

Broadening Participation Programs: Programs focused on broadening participation and increasing representation in BIO

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Slides and Q&A recaps will
be posted on the DBI blog,
dbiblog.nsfbio.com

How to Find Funding Opportunities

The screenshot shows the NSF website with the 'Funding' menu item selected. The 'Research Areas' dropdown is open, listing various scientific fields. The main content area features a 'SCIENCE NATION' banner for 'Better batteries made with sodium' and a 'FUNDING OPPORTUNITIES' sidebar on the right. Below the banner, there are three news items: 'Genetic mutation drives tumor regression in Tasmanian Devils', 'Easy to use 3D bioprinting technique creates lifelike tissues from natural materials', and 'Light-activated, single-ion catalyst breaks down carbon dioxide'.

National Science Foundation
WHERE DISCOVERIES BEGIN

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International Science and Engineering (OISE)
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Social, Behavioral and Economic Sciences (SBE)

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SCIENCE NATION
Better batteries made with sodium
FULL STORY

FUNDING OPPORTUNITIES

Search Funding Opportunities
Enter search term GO

or Search by Program Area
Select One GO

VIEW ALL FUNDING OPPORTUNITIES

Proposal and Award Policies and Procedures Guide
Prepare a Proposal
Upcoming Due Dates
Submit Proposal to FastLane

Inspiring & Educating

Genetic mutation drives tumor regression in Tasmanian Devils
November 28, 2018

Easy to use 3D bioprinting technique creates lifelike tissues from natural materials
November 28, 2018

Light-activated, single-ion catalyst breaks down carbon dioxide
November 26, 2018

www.nsf.gov



Where Does My Research Fit?

The image is a screenshot of the National Science Foundation (NSF) website. At the top left is the NSF logo with the tagline "National Science Foundation WHERE DISCOVERIES BEGIN". To the right of the logo is a search bar with the text "Search" and a magnifying glass icon. Further right are links for "Contact" and "Help". Below the header is a navigation menu with tabs for "Research Areas", "Funding", "Awards", "Document Library", "News", and "About NSF". The "Awards" tab is selected, and a dropdown menu is open, listing several options: "About Awards", "Award Statistics (Budget Internet Info System)", "Award Conditions", "Managing Awards", "Policies and Procedures", "Presidential and Honorary Awards", and "Search Awards". The "Search Awards" option is highlighted with a red rectangular box. To the right of the dropdown menu is a "RELATED LINKS" section with links to "Research.gov", "FastLane", and "NSF Public Access Repository (NSF-PAR)". Below the navigation menu is a banner with three main categories: "Advancing the Sciences", "Funding & Supporting", and "Inspiring & Educating". A "- HIDE" button is located in the bottom right corner of the banner area. The background of the website features a blue sky with white clouds and a row of cars covered in snow.



NSF Structure

The Director, Office of Budget, Finance, & Award Management,
Office of International Science & Engineering, etc....

Directorate for
**Biological
Sciences
(BIO)**

Directorate for
**Geosciences
(GEO)**

Directorate for
**Computer &
Information
Science &
Engineering
(CISE)**

Directorate for
**Engineering
(ENG)**

Directorate for
**Education &
Human
Resources
(EHR)**

Directorate for
**Mathematical &
Physical
Sciences
(MPS)**

Directorate for
**Social,
Behavioral &
Economic
Sciences (SBE)**

Division of Environmental Biology (DEB)

Ecosystem Sciences
Evolutionary Processes
Population and Community Ecology
Systematics and Biodiversity Science

Division of Integrative Organismal Systems (IOS)

Behavioral Systems
Developmental Systems
Neural Systems
Physiological and Structural Systems
Plant Genome Research Program
Enabling Discovery through GENomics

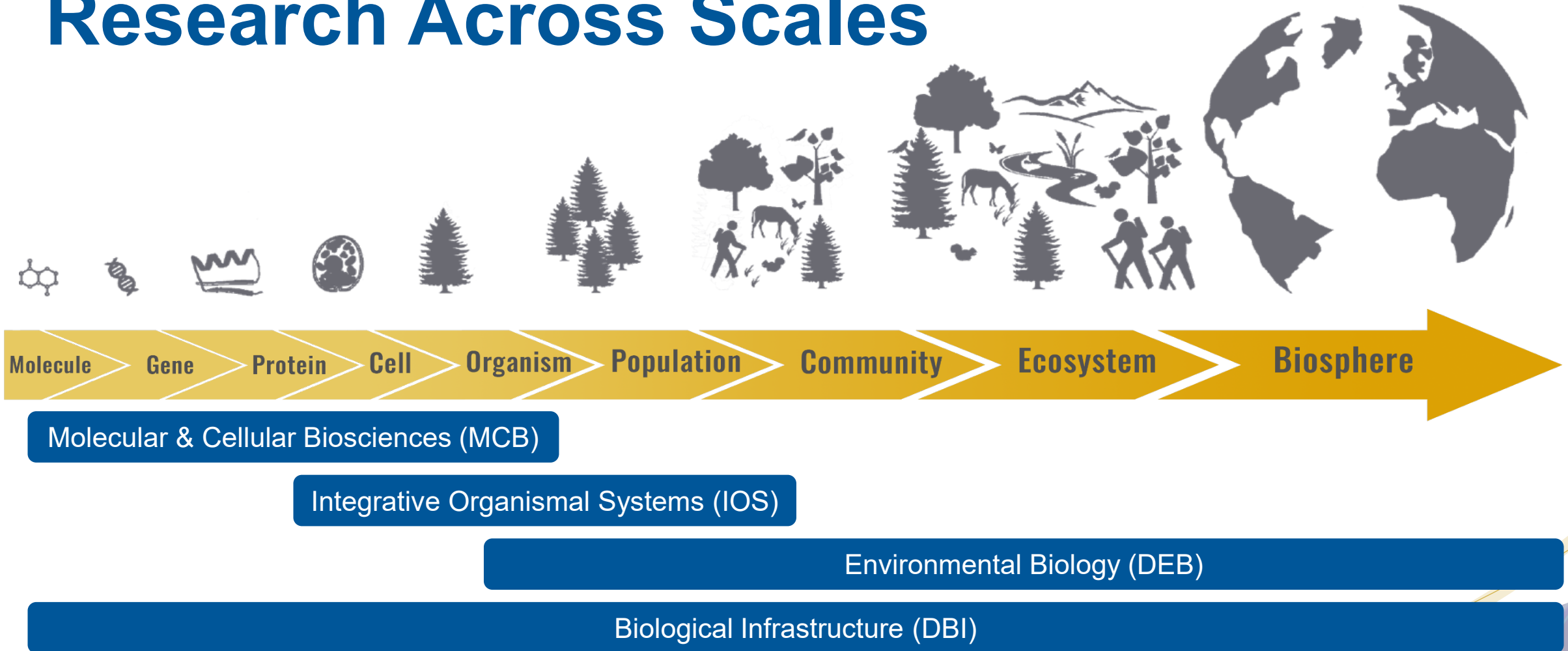
Division of Molecular and Cellular Biosciences (MCB)

Cellular Dynamics and Function
Genetic Mechanisms
Molecular Biophysics
Systems and Synthetic Biology

Division of Biological Infrastructure (DBI)

Research Resources
Human Resources
Centers, Facilities, and Additional Research Infrastructure

How the BIO Divisions Support Research Across Scales



Research and Mentoring for Postbaccalaureates in (RaMP) in the Biological Sciences

- **Who:** Recent College Graduates
- **What:** proposals to establish networks to support full-time research, mentoring, and training for recent college graduates who have had few or no research or training opportunities during college in research fields typically supported by the Directorate of Biological Sciences (BIO)
- **Where:** IHEs, non-profit, non-academic institutions.
- **When:** Jan 18, 2024 (3rd Thursday in January annually)
- **Contact:** RAMPS@nsf.gov



Research and Mentoring for Postbaccalaureates in (RaMP) in the Biological Sciences

The goals of this program are:

1. to establish networks to support full-time research, mentoring, and training for recent college graduates who have had few or no research or training opportunities during college in research fields typically supported by the Directorate of Biological Sciences (BIO).
2. to produce a more diverse workforce and innovative research outcomes that ensure that science benefits all members of our society.
3. to advance novel and potentially transformative research in areas supported by the Directorate of Biological Sciences.



Key aspects of the program (specific review criteria)

- **Scientific Theme:** Proposals should be centered around a cohesive biological research theme.
- **Network:** Provide high-quality interactions of postbaccs with research mentors in a wide range of facilities, diverse mentorship, and professional development opportunities.
- **Cohort structure and Mentoring:** Networks are expected to develop evidence-based mentoring programs that are grounded in established practices that will help meet the network goals.
- It is expected that networks will involve and provide clear benefits to investigators (mentors and co-mentors) from **diverse organizations**.
- Networks are encouraged to leverage **established broadening participation programs** and should have a **strong participants recruitment and selection process**.



RaMP Specific Review Criteria

- **Network structure:** coordination plans, communication strategies, community engagement, training and professional development, optimization networking opportunities for participants.
- **Cohort structure:** distribution of the participants into mentor labs, establishment of a cohesive training environment that fosters interactions among mentees and all network participants.
- **Participants recruitment and selection process,** plans to broaden participation.
- **The evidence-based and inclusive mentoring program.** Does it foster critical thinking, provide authentic research experiences, promote a sense of identify and belonging. Does it utilize culturally-appropriate practices, promote fair assigning of research credit, and professional development?
- **The assessment plan:** Evaluate the plans to assess project progress and outcomes
- **Project Management:** Does it includes strategies to facilitate communication among all network members?



RCN-UBE Research Coordination Networks in Undergraduate Biology Education

- **Synopsis**

- Unique collaboration between BIO and EDU (STEM Education)
- Supports groups of investigators to communicate and coordinate their research, training and educational activities around Undergraduate Biology Education
- Committed to developing and disseminating educational research resources and modules, forging new collaborations, and sharing best practices and ideas for scalability and sustainability of activities

RCN-UBE Research Coordination Networks in Undergraduate Biology Education

- **Funding Mechanisms**

- Incubator awards (up to \$75K, one year duration) to fund the formation of new teams
- Full awards (up to \$500K, up to 5 years duration) to fund more mature projects

- **When**

- January 23, 2024 (Fourth Thursday in January annually)

- **How**



RCN-UBE: How Does it Differ From a “Regular” Grant?

- Supports projects to build communities of biology faculty (“We” instead of “I”) to solve problems and accomplish more than any one person or institution could achieve.
- RCNs foster networking activities (such as conferences, workshops, student and faculty exchanges) and will not **directly** support laboratory and field research.

When Preparing Your RCN-UBE Proposal, Be Sure to Address:

- The seven RCN-specific guidance items
- Additional RCN-UBE guidance - How the network will:
 - Evaluate and assess its effectiveness, activities, and products
 - Engage its partners, grow, evolve, and be sustained.
 - Identify metrics and contribute to the infrastructure beyond traditional products (such as papers).
- The RCN-UBE-specific review criteria

BRC-BIO Building Research Capacity of New Faculty in Biology

- **Who:** Primary investigators must hold at least a 50% tenure-track (or tenure-track equivalent) position as an assistant professor (or equivalent rank), who are untenured, have both research and teaching components to their appointment, and are within the first three years of their appointment.
- **What:** Proposed projects should enable the establishment of research programs for new faculty to position them to apply for future grants to sustain their research and should also enrich undergraduate research experiences and thereby grow the STEM workforce.
- **Where:** Minority-serving institutions (MSIs), predominantly undergraduate institutions (PUIs), and other universities and colleges that are not among the nation's most research-intensive and resourced institutions.
- **When:** Proposal windows are May 1, 2024-July 1, 2024

• **How:**



BRC-BIO: Proposals

- Projects should enable the **establishment of sustainable research programs** for faculty and enrich undergraduate research experiences and thereby grow the STEM workforce.
- Projects **can include biology-focused research collaborations** among faculty within the same institution, across peer-, or research-intensive institutions, or partnerships with industry or other non-academic partners that advance the candidate's research program.

BRC-BIO: Proposals – Unique Elements

- Project Descriptions **limited to 6 pages**
- **Supplemental Document – Impact Statement (2 pages)**
- **Single Copy Document – Institutional Letter of Support (1 page)**
- **Intellectual Merit** section should articulate a compelling overarching research goal for the PI's research program, specific research questions to be addressed, and a brief but feasible research plan
- **Broader Impacts** section should include how proposed activities will increase participation of underrepresented students of biology

BRC-BIO: Budget

- Up to **\$450,000 in research costs** and up to **\$50,000 in justified equipment costs over 3 years**
- Costs may include **50% teaching release time/year + 2 months of summer salary**
- **Personnel** such as undergraduates, post-bac associates, lab technicians and postdoctoral support are allowed
- **Other** acceptable costs:
 - Research and conference related travel
 - Contractual administrative services as needed
 - Strongly justified subawards to collaborating institutions

BRC-BIO: Solicitation Specific Criteria

- Potential of the project to increase the quantity, quality, and capacity of research of the PI
- Potential to increase the diversity and number of students engaged in authentic research experiences
- Institutional support for the activity, as described in the institutional support letter
- If applicable, the nature and impact of the proposed collaborations or partnerships

BIO-LEAPS Leading Cultural Change through Professional Societies of Biology

- **Who:** There are no restrictions
- **What:** Leverage the work of professional societies towards facilitating necessary culture change in the biological sciences to advance diversity, equity, and inclusion at scale.
 - Evaluation Track: Assessment and research of the values, norms, priorities, and practices associated with the culture of the discipline or sub-discipline.
 - Design Track: Develop an evidence-based plan to address broad-scale culture change within a discipline or sub-discipline.
 - Implementation Track: Implement evidence-based cultural change strategies that leverage the influence of biological professional societies.
- **Where:** Institution of higher education or other non-profit organization in the U.S.
- **When:** July 1, 2024



PRFB Postdoctoral Research Fellowship in Biology

- **Who:** Recent recipients of doctoral degrees (Past 15 months); US citizen or national or us permanent resident
- **What:** 3-year postdoctoral fellowship
- **Current themes:** Rules of Life, Plant Genomics, Broadening Participation
- **Where:** At any Institution of Higher Education or non-profit organization
- **When:** Application deadline is in the Fall

Contact: bio-dbi-prfb@nsf.gov or dbipgr@nsf.gov (Plant Genomics)



Overview of the PRFB Program

- Awards intended to support the independent research and training of recent recipients of the doctoral degree, and to foster human resource development in biology
- Fellowships should provide active mentoring of fellows
- Both research and training components are important
- Sponsoring scientists, departments and institutions should offer a significant opportunity to broaden the research focus and training of the applicant
- Proposals must address both Intellectual Merit and Broader Impacts

Competitive Area 1: Broadening Participation of Groups Underrepresented in Biology

- Goal to increase diversity of scientists **explicitly at the postdoctoral level**
 - Increased participation based on race, ethnicity, LGBTQIA+ identities, disability status, neurodiversity, veteran status, geography, or other forms of identity, as well as their intersection
- Describe how the proposal will diversify biology at the postdoctoral level
 - Applicant does **not** have to be a member of an underrepresented group
- All areas of biology eligible, from molecules to ecosystems

Competitive Area 2: Rules of Life

- Goal to understand how higher-order structures and functions of biological systems are formed
 - How key properties and mechanisms of living systems emerge from the interactions of genomes, environments, and phenotypes
- Produce theories or models with predictive capability
- Combine computational, observational, experimental, or conceptual approaches to elucidate the mechanistic relationships between genomes and phenomes in an environmental context
- Span across scales on the continuum of molecules to ecosystems

REU Research Experiences for Undergraduates

- Provides funding to engage undergrads in research
- Two mechanisms:
 1. **REU Sites:** Centralized training of a group of undergrads in a theme-focused bioscience research. Sites include immersive dive into science and activities to develop student professional skills.
 2. **REU Supplements:** Supplements to new or existing awards to engage one or more students in the research activity

REU Research Experience for Undergraduates

- **Who:** Undergraduates currently enrolled in 2 or 4-year college; U.S. citizens or permanent residents
- **What:** Authentic summer research experience
- **Where:** Both international and domestic programs
- **When:** August 21, 2024
- **PIs:** List of REU sites posted on the NSF website; Programs are required to register in ETAP (Education and Training Application)

- **Contact:** Sally O'Connor (seconnor@nsf.gov)



General Info on BIO-REU Sites

- On average 10 students for a summer program lasting approximately 10 weeks long.
- At least 50% of participants must come from outside the host institution.
- Stipend, meal allowance and travel to and from the REU site must be budgeted. A small research allowance of \$1,000-2,000 per student can be added to Participant Support costs.
- Over the past several years, Site awards to institutions have the predominant costs under the Participant Support Costs (PSC); typically, PSC constitute 90% or more of the Total Direct Costs.
- Awards provide 3 years of funding.
- To view recent awards, go to <https://nsf.gov/awardsearch/>

Other cross-divisional / cross-directorate programs

RUI Facilitating Research at Primarily Undergraduate Institutions

- **Who:** Faculty at Primarily Undergraduate Institutions
- **What:** An opportunity to support PUI faculty engagement in their professional field, build capacity for research at the institution, and support integration of research and undergraduate education.
- **Where:** At any U.S. PUI (awarded ≤ 20 PhDs in last 2 years)
- **When:** Any time (in BIO)
- **Contact:** Program officer in the appropriate program
- **See also:** ROA (Research Opportunity Award) supplements to existing awards to support PUI faculty research at collaborator's institution



GRFP Graduate Research Fellowship Program

- **Who:** Graduate or undergraduate student pursuing Master's or PhD studies (has to be a U.S. citizen, national, or permanent resident)
- **What:** A 5-year year STEM fellowship (3 years of financial support)
- **Where:** At any U.S. Institution of Higher Education or non-profit organization
- **When:** Can apply as an undergraduate in their final year of study, recent graduates, and graduate students within the first 12 months of study
 - **Applications due:** Oct./Nov. each year
- **How:** To apply go to fastlane.nsf.gov/grfp



CAREER Faculty Early-Career Development Program

- **Who:** Tenure track faculty members at assistant professor level, or equivalent
- **What:** Designed to help junior faculty members develop activities that can **effectively integrate research and education** within the context of his/her organization.
- **Where:** At any U.S. Institution of Higher Education or non-profit organization
- **When:** Application deadline is in the Summer
- **Contact:** nsf-ccc@nsf.gov



MCA Mid-Career Advancement

- **Who:** Scientists and engineers at the Associate Professor rank (or equivalent) with at least 3 years at that rank
 - Pilot Track in BIO and GEO extends eligibility to Full Professors (or equivalent) at Primarily Undergraduate Institutions (PUIs) only
- **What:** An opportunity to substantively enhance and advance the PI's research program and career trajectory through synergistic and mutually beneficial mentored partnerships
- **Where:** At any U.S. Institution of Higher Education or non-profit organization
- **When:** Submission window between February 1 and March 1, annually

MCA Mid-Career Advancement

Changes in 22-603

- 2-page Impact Statement, uploaded as supplementary document
 - discuss constraints on time and resources available for research, and the impact an MCA award would have on PI's productivity and advancement
- 12-page limit for Project Description
- PI and Partner must complete the Collaborative and Other Affiliations (COA) template

Note: Partner(s) may not be listed as co-PI(s) on the cover page. Rather, the one-month summer salary support for the Partner(s) should be requested in the senior personnel or consultant services budget line items of the proposal, or as a subaward to the other institution.

Contact: mca.info@nsf.gov



Academic STEM Enterprise: *NSF & BIO Programs along the Pathways*

Career Stage:

K-12	Undergraduate		Post-Bacc	Graduate		Postdoc	Faculty		
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Milestone:

HS Diploma	AA/AS	BA/BS	Research experience & Prof. Dev & Science identity	MA/MS	PhD	Postdoc	New	Early-Career	Mid-Career
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NSF & BIO Programs:

[Supp: RET, RAHSS] BIO-RET	RCN-UBE, REU-Sites, [Supp:REU]		[Supp: REPS] RaMP	GRFP, NRT, IGE, INTERN		PRFB	BRC-BIO	CAREER, ROA	MCA NSF21-516, Transitions
							HBCU-EIR, TCUP, ADVANCE, INCLUDES, AGEP, EPSCoR, [Supp:RUI/ROA]		

Research Environment Component:

Culture: **BIO-LEAPS**



BIO Virtual Office Hours

- BIO Directorate and each Division offers VOH
 - **DBI**: third Tuesday, 3-4 p.m. EST
 - **DEB**: second Monday, 1-2 p.m. EST
 - **IOS**: third Thursday, 1-2 p.m. EST
 - **MCB**: second Wednesday, 2-3 p.m. EST
- Monthly (or periodic) informational webinar focused on:
 - New and ongoing funding opportunities
 - Topics of general interest
 - Open questions from audience to be answered live
- Log-on information and upcoming topics for Virtual Office Hours can be found in BIO and Division blogs



NSF Needs You!





Questions?