

Research Capacity Programs at NSF-BIO: Biological Collections and Biological Field Stations/Marine Laboratories

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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 open. The menu lists various research areas: Biological Sciences (BIO), Computer and Information Science and Engineering (CISE), Education and Human Resources (EHR), Engineering (ENG), Environmental Research and Education (ERE), Geosciences (GEO), Integrative Activities (OIA), International Science and Engineering (OISE), Mathematical and Physical Sciences (MPS), and Social, Behavioral and Economic Sciences (SBE). The 'Funding' menu also includes 'RELATED LINKS' such as Interdisciplinary Research, NSF Organization List, Staff Directory, and Understanding NSF Research. The main content area features a 'SCIENCE NATION' banner for 'Better batteries made with sodium' with a 'FULL STORY' button. Below the banner is an 'Inspiring & Educating' section with three articles: '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), and 'Light-activated, single-ion catalyst breaks down carbon dioxide' (November 26, 2018).

www.nsf.gov

The 'FUNDING OPPORTUNITIES' sidebar contains a search bar for 'Search Funding Opportunities' with a 'GO' button. Below it is a section for 'or Search by Program Area' with a dropdown menu labeled 'Select One' and a 'GO' button. At the bottom of the sidebar is a large orange button labeled 'VIEW ALL FUNDING OPPORTUNITIES' with a right-pointing arrow. Below the button are links for 'Proposal and Award Policies and Procedures Guide', 'Prepare a Proposal', 'Upcoming Due Dates', and 'Submit Proposal to FastLane'.



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 bar 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 border. 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 bar is a footer with three columns: "Advancing the Sciences", "Funding & Supporting", and "Inspiring & Educating". A "- HIDE" button is located in the bottom right corner of the footer area. The background of the website features a blue sky with white clouds and a large image of a snowy landscape with 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

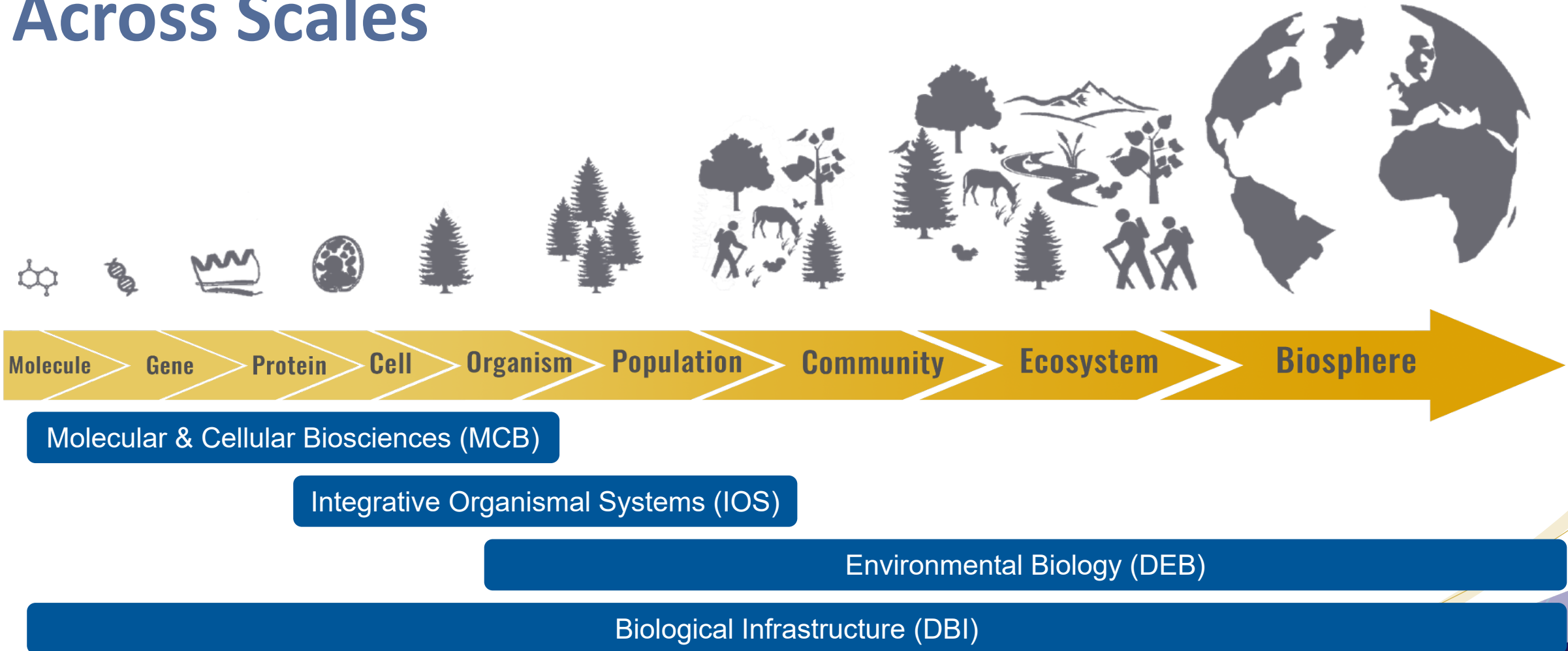
Division of Molecular and Cellular Biosciences (MCB)

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

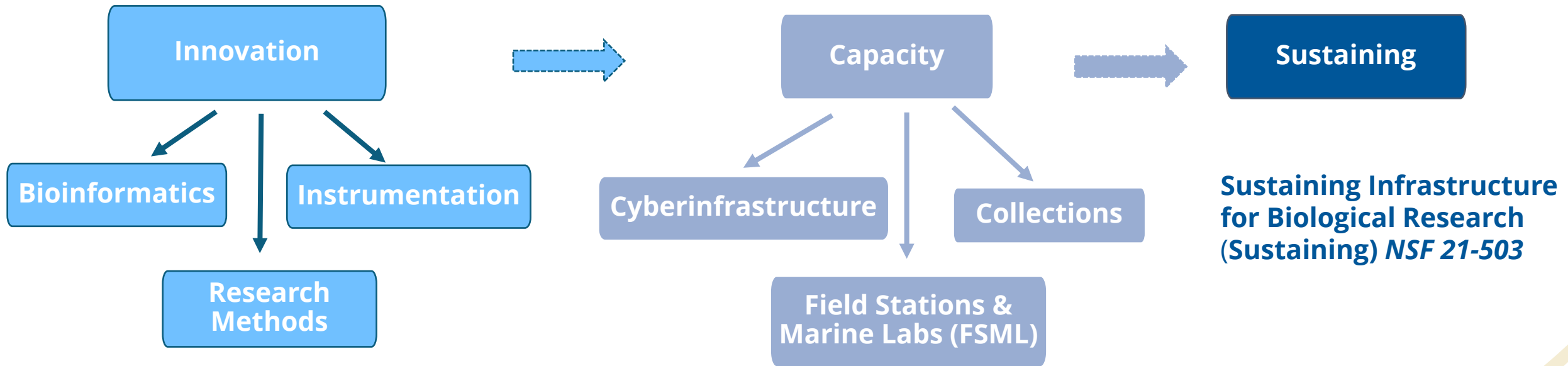
Division of Biological Infrastructure (DBI)

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

How the BIO Divisions Support Research Across Scales



Research Resources Infrastructure



Infrastructure Innovation for
Biological Research (Innovation) *NSF*
21-502

Infrastructure Capacity for Biology
(ICB) *NSF 21-501*

Sustaining Infrastructure for
Biological Research
(Sustaining) *NSF 21-503*

NO DEADLINES!



Infrastructure Capacity for Biology (Capacity)

- **Synopsis**

Support the implementation of, scaling of, or major improvements to research tools, products, and services that advance contemporary biological research.

- **Programmatic Areas**

- Capacity: Cyberinfrastructure
- Capacity: Biological Collections
- Capacity: Field Stations & Marine Labs (FSML)

- **Program Information**

- Anticipated Budget: \$18M to \$20M
- Number of Awards: 50 to 75



Solicitation-specific criteria for Capacity (NSF 21-501)

- **In addition to Intellectual Merit and Broader Impacts, reviewers will be asked to evaluate:**
 1. What is the potential for the proposed activity to
 - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
 - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
 2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?

Solicitation-specific criteria for Capacity (NSF 21-501)

- **In addition to Intellectual Merit and Broader Impacts, reviewers will be asked to evaluate:**

3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?

4. How well qualified is the individual, team, or organization to conduct the proposed activities?

5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Capacity: Biological Collections (previously CSBR)

- **Goal**
 - Support major improvements to or digitization of biological collections and collection-based information increasing the broader applicability of collections
- **Priorities**
 - Enhance, secure, and improve existing research collections
 - Improve the accessibility of collection-related data
 - Develop capacity for curation and collection management
 - Transfer ownership of collections that are significant to the NSF BIO-funded research community
- **Types of [non-federal] biological collections supported**
 - Living stock/culture collections
 - Natural history voucher collections
 - Jointly-curated ancillary collections such as preserved tissues and libraries of genetic and genomic materials

Capacity: Biological Field Stations and Marine Laboratories (FSML)

- **Goal**

- Supports major improvements to biological field stations or laboratories in any terrestrial, marine, estuarine, or freshwater environment for research and education.
- Proposals should focus on well-defined and significant efforts rather than a compilation of small improvements.

- **Improvement Grants:**

- Improvements in the physical plant of a field station or marine laboratory.

- **Planning Grants:**

- Strategic planning for advancing science and education activities at a site or network of sites.



Why NSF Invests in FSMs

- **Natural conditions for experiment, observation, and collection leading to new discovery in biology.**
- **Environments for training the next generation of biologists, through exposure and participation in field research.**
- **Venues for the translation of basic science into actions that are beneficial to society.**
- **Portals for communication of science to the general public.**



Program Priorities

- Advance capacity for basic research in biology with potential for new discovery
- Enable research funded by NSF's science programs
- Promote shared resources accessible to a broad and collaborative community
- Contribute to nation's research infrastructure capacity
- Broaden the participation in, exposure to, and impacts of biological sciences across the entire social spectrum



Innovation, Capacity, and Sustaining

- **Who:** There are no restrictions
- **Where:** At any U.S. Institution of Higher Education or non-profit organization
- **When:** Proposals accepted any time

- **How:**  **Research.GOV**
ONLINE GRANTS MANAGEMENT
FOR THE NSF COMMUNITY



Cross-divisional / cross-directorate programs

URoL Understanding the Rules of Life

- **Who:** There are no restrictions
- **What:** Convergence research that will allow us to better understand biological interactions and identify causal, predictive relationships across scales -- so-called "rules" for how life functions. *Current theme: Emergent Networks*
- **Where:** At any U.S. Institution of Higher Education or non-profit organization
- **When:** Varies by theme
- **Contact:** e-networks@nsf.gov



IntBIO Integrative Research in Biology

- **Who:** There are no restrictions
- **What:** Integrative biological research spans subdisciplines and incorporates cutting-edge methods, tools, and concepts from each to produce groundbreaking biological discovery. Research should be synergistic and produce novel, holistic understanding of how biological systems function and interact across different scales of organization.
- **Where:** At any U.S. Institution of Higher Education or non-profit organization
- **When:** January 24, 2023

- **How:**  Research.gov
ONLINE GRANTS MANAGEMENT
FOR THE NSF COMMUNITY



RUI Research in 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



RaMP Research and Mentoring for Postbaccalaureates in Biological Sciences

- **Who:** There are no restrictions
- **What:** 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 BIO.
 - Proposals are expected to create strong evidence-based and inclusive mentorship programs that will advance the goal of creating a competitive and highly representative science, technology, engineering, and mathematics (STEM) workforce in the U.S.
 - Transitions into the STEM workforce could include pathways into research-focused M.S. or Ph.D. programs, industry, federal or state agencies, education and research centers, and other STEM careers.
- **When:** Deadline to be posted
- **Where:** Institution of higher education or other non-profit organization in the U.S.

• **How:**




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



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
- **How:**  www.fastlane.nsf.gov

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



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



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 December 1-30, 2022 and June 1-30, 2023

• **How:**

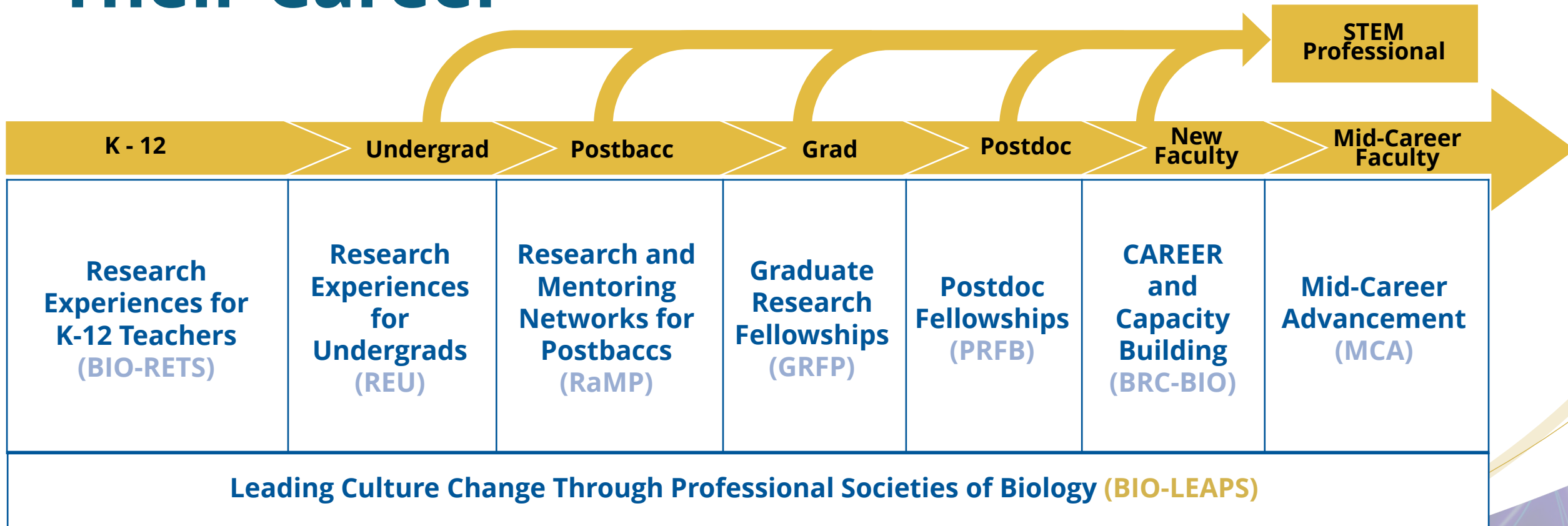


MCA Mid-Career Advancement

- **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
- **How:**



Supporting Researchers Throughout Their Career



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!



NSF Contact Information

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- Peter McCartney, pmccartn@nsf.gov





Questions?