MCA, NRT, and BIORETS Training Programs and New Funding Opportunities

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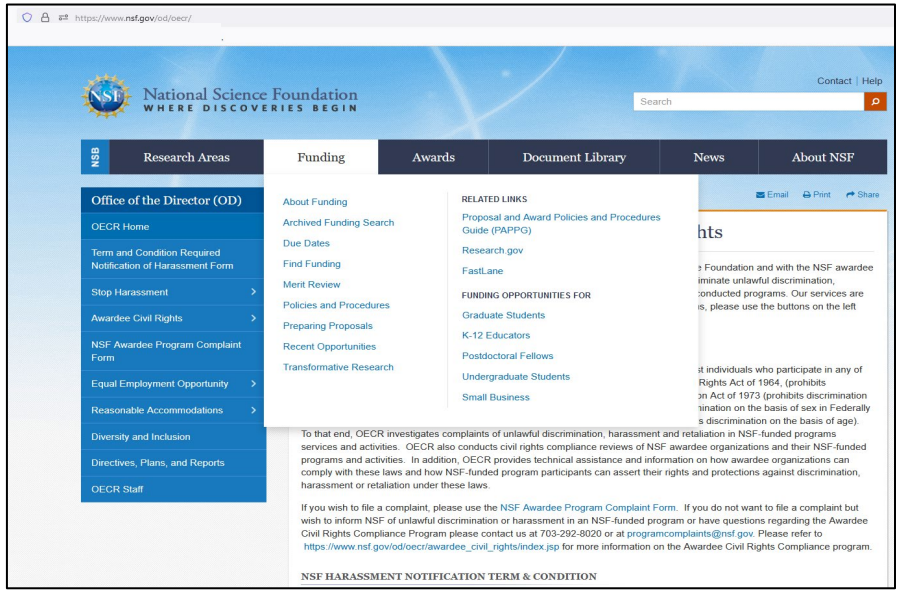
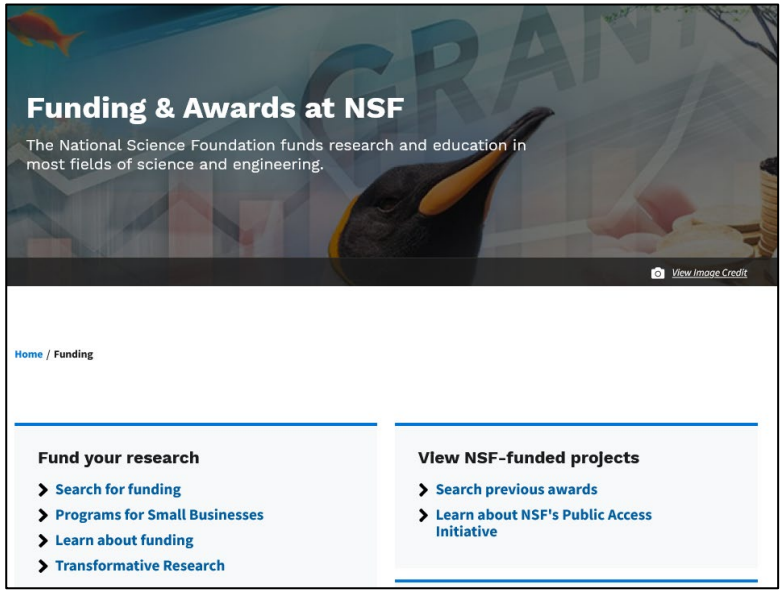
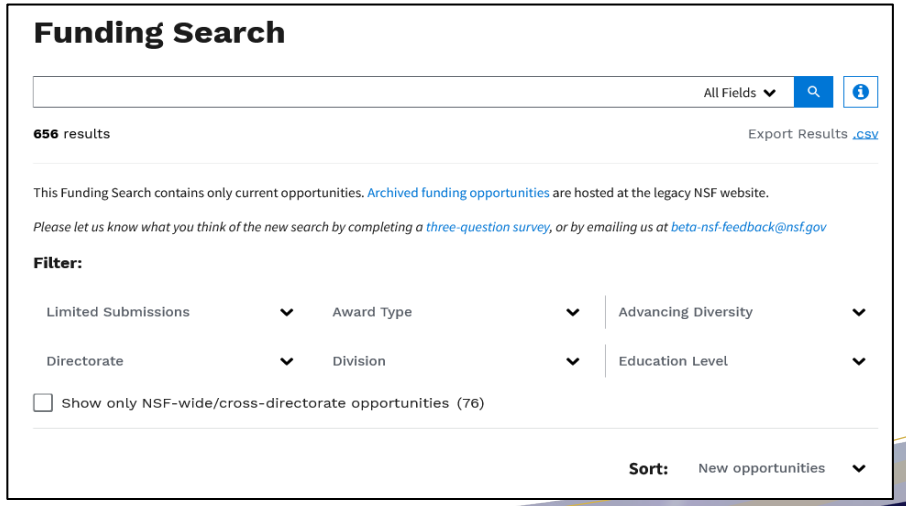
Slides and recaps will be posted on the DBI blog, dbiblog.nsfbio.com

How to Find Funding Opportunities

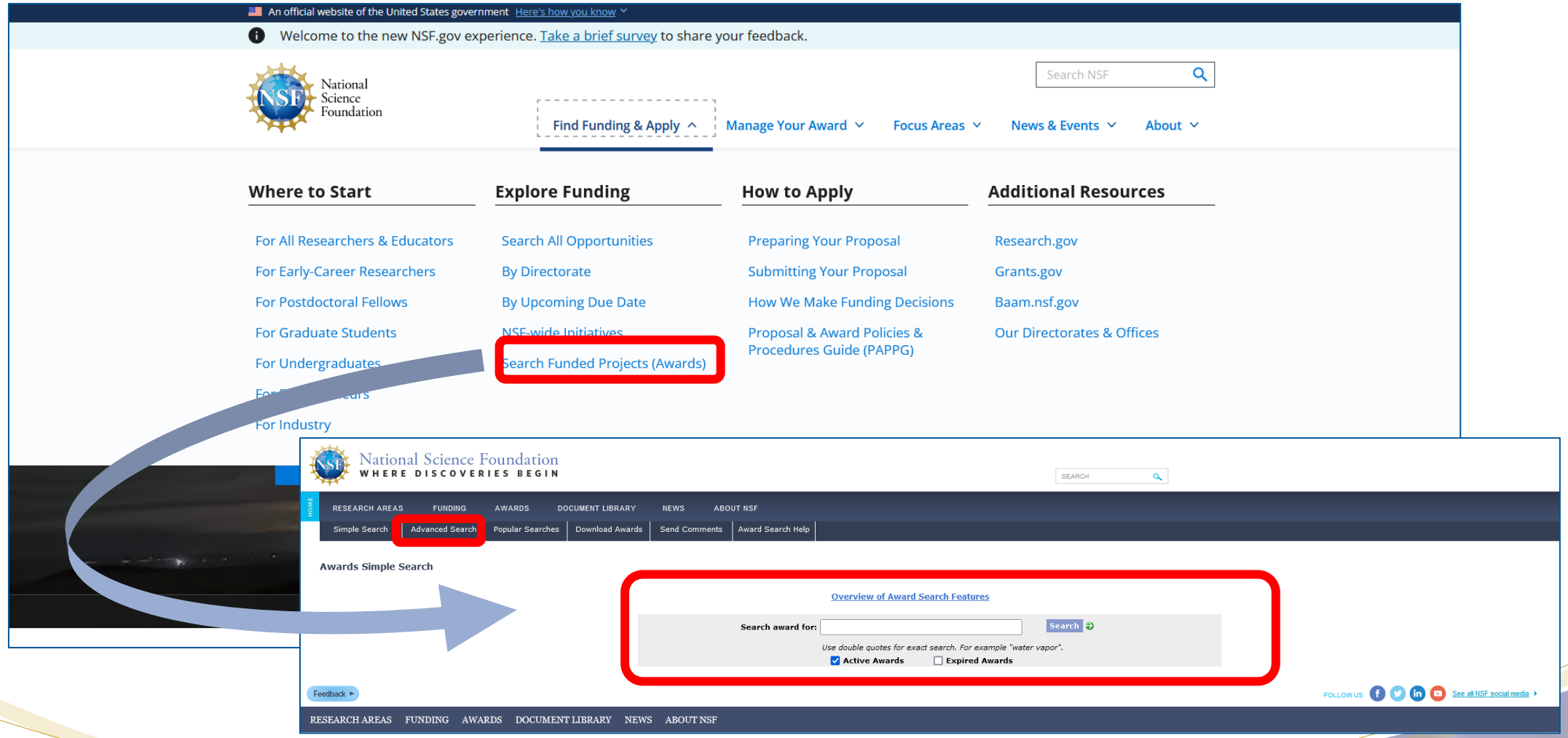






https://beta.nsf.gov/funding/opportunities

Where Does My Research Fit?



Directorate for Biological Sciences (BIO)

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

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

"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."

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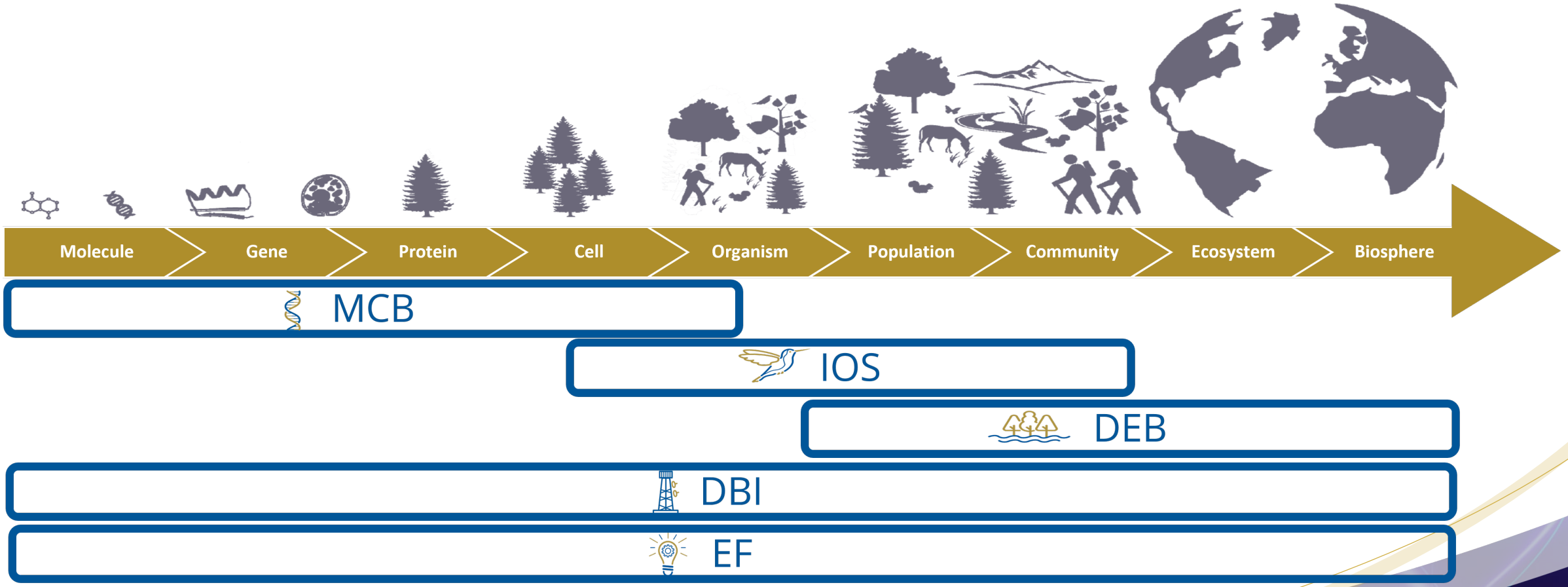
How the BIO Divisions Support Research Across Scales



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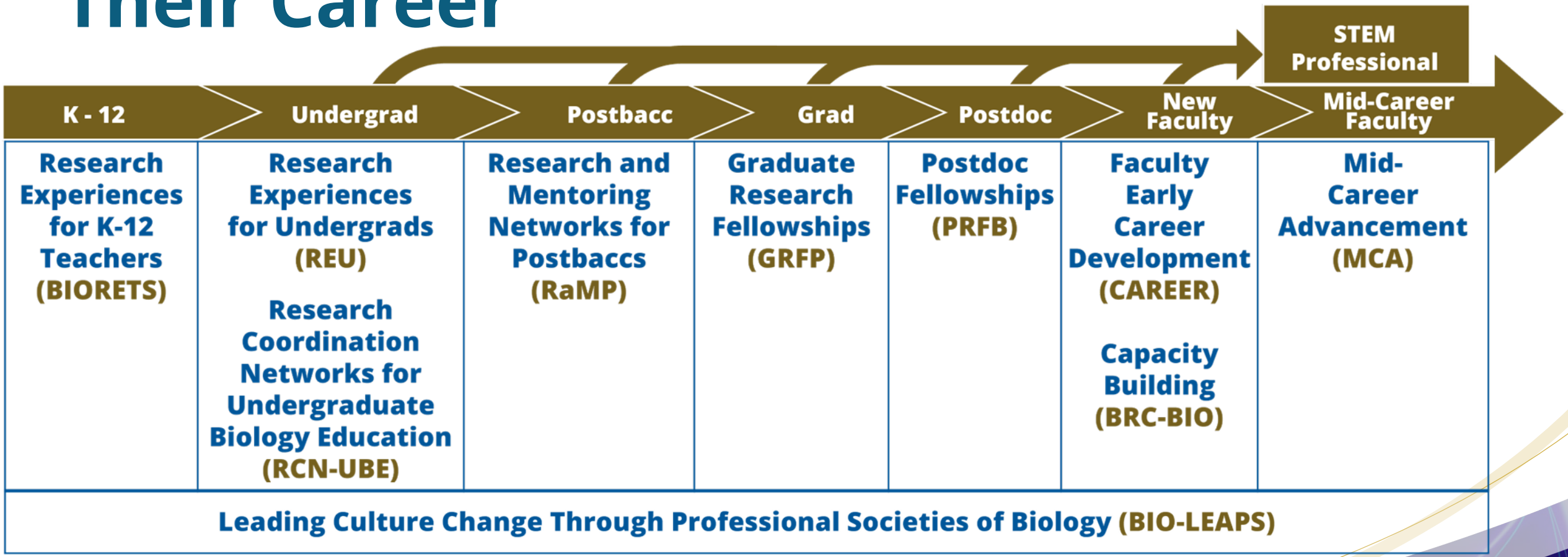
BIO Supports Researchers Throughout Their Career



Research Experiences for Teachers Sites in Biological Sciences

BIORETS Research Experiences for Teachers in the Biological Sciences

What is BIORETS about?

- Cohort training of teachers/faculty – middle school; high school; community college
  - Teachers – independent research in areas under the purview of NSF BIO; discovery of new knowledge
  - Minimum 6 teachers per cohort; Minimum 6 weeks in summer + additional weeks in AY
  - Professional development of teachers
- Project – intellectual/research theme
- Development of curricula/modules for classroom
- Evaluation of program

BIORETS Research Experiences for Teachers in the Biological Sciences

NSF 21-584: Read thoroughly and follow instructions

- Title must start with "BIORETS:.." and includes theme
- Project Summary – list of Project Elements
- Project Description – prescribed sections a thru l
- Supplementary Documents: required Letters of Collaboration
- Up to 12 Biosketches; 12 Current & Pending Support

BIORETS Research Experiences for Teachers in the Biological Sciences

Budget – up to $600k for up to 3 years

- Participant Support Costs – majority of budget; no IDC
  - Teacher stipends
  - Teacher subsistence and travel, if needed
  - Research materials and supplies
- Prohibited: charging program application fee; tuition
- Evaluation costs should be budgeted
- Indirect costs – no cost sharing allowed

BIORETS Research Experiences for Teachers in the Biological Sciences

Additional considerations

- Strong emphasis on targeting urm teachers or from schools serving large number of urm or urg students
- Diversity, Equity and Inclusion (DEI) training must be included
- Establish a strong scientific relationship between host institution and schools/school districts
- Program Evaluation– efficacy of program; impact on classroom teaching and on student learning

BIORETS Research Experiences for Teachers in the Biological Sciences

Additional Review Criteria: Intellectual Merit + Broader Impacts + Solicitation-specific criteria (7)

1. **Research and Professional Development Experience for Teacher Participants:** Appropriateness and value of the research and professional development experience for the teachers, nature of their involvement in the project, professional development of teachers, and plans for follow-up academic-year activities.
2. **Research Environment:** Quality of research environment, preparedness of the research mentors, the engagement of research-active faculty/other personnel, professional development opportunities available to the teachers. BIORETS aims to increase participation of underrepresented groups - project should be designed to ensure inclusivity fand safe environment for all participants.

BIORETS Research Experiences for Teachers in the Biological Sciences

Additional Review Criteria: Intellectual Merit + Broader Impacts + Solicitation-specific criteria (7)

3. **Teacher Recruitment and Selection Plans:** Appropriateness of the teacher recruitment and selection plans, including efforts to include teachers from schools with high proportions of students from underrepresented groups, or teachers from groups underrepresented in STEM. ETAP use is strongly encouraged.

4. **Translation of Research Experience to Classroom Curricula and Academic-year Follow-up: .** Quality of the plans for development and dissemination of classroom curricula, and follow-through activities to foster continued interactions between teachers and research mentors.

BIORETS Research Experiences for Teachers in the Biological Sciences

Additional Review Criteria: Intellectual Merit + Broader Impacts + Solicitation-specific criteria (7)

5. **Project Evaluation and Reporting:** Effectiveness of the plans for evaluating and reporting the outcomes of the project. Evaluation to include impact on teaching; student learning; interaction between teachers and mentors. Use ETAP.

6. **Budget Cost Effectiveness:** Majority of costs on Participants

7. **Results of Prior Support, if renewal:** For renewals of previously funded RET Sites: effectiveness of the previous site.

BIORETS Contact Information

- **Sally O'Connor**, DBI, socconor@nsf.gov

NSF Research Traineeship (NRT)

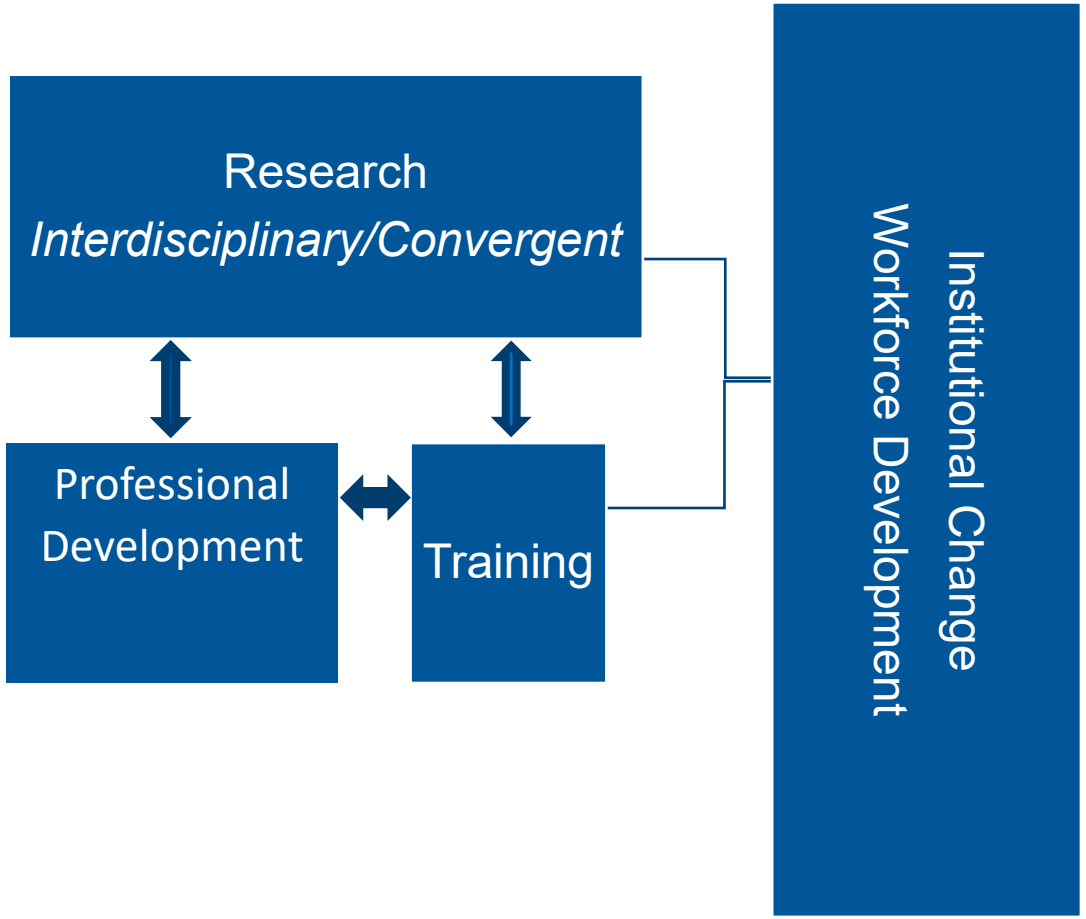
NRT NSF Research Traineeship: an NSF-wide Program in STEM Graduate Education

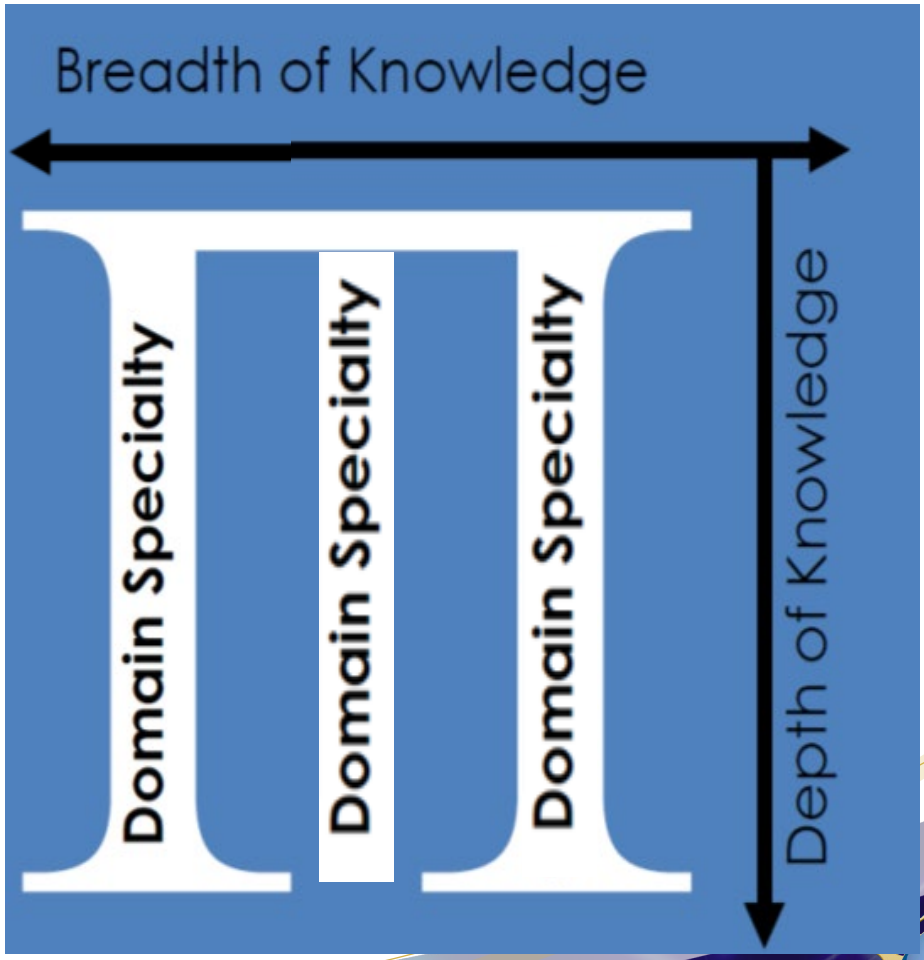
Encourage the development of innovative models for interdisciplinary/convergent STEM graduate training

Key Traineeship Elements

- Interdisciplinary/Convergent Research & Training
- Inclusive Workforce Development
- Institutional transformation

Architecture of an NRT and Training Model





NRT Awards and Eligibility (NSF 21-536)

- Track 1: Up to **$3 million** for projects up to 5 years
- Track 2: Up to **$2 million** for projects up to 5 years*

**R1 institutions are not eligible for Track 2 awards;*
anticipated award amounts depend on availability of funding

Full Proposal Deadline(s) (due by 5 p.m. submitter's local time):
Anticipated = **September 6, 2024**, Annually Thereafter

NRT Priority Areas

Priority Areas (21-536)
Artificial Intelligence
Quantum Information Science and Engineering
Harnessing the Data Revolution
Future of Work at the Human Technology Frontier
Windows on the Universe
Navigating the New Arctic
Understanding the Rules of Life

Thematic area = **open** to any theme of national importance, but priority areas encouraged in each solicitation

NSF Merit Review & NRT Review Criteria

NSF Merit Review Criteria

- Intellectual merit
- Broader impacts

NRT-specific Review Criteria

- Integration of research & education
- Interdisciplinarity/convergence
- Professional development/training
- Integrating diversity
- Evaluation

NRT URoL: Data Driven Biology @ intersection of quantitative biosciences and data sciences, PI: Pruitt

NSF Award: DGE-2125644

- **Disciplines:** Molecular, Cellular and Developmental Biology, Mechanical Engineering, Bioengineering, Biomolecular Science and Engineering, Physics, Chemical Engineering, Electrical and Computer Engineering, Computer Science
- **Trainees:** Expected 30 funded and 30 unfunded trainees over 5 years
- **Unique features:** Lab explorations before Rotations; Team Science Rotation; Supporting curriculum
- **Professional development**: Externships, Workshops on Grant writing, Career Explorations, and Mentorship
- **Research:** How do complex tissues build themselves? How manage multimodal data to build models?
- **Partners:** local industry, BMES student chapter for biotechnology industry showcase
- **Broader impact:** Workforce development, mentor training to improve chain of mentorship
- **Sustainability:** Curriculum and activities will be embedded in a new Biological Engineering Dept and optional Graduate Emphasis in Bioengineering
- **Details:** Integrated admissions to recruit diverse talent

Year 1	Year 2	Year 3	Year 4	Year 5
IDP	IDP	IDP	IDP	IDP
Program advisor	Classes	Teach	Research	Research
Classes	RCR	Research	Career Pathways	RCR Refresher
RCR	Research	Career Awareness	Communication Training	Career Planning
Rotations	Qualifying Exam	Committee	Committee	Retreat
Lab placement	Grant Writing	Conference	Conference	Monthlies
Retreat	Retreat	Retreat	Retreat - present	Thesis defense
Monthlies	Monthlies	Monthlies	Monthlies	

NSF NRT Contact Information

- **Daniel Denecke**, DGE, ddenecke@nsf.gov
- **Karen McNeal,** DGE, kmcneal@nsf.gov
- **Elizabeth Webber**, DGE, ewebber@nsf.gov

- Or email nrt@nsf.gov

New and Other Funding Opportunities

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Mid-Career Advancement (MCA) Program (NSF 22-603)

- **Goal:** "To ensure scientists and engineers remain **engaged and active in cutting-edge research** at a critical career stage replete with constraints on time that can impinge on research productivity, retention, and career advancement" .
  - Mentored experience to promote the career trajectory of the PI
  - Scientists and engineers at the Associate Professor rank (or equivalent) with at least 3 years at that rank
- **2024 Target Date:** Feb 1- Mar 1, 2024
- **Future Years:** Annually Thereafter
- **See the program page for additional information:** https://beta.nsf.gov/funding/opportunities/mid-career-advancement-mca
- **Email** mca.info@nsf.gov

Participating Directorates:

Program contacts

A list of the participating programs is available at https://www.nsf.gov/bio/MCA_participants.pdf.

Program specific MCA contacts available at https://www.nsf.gov/bio/MCA_contacts.jsp.

- Biological Sciences (BIO)
- Geosciences (GEO)
- Social, Behavioral, and Economic Sciences (SBE)
- Technology, Innovation and Partnerships (TIP)
- STEM Education

Accelerating Computer-Enabled Discovery (ACED): NSF 24-541





- Harness the power of computing to accelerate scientific discovery while driving new computing advancements
  - transform scientific disciplines through computational technologies
  - foster novel computing technologies that will enable advances far beyond the specific use cases or domains originally targeted.
- Emerging Ideas Proposals : $500K; 24 months.
  May 13, 2024
- Discovery Proposals: $3M; 4 years; Jan 24, 2025

https://new.nsf.gov/funding/opportunities/aced-accelerating-computing-enabled-scientific/nsf24-541/solicitation

Participating Directorates and Divisions

- Directorate for Computer and Information Science and Engineering
  - Division of Information and Intelligent Systems
  - Division of Computing and Communication Foundations
  - Division of Computer and Network Systems
  - Office of Advanced Cyberinfrastructure
- Directorate for Biological Sciences
  - Division of Biological Infrastructure
  - Division of Environmental Biology
  - Division of Integrative Organismal Systems
  - Division of Molecular and Cellular Biosciences
- Directorate for Engineering
  - Division of Electrical, Communications and Cyber Systems
- Directorate for Mathematical and Physical Sciences
  - Division of Mathematical Sciences
  - Division of Chemistry
  - Division of Physics
- Directorate for Technology, Innovation and Partnerships
  - Innovation and Technology Ecosystems

LIFE Leveraging Innovations From Evolution DCL

- **What:** Dear Colleague Letter encouraging proposals 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.
- **Where:** At any U.S. Institution of Higher Education or non-profit organization
- **When:** Proposals accepted anytime through IntBio Track or directly to Core Programs in DEB, MCB, IOS, and the Infrastructure Innovation program in DBI.

DCL Innovative Use of Scientific Collections (24-069)

- **What:** encourages the submission of proposals that foster Innovative Use of Scientific Collections and/or associated digital data for novel research, education, and training applications within and across STEM disciplines
- **Where:** DBI (Capacity: Biological Collections), DEB (EP, ES, PCE, SBS), CISE (IIS), GEO (EAR, OCE, OPP), and SBE (BCS, SES)
- **When:** Deadline/no deadline according to participating programs' solicitations
- **How:** Submit to relevant participating program with the prefix "IUSC:"

DCL Innovative Use of Scientific Collections (24-069)

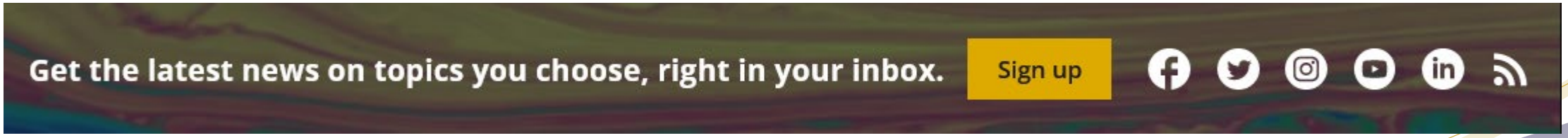
Examples include, but are not limited to, proposals that:

- Propose innovative use of existing biodiversity, living stocks, geological, anthropological, and/or behavioral collections, images and other digital media, and collections-associated data, including to develop or apply new analytical techniques or to answer new scientific questions beyond the original intention of the collections
- Integrate the use of existing collections and collections-associated data in fields that traditionally have made little use of collections
- Create partnerships to use existing collections and collections-associated data in research, training, and education by PUIs, MSIs, and other under-resourced institutions
- Make use of biological, genomic, and/or geological samples and specimens collected by NEON and housed at the NEON Biorepository
- Use existing collections to engage students in authentic research experiences

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.



BIO Blogs

News, features, highlights, 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 Virtual Office Hours (VOH)

- Informational webinar focused on:
  - New and ongoing funding opportunities
  - Topics of general interest
  - Open questions from audience to be answered live

- Days & Times by Division (occasionally rescheduled due to holidays)
  - 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.

NSF Needs You!

NSF Contact Information

- Sally O'Connor, DBI, soconnor@nsf.gov
- Karen McNeal, Division of Graduate Education, kmcneal@nsf.gov
- Jennifer Weller, DBI, jweller@nsf.gov
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Questions?