSF suspended a professor government-wide for his failure to disclose to NSF all his organizational affiliations and current and pending support. A multi-agency investigation found that the professor held a position with a foreign university and received foreign research funding, neither of which was disclosed to NSF.

NSF Suspends Four Awards to a University. Based on our recommendation, NSF suspended four awards under the direction of three PIs. We determined the PIs did not disclose all current and pending support in their NSF proposals as required. Our investigation is ongoing.

Actions Resulting from Previously Reported Program Integrity Investigations. This section of the OIG report describes significant actions taken on cases discussed in previous semiannual reports. Investigations may span multiple years and result in a variety of outcomes over multiple semiannual reporting periods. For example, criminal or civil matters may result in prosecution, settlement agreements, fines, and repayments. NSF may take administrative actions such as suspension and termination of awards, or debarment of individuals.

Professor Sentenced for False Statement. We previously reported a professor was found guilty of one count of making a false statement and three counts of wire fraud for receiving federal award funds and salary while employed by a foreign research university. The court dismissed the 3 wire fraud counts before sentencing, and sentenced the professor to 2 years supervised release and time served for making a false statement. DOJ issued a press release about this case.

Research Misconduct Investigations. Research misconduct damages the scientific enterprise, is a potential misuse of taxpayer dollars, and undermines the public's trust in government-funded research. NSF-funded researchers must carry out their projects with the highest ethical standards. Pursuing allegations of research misconduct – **plagiarism, fabrication, and falsification** – continues to be **a focus of our investigative work**. NSF takes research misconduct seriously, as do NSF's awardee institutions.

For each case described in this section, "we recommended that NSF make a finding of research misconduct, issue a letter of reprimand, and require interactive responsible conduct of research (RCR) training, except where noted. Unless otherwise specified, NSF's decisions are pending."

Graduate Student Fabricated and Falsified Data in a Paper. We contacted a university following the retraction of a paper that acknowledged NSF support… The university concluded most of the paper's data had been intentionally **falsified and fabricated** by the graduate student. Specifically, the student **fabricated data** in an electronic lab notebook, cherry-picked data for publication, backdated lab notebook entries, and falsified data by manipulating a sample… The university concluded the graduate student should be withdrawn from the Ph.D. program without receiving a Master's or Ph.D. degree.

PI Plagiarized from Example Proposal. A PI **plagiarized** from a previously funded NSF proposal that a colleague shared as an example of a successful proposal… We identified a **substantive amount of copied text from the previously funded proposal inserted (?)** into the submitted proposal. We learned the PI was responsible for the copied text. The PI told us he unintentionally omitted the citations for the copied text but, in a separate explanation provided to the co-PIs, stated that he had intended to reword the copied text. We referred the investigation to the university… The university found the PI committed research misconduct and required that for 3 years, the PI should help the Research Integrity Officer teach the responsible conduct of research class, and the PI's department head should certify that all the PI's publications and proposals contain plagiarism.

CAREER Awardee Suspension Recommended Pending Completion of Investigation. We received an allegation that a funded Faculty Early Career Development Program (CAREER) proposal and two published papers authored by a PI **contained text and ideas plagiarized from a funded CAREER award in a different field**. After assessing the initial evidence and interviewing the program officer, we recommended NSF suspend the award pending the outcome of our investigation.

University Returns More Than $700,000 to NSF Following Research Misconduct Finding. A university returned more than $700,000 to NSF after finding a CAREER award PI had engaged in research misconduct by falsifying and fabricating data.

Graduate Student Data Falsification Leads University to Terminate Award and Return Funds. We received an allegation that a former graduate student falsified data in three publications. The university found the student committed research misconduct, terminated an NSF award to the student's major professor, and returned more than $250,000 to NSF.

NSF Actions on Previously Reported Research Misconduct Investigations. Significant actions taken during this period are summarized below:

• In the case of a professor who **plagiarized** from confidential documents into his own proposal and appealed NSF's decision, NSF reaffirmed its findings and the imposition of all sanctions, including a 2-year, **government-wide debarment** and other administrative sanctions.

• In the case of a PI who accepted responsibility for **plagiarism** in multiple proposals, NSF prohibited the PI from participating as a reviewer, advisor, or consultant for NSF for 1 year, and required **certifications and assurances for 1 year**.

• In the case of a **reviewer who shared proposals without permission**, NSF barred the reviewer from serving as a reviewer, advisor, or consultant **for 3 years**.

• In the case of a postdoctoral researcher who **plagiarized** images and falsified data, NSF imposed a 1-year government-wide debarment. NSF also prohibited the postdoctoral researcher from

participating as a reviewer, advisor, or consultant for NSF for 4 years and required certifications and assurances for **4 years**.

• In the case of a co-PI who **plagiarized** teaching materials for an NSF-funded course, NSF concurred with our recommendation to require certifications and assurances, and prohibit the co-PI from participation as a peer reviewer, advisor, or consultant for NSF, but reduced our recommended term of 3 years to 2 years. Additionally, NSF required that the co-PI certify compliance with university-imposed requirements.

• In the case of an NSF-funded graduate student working on NSF- and National Institutes of Health-supported research who **falsified and fabricated data** in laboratory progress reports, NSF **debarred the student for 3 years; and for 4 years** (the debarment and 1 year afterward), NSF required certifications and assurances; barred the student from participating as peer reviewer, advisor, or consultant for NSF; and required a data management plan with each submitted NSF proposal."

The Chips & Science Act: What is it Funding?

By Lucy Deckard, co-publisher

Table of Contents

Last summer, the U.S. Congress passed the Chips & Science Act of 2022 to much fanfare. It commits to invest over $50 billion in subsidies to build chip plants, support semiconductor-related research and development, and fund workforce development. It also authorizes about $174 billion through FY 2027 to support the nation's science and technology base – including for interagency programs to boost technological innovation and help translate federally funded research to commercial applications. But passing the legislation is just the first step.

It's important to understand that the Chips & Science Act was an authorizing bill, meaning that it sets a ceiling for the amount of funding that Congress can appropriate. Below is a table showing the 5-year authorizations by funding agency (see this article for more details). However, Congress is not required to spend this money; they must appropriate it in spending bills. So far, actual appropriations have not kept pace with authorizations. (For example, see this Table comparing the FY23 Omnibus appropriations compared to CHIPS FY23 authorizations.) This means that the research community will need to advocate for Congress to follow through with the planned investments. With that caveat, let's look at where that money is going, at least in the near-term, and how that funding will translate into funding opportunities. (This list is not all-inclusive, so please be sure to check out the links for more information.)

Chips and Science Act of 2022 Authorizations for Research & Innovation by Funding Agency

(Source)

Key Programs	Five-Year Authorization	Increase over Baseline
National Science Foundation (NSF)	**$81 billion**	**$36 billion**
• NSF Tech Directorate	$20 billion	$20 billion
• NSF Core Activities	$61 billion	$16 billion
Department of Commerce (DOC)	**$11 billion**	**$11 billion**
• Regional Technology Hubs	$10 billion	$10 billion
• RECOMPETE Pilot	$1 billion	$1 billion
National Institute of Standards and Technology (NIST)	**$10 billion**	**$5 billion**
• NIST Research	$6.9 billion	$2.8 billion
• Manufacturing USA	$829 million	$744 million
• Manufacturing Extension Partnership	$2.3 billion	$1.5 billion
Department of Energy (DOE)*	**$67.9 billion**	**$30.5 billion**
• DOE Office of Science	$50.3 billion	$12.9 billion
• Additional DOE Science and Innovation	$17.6 billion	$17.6 billion
Total	**$169.9 billion**	**$82.5 billion**
*Across all the DOE sections, there is: • A total of $14.7 billion for infrastructure, equipment, and instrumentation across 17 DOE National Laboratories. • A total of$16.5 billion in new or above baseline authorizations for research in the 10 technology areas identified in USICA across the Office of Science and DOE's applied R&D offices in advanced energy and industrial efficiency technologies, artificial intelligence and machine learning, advanced manufacturing, cybersecurity, biotechnology, high performance computing, advanced materials, and quantum information science.		

The National Science Foundation – Most Chips & Science Act funding for NSF is going to programs overseen by NSF's new Technology, Innovations and Partnerships (TIP) directorate. TIP is technology-agnostic and focuses on three broad areas: the technology economy, translation, and workforce

development. It also aims to help universities and community colleges develop infrastructure to translate their research results to the market and society. (See our June 2022 issue for an article on TIP). A number of new funding opportunities have been issued by TIPS in recent months, and more are coming. These include NSF Regional Innovation Engines, Accelerating Research Translation (ART), Enabling Partnerships to Increase Innovation Capacity (EPIIC), Experiential Learning for Emerging and Novel Technology (ExLENT – see our November 2022 article), Pathways to Enable Open-Source Ecosystems (POSE), Proto-Open Knowledge Network (Proto-OKN). TIP also inherited existing programs that align with TIP's focus, including Innovation Corps (I-Corps), the NSF Convergence Accelerator, Partnerships for Innovation (PFI), and America's Seed Fund (SBIR/STTR). The Chips & Science Act authorizes $200 million to NSF to help kick start development of the domestic semiconductor workforce (which will go to a number of programs across various NSF directorates).

Department of Energy – The Chips and Science Act increases funding for fundamental research overseen by the Office of Science, and also funds a number of new programs. These include: the Foundation for Energy Security and Innovation (for energy security); programs for technology transfer out of the Office of Technology Transitions (OTT), including a national incubator program, and a university clean energy technology prize competition; new programs for development and research on microelectronics; funding to improve nuclear research at U.S. universities; funds to support R&D on low-emissions steel manufacturing; and funds for new R&D in applied energy offices (those outside the Office of Science, including the Offices of EERE, Nuclear Energy, Carbon Management, Electricity, and ARPA-E). Note, also, that the DOE applied energy offices also received a windfall through the Inflation Reduction Act (IRA) as part of climate change/clean energy transition funding. See here for more details about IRA funding for DOE, and here for a list of grant programs funded out of the IRA.

Department of Commerce – Within the Department of Commerce, much of the funding from the Chips and Science Act will be administered by the National Institute for Standards and Technology (NIST) and the Economic Development Administration (EDA). The CHIPS for America Fund, which includes manufacturing incentives (overseen by NIST) to finance domestic facilities and equipment for semiconductor fabrication, R&D, and more (including direct loans and guarantees to companies), the establishment of a National Semiconductor Technology Center consortium, and more. See here for NIST's CHIPS for America Fund implementation strategy, including funding opportunities. An addition $1.5 billion is allocated for the Public Wireless Supply Chain Innovation Fund (through NTIA), which is mainly for companies. The EDA is overseeing RECOMPETE, which will fund interventions to spur economic activity in distressed communities, and funding to create 20 regional technology hubs (Tech Hubs) focused on technology development, job creation, and expanding U.S. innovation capacity. There's a nice table here summarizing funding for industrial policy passed by the 117th Congress.

The Department of State – The International Technology Security and Innovation Fund will provide funding to promote the development and adoption of secure and trustworthy telecommunications networks and ensure semiconductor supply chain security and diversification.

The Department of Defense – Part of the CHIPS and Science Act, the CHIPS for America Defense Fund authorizes $2 billion for a Microelectronics Commons, a national network for onshore, university-based prototyping, lab-to-fab transition of semiconductor technologies, and semiconductor workforce training.

NSF BioFoundries & Related Programs

By Mike Cronan, co-publisher

Table of Contents

While this article differs from a companion article (*What Is Use-Inspired Science and Why Do You Need to Know That)* in this month's newsletter, ***both articles clearly rhyme at key points of intersection***. Both focus on gaining a better understanding of NSF's new funding solicitations and strategic research directions, ***including important concepts, terms and definitions***, at the cutting edge of **biotechnology and the bioeconomy** to *better enable the planning, developing, and writing of successful research and/or educational proposals to NSF*.

Biotechnology is one of NSF's Five Industries of the Future, as noted in Advanced Biotechnology and Bioeconomy Research at NSF. The agency provides funding opportunities in four priority areas: ***foundational research, infrastructure, workforce, and translation***, found in each Directorate within NSF. Cross-cutting advances in biology, computing, engineering, and mathematics are ***driving biotechnology innovation within the U.S. bioeconomy***. Biotechnology enables the discovery, utilization, and alteration of living organisms, their constituent components, and their biologically-related processes (see *Dear Colleague Letter: Bioinspired Design Collaborations to Accelerate the Discovery-Translation Process, BioDesign*).

The **key take away from this article** is that to be competitive for funding at NSF in a host of new research directions that define the cutting edge boundaries of such areas as the biological sciences, biotechnology, and the bioeconomy ***requires potential applicants and the research offices that support them to be knowledgeable and informed on NSF's future directions***.

NSF investments to advance biotechnology "accelerate scientific discovery and enable the harnessing, engineering, and rational modulation of biological systems to create goods and services that contribute to the agriculture, health, security, manufacturing, energy, and environmental sectors of the U.S economy." ***The economic output of these new goods and services - the bioeconomy - provides substantial societal benefits and enhances U.S. economic growth.*** (See NSF fact sheet on bioeconomy.)

NSF defines biotechnology in various ways depending on context, but it's generally understood as: "*To understand and harness biological processes, enabling future innovations in the therapeutics, biopharmaceutical, biochemical, and biotechnology industries; synthetic biology, biotechnology, engineering biology, metabolic engineering, tissue engineering, biomechanics, the microbiome, biomaterials, bio-based microelectronics, and biomanufacturing; and social and environmental implications of synthetic biology and other biotechnologies.*"

For example, below are funding opportunities from across the foundation:

- Designing Synthetic Cells Beyond the Bounds of Evolution (Designer Cells)
- Reproducible Cells and Organoids via Directed-Differentiation Encoding (RECODE)
- Understanding the Rules of Life: Microbiome Interactions and Mechanisms (URoL:MIM)
- Designing Materials to Revolutionize and Engineer our Future (DMREF)

- Molecular Foundations for Biotechnology (MFB)
- Find a funding opportunity page

A major example includes NSF's upcoming *BioFoundries to Enable Access to Infrastructure and Resources for Advancing Modern Biology and Biotechnology* (**BioFoundries**) program solicitation (LOI August 1; full proposal October 2) anticipates 2-4 awards totaling $15,000,000 to $24,000,000 over a six-year period. With up to $72 million available, addressing grand challenge questions requires a deeper understanding of biological systems and technologies, requires the sustained development of technologies, sophisticated instrumentation, workflow pipelines and their automation, and advanced computing that are beyond the capabilities found in the laboratories of individual investigators.

The NSF BioFoundries Program addresses a ***critical need for a national infrastructure to support biotechnology and the bioeconomy***. This solicitation is rich with references to publications, reports, workshops, and papers that **form the motivation for NSF's funding of research in this area**, as below--

Recent Publications[1],[2],

[1] Holowko MB, Frow EK, Reid JC, Rourke M, Vickers CE. Building a biofoundry. Synthetic Biology (2021). Link.

[2] Vickers CE and Freemont PS. Pandemic preparedness: synthetic biology and publicly funded biofoundries can rapidly accelerate response time. Nat Commun (2022). Link.

Workshop Reports[3],[4],[5],

[3] World without Waste: A Circular Bioeconomy. Link.

[4] Feeding the Planet Sustainably. Link.

[5] Building a Biotechnology Innovation Ecosystem to Mitigate Climate Change. Link.

White Papers[6],[7],.

[6] Hodgson A, Alper J, and Maxon ME. The U.S. Bioeconomy: Charting a Course for a Resilient and Competitive Future. New York, New York: Schmidt Futures (2022). Link.

[7] Engineering Biology Research Consortium. EBRC Policy Papers in Response to the 2022 Bioeconomy Executive Order (2022). Link.

Other [8], [9]

[8] Executive Order on Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure American Bioeconomy. Link.

[9] Bold Goals for U.S. Biotechnology and Biomanufacturing: Harnessing Research and Development to Further Societal Goals. Link.

The BioFoundries Program also aligns with, and follows naturally from, NSF's investments in diverse areas of ***biological sciences, chemical biology, biotechnology and bioengineering through programs such as***:

- Enabling Discovery through Genomic Tools;
- NeuroNex;

- Plant Genome Research Program;
- Dimensions of Biodiversity (now Biodiversity on a Changing Planet);
- Organismal Response to Climate Change;
- Future Manufacturing;
- Cyber-Physical Systems;
- Smart Health and Biomedical Research in the Era of Artificial Intelligence;
- Foundations of Emerging Technologies; Molecular Foundations of Biotechnology;
- Reproducible Cells and Organoids via Directed Differentiation Encoding;
- Accelerating Innovations in Biomanufacturing Approaches through Collaboration Between NSF and the DOE BETO funding Agile BioFoundry and others.

The foundational or **use-inspired scientific research drivers** for NSF BioFoundries could leverage prior investments or address any other field of science and engineering supported by NSF.

In conclusion, NSF's **Bioeconomy Distinguished Lecture Series** represents an exhaustive repository of information that gives ***insight into what a successful proposal related to the bioeconomy will look like***. Presented by NSF's Bioeconomy Coordinating Committee and NSF Directorates, the series presents individual speakers and panels representing the science and technology **funded by a Directorate every month**. Speakers present on research and broader impacts in areas associated with biotechnology and the bioeconomy that are of interest broadly across NSF, as below.

Thursday, June 16, 2022 11:00 a.m - 12:00 p.m
(Cosponsored by the Bioeconomy Coordinating Committee, BIO, and CISE)
Domitilla Del Vecchio, PhD (MIT)
Professor of Mechanical Engineering

View on YouTube: https://youtu.be/9sky1ooiqn0

The Future of Engineering Biology: Why We May Not Get There
About 20 years ago, the first two human-made genetic circuits were built in living cells, demonstrating for the first time our ability to perform rational design with biological hardware. A new field was born, called "Synthetic Biology," with a mind-blowing vision in which genetic circuits made of biomolecules could be automatically designed to achieve capabilities such as curing cancer, regenerating damaged tissue, developing bio-inspired ways to detect molecules, creating new biomaterials, and producing new forms of energy. Today, more than 20 years later, despite remarkable successes, we are still largely unable to engineer sophisticated genetic circuits that behave as intended. This is especially due to lack of robustness of human-made genetic circuits to changes in intra- and extra-cellular context. For example, although these circuits perform well in defined lab conditions, changes in nutrients, temperature or the simple activation of other cellular genetic components prevent them from functioning as intended. How can we then use such human-made genetic systems in real-world applications, where intra and extra-cellular conditions will vary unexpectedly? Only by achieving robustness.

In this talk, Del Vecchio will illustrate how systems and control theory, which has been instrumental to achieve robustness in traditional engineering systems like electronics, telecommunication, and aviation, can be adapted to tackle issues of robustness in engineering biology. The adaptation of

control design techniques to the new physical domain of biology, however, is not straightforward and requires substantial re-thinking of existing approaches and often the development of new solutions. Although these solutions are promising and have demonstrated initial success, there are still many more problems related to a lack of robustness. The talk will thus conclude with an outlook on critical needs and potential solution avenues.

Bio sketch is available in the flier linked below.

Further lectures to be announced

Past Lectures:

Thursday, December 3, 2020 11 a.m. - 12 p.m. EST
(*Cosponsored by the Bioeconomy Coordinating Committee, BIO, and CISE*)
Mark Bathe, PhD (Massachusetts Institute of Technology)
Professor, Department of Biological Engineering
Co-Chair, MIT New Engineering Education Transformation

View the lecture on YouTube: https://youtube.com/video/GZ0p9-H_gio/

A Tale of 2 Strands: From Genomes to Origami, Vaccines, Data Storage, and Back
Society faces innumerable grand challenges in the 21st Century, ranging from uncontrolled pathogenic outbreaks to exponentially growing data and computational needs that exceed the world's supply of silicon, to next-generation sensing requirements for safe autonomous vehicle navigation and health monitoring. As scientists explore diverse material substrates to help address these challenges, DNA has emerged as a powerful biological medium due to its unique ability to fabricate arbitrary, virus-like structures at the nanometer-scale, store information at a density that vastly exceeds even flash memory, perform logic-based sensing and computing, as well as organize photonic elements to mimic quantum processes in photosynthetic bacteria and plants. In this presentation Bathe shared his work in several of these areas, with a focus on fabricating virus-like particles to rapidly screen vaccine candidates for emergent pathogens, and using DNA as a "hard-drive" with random access capabilities that could in principle operate at the yottabyte-scale for archival data.

Thursday, January 14, 2021 11 a.m. - 12 p.m. EST
(*Cosponsored by the Bioeconomy Coordinating Committee, BIO, and OISE*)
LaShanda Korley, PhD (University of Delaware)
Distinguished Professor, Department of Materials Science and Engineering
Associate Director, UD Center for Research in Soft Matter and Polymers (CRiSP)

View the lecture on YouTube: https://www.youtube.com/watch?v=sLzHGFJHyGg

Bio-inspired and Sustainable Design: Towards Functional Materials
Materials that are found in nature display a wide range of properties, including responsiveness to the environment, signal transmission, and the ability to adapt to support life. Learning from nature or biomimicry can be a powerful tool in designing, developing, and accessing the next generation of synthetic materials and systems. Supported by the NSF PIRE program, Korley discussed her Center efforts to utilize inspiration from nature to design new materials that can change toughness in response to their environment, are safer and more effective biological implants, will transmit nerve-like electrical signals, and can respond to the environment to initiate biological processes with an eye

toward soft robotic applications. Via an international framework, a suite of educational and innovation activities will be described that guide the training of the next generation of global scientists and engineers in this interdisciplinary endeavor. With support from the NSF GCR and DMR, she discussed the implementation of a life cycle management framework and collaborative research to develop performance advantaged materials. Sustainability in the context of new materials design was also highlighted as a pathway for framework for broadening participation in science and engineering fields.

Thursday, March 18, 2021 11 a.m. - 1 p.m.
(*Cosponsored by the Bioeconomy Coordinating Committee, BIO, and ENG*)
Lydia Contreras, PhD (University of Texas); Doug Densmore, PhD (Boston University); Julius Lucks, PhD (Northwestern University); and Jennifer Nemhauser, PhD (University of Washington)

View the lecture on YouTube: https://www.youtube.com/watch?v=L-eALuVsKVA

Sowing the Seeds of Convergent Synthetic Design
Abstracts are available in the flier below

Thursday, May 13, 2021 11 a.m. - 1 p.m. EST
(*Cosponsored by the Bioeconomy Coordinating Committee, BIO, and EHR*)
Panel Presentation: Linnea Fletcher, PhD (Austin Community College); Thomas Tubon, PhD (Madison Area Technical College); Russ Read (Forsyth Tech Community College)

View the lecture on YouTube: https://www.youtube.com/watch?v=UnuUajqGqJM

Scoping and Educating the Dynamic Biotech Workforce
Advancing the U.S. bioeconomy will require a growing biotechnology workforce that is well educated and diverse. Located at Austin Community College in Texas and partnering with institutions of higher education, high schools, industry, and non-profits throughout the country, the InnovATEBIO National Biotechnology Education Center, an NSF-funded Advanced Technological Education Center, works with the biotech community to scope out workforce needs and address them by educating highly skilled technicians. InnovATEBIO supports a cadre of well-trained instructors and is helping to increase the number and quality of biotechnology education programs, as well as introducing a wide range of underrepresented students to biotechnology.

In this lecture, InnovATEBIO's Principal Investigators Dr. Linnea Fletcher, Russ Read, and Dr. Thomas Tubon, discussed their work to lead the biotechnology community to evaluate and meet workforce needs across biomanufacturing and biotech and how preparing the workforce can also increase economic development. They also highlighted unique partnerships they have established through their efforts in workforce development, including partnerships with Manufacturing USA and other federal agencies. The panel described their efforts to broaden participation in the biotechnology workforce including participation in the NSF-funded Center for Advancing Research Impact in Society (ARIS) and working with industry partners to develop skills standards, improve onshore manufacturing, and increase supply chain security.

Thursday, June 10, 2021 11 a.m. - 1 p.m. EST
(*Co-sponsored by the Bioeconomy Coordinating Committee, BIO, and GEO*)
Panel Presentation: Tullis Onstott, PhD (Princeton University); Paula Welander, PhD (Stanford

University); Andrew Thurber, PhD (Oregon State University); and Kristin O'Brien, PhD (University of Alaska-Fairbanks)

View the lecture on YouTube: https://www.youtube.com/watch?v=VMoFwLAZZKo

Bioeconomic Applications of Extreme Earth Environments
Abstracts are available in the flier below

Thursday, September 9, 2021 11 a.m. – 1 p.m. EST

(Co-sponsored by the Bioeconomy Coordinating Committee, BIO and MPS)
Panel Presentation: Tom Muir, PhD (Princeton University); Ben Garcia, PhD (Washington University School of Medicine in St. Louis); Lissa Anderson, PhD (National High Magnetic Field Laboratory); and Ping Ma, PhD (University of Georgia)

View the lecture on YouTube: https://www.youtube.com/watch?v=eKqjh5xQ3vk

Deciphering Biological Codes: The Power of Chemical Biology, Biological Physics, Big Data, and AI
Nearly all cells comprising an individual contain the same DNA blueprint, yet humans are a complex amalgamation of ~200 different cell types of various functions. Distinctions lie in which genes are ultimately "switched ON" and translated into proteins that function in the cell – their "proteome." Epigenetic mechanisms affect biological processes by regulating the ways in which genes are expressed, altering phenotype. By understanding these mechanisms, scientists will be able to better understand key relationships between genotype and phenotype.

Histone proteins play a pivotal role in epigenetic regulation. While there are only five families of histone proteins, their structures and functions are expanded in innumerable ways, including combinations of gene sequence variants and post-translational modifications (PTMs). Understanding these structure-function relationships requires a platform capable of unequivocally distinguishing between nearly identical protein sequences while concurrently identifying and site-localizing all PTMs. Mass spectrometry (MS) has proven essential for identification and quantitation of proteins and their PTMs. Complementing these analytical advances, great strides have also been made in the development of chemical biology approaches that allow precise installation of PTMs into chromatin for downstream biochemical studies. Together, these approaches show great promise in cracking 'histone code' regulation mechanisms.

Analytical and computational technologies, such as statistical and machine learning methods, can also provide insight into biological phenomena. These methods, which rely on new mathematical theory and emerging computing paradigm, help sort through large data sets – the "data deluge" – at a rapid pace and promise to revolutionize many fields on their own and through the creation of novel biotechnologies. Combined, these novel methods could help identify key genetic signatures and mechanisms associated with a disease, leading to the innovation of new treatments.

Thursday, December 16, 2021 11 a.m. - 1 p.m.
(Cosponsored by the Bioeconomy Coordinating Committee, BIO, and SBE)
Laurel Smith-Doerr, PhD (University of Massachusetts-Amherst); Jason Owen-Smith, PhD (University of Michigan); and Ben Hurlbut, PhD (Arizona State University)

View the lecture on YouTube: https://youtu.be/arbKDiKXCS4. As there were technical difficulties recording one presentation, slides from all the presenters for this lecture are available below.

Equity, Behavior, and Ethics in the Advancing U.S. Bioeconomy
Abstracts are available in the flier below

Thursday, January 13, 2022 11 a.m. - 1 p.m.
Building Regional Research and Innovation Activities to Support the U.S. Bioeconomy
(Cosponsored by the Bioeconomy Coordinating Committee, BIO, and OIA)
Mel Ustad, PhD (South Dakota EPSCOR) and Ramunas Stepanauskas, PhD (Bigelow Laboratory for Ocean Sciences)

View the lecture on YouTube: https://youtu.be/4dID-rDELIU

Abstracts are available in the flier below.

Thursday, February 3, 2022 11 a.m. - 1 p.m.
Transforming Bioeconomic Discoveries into Innovative Commercial Technologies
(Cosponsored by the Bioeconomy Coordinating Committee, BIO, and IIP)
Christine Santos, PhD (Manus Bio); Will DeLoache, PhD (Novome Biotechnologies); and Dan Widmaier, PhD (Bolt Threads)

View the lecture on YouTube: https://youtu.be/4FbCfjHUhgA

Abstracts are available in the flier below.

Thursday, April 28, 2022 9:30 a.m - 10:30 a.m
(Cosponsored by the Bioeconomy Coordinating Committee, Climate Change Coordinating Committee, BIO, OISE, and GEO)
Pavel Kabat, PhD (International Human Frontier Science Program Organization (HFSPO))
Secretary-General of HFSPO
Co-recipient of the 2007 Nobel Peace Prize as Lead Author of the Intergovernmental Panel on Climate Change (IPCC) (group award to the IPCC authors)

View the lecture on YouTube: https://www.youtube.com/watch?v=IRv1N1R2Y9Y

Advancing the Inclusion of Biological Processes in Climate Change Modeling
Vladimir Ivanovich Vernadsky, a Russian, Ukrainian and Soviet mineralogist and geochemist, the founder of the Ukrainian Academy of Sciences, and an important pioneer in the scientific bases for the environmental sciences, hypothesizes, in his 1926 book *"Biosphere",* that life is the geological force that shapes the earth. He was one of the first scientists to recognize that the oxygen, nitrogen and carbon dioxide in the Earth's atmosphere result from biological processes, and already during the 1920s he argued that living organisms could (re)shape the planet in the same manner as any geological or physical force.

Yet, it has taken long time to recognize the fundamental role of the terrestrial and marine biosphere in understanding and modelling the Earth's climate system. Just 30 years ago, most (physical) climatologists were still convinced that we only need to understand atmospheric and ocean dynamics and how these interact and are coupled, to be able to model global climate and its changes due to anthropogenic forcing. The Earth land-surface played a marginal, and heavily oversimplified, "inert" role. When the first global dynamic vegetation models (DGVMs) were developed and combined with

climate models back in the nineties, a whole array of fundamental problems surfaced, most of which were very persistent and extended into the current generation of Earth system and climate models. These include – by way of example - questions of biological controls of plant water and nutrient uptake, atmospheric carbon dioxide uptake, photosynthetic assimilation and growth, emissions of biogenic aerosols and interaction with cloud formation processes, the autonomous adaptive behavior of living systems, and scaling methodologies from a basic process at the molecular level to regional and global levels. Most of these processes are still over-simplified and over-parameterized even in the current generation of our models, and lead to major and persistent uncertainties, which in turn are often again addressed by numerical /computing and statistical (ensembles) methods and tools, rather than by calling on increased understanding of underlying fundamental (biological) processes.

One of the reasons behind this clearly unsatisfactory situation is a lack of systemic collaboration between fundamental biology science communities and the earth system/climate research and modelling community. In my lecture, I will discuss specific examples of how beneficial such a collaboration could be, not only for basic understanding of the climate system, but also in researching ways to mitigate and adapt to climate change and will be advocating for breaking further the academic, disciplinary, institutional and funding silos as an urgent step in addressing these key 21st Century challenges.

Thursday, May 19, 2022 11:00 a.m - 12:00 p.m
(Cosponsored by the Bioeconomy Coordinating Committee, BIO, and ENG)
Bill Bentley, PhD (University of Maryland)
Robert E. Fischell Distinguished Chair of Engineering
Inaugural Director of the Robert E. Fischell Institute for Biomedical Devices

View the lecture on YouTube: https://youtu.be/Pn9i6uMwUmA

Abstract:
Microelectronics has transformed our lives. It has changed the way we collect, process, and transmit information. The intersection between microelectronics and biology has also been transformative – ionic currents that control cardiovascular and neural systems are detected and even corrected using electronics (e.g., EKG & defibrillators). Yet, the microelectronics world has barely "sampled" the vast repertoire of chemical information in our biological world. Take for example the human immune, endocrine, and gastrointestinal systems – they are largely opaque to the methods of electrical sensing and communication. In biology, information is often contained in the structure of its molecules – molecules that move from place to place and based on their structure, convey information and provoke a response.

We envision new processes and deployable products that open the dialogue between biology and microelectronics – that eavesdrop on and manipulate biological systems within their own settings and in ways that speed corrective actions. We view biofabrication and synthetic biology as integral technologies for achieving this vision. Synthetic biology, often visualized as an innovative means for "green" product synthesis through the genetic rearrangement of cells, can also provide a means to connect biological systems with microelectronic devices. Cells can be reprogrammed to close the communication gap that exists between the electrons and photons of devices and the molecules and ions of biology. This is enabled, in part, through redox mediators – biological carriers of electrons that transfer "packets" information to and from electronics. Biofabrication, the assembly of biological components using biological means or mimics thereof, offers a means to close the fabrication gap – a gap that stems from the disparity between biological systems, assembled of labile components using

built-in error correction, and devices, built of potentially toxic materials using error prevention and byproduct exclusion. Here, innovative materials, electronics, biomolecular and cellular engineering strategies can be developed to mediate "molecular" communication - information transfer to microelectronic systems and back. New systems and devices are continually emerging that integrate abiotic and biological components (e.g, animal-on-a-chip devices, chip-based manufacturing systems, etc.) at a hierarchy of length scales. New systems may emerge that eavesdrop on and electronically guide cellular consortia, vastly expanding our synthetic biology repertoire while utilizing increasingly complex raw materials.

We suggest that a great many of our society's grand challenges in sustainability, food, energy, and medicine may be addressed by developing tools that open lines of communication between the biological and electronics worlds.

Planning to Write as a Team

By Mike Cronan, PE, co-publisher

Reprint from November 2014

Table of Contents

Mark Twain once famously observed that "*Everybody talks about the weather, but nobody does anything about it*." The same might be said about writing proposals as a team—everyone talks about the importance of writing an integrative, synergistic research narrative that reads as if written by one author, but too often little is done to realize that goal. For this to happen, it is important that a plan be in place for writing a team proposal using a process that "*bakes into the cake*," so to speak, the desired narrative integration. The final proposal must read as a unified document rather than a collection of loosely allied narrative sections.

Too often in practice, individual team members contribute individual narrative statements featuring their prior and proposed research ***but with little or no recognition of how that research integrates with other team members' contributions to the proposed project.*** These "stand-alone" statements fail to describe how each research strand complements every other strand, adding up to an integrated set of contributions to the project's vision, goals, and objectives. These individual narrative contributions often fail to address the overarching questions that motivate the research, nor do they describe each of the multiple research strands in a context that clearly demonstrates their relationship to the motivating questions or hypotheses that will drive the research.

For example, descriptions of research activities or capacities improperly sequenced and explained within the overarching context of a research vision, goals, and objectives ***turn the narrative into something of a mystery for readers and reviewers.*** You don't want reviewers noting to themselves and other review panel members after reading the research narrative that "*it is not at all clear why all these descriptions about various research capacities are important and what exactly this research team intends to do*." However, this will be the result if the research narrative evolves, to use the current vernacular, as a collection of "***stove-piped" or "siloed" contributions by multiple authors.***

After all, in practice, one of the core requirements of agencies that fund team proposals is that the ***proposer clearly address why and how the team structure benefits the proposed research***. This is not a trivial task. For example, it is safe to say that as you read this article, as many as 300 teams from universities nationally are currently writing an eight-page preliminary proposal to NSF due December 11 in hopes of being among the perhaps 40 preliminary proposals invited to submit a full Science and Technology Center (STC) proposal June 16.

In this case, those STC applicants who do not have a plan for writing as a team will be at a competitive disadvantage to those who do have such a plan, particularly when it comes to "*presenting an integrated vision for the center, grand research challenges addressed, (and)* ***how the center team is appropriate and necessary*** *to achieve grand challenge breakthroughs*." Moreover, up to two pages of the eight-page preliminary proposal must "*include a description of the team members and why each is essential to the project plan*." Clearly, these two pages cannot be merely a linear presentation of abbreviated biosketches edited down to fit the page limits, but must explain the synergy achieved by

the proposed team structure. This is not a trivial task, but the example here serves as an analog to writing any team grant.

Moreover, it is often the case that the **research team members attempt to do too many important tasks simultaneously but in isolation from each other,** somewhat like the work farm warden's famous quote to Paul Newman in Cool Hand Luke--"What we've got here is failure to communicate**.**" In these cases, finding time to draft text is often difficult enough let alone adding the requirement of reading and considering others' contributions. This difficulty can be compounded by electronic communications among team members that fluctuate between periods of silence and cascades of electronic messages, often including drafts of graphics, figures, and multiple track-edited versions of an evolving project description that can quickly become a rainbow of track-edit colors.

Admittedly, writing team grants and team narratives takes more time and more planning than simpler projects do, but keep in mind UCLA basketball coach John Wooden's observation, "If you don't have time to do it right, when will you have time to do it over?" This is excellent advice to ponder for those writing team proposals who likely have an enormous investment in time and resources and institutional support committed to the effort. So you want to do it right the first time.

It may at first seem like a daunting task to plan for writing as a team, but it actually is not. The goal, of course, is for everyone to be on the same page and "singing the same song," so to speak, rather than singing like "a drunk in a midnight choir."

When it comes to planning to write a team grant, the first step is to recognize how important that process is to achieving success. While there are no hard and fast protocols for planning how to write a team grant, there are some well-proven processes that that can be considered as a checklist, including–

- Analyze the funding solicitation as a team in a team meeting in great detail until a common understanding of the solicitation is arrived at ***by the entire team***, particularly those responsible for writing sections of the research narrative. This is often referred to as *red teaming the solicitation*, or, for those in the humanities, an *explication of text*, or, in religious studies, as *hermeneutics* or *exegesis* of text. Whatever the term used to describe it, it is a very finely grained reading of the solicitation so that anyone making a narrative contribution understands how their contribution fits "*hand in glove*" with other contributions.
- Use the solicitation to start a template for the first draft of the research narrative and meet as a team to address every question and requirement. This should include the sponsor's review criteria, and a team discussion of how to frame the research vision, goals, objectives, rationale, significance, and outcomes. This discussion will ensure an integrated narrative from the start and it will strengthen all contributing authors' understanding of the interrelatedness of their narrative contributions.
- Produce as a team a visual diagram, logic model, or milestone chart that represents the integrative nature of the project and complements the discussion of the research narrative.
- Meet as a team to discuss the integrative expectations for the first draft of the research narrative and meet periodically as the narrative develops to make sure it is integrative in nature and reads that way.

- Have someone unconnected with the project or from a research office read and critique drafts of the narrative as it develops with the express focus of commenting on the inter-relatedness of the narrative parts–i.e., ensuring the text is synergistic and not siloed.
- Finish the research narrative two days prior to the due date to allow a final red team review of the research narrative.

Avoiding A Common Reviewer Complaint: Descriptive Research

Reprinted from March 15, 2021

By Lucy Deckard, co-publisher

Table of Contents

When a proposal is declined, a common reviewer complaint is that the proposed research project is "descriptive." This often puzzles the PI. After all, aren't we supposed to describe things in our research? Actually, the term "descriptive" is shorthand that reviewers use for a number of project shortcomings. Below we'll discuss what reviewers don't like about projects they call "descriptive" and how PIs can avoid this problem.

What is Descriptive Research?

As the word implies, a project that focuses on simply describing a process or phenomenon by collecting information without organizing hypotheses or research questions is often labeled by reviewers as "***descriptive***." Examples might include measuring responses to a set of environmental stimuli, counting the number of individuals of a species in an area, or correlating various parameters. Such projects can be quite complex, with a large matrix of experiments, but the key gap is that there are no organizing questions that will be answered or hypotheses that will be tested.

Another sign that you may have fallen into this trap is that reviewers complain that the proposed project is a "***fishing expedition***." This means that reviewers are not clear what you actually hope to learn from all the information or data you propose to collect. Essentially, the reviewers don't see an organizing principle for the work you're proposing to do. As a results, it's not clear to them what will the funder will actually get for their money.

If you're not sure whether you're proposing a descriptive research project, ask yourself:

- Am I proposing to just collect information or data, or
- Am I proposing to answer an important question or test a significant hypothesis with the information I'm proposing to gather?

For most types of grants, if the answer is the former, you aren't ready to apply for a research grant.

When is Descriptive Research OK?

Descriptive research is common at the early stages of exploration of a topic, and the results often help to generate research questions or hypotheses. However, for most research grant programs, reviewers expect that this kind of preliminary work has already been done (and likely should be included in your discussion of your preliminary data). Recognizing that it can be difficult for researchers to generate that preliminary data without funding, many funders do have special grant programs for exploratory research, which may be open to funding "descriptive" data gathering projects. These include NIH Exploratory/Developmental Research Grants (R21s), NSF Early Concept Grants for Exploratory Research (EAGERs), and USDA AFRI Seed Grants. However, you should be careful to explain how this

preliminary research is likely to help you formulate specific research questions or hypotheses that will form the foundation of the next proposal to a regular grant program.

Also, in some fields (e.g., geosciences, social sciences, ecology, and environmental biology), funders may have grant programs specifically for surveys and other kinds of data collection. In that case, be sure you understand what the funder's expectations are and how the data will be used.

How to Avoid Proposing a Descriptive Research Project

Sometimes PIs don't think they have proposed a descriptive research project, but reviewers still complain that they have done so. Often, this problem is caused by the PI's failure to sufficiently emphasize the research questions or hypotheses to be addressed. Instead, they make the experimental or data gathering plans central to their proposal and bury the hypotheses or research questions deep in the discussion. Below are several steps you can take to avoid this problem:

1. ***State your research questions or hypotheses early in your project narrative.*** It's often a good idea to express your project goals in terms of the questions you will answer or hypotheses you will test. Avoid stating your goals simply in terms of the information you will gather.
2. ***Throughout your project narrative keep connecting back to your research questions or hypotheses.*** The new knowledge you will generate should be the central to your proposal, so it should be clear in each section of your proposal how material in that section relates to your questions or hypotheses. For example, when discussing the state of the art, how does the work discussed relate to your research questions? When discussing your preliminary data, how do those results relate to your hypotheses?
3. ***When you discuss your results, be sure to circle back to your hypotheses or research questions.*** Explain how the data collected will allow you to test your hypotheses or answer your research questions.
4. ***Discuss the impact and significance of the proposed research in terms of the new knowledge you expect to generate.*** Again, focus on the importance of the answers to your questions or hypotheses, not just on the data you will collect.

Ultimately, it should be clear to your reviewers what you will learn from your project, what the impact of that new knowledge will be, and why they should enthusiastically recommend your project for funding.

Do You Know Where Your Research Fits in Your Discipline's State of the Art?

Reprinted from May 15, 2019

By Mike Cronan

Table of Contents

Almost every research and educational proposal in any discipline to any federal funding agency will be judged on the author's ability to explain how it fits into the ***current and emerging state of the disciplinary field***. Unfortunately, ***too many proposals explain this poorly***. In the absence of a careful explanation, reviewers are likely to challenge the value and significance of the proposed research. More surprisingly, many research narratives completely lack ***a description of where the proposed research fits into the current state of the field.*** It goes without saying that such proposals are declined for funding. By contrast, the author(s) of funded proposals will have addressed this question convincingly early in their research narrative.

This fatal flaw occurs surprisingly often in proposals. Or maybe, in another sense, it is not surprising given the challenge, even to experienced PIs, of addressing this topic ***on the first page*** of the research narrative. On the ***first page*** is the key point here because it can be difficult to explain why the proposed research is currently cutting edge in the field rather than "bringing up the rear." But it is the most critical claim to be made quickly to capture the reviewers' interest in funding the proposed research.

Addressing this question requires a Goldilocks Solution—neither too hot nor too cold; that is, you ***don't want to understate*** your impact on the field, ***but worse by far, you don't want to overstate it.*** You must show that you are informed about the research being done by others so you can best set your proposed research in that critical context. This is basically like the iconic "***compare and contrast***" writing topic familiar to anyone who has taken the common college core course of first-year composition, but with a lot more consequence being based upon how well you perform the assignment.

The bottom line for this compare and contrast assignment is the realization that there is real money on the table for those who compellingly compare and contrast their proposed research to the current research being done in the field. In addition, those who successfully compare and contrast the impact or value-added benefits of their proposed research for the funding agency's mission priorities will stand to gain from the comparison. ***These two comparisons lie at the crux of reviewers' and program officers' funding decisions.***

Many solicitations state this requirement ***explicitly,*** but many other**s may simply assume** that PIs know to address this topic in their research narrative. PIs often overlook this assumption, leaving it to a good editor to note its absence in an early proposal draft. However, when it is stated explicitly, as in the below example from a recent DOE FOA, requiring the author(s) to explain the "***Extent to which the applicant demonstrates knowledge of the current state-of-the-art or baseline technology and how the proposed project will move the state-of-the-art,***" it becomes the heart of the proposal and the **key determinate of being funded or not funded**.

Review Criterion 1: Technical Merit, Innovation, and Impact (50% of scoring) in this DOE FOA, which can be viewed as a generic or common example, elaborates more fully by requiring consideration of the following factors (emphasis added):

- "Technical Merit and Innovation
- Extent to which the proposed technology or process is **innovative**;
- Degree to which the current state of the technology and the proposed advancement are **clearly described**;
- **Extent to which the application specifically and convincingly demonstrates how the applicant will move the state of the art to the proposed advancement**;
- Sufficiency of technical detail in the application to assess whether the proposed work is **scientifically meritorious and revolutionary**, including relevant data, calculations and discussion of **prior work in the literature** with analyses that support the viability of the proposed work; and
- **The potential impact of the project on advancing the state-of-the-art**."

This explicitly stated characterization is meant to guide PIs in describing where their proposed research fits in the state of the art in the current and emerging disciplinary field, and it is interchangeable across federal funding agencies. As noted earlier, this needs to be addressed in every proposal from NSF to NEH, and it can be done by adapting the above DOE language to the language used by other funding agencies.

In the case of NSF, for example, the above may be stated explicitly in some solicitations as part of the project-specific review criteria, but only implicitly in other NSF solicitations. The point to remember is that this issue has to be ***addressed early on in the research narrative*** if you hold out any chance for funding. Moreover, if there is one key summary of critical funding advice that PIs and research office staff may decide to tattoo in mirror image on their foreheads, **this would be it. In this way,** every time PIs look in the mirror ***when either writing a proposal, reviewing a proposal, or editing a proposal,*** they are reminded of what needs to be clearly described to secure funding.

Research Grant Writing Web Resources

Table of Contents

What is a Data Management Plan?

By https://iosblog.**nsfbio.com**/author/bioiosbloggers/

"The Data Management Plan (DMP) is a required element of every NSF proposal submission. It is limited to 2-pages and describes how the proposal will follow NSF policy on managing, disseminating, and sharing research results.

What is NSF's policy on data sharing?

NSF-funded investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections, and other supporting materials created or gathered in the course of work under NSF awards.

What is the content of a DMP?

The Directorate for Biological Sciences (BIO) provides guidance on how proposals submitted to BIO should organize their DMP. The DMP should be sufficiently detailed such that reviewers can evaluate the plan as part of the merit review process.

DMPs submitted to BIO programs should describe how PI(s) will manage data (digital and analog) and physical materials (samples and collections) gathered or generated during the time of the award. This should include a description of data handling processes to protect the data (e.g. to ensure quality or security), as well as procedures and standards used to document the provenance and quality of the data (metadata). The DMP should identify plans for dissemination and access after the period of the award in a manner consistent with FAIR data principles (Findability, Accessibility, Interoperability, and Reusability).

Where they exist, PIs are expected to make use of recognized, accessible, community-accepted repositories that conform to appropriate national and international standards for such facilities. DMPs that rely on self-publication on personal or lab websites in lieu of available public repositories may be considered unsatisfactory.

BIO asks that the DMP be organized as follow:

1. Description of Data Used and/or Generated, including the research community standards to be used
2. Accountability
3. Data Sharing
4. Protection of Data: Security and Integrity
5. Data Preservation

Your DMP and post-award management

If a proposal is funded, the project team will report on your management, dissemination and sharing of research results in your annual and final progress reports. The managing Program Officer will utilize the DMP to monitor your project's progress on data management throughout the period of the award.

More detailed guidance regarding the DMP can be found at the following sites:

1. PAPPG section on "Plans for Data Management and Sharing of the Products of Research"
2. NSF guidance on preparing your DMP
3. BIO specific DMP guidance"

Educational & Social Sciences Web Resources

Table of Contents

High School Student Research Assistantships in the Social, Behavioral and Economic Sciences

Invites supplemental funding requests to existing NSF awards to provide high school students with a meaningful research experience in the Social, Behavioral and Economic Sciences.

Dear Colleagues: This letter invites requests for supplemental funding to existing NSF awards to provide high school students with a meaningful research experience in the SBE sciences. Especially encouraged are requests that broaden participation of high school students from groups and geographies from diverse talent pools that have not yet been fully tapped in the SBE sciences.

Supplemental Funding Requests; Supplemental funding requests to an active SBE award must be prepared and submitted through Research.gov in accordance with the instructions in Chapter VI.E.5 of the NSF Proposal and Award Policies and Procedures Guide (PAPPG). Please consult the list of SBE programs currently participating in the SBE-High opportunity. PIs should first contact the managing program officer for their existing award and receive permission to submit the supplemental funding request. A copy of the email allowing submission should be included in the request as a supplementary document.

Reminder: Any supplemental funding awarded by NSF must be expended by the end date of the original award.

The request must include the following components:

- A specific statement in the Summary of Proposed Work section that this is a request for an SBE-High supplement.
- In the Justification for Supplement section, include a description (not to exceed 3 pages, single spaced) of the proposed SBE-High that includes:
    - A clear description of the meaningful and challenging activities in which the student(s) will be involved and how the student(s) will be mentored.
    - A brief, one-paragraph description of the candidate student(s) background and interests.
    - A brief plan for encouraging the advancement of the SBE-High student(s) beyond participation in the research program.
    - A brief description of the PI's experience with involving high school students in research, if applicable.
- Budgets for SBE-High activities are generally under $6,000 per student. Student stipend and expenses (materials and supplies needed to directly support the student's research experience) should be entered in "Participant Support Costs" in the budget. All expenses should be explained in the budget justification. Support for up to two students can be included in one request.
- Desired start date and duration of the supplement (typically a summer experience).

- As a supplementary document: A document from the place of performance confirming that child protection training and laboratory policies are practiced to ensure the well-being and laboratory safety of the high school student(s). The document should also state that the place of performance supports the work and should be signed by a department chair, dean or director.
- As a supplementary document: The email from the program director providing approval for submission of the request.

The decision to award a supplement will be based on an internal merit review by the program director and availability of funds.

Contact Personnel

Please contact the managing program director for your current NSF award to determine whether that program is participating in this initiative and to receive permission to submit.

Sylvia Butterfield, Ph.D.
Acting Assistant Director
Directorate for Social, Behavioral and Economic Sciences

Agency Research News

Table of Contents

NSF Releases Solicitation to Support Creation of Biofoundries to Advance the U.S. Bioeconomy

A new NSF program, BioFoundries to Enable Access to Infrastructure and Resources for Advancing Modern Biology and Biotechnology (BioFoundries), calls for proposals to develop scientific ecosystems that democratize access to modern infrastructure, reagents, processes and knowledge bases; facilitate pathways to translation; and, simultaneously, engage in education and training efforts and conduct novel internal research. Together, these efforts will spur innovation that advances biotechnologies, biomanufacturing, and, eventually, the bioeconomy.

Biofoundries will help address societal challenges like feeding a growing population sustainably, mitigating climate change, monitoring and mitigating the impact of infectious diseases, and others. They will also help support the complex, interdisciplinary collaborations needed to advance research across the sciences and engineering.

Letters of Intent are required to be submitted by August 1, 2023.

Awards totaling $15,000,000 to $24,000,000 over a six-year period are anticipated.

The Science and Effects of Wildfire

Hundreds of ongoing fires in Canada have forced thousands to evacuate their homes and sent smoke to cities across the eastern United States. In 2020, the skies turned orange over the Bay Area, the result of dozens of wildfires scorching California's forests and threatening the city of Oroville.
These are not isolated events. Wildfire activity is increasing across North America, driven in part by hotter and drier conditions over the past century. Climate change is exacerbating the issue, increasing the frequency, severity, and extent of area burned by wildfires, and putting more people at risk of exposure to fire itself and to smoke, which can travel thousands of miles and affect the health of millions of people.

The National Academies of Sciences, Engineering, and Medicine have a range of resources to help you understand the science behind wildfires, how they can be managed and prepared for, their impacts on health, air quality, and communities, and the connections between climate change and these fires.

Related Resources

- Climate Conversations: Wildfire
- Global Sources of Local Pollution: An Assessment of Long-Range Transport of Key Air Pollutants to and from the United States
- Frameworks for Protecting Workers and the Public from Inhalation Hazards
- Wildland Fires: Toward Improved Understanding and Forecasting of Air Quality Impacts
- Indoor Exposure to Fine Particulate Matter and Practical Mitigation Approaches
- Implications of the California Wildfires for Health, Communities, and Preparedness
- The Chemistry of Fires at the Wildland-Urban Interface
- A Century of Wildland Fire Research: Contributions to Long-Term Approaches for Wildland Fire Management

Agency Reports, Workshops & Research Roadmaps

Table of Contents

Role of Net Metering in the Evolving Electricity System

Over the last three decades, there have been fundamental shifts in the electricity system, including the growing adoption of clean distributed generation energy technologies such as rooftop solar. Net metering, which compensates customers for excess energy they contribute to the grid, has been instrumental in supporting the integration of these systems into the grid, but these policies may need to change to better address future needs. The Role of Net Metering in the Evolving Electricity System explores the medium-to-long term impacts of net metering on the electricity grid and customers. This report evaluates how net metering guidelines should evolve to support a decarbonized, equitable, and resilient electricity system. Download the report and report resources using the links below:

- Full Report
- Digital Interactive Summary
- 4-page Summary (PDF)
- Press Release
- Briefing Slides (PDF)
- Briefing Video

Research Facilities Act Program

The purpose of the Research Facilities Act Program (RFAP) is to assist qualifying institutions with the costs related to constructing, purchasing, updating, renovating, or modifying agricultural research buildings to conduct research in the areas of agriculture and food sciences. The proposed agricultural research facility must expand the institution's capacity for long-term impactful research and must be the result of thorough strategic planning. Awards may be used to fund the construction of buildings or sites for agricultural research facilities or other facilities that store agricultural research experimental samples or specimens, as well as the purchase of real estate or durable equipment. Activities might include, but are not limited to:

- Evaluating infrastructure and sites
- Conceptual planning and design for a newly constructed, restored, or rebuilt structure or place
- Creating construction plans and schematics for the facility or site that is being built, restored, or rebuilt.
- Building, restoring, or remodeling a facility or location.
- Investing in and putting in permanent equipment for research monitoring and safeguarding samples and specimens.
- Investing in and putting in essential building systems like electricity, climate control, security, life safety, lighting, utilities, telecommunications, and energy management.

The technical assistance webinar related to this FY 2023 funding opportunity is now scheduled. Please see details about the webinar, including the registration link, date, and time, via the technical

assistance webinar button below. The recording and supporting documents will also be posted to this page after the event.

Reasonable Accommodations and Language Access Services: If you need a reasonable accommodation to participate in any of the informational webinars listed, please contact the event host listed no later than 10 days prior to the event. NIFA offers language access services, such as interpretation and translation of vital information, free of charge. If you need interpretation or translation services, please visit NIFA Language Access Services or contact Lois Tuttle, Equal Opportunity Specialist, at Lois.Tuttle@usda.gov or (443) 386-9488.

TRB Special Report 346: The Coast Guard's Next Decade: An Assessment of Emerging Challenges and Statutory Needs.

National Academies of Sciences, Engineering, and Medicine. 2023. The Coast Guard's Next Decade: An Assessment of Emerging Challenges and Statutory Needs. Washington, DC: The National Academies Press. https://doi.org/10.17226/27059.

In the face of climate change, technological innovation, and global strategic competition, the U.S. Coast Guard will need to respond to many developments in the maritime domain over the next decade. The Coast Guard likely has sufficient statutory authority to respond to most of these developments, but some developments may call for new or clarified statutory authority as well as coordination with international bodies. Current statutory manning requirements, for example, will limit the Coast Guard's ability to authorize the regulated use of uncrewed vessels with autonomous systems. New authority may also be needed to establish spaceflight-related safety zones applicable to foreign-flagged vessels within 200 nautical miles of the U.S. coastlines.

These are among the findings in *TRB Special Report 346: The Coast Guard's Next Decade: An Assessment of Emerging Challenges and Statutory Needs* from the Transportation Research Board of the National Academy of Sciences, Engineering, and Medicine.

The report emphasizes that in addition statutory authority, the Coast Guard will need key organizational and operational capabilities, including a well-trained workforce, to respond to future challenges.

New Funding Opportunities

Table of Contents

Content Order

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 May 15 Newsletter

2023 SPSD Collaborative Soil Science Research

This Notice of Funding Opportunity (NFO) is being released prior to appropriation and/or apportionment of funds for fiscal year 2023. Enactment of additional continuing resolutions or an appropriations act may affect the availability or level of funding for this program." The Natural Resources Conservation Service (NRCS), an agency under the United States Department of Agriculture (USDA), is announcing the potential availability of funding for agreements for the purposes of supporting cooperative research in soil science and soil survey. The purpose of the 2023 Soil Survey Cooperative Research Proposals is to promote research that informs and improves soil survey. As such, each proposal must include significant collaboration with soil survey personnel (such as National Soil Survey Center Research staff, Major Land Resource Area (MLRA) Soil Survey or Regional offices). The proposal's deliverables and their connection to soil survey must be clearly explained.

The FY23 cooperative soil science research priorities were developed through iterative meetings and feedback gathered in conjunction with the 2022 Regional Conferences of the National Cooperative Soil Survey (NCSS). We expect that this funding opportunity will select at least one proposal for funding from each region. The work should have regional application and fill gaps in soil survey knowledge and databases. We expect to fund approximately up to $3,000,000 of cooperative research depending on funding availability. Eligibility is limited to institutions of higher education in the Cooperative Ecosystem Studies Unit (CESU) network (http://www.cesu.psu.edu/). Proposals are requested for competitive consideration of awards for projects 2-3 years in duration. Individual proposals must have a total cost between $50,000 and $500,000. **Due July 22.**

Research Training Groups in the Mathematical Sciences (RTG)

The long-range goal of the Research Training Groups in the Mathematical Sciences (RTG) program is to strengthen the nation's scientific competitiveness by increasing the number of well-prepared U.S. citizens, nationals, and permanent residents who pursue careers in the mathematical sciences, be they in academia, government, or industry. The RTG program supports efforts to improve research training by involving undergraduate students, graduate students, postdoctoral associates, and faculty members in structured research groups pursuing coherent research programs. Research groups

supported by RTG must include vertically-integrated activities that span the entire spectrum of educational levels from undergraduates through postdoctoral associates. **Due August 8.**

Air Force Fiscal Year 2024 Young Investigator Program (YIP)

The Fiscal Year 2024 Air Force Young Investigator Research Program (YIP) intends to support early in career scientists and engineers who have received Ph.D. or equivalent degrees by 1 April 2016 or later showing exceptional ability and promise for conducting basic research. The program objective is to foster creative basic research in science and engineering; enhance early career development of outstanding young investigators; and increase opportunities for the young investigator to recognize the Air Force and Space Force mission and related challenges in science and engineering. Individual awards are made to U.S. institutions of higher education, industrial laboratories, for-profit, or non-profit research organizations where the principal investigator (PI) is employed on a full-time basis and holds a regular, non-contractor position. YIP PIs must be a U.S. citizen, national, or permanent resident. Researchers working at a Federally Funded Research and Development Center or a Department of Defense (DoD) Laboratory are not eligible for this competition. Most YIP awards are funded up to $150,000 per year for three years, for a total of $450,000. Each three year budget **must not** exceed $150,000; regardless if the total budget is $450,000. Exceptional proposals will be considered individually for higher funding levels and/or longer duration. Interested applicants are required to submit a white paper by 12 June 2023 to the Program in their research discipline area. **Due Aug. 14.**

National Science Foundation Research Traineeship (NRT) Program

A letter of intent is no longer required for this program.

For FY2021, Artificial Intelligence (AI) and Quantum Information Science and Engineering (QISE) have been added to the national priority areas in which the NRT Program encourages proposals. We seek proposals on any interdisciplinary research theme of national priority, with special emphasis on AI and QISE and 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 these designated priority areas should contain a title to reflect that alignment, as described in the program solicitation (e.g., NRT-AI: title, NRT-HDR: title, NRT-QL: title).

Proposals may be submitted under two tracks (i.e., Track 1 and Track 2). Track 1 proposals may request a total budget (up to five years in duration) up to $3 million for projects with a focus on STEM graduate students in research-based PhD and/or master's degree programs. Track 2 proposals may request a total budget (up to five years in duration) up to $2 million; NSF requires that Track 2 proposals focus on programs from institutions not classified as Doctoral Universities: Very High Research Activity (R1). Requirements for Track 1 and Track 2 are identical.

Please note restrictions on institutional eligibility. The number of NRT proposal submissions allowed per institution remains limited to two (2) submissions total. The number of NRT proposal submissions per PI or co-PI remains limited to one (1) submission total.

Important Information

Innovating and migrating proposal preparation and submission capabilities from FastLane to Research.gov is part of the ongoing NSF information technology modernization efforts, as described in Important Notice No. 147. In support of these efforts, **proposals submitted in response to this program solicitation must be prepared and submitted via Research.gov or via Grants.gov and may not be prepared or submitted via FastLane.**

Any proposal submitted in response to this solicitation should be submitted in accordance with the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) that is in effect for the relevant due date to which the proposal is being submitted. The NSF PAPPG is regularly revised and it is the responsibility of the proposer to ensure that the proposal meets the requirements specified in this solicitation and the applicable version of the PAPPG. Submitting a proposal prior to a specified deadline does not negate this requirement.

Synopsis of Program:

The NSF Research Traineeship (NRT) program seeks proposals that explore ways for graduate students in research-based master's and doctoral degree programs to develop the skills, knowledge, and competencies needed to pursue a range of STEM careers. The program is dedicated to effective training of STEM graduate students in high priority interdisciplinary or convergent research areas, through a comprehensive traineeship model that is innovative, evidence-based, and aligned with changing workforce and research needs. Proposals are requested that address any interdisciplinary or convergent research theme of national priority, as noted above.

The NRT program addresses workforce development, emphasizing broad participation, and institutional capacity building needs in graduate education. The program encourages proposals that involve strategic collaborations with the private sector, non-governmental organizations (NGOs), government agencies, national laboratories, field stations, teaching and learning centers, informal science centers, and academic partners. NRT especially welcomes proposals that include partnership with NSF Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES) and leverage INCLUDES project efforts to develop STEM talent from all sectors and groups in our society (https://www.nsf.gov/news/special_reports/big_ideas/includes.jsp). Collaborations between NRT proposals and existing NSF INCLUDES projects should strengthen both NRT and INCLUDES projects. **Due September 6.**

BioFoundries to Enable Access to Infrastructure and Resources for Advancing Modern Biology and Biotechnology

Grand challenge questions requiring a deeper understanding of biological systems and technologies are as diverse as life itself. Understanding the complexity of living systems and their interactions with human-derived products and processes, ensuring the safe, ethical and equitable access to and co-generation of knowledge and products, requires the sustained development of technologies, sophisticated instrumentation, workflow pipelines and their automation, and advanced computing that are beyond the capabilities found in the laboratories of individual investigators. Broad access to these tools, workflows, processes, and knowledge bases in a facility that is capable of bespoke design and process scale-up, in response to user needs, is essential for addressing grand challenges and translating the knowledge created into applications for the bioeconomy, to meet societal and national needs. BioFoundries is an infrastructure program from the National Science Foundation (NSF) that is designed to accelerate advances in the biological sciences, chemical biology, biotechnology, and

bioengineering via access to modern infrastructure, technology, and capacity. BioFoundries will provide the intellectual, technical, digital, and physical frameworks needed for tight integration of technology innovations and applications with foundational interdisciplinary research and training, by:

1. serving as access points for new biological technologies, workflows, processes, automations, and knowledgebases to enable transformative discoveries;
2. catalyzing new innovations and transformative discoveries by supporting in-house and external user-initiated research programs that take full advantage of technological and methodological advances;
3. continuing to develop novel technologies, workflows, processes, automations, and knowledgebases that are both forward-looking and user-responsive;
4. increasing the reproducibility of life science discoveries and data and knowledge sharing capabilities;
5. training the next generation of the scientific workforce; and
6. facilitating pathways to translation.

Leveraging lessons learned from existing national and international BioFoundries, NSF encourages researchers to consider a diversity of models (centralized, distributed, consortium) in the design and implementation of BioFoundries. Each BioFoundry should enclose a scientific ecosystem, that includes in-house research scientists across all relevant disciplines supported by NSF, technical staff including cyberinfrastructure experts, external users, and other contributors who, collectively, form a community of practitioners and share tools, reagents, workflows, software, samples, and data. Knowledge sharing should be a central tenet, designed to strengthen collaborations among researchers and enable them to work in new ways and to foster new modalities of research and education/training, for the purpose of accelerating discovery and advancing development. BioFoundries should promote diversity, equity, inclusion, and accessibility in their in-house programs and external user programs. BioFoundries should also promote new avenues for translating such knowledge and technology broadly in ways that benefit society. **Due October 2.**

Solicitations Remaining Open from Last Newsletter
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.]

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

The objective of Science and Technology for Autonomous Teammates (STAT) program is to develop and demonstrate autonomy technologies that will enable various AF mission sets. This research will be part of Experimentation Campaigns in: 1 -Multi-domain Command and Control; 2-Intelligence, Surveillance, Recognizance (ISR) Processing Exploitation and Dissemination (PED); and 3- Manned-

Unmanned combat Teaming to demonstrate autonomy capabilities to develop and demonstrate autonomy technologies that will improve Air Force operations through human-machine teaming and autonomous decision-making. The technology demonstrations that result from this BAA will substantially improve the Air Force's capability to conduct missions in a variety of environments while minimizing the risks to Airmen. The overall impact of integration of autonomous systems into the mission space will enable the Air Force to operate inside of the enemy's decision loop.

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

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

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

ARMED FORCES PEST MANAGEMENT BOARD (AFPMB)

The Armed Forces Pest Management Board (AFPMB), an agency of the Department of Defense (DoD), is soliciting pre-proposals for original and innovative research designed to develop new interventions for protection of deployed military personnel from diseases caused by arthropod-borne pathogens and to improve control of bed bugs and filth flies. Diseases of significant concern include Lyme disease, malaria, dengue fever and other arboviruses. The program supports development of: (1) new toxicants or the adaptation of existing toxicants to medically relevant pests; (2) new insecticide application techniques; (3) new personal protection tools that prevent human-vector contact; (4) decision support tools and (5) novel vector surveillance tools that focus on improved control outcomes. Ideally the research would support **Advanced Technology Development** (see DoD Financial Management Regulation Volume 2B, Chapter 5, DoD RDT&E Budget Activity 3) of new insecticides or improved formulations of existing insecticides for vector control, new technology or enhanced modalities of personal protection from biting arthropods, or improved efficacy and sustainability of equipment for vector surveillance and application of pesticides for vector control in a military operational environment. Research should be product-oriented, consisting of advanced research related to a particular technology or new capability, evaluation of experimental products for military uses, or research directed towards development of an existing prototype product for

commercial manufacture. Research should include semi-field or field evaluation of prototype products. Research should not include testing and evaluation of commercial products. Any pesticide end use products described in the proposed research should be destined for registration by the U. S. Environmental Protection Agency (EPA). The research must be primarily applicable to the military, products should be transferable to civilian uses. The program consists of competitive grants open to principal investigators (PIs) from academia, industry, and local or state government agencies. Federal Agencies (including DoD) may apply subject to appropriate regulations. This BAA is intended to solicit pre-proposals for AFPMB for those parts of development not related to a specific system or hardware procurement in accordance with Title 2, Subtitle A, Chapter II, Part 200 CFR. The purpose of this BAA is to identify the best available science, and as such, there are no set-asides associated with any awards resulting from this BAA. Specific areas of interest are described in the "Areas of Interest" section of this BAA. This Announcement provides a general description of project areas, including specific areas of interest, general information, evaluation and selection criteria, and proposal preparation instructions. All documentation and or attachments that are required with the submission of a full proposal, if requested, are described in the Mandatory Proposal Forms section of this announcement. Awards are typically made under grants; however, other funding opportunities may be considered. **Open to Oct. 31, 2024**

Academic Research Funding Strategies, LLC

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 – Online and in-person workshops, self-paced online courses, and proposal development retreats and bootcamps on how to find and compete for research funding from NSF, NIH, DoE and other government agencies as well as foundations.

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, DOE Early Career and other junior investigator programs.

Graphics and design assistance – assistance with proposal graphics, book and presentation design, and more.

Assistance for your project narrative: in-depth reviews, rewrites, and edits

Editing and proof reading – proposals, journal articles, book manuscripts

Online and In-Person Seminars – training for postdocs, students, and staff on a wide range of topics related to pursuing external fundings. **Our updated online NSF CAREER course for the 2023 competition is now available.**

Training for Staff - Professional development for research office and sponsored projects staff.

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