



U.S. National Science Foundation Directorate for Biological Sciences (BIO)

Society for Integrative and Comparative Biology (SICB)

Annual Meeting

January 4, 2025

**Come meet
with us at
SICB!**

**NSF Booth #17
open through
Monday at 5 pm**

**Sign ups
available for
individual
meetings with
NSF staff.**

Integrative Organismal Systems (IOS)

Behavioral Systems Kim Hoke, Jodie Jawor

Neural Systems Paul Forlano, Melissa Coleman

Physiological and Structural Systems Ted Morgan,
Kathy Dickson

Science Advisor Julie Kellner

Program Assistant Adama Lamon, Desi Silver

Environmental Biology (DEB)

Evolutionary Processes Matt Herron



About NSF BIO

BIO Priorities

Ongoing and new programs of interest

How to stay informed

General Q&A

Come Meet Us!



Directorate for Biological Sciences (BIO)

To enable discoveries for understanding life, advance the frontiers of biological knowledge, and provide a theoretical basis for prediction within complex, dynamic living systems through an integration of scientific disciplines.



<https://new.nsf.gov/bio/about>



BIO Priorities in FY2025



Building a Resilient Planet

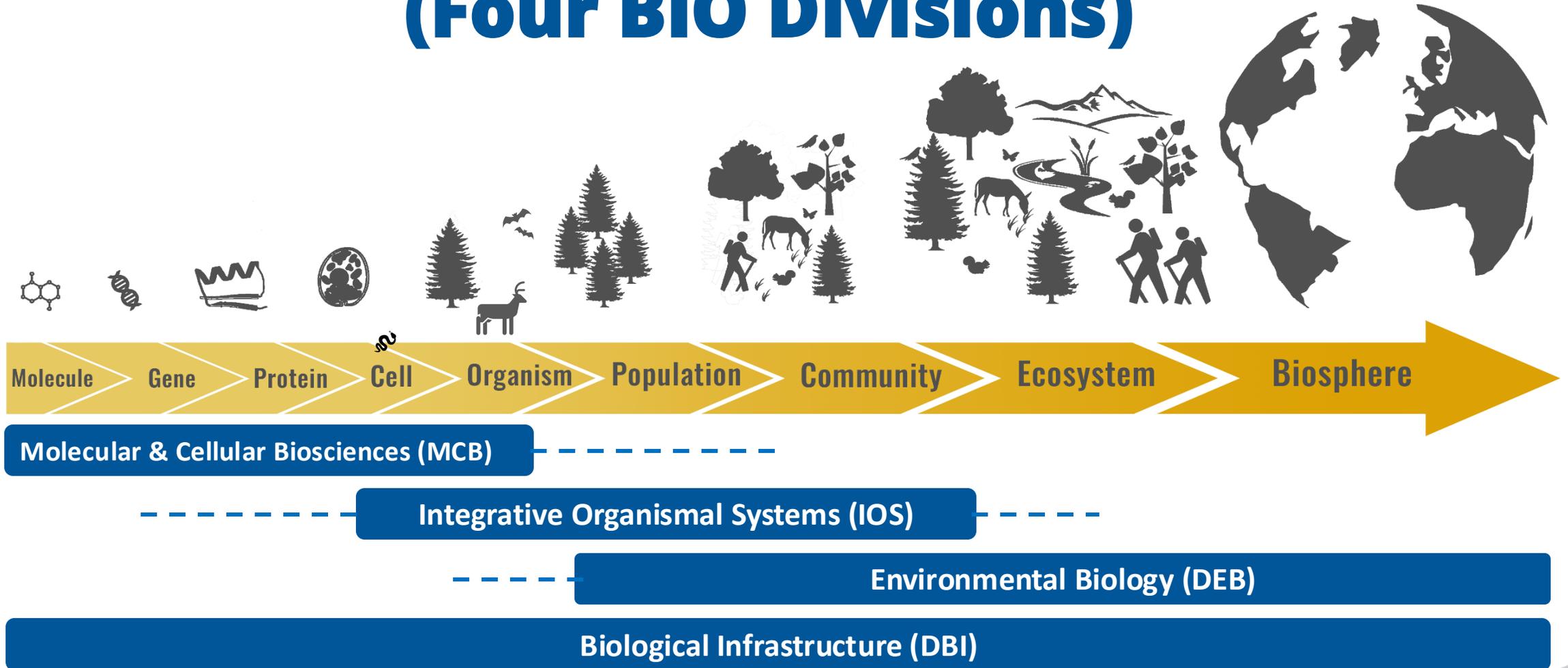


Advancing the Bioeconomy



Accelerating Interactions between Biology and AI

Biological Research Across Scales (Four BIO Divisions)



Molecular & Cellular Biosciences (MCB) Core Programs

Cellular Dynamics and Function

Genetic Mechanisms

Molecular Biophysics

Systems and Synthetic Biology



Integrative Organismal Systems (IOS) Core Programs

Behavioral Systems

Animal Behavior

Developmental Systems

Plant, Fungal, and Microbial Developmental Mechanisms
Animal Developmental Mechanisms
Evolution of Developmental Mechanisms

Neural Systems

Organization
Activation
Modulation

Physiological and Structural Systems

Symbiosis, Infection, and Immunity
Physiological Mechanisms & Biomechanics
Integrative Ecological Physiology
Plant Biotic Interactions (NSF-NIFA)

Plant Genome Research Program



IOS Special Programs & Dear Colleague Letters

EDGE Program: Enabling Discovery through GENomics

Projects that focus on uncovering the rules that underlie the relationship between genotype and phenotype via hypothesis-driven research on complex traits and tool development.

FGT Track: For the development of Functional Genomic Tools in species where they currently don't exist.

CMT Track: For research focused on understanding the generalizable rules connecting G to P.

EDGE is a partnership with NIH. Deadline February 20, 2025

PACSP Partnership to Advance Conservation Science and Practice

Projects that will contribute to the development and implementation of evidence-based activities and/or technology solutions to advance biodiversity conservation. PACSP is in partnership with the Paul G. Allen Family Foundation.



IOS Special Programs & Dear Colleague Letters (cont.)

ORCC Program: Organismal Responses to Climate Change

Supports integrative, cross-disciplinary research that explores the mechanistic and eco-evolutionary responses of organisms to climate change, aiming to improve predictions, develop solutions for mitigating impacts and support the bioeconomy.

Track 1: The Organismal Responses to Climate Change (ORCC) Track

Track 2: The Microorganism-Mediated Organismal Resilience to Climate Change (MMORCC) track

MMORCC is a partnership with the Paul G. Allen Family Foundation. Deadline January 23, 2025

NICE DCL: Neurobiology in Changing Ecosystems

Projects that focus the neurobiological mechanisms that underlie responses to anthropogenic environmental change. DCL is in partnership with the Kavli Foundation.



Environmental Biology (DEB)

Core Programs

Ecology

Ecosystem Sciences
Population and Community Ecology

Evolution

Evolutionary Processes
Systematics and Biodiversity Science
PurSUIT and ARTS

Special Programs & Tracks

Biodiversity on
a Changing
Planet
(BoCP)

Ecology and
Evolution of
Infectious
Diseases
(EEID)

Long-Term
Ecological
Research
(LTER)

Long-Term
Research in
Environmental
Biology
(LTREB)

Opportunities for
Promoting
Understanding
through
Synthesis
(OPUS)

STAR
Grants
(<\$400k)

Partnership to
Advance
Conservation
Science and
Practice
(PACSP)



DEB Dear Colleague Letters

LIFE DCL: Leveraging Innovations From Evolution

Projects that use comparative approaches to identify evolutionary convergent adaptations to life's challenges and the mechanisms that underlie them. Proposals should include relevance of the proposed work to inform applications towards a sustainable global bioeconomy.

ULTRA-Data DCL: Using Long-Term Research Associated Data

Projects that use/reuse long-term environmental data to advance understanding of ecological and evolutionary questions.

IUSC DCL: Innovative Use of Scientific Collections

Projects that foster Innovative Use of Scientific Collections and/or associated digital data for novel research, education, and training applications within and across STEM disciplines.



Biological Infrastructure (DBI)

Human Resources

Postdoctoral Research Fellowships in Biology (PRFB)

Research Coordination Networks in Undergraduate Biology Education (RCN-UBE)

Research Experiences for Undergraduates (REU)

Building Research Capacity for New Faculty in Biology (BRC-BIO)

Post-Baccalaureate Research and Training Supplemental Funding Opportunity (PBRT)

Leading Culture Change through Professional Societies of Biology (BIO-LEAPS)

Research Resources

Infrastructure Innovation for Biological Research (Innovation)

Infrastructure Capacity for Biological Research (Capacity)

Sustaining Infrastructure for Biological Research (Sustaining)

Major Research Instrumentation Program (MRI)

Centers, Facilities, and Additional Research Infrastructure

Biology Integration Institutes (BII)

Center for Advancement of Synthesis of Open Environmental Data and Sciences

Management of Operations and Maintenance of the National Ecological Observatory Network (NEON)

Mid-scale Research Infrastructure-1 and 2



National Ecological Observatory Network

81 field sites across 20 eco-climatic regions, including Alaska, Hawaii, and Puerto Rico

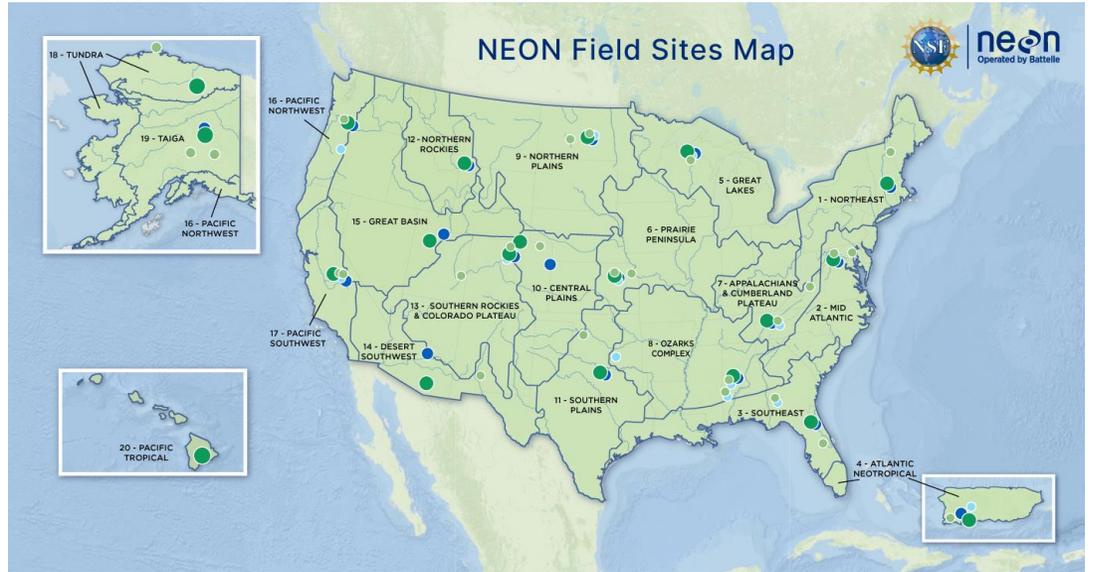
Data Products, Education & Training

including data for teaching, data science workshops, and a code hub

Research Support & Assignable Assets

to support community research including access to infrastructure

<https://www.neonscience.org/>



Recent BIO Dear Colleague Letters

UICREX Bioeconomy DCL: Use-Inspired Creativity Extensions for the Bioeconomy Dear Colleague Letter

DCL to support use-inspired extensions of current awards to support work with the potential to be translated into commercial activities in the U.S. bioeconomy. This is a collaboration between BIO, MPS, and the Technology, Innovation and Partnerships (TIP) Directorates.

BIOxAI DCL Advancing Research at the Intersection of Biology and AI/ML Dear Colleague Letter

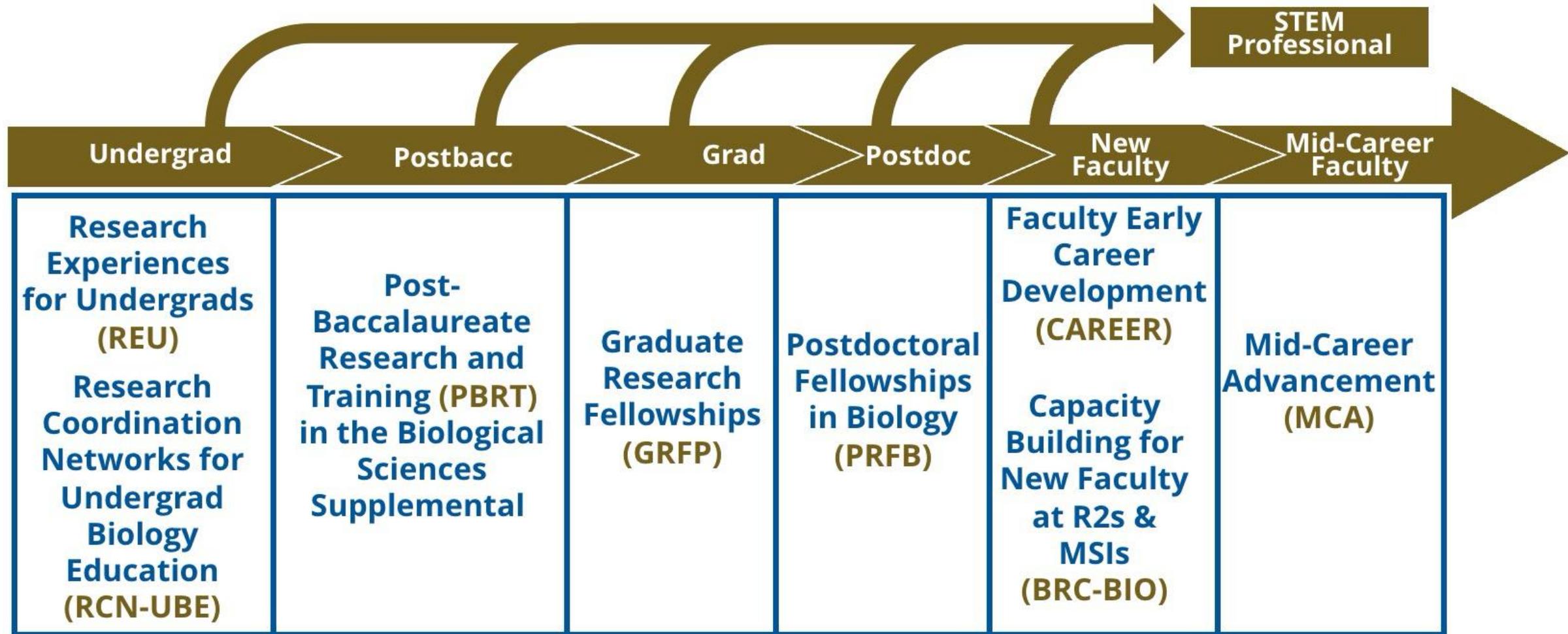
DCL encouraging proposals that incorporate or advance AI/ML approaches across the research supported in all the Divisions of the BIO Directorate.

PBRT Post-Baccalaureate Research and Training Supplemental Funding Opportunity

Supports up to 12 months of supplemental funding to provide research experiences to post-baccs who faced barriers to participation in research as undergraduates.



NSF Support across Career Stages



Opportunities for faculty at PUIs

RUI Facilitating Research at Predominately Undergraduate Institutions

NSF-wide solicitation to support research at PUIs. Proposals are submitted to BIO core programs.

ROA Research Opportunity Awards

Enable PUI faculty to pursue research as part of a collaborative research team as visiting scientists at other NSF-supported institutions; supplements to existing awards or part of new proposals.

MCA Mid-Career Advancement

NSF-wide solicitation to support Mid-Career faculty (Associate Professors) to advance the PI's research program through synergistic and mutually beneficial mentored research partnerships.

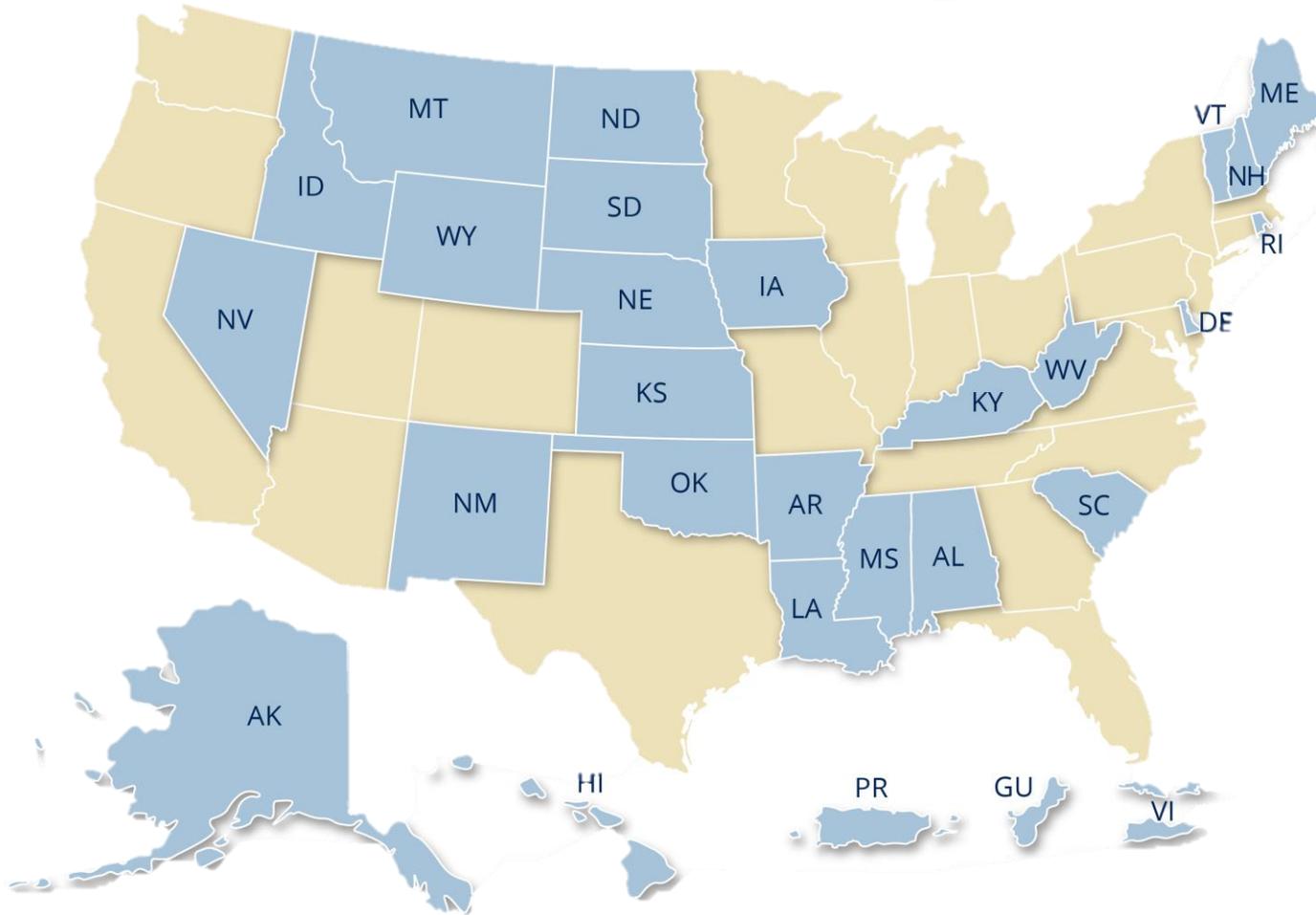
Pilot Track in BIO and GEO extends eligibility to Full Professors at PUIs.

BRC-BIO Building Research Capacity of New Faculty in Biology

Program for tenure-track assistant professors (within the first 3 years of their appointment) from MSIs, PUIs, and other non-R1 universities and colleges. Provides support to initiate and build independent research programs in BIO.



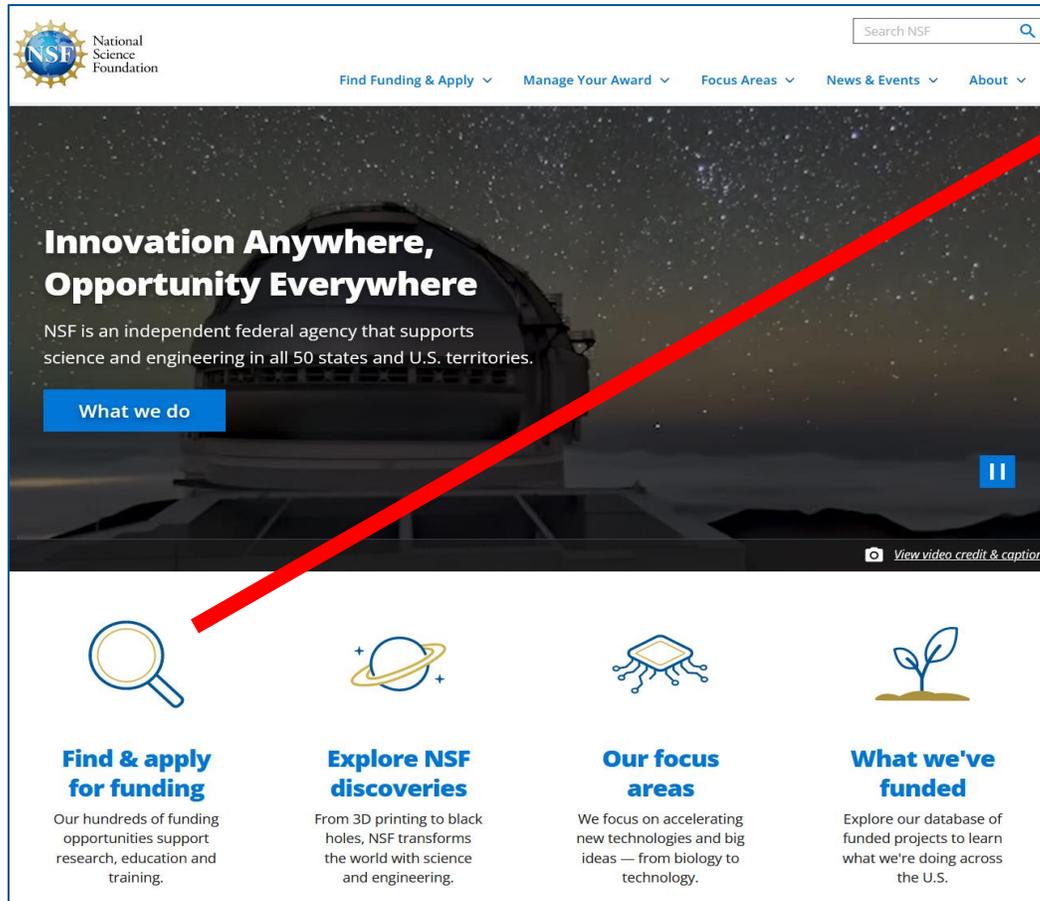
EPSCoR Established Program to Stimulate Competitive Research



AL	Alabama	NE	Nebraska
AK	Alaska	NH	New Hampshire
AR	Arkansas	NM	New Mexico
DE	Delaware	ND	North Dakota
GU	Guam	NV	Nevada
HI	Hawaii	OK	Oklahoma
IA	Iowa	PR	Puerto Rico
ID	Idaho	RI	Rhode Island
KS	Kansas	SC	South Carolina
KY	Kentucky	SD	South Dakota
LA	Louisiana	VI	U.S. Virgin Islands
ME	Maine	VT	Vermont
MS	Mississippi	WV	West Virginia
MT	Montana	WY	Wyoming



How to Find Funding Opportunities



NSF National Science Foundation

Find Funding & Apply Manage Your Award Focus Areas News & Events About

Innovation Anywhere, Opportunity Everywhere

NSF is an independent federal agency that supports science and engineering in all 50 states and U.S. territories.

What we do

View video credit & caption

- Find & apply for funding**
Our hundreds of funding opportunities support research, education and training.
- Explore NSF discoveries**
From 3D printing to black holes, NSF transforms the world with science and engineering.
- Our focus areas**
We focus on accelerating new technologies and big ideas — from biology to technology.
- What we've funded**
Explore our database of funded projects to learn what we're doing across the U.S.

<https://new.nsf.gov/funding>

Funding Search

You can find funding opportunities on this page. Or, explore [funded awards](#) or [archived Dear Colleague Letters](#).

Current funding opportunities Archived funding opportunities

Search All fields Search ?

Filter by

Award type ▼ Directorate/Division ▼

Limited submissions ▼ Education level ▼

Exclude Dear Colleague Letters Show only NSF-wide and cross-directorate opportunities Show only programs included in the NSF Broadening Participation Portfolio



Two Essential Documents

Solicitation Number



The image is a screenshot of the NSF 24-546: Division of Integrative Organismal Systems Program Solicitation page. A red circle highlights the title 'NSF 24-546: Division of Integrative Organismal Systems' and a red arrow points from the text 'Solicitation Number' to it. The page includes a 'Document Information' section with 'Document History' listing 'Posted: February 16, 2024' and 'Replaces: NSF 23-547', and a 'View the program page' button. Below this is the NSF logo and 'National Science Foundation Directorate for Biological Sciences Division of Integrative Organismal Systems'. The 'Full Proposal Deadline(s):' section states 'Proposals Accepted Anytime'. A 'Table Of Contents' section lists: 'Summary of Program Requirements', 'I. Introduction', 'II. Program Description', 'III. Award Information', 'IV. Eligibility Information', 'V. Proposal Preparation and Submission Instructions' (with sub-items A, B, C, D), and 'VI. NSF Proposal Processing and Review Procedures'.

Important!!!
Solicitation
Program
Requirements
take priority
over PAPPG

PAPPG
(NSF 24-1)

+

Solicitation



Recent Changes in Proposal Requirements

- **Mentoring Plans** are no longer just for post-docs:
Mentoring plans must be submitted as a supplemental document for any proposal in which post-doctoral fellows and/or graduate students are supported.
- **Off-Campus or Off-Site Research**, as determined by the institution:
For each proposal that proposes to conduct research off-campus or off-site, the box on the cover page must be checked, and either
 - The AOR must complete a **certification** that the organization has a **Safe and Inclusive Working Environments (SAIF) plan** in place for this proposal
 - OR (depending on the solicitation requirements) ...



... for the BIO/GEO pilot, the SAIF Plan must be submitted as a supplemental document

For participating solicitations, a required 2-page supplement including*:

1. a brief description of the field setting and unique challenges for the team;
2. the steps the proposing organization will take to nurture an inclusive off-campus or off-site working environment, including processes to establish shared team definitions of roles, responsibilities, and culture;
3. communication processes within the off-site team and to the organization(s) that minimize singular points within the communication pathway; and
4. the organizational mechanisms that will be used for reporting, responding to, and resolving issues of harassment if they arise.

***plan is in lieu of AOR certification when submitting to programs included in the pilot**



BIO Virtual Office Hours (VOH)

Informational webinars focused on:

- New and ongoing funding opportunities
- Topics of general interest
- Open questions from audience to be answered live

Dates & Times (all Eastern Time Zone)

Division of Biological Infrastructure – 3rd Tuesday from 3-4 p.m.

Division of Environmental Biology – 2nd Monday from 1-2 p.m.

Division of Integrative Organismal Systems – 3rd Thursday from 1-2 p.m.

Division of Molecular and Cellular Biosciences – 2nd Wednesday from 2-3 p.m.



BIO Blogs

News, features, highlights, virtual office hour topics,
and more from OAD and the BIO Divisions

BIO Buzz (OAD): <https://oadblog.nsfbio.com/>

DBInfo (DBI): <https://dbiblog.nsfbio.com/>

DEBrief (DEB): <https://debblog.nsfbio.com/>

IOS in Focus (IOS): <https://iosblog.nsfbio.com/>

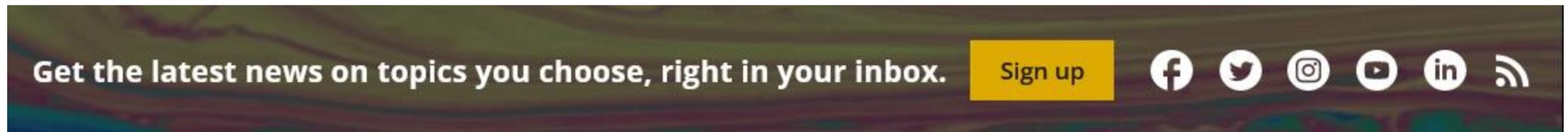
MCB Blog (MCB): <https://mcbblog.nsfbio.com/>



BIO News and Updates

Sign-up for emails on new solicitations; events; due date reminders; and BIO's quarterly newsletter, including information on new priorities and solicitations, highlights from the community, and more!

Visit www.nsf.gov and scroll down until you see the Sign up and social media banner, click on the yellow box, and follow the prompts.



NSF Needs You!



Questions?

**Come meet
with us at SICB!**

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for individual
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Two more NSF workshops tomorrow, Jan. 5, 12:15-1:15 PM:

- Early Career Networking Session: Navigating NSF Funding Opportunities, in Marquis D
- Student Research Funding Opportunities at the U.S. National Science Foundation, in A707

