NSF Funding Opportunities:
Student Level Through Early Career (mentors included)

Suzy C.P. Renn, Program Director
Behavioral Systems Cluster

Animal Behavior Society Meeting 2024; London Ontario; June 25-29

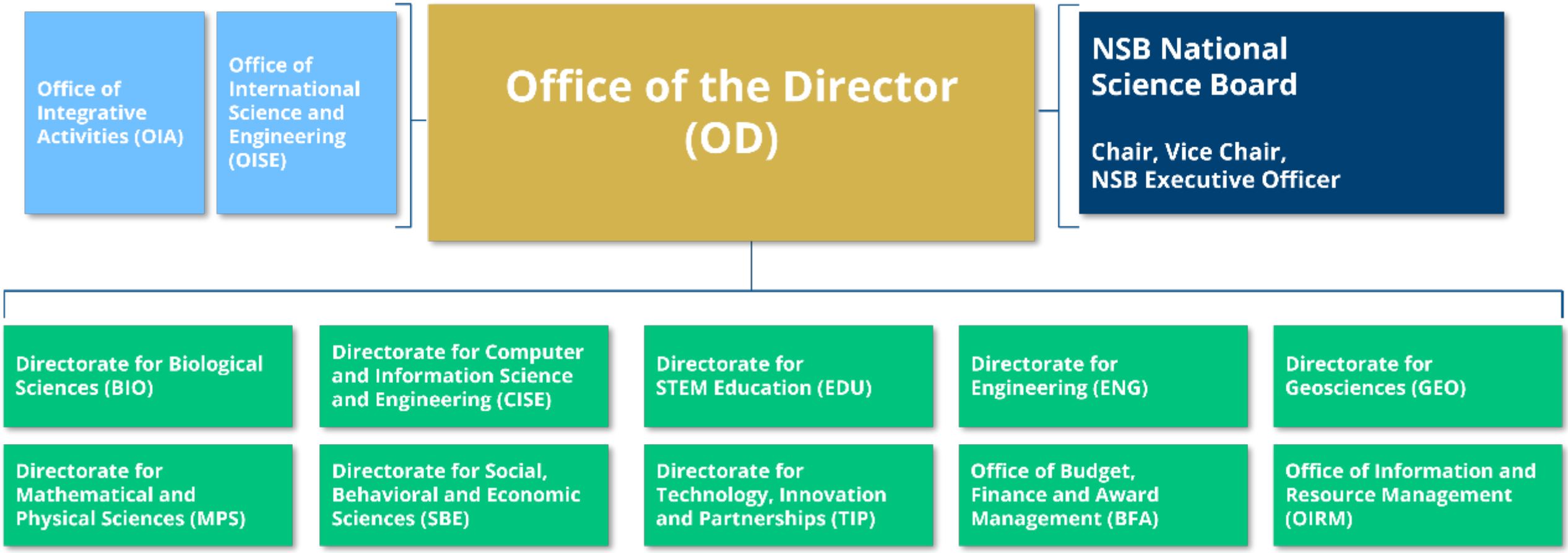
The Government of the United States

(way oversimplified)

The Constitution

Executive Branch | **Legislative Branch** | **Judicial Branch**

2


Office of Integrative Activities (OIA)
Office of International Science and Engineering (OISE)
Office of the Director (OD)
NSB National Science Board
Chair, Vice Chair, NSB Executive Officer
Directorate for Biological Sciences (BIO)
Directorate for Computer and Information Science and Engineering (CISE)
Directorate for STEM Education (EDU)
Directorate for Engineering (ENG)
Directorate for Geosciences (GEO)
Directorate for Mathematical and Physical Sciences (MPS)
Directorate for Social, Behavioral and Economic Sciences (SBE)
Directorate for Technology, Innovation and Partnerships (TIP)
Office of Budget, Finance and Award Management (BFA)
Office of Information and Resource Management (OIRM)

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.

The BIO Divisions Support Research Across Scales

Molecular & Cellular Biology (MCB)

Integrative Organismal Systems (IOS)

Division of Environmental Biology (DEB)

Division of Biological Infrastructure (DBI)

Emerging Frontiers (EF)

MCB Structure

Core Programs

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

Special Programs & Tracks

- Accelerating Innovations in Biomanufacturing Approaches through Collaboration Between NSF and the DOE BETO- funded Agile BioFoundry **(NSF-DOE/ABF Collaboration)**
- Building Synthetic Microbial Communities for Biology, Mitigating Climate Change, Sustainability and Biotechnology **(Synthetic Communities)**
- Designing Synthetic Cells Beyond the Bounds of Evolution **(Designer Cells)**
- Reproducible Cells and Organoids via Directed-Differentiation Encoding **(RECODE)**
- Transitions to Excellence in Molecular and Cellular Biosciences Research **(Transitions)**

MCB Research: How do cells function and why?

Cilia help shape the left-right body plan

Credit: Wikimedia

IOS Structure

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 and Biomechanics
Integrative Ecological Physiology
Plant Biotic Interactions (NSF-NIFA)

Plant Genome Research Program

Special Programs & Tracks

Enabling Discovery through GEnomics **(EDGE)**

Organismal Response to Climate Change **(ORCC)**

Partnership to Advance Conservation Science and Practice **(PACSP)**

IOS Research: How do animals behave and why?

Showy features of yellowthroat males attract females because they signal high-quality genes

Credit: Gerry Shaw

IOS Research: How do organisms develop over their life?

Virus genes help determine if pea aphids get wings

Credit: University of Rochester

IOS Research: How do organisms move?

Blackworms move in blobs, which could inspire robotics

Credit: Georgia Institute of Technology

DEB Structure

Core Programs

Ecology
Ecosystem Sciences
Population and Community Ecology

Evolution
Evolutionary Processes
Systematics and Biodiversity Science

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)**	Organismal Response to Climate Change **(ORCC)**	Partnership to Advance Conservation Science and Practice **(PACSP)**

DEB Research: How do organisms evolve over time?

Body size of birds in the Amazon is altered by climate change

Credit: Philip Stouffer

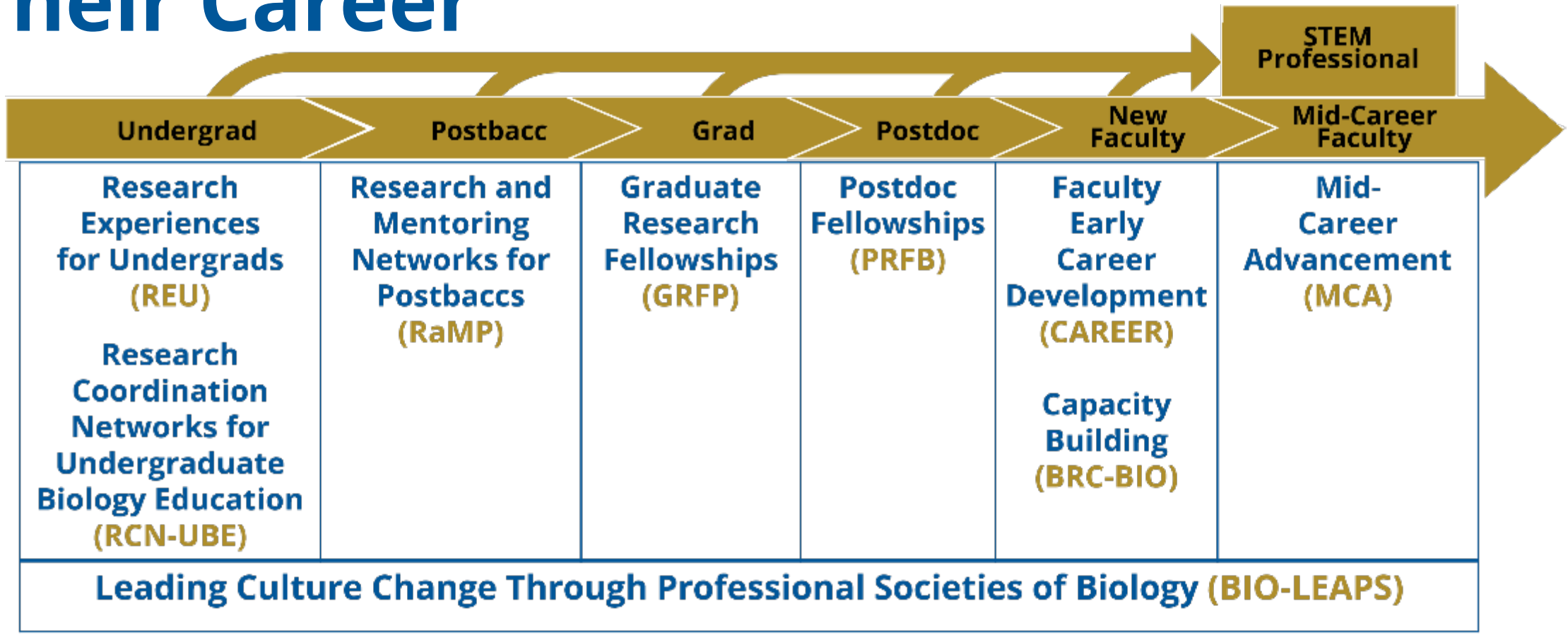
STAR Grants: DEB Core Programs

In the FY2024 solicitation for DEB core programs*, the Small Grants category was replaced by Special Targeted Awards for Research (STAR) Grants with a maximum budget of $400,000. Project descriptions for STAR Grants are limited to 10 pages.

- **Who:** There are no restrictions
- **What:** Important research activities that entail a narrower scope and/or reduced costs (e.g., analysis of existing data (including NEON data), theoretical research, synthesis projects, fieldwork projects, etc.), including ideas initiated by postdoctoral researchers
- **Where:** At any U.S. Institution of Higher Education or non-profit organization
- **When:** There are no deadlines

**Ecosystem Science, Evolutionary Processes, Population and Community Biology, Systematics and Biodiversity Science*

BIO Supports Researchers Throughout Their Career



REU: Research Experiences for Undergraduates (PI perspective)

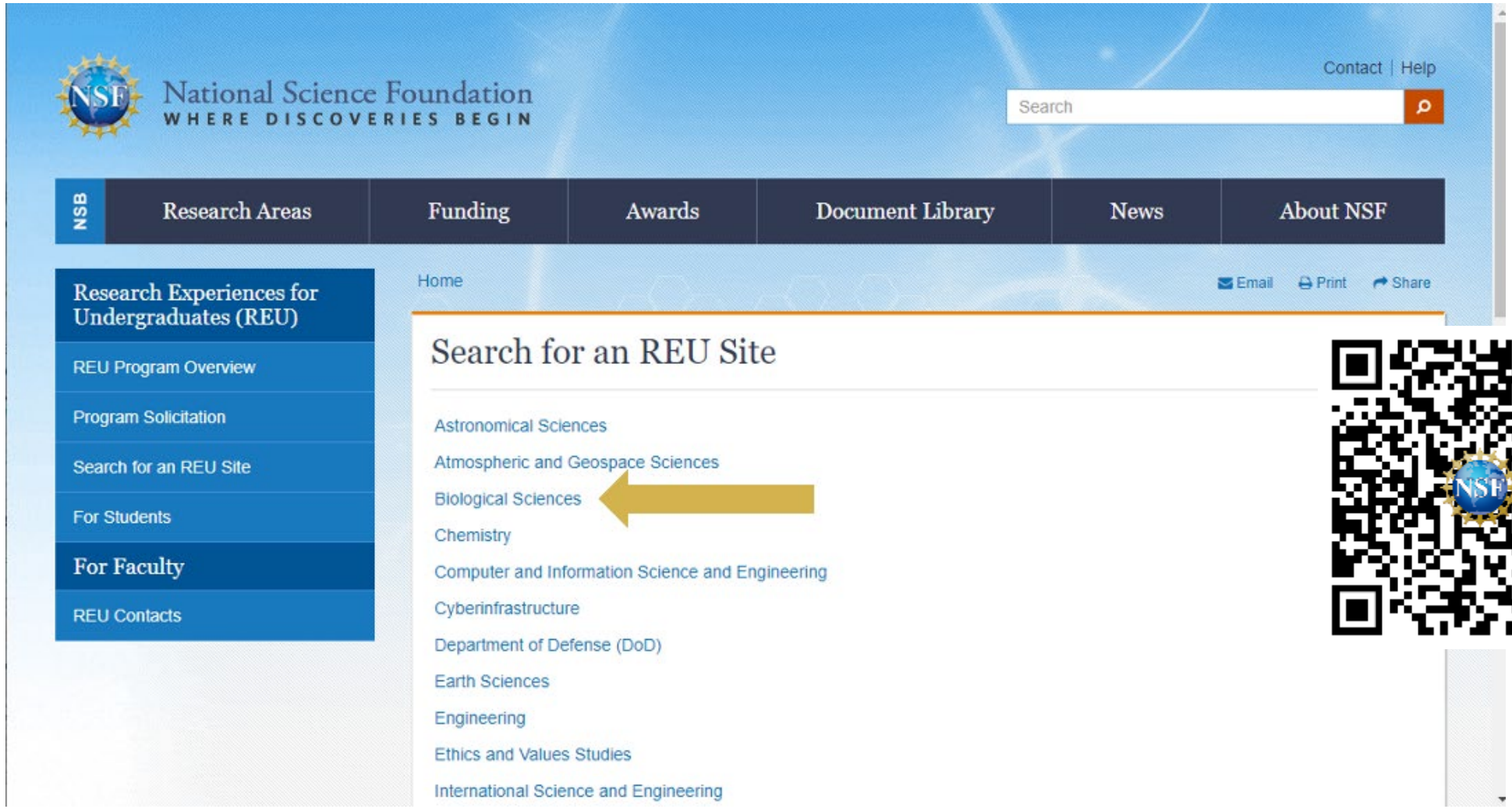
- **Synopsis**
  - Provides funding to engage undergrads in research
  - Two mechanisms:
    1. **REU Sites:** Centralized training of a group of undergrads in a theme-focused bioscience research. Sites include immersive dive into science and activities to develop student professional skills.
    2.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

REU: Research Experiences for Undergraduates (Student perspective)

- **Who:** Undergraduates currently enrolled in 2 or 4-year college; U.S. citizens
- **What:** Undergraduate summer research internship
- **Where:** Both international and domestic programs
- **When:** Varies by program
- **How:** Find the list of REU sites on the NSF website; apply directly to an REU through their website or through ETAP

Applications include: (1) **personal statement**, (2) **transcript** and (3) two **recommendations**

Search for an REU Site



Biology REU Sites

Please report errors in the list below by writing to reu.bio@nsf.gov.

Search Again

Export results: CSV | Excel | XML

Show 30

Showing **61** to **90** of 152 ‹ Previous 1 2 3 4 5 Next ›

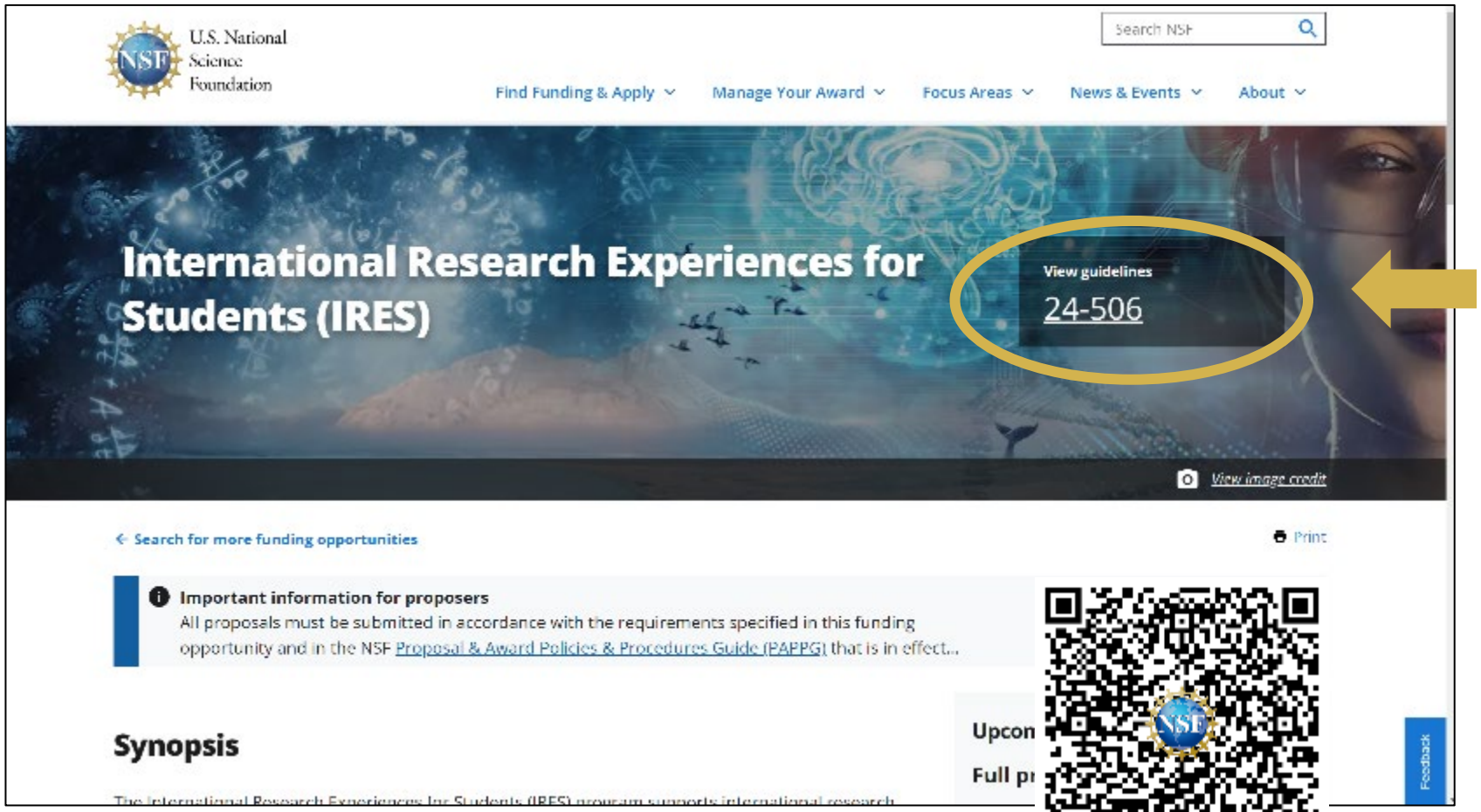
Site Information	Site Location	Contact Information	Additional Information
Northeastern University REU Site: Teamwork in Biology Inquiry: From Molecules to Organisms Biology	Boston, Massachusetts	**Primary:** Wendy Smith (617) 373-2600 w.smith@neu.edu **Secondary:** Rebeca Rosengaus (617) 373-7032 r.rosengaus@neu.edu	**Research Topics/Keywords:** Biology, interdisciplinary, development, regeneration, damage response, immunity Abstract of Award
Northern Arizona University REU Site: Ecology, Genetics, and Adaptation on the Colorado Plateau	Flagstaff, Arizona	**Primary:** Liza Holeski (928) 523-0701 liza.holeski@nau.edu **Secondary:** Ted Martinez (928) 523-3383 Theodore.Martinez@nau.edu	**Research Topics/Keywords:** Biosciences, biology, environmental science, ecology, plant science Abstract of Award
Northwestern University REU Site: Synthetic Biology at Northwestern: From Molecules to Society (SynBREU2.0) Center for Synthetic Biology	Evanston, Illinois	**Primary:** Danielle Tullman-Ercek (847) 491-7043 ercek@northwestern.edu **Secondary:** Gabriel Rocklin (312) 503-4226 grocklin@gmail.com	**Research Topics/Keywords:** biosciences, synthetic biology, bioengineering, microbiology, biochemistry, metabolic engineering, applied mathematics **Comments:** Contact synbreu@northwestern.edu for information Abstract of Award **Cofunded:** Engineering

IRES: International Research Experiences for Students

- **Who:** Undergraduates or graduate students who are citizens, nationals, or permanent residents of the U.S.
- **What:** International research opportunities involving mentoring by researchers at a foreign lab; usually involve small groups of students who travel to a host institution for a summer-length research project.
- **How:** To find active IRES projects, visit the **NSF IRES Project Search**. Each project lists the name and contact information of the Principal Investigator, or lead, of that project.

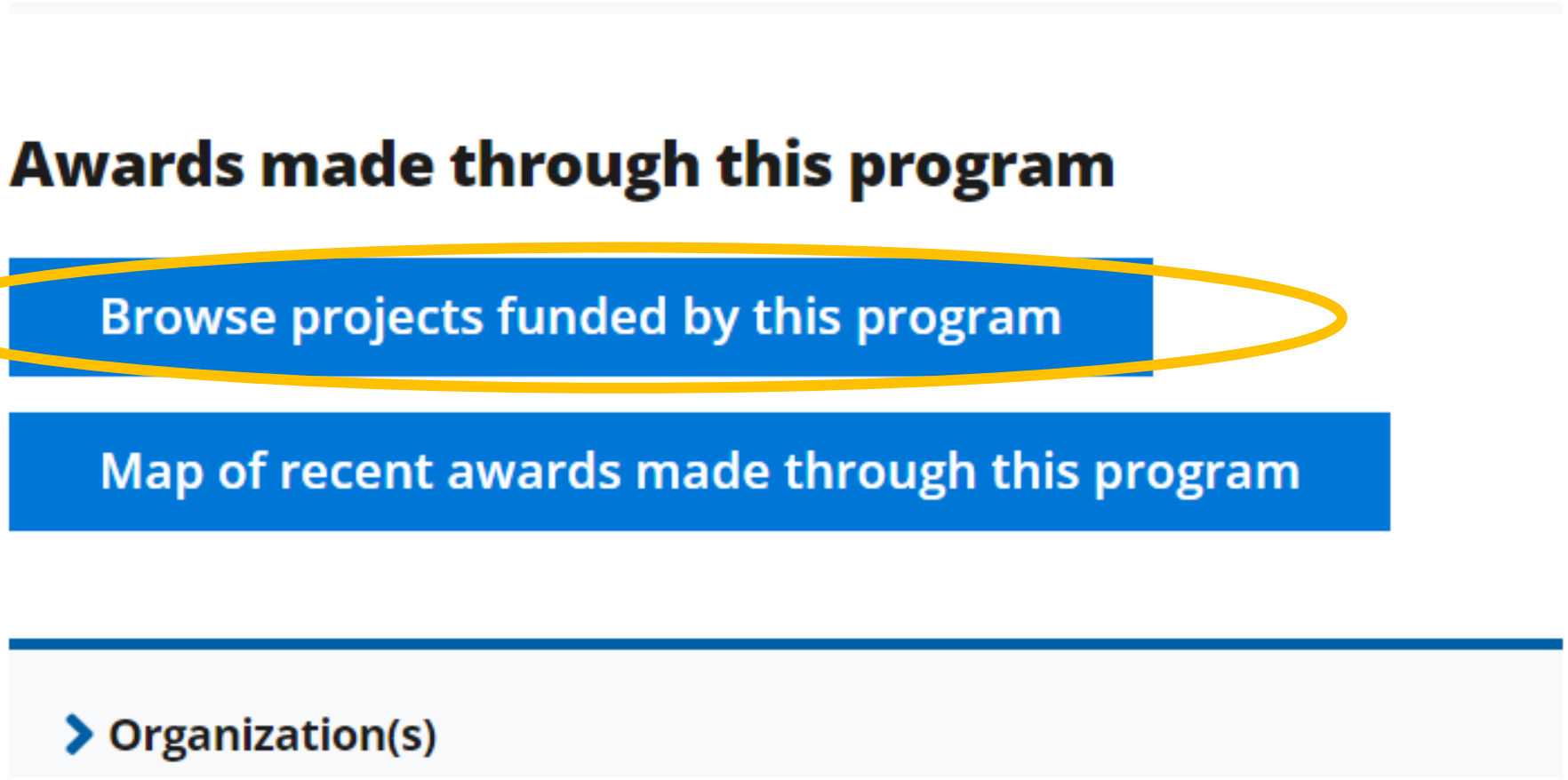
IRES: Students and Faculty

For Students Who want to Participate: Scroll Down



For Faculty who want to propose to run an IRES Program: View Guidelines

IRES Projects Funded-to-date



IRES Award Listing

IRES Track I: Exploring Adaptive Responses to Dynamic Island Environments Solomon Islands
Award Number:2025704; Principal Investigator:John Uy; Co-Principal Investigator:; Organization:University of Rochester;NSF Organization:OISE Start Date:01/01/2020; Award Amount:$211,960.00; Relevance:48.0;

IRES Track 1: US-Morocco Collaborative Research for Socially and Environmentally Sustainable Women's Argan Oil Production
Award Number:1952578; Principal Investigator:Tara Deubel; Co-Principal Investigator:; Organization:University of South Florida;NSF Organization:OISE Start Date:09/15/2020; Award Amount:$180,000.00; Relevance:48.0; Morocco

Collaborative Research: RUI: IRES - Track I: US-Australia collaboration on a new class of lead-free copper alloys to meet international health demands Australia
Award Number:2106617; Principal Investigator:Lori Bassman; Co-Principal Investigator:; Organization:Harvey Mudd College;NSF Organization:OISE Start Date:10/01/2021; Award Amount:$201,193.00; Relevance:48.0;

Collaborative Research: RUI: IRES - Track I: Brown Carbon Aerosol Formation by Photooxidation of Phenolic Compounds in Nanodroplets
Award Number:1825094; Principal Investigator:Lelia Hawkins; Co-Principal Investigator:; Organization:Harvey Mudd College;NSF Organization:OISE Start Date:11/01/2018; Award Amount:$143,328.00; Relevance:48.0; France

IRES Track I: US-Japan Collaboration on Organic Electronics Research and Education Japan
Award Number:1827020; Principal Investigator:Matthew White; Co-Principal Investigator:Severin Schneebeli, Matthew White, David Punihaole; Organization:University of Vermont & State Agricultural College;NSF Organization:OISE Start Date:09/01/2018; Award Amount:$299,161.00; Relevance:48.0;

Collaborative Research: IRES Track I: U.S.-Denmark program for advanced reliability analysis of ac/dc converters with INNOVAtive conTrols in glObe-spanning supergRid (INNOVATOR) Denmark
Award Number:2152905; Principal Investigator:Masoud Davari; Co-Principal Investigator:; Organization:Georgia Southern University Research and Service Foundation, Inc;NSF Organization:OISE Start Date:06/01/2022; Award Amount:$220,572.00; Relevance:48.0;

IRES Track 1: RUI: Monitoring of Marine Life Coastal Habitats via Autonomous Robot Systems
Award Number:1952616; Principal Investigator:Christopher Clark; Co-Principal Investigator:Christopher Lowe; Organization:Harvey Mudd College;NSF Organization:OISE Start Date:09/01/2020; Award Amount:$300,000.00; Relevance:48.0; Costa Rica

IRES Track II: Advanced Studies Institutes in Analysis on Fractal Spaces, Dynamical Systems and Mathematical Physics
Award Number:1953471; Principal Investigator:Zair Ibragimov; Co-Principal Investigator:; Organization:CSU Fullerton Auxiliary Services Corporation;NSF Organization:OISE Start Date:03/15/2020; Award Amount:$319,919.00; Relevance:48.0; Uzbekistan

Collaborative Research: IRES Track III: Bioinspired Autonomy in Natural Environments
Award Number:1954172; Principal Investigator:Rolf Mueller; Co-Principal Investigator:Bevlee Watford, Alexander Leonessa, Vinod Lohani; Organization:Virginia Polytechnic Institute and State University;NSF Organization:OISE Start Date:03/01/2020; Award Amount:$837,325.00; Relevance:48.0;
Singapore

IRES track I: International Research Experience in France on Thermal Treatment of Biomass (I-CEMITURE) France
Award Number:1952402; Principal Investigator:Rafael Quirino; Co-Principal Investigator:Karelle Aiken; Organization:Georgia Southern University Research and Service Foundation, Inc;NSF Organization:OISE Start Date:09/01/2020; Award Amount:$279,827.00; Relevance:48.0;

IRES: Track I: Insights into human evolution gained from genetic, morphological, and neuroscientific analyses at the Primate Research Institute of Kyoto University, Japan Japan
Award Number:1853937; Principal Investigator:Anthony Tosi; Co-Principal Investigator:Owen Lovejoy, Mary Ann Raghanti, Richard Meindl; Organization:Kent

RaMP Research and Mentoring for Post-baccalaureates in Biology

- 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.
- 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.

NSF ETAP Education & Training Application

- Easy way to discover and apply to opportunities that strengthen your academic career.
- Principal Investigators of NSF Awards can customize NSF's ETAP application to provide opportunities for applicants to participate in.
- ETAP does not include all of NSF Education and Training Opportunities that are available.

Opportunities to work at NSF

- **Summer Scholars Internship Program**
  - 10-week-long summer internship at NSF for undergraduate and graduate students.
  - Interns learn about science administration and how federal policies affect the science and engineering community.
  - Students interested in the NSF Summer Scholars Internship Program can apply through the QEM Network or Hispanic Association of Colleges and Universities National Internship Program

Other Opportunities to work at NSF

- Administrative Staff Positions including Program Assistant, Program Specialist, Program Analyst, and Science Assistant
- The Science & Technology Policy Fellowships program provides opportunities for scientists and engineers to contribute to federal policymaking while learning firsthand about the intersection of science and policy.
- The Mass Media Science & Engineering Fellowship places science students and postdoctoral trainees in newsrooms to work as reporters, editors and production assistants.

Thinking about grad school?

GRFP Graduate Research Fellowship Program

***Three* years of financial support**

$37,000 / year stipend

$16,000 educational allowance

The award:

- **Fellowship:** Awarded to individual
- **Flexible:** Choice of project, advisor, and program
- **Unrestricted:** No service requirement
- **Portable:** Can be used at any accredited, non-profit, US institution of higher education, with campus in US research-based master's and doctoral degrees

*Amounts are based on GRFP Solicitation NSF 23-605

Level 1: Seniors/bachelor's degree: no graduate study

Level 2: 1st-year graduate students

- Joint bachelor's-master's (completed 3 years)

Level 3: Second-year graduate students

- No more than 1 academic year completed in 1st graduate degree program
- For joint BS/MS holders ONLY, can apply as 1st year doctoral students if went directly into PhD program, after completing joint bachelor's-master's degree)

Level 4: Returning graduate students

- > 2-year interruption in graduate study
- No doctorates or >1 academic year in graduate program
- NOT ENROLLED in graduate program at application deadline

Level 1 unlimited applications

Level 2-4 Only apply once

GRFP Application

Complete Application Package:

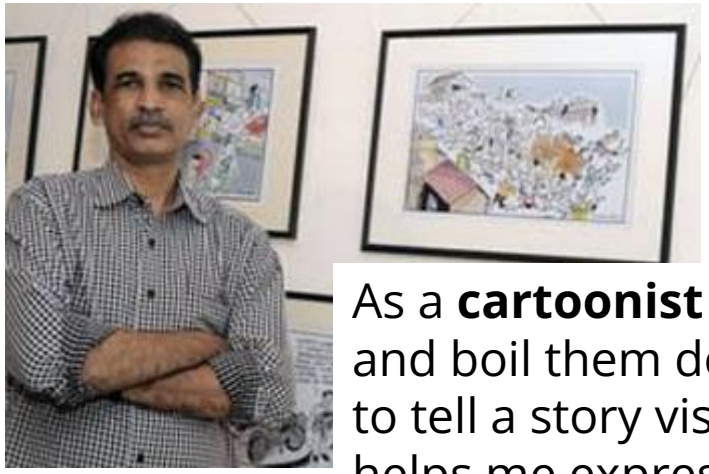
1) Personal Information, Education, Work/Research Experience, Proposed Major Field of Study, Honors, Awards, Publications
2) Personal, Relevant Background and Future Goals Statement (3-page PDF)
3) Graduate Research Statement (2-page PDF)
4) Transcripts (PDFs; mandatory)
5) Letters of reference (may provide up to five names of reference letter writers)

- 3 reference letter writer names are mandatory and 2 reference letters are mandatory for application review

National Science Foundation
Directorate for STEM Education (EDU)

GRFP

What Makes You Unique as a Scientists?



As a **cartoonist** I take complex images and boil them down to key signatures to tell a story visually without text. This helps me express complex processes through simple schematics.

As a **rock climber**, you have to risk falling in order to become better; the same principle applies in science.

Woodworking has made me better at planning solutions several steps ahead

Dancing connects my body & mind in a way that challenges me to question established truths and overcome my limitations.

https://science.sciencemag.org/content/sci/361/6397/24.full.pdf

MEETING-RELATED GRANTS & AWARDS

- Warder Clyde Allee Competition
- Founders Memorial Poster Paper Award
- Genesis Award for Undergraduate Research
- Diversity Fund Student Registration Fee Award
- Charles H. Turner Award
- Broadening Participation Award
- Career Diversity Travel Award
- Graduate Student Travel Grant
- Caregiver Travel Grant
- Latin American Travel Grant
- Awards Eligibility Form

GRANTS & AWARDS

The Animal Behavior Society manages several different types of grants and awards including Meeting Related Awards, Student Related Awards, Developing Nations Research Grants, Early Career Research Grants, Travel Awards, and Career Awards. Please visit each individual award webpage for award criteria and application information.

MEETING-RELATED AWARDS

The following awards are presented at the Annual Meeting: Warder Clyde Allee Award, Diversity, Founders Memorial Poster Award, Genesis Award for the Outstanding Undergraduate Poster Presentation, Charles H. Turner Award,

STUDENT RESEARCH GRANT AWARDS

Student research awards, the George W. Barlow Award, the ABS Conservation Award, the Amy R. Samuels Cetacean Behavior Award, David S. Tuber Award, and the Justice

INTERN Non-Academic Research Internships for Graduate Students

- **Who:** Graduate Students in NSF funded labs (application as a supplement to the existing award)
- **What:** Provides graduate students with experiential learning opportunities through research internships to acquire core professional competencies and skills to support careers in any sector of the U.S. economy.
- **Where:** For-profit industry laboratories, Start-up businesses, Government agencies, Museums, Policy think-tanks' Non-profit organizations
- **More info:** NSF 21-013 https://www.nsf.gov/pubs/2021/nsf21013/nsf21013.jsp

PRFB Postdoctoral Research Fellowship in Biology

- **Who:** Recent recipients of doctoral degrees (past 15 months); US citizen, national or 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:** November 7, 2024

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

PRFB Postdoctoral Research Fellowship in Biology

Three **years of financial support**

$60,000 / year Salary

$20,000 Research allowance

The award:

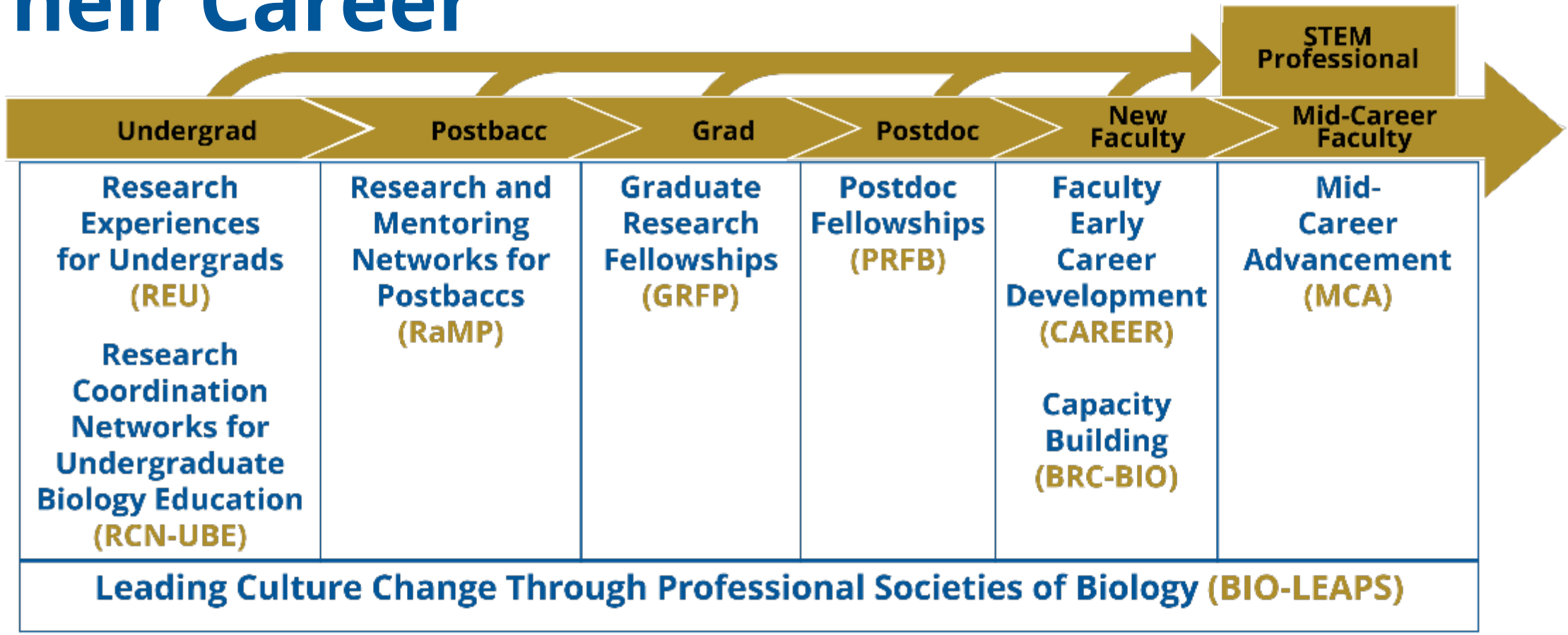
- **Fellowship:** Awarded to individual
- **Mentoring:** should provide active mentoring of fellows
- **Unrestricted:** No service requirement
- **Portable:** Can be used at any accredited, non-profit, US institution of higher education, with campus in US research-based master's and doctoral degrees

Area 1: Broadening Participation of Groups Underrepresented in Biology

Area 2: Integrative Research Investigating the Rules of Life Governing Interactions Between Genomes, Environment, and Phenotype.

Area 3: Plant Genome Postdoctoral Research Fellowships

BIO Supports Researchers Throughout Their Career

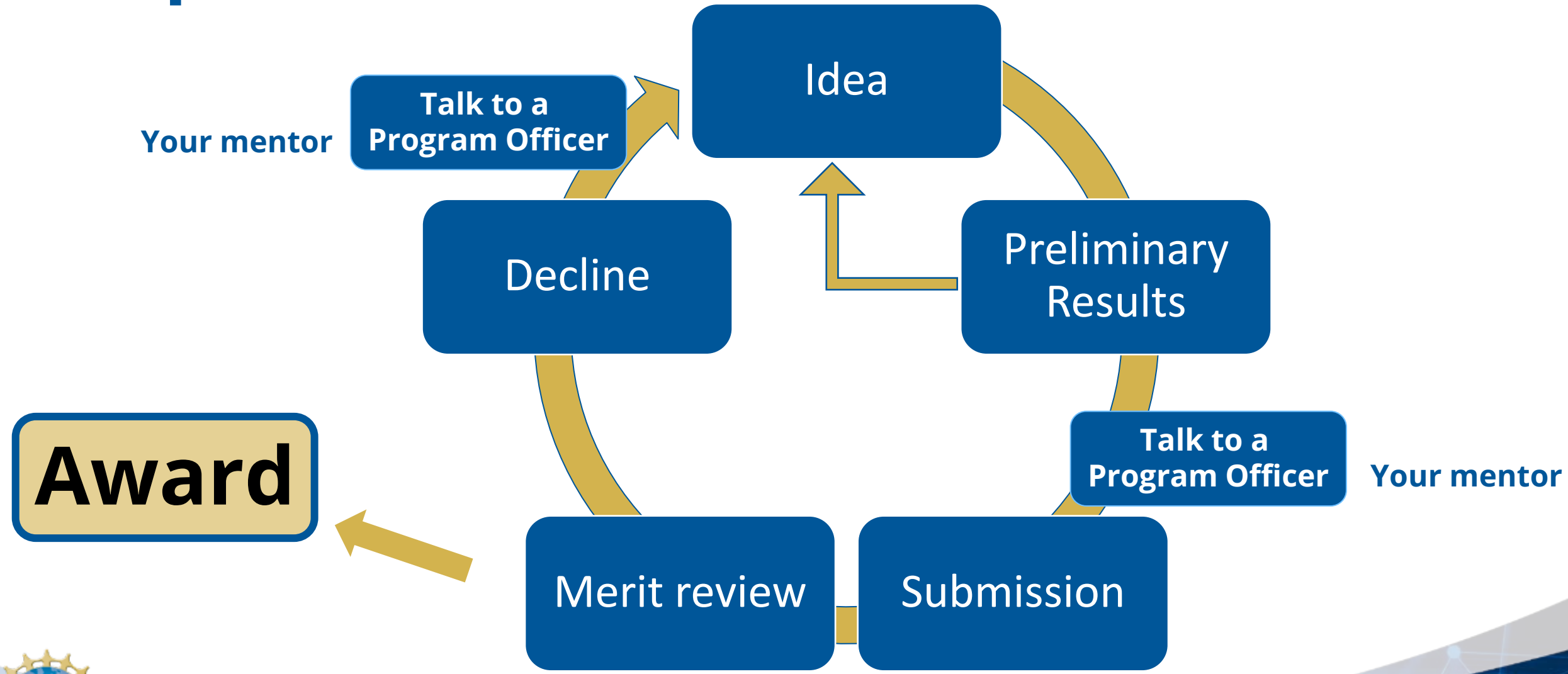


Core Programs

Division of Integrative and Organismal Systems
Division of Environmental Biology
Division of Molecular and Cellular Biology

- **Who:** Unaffiliated individuals are not eligible to submit proposals.
- **What:** Proposals are welcomed in all core scientific program areas supported, including projects that cross traditional disciplinary boundaries (talk to your Program Directors).
- **Where:** Institutions of Higher Education; Non-profit, Non-academic Organizations; Tribal Governments.
- **When:** Any time (in BIO)
- **Amount:** Create a Budget for what you need

Proposal Submission Process



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Merit Review Criteria

- **Intellectual Merit (IM):**
  the potential to advance knowledge

- **Broader Impacts (BI):**
  the potential to benefit society and contribute to the achievement of specific, desired societal outcomes

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Broader Impacts: Benefitting Society

Teaching, training, and learning (*undergrads + grad students*)	**Broaden participation of underrepresented groups**	**Build or enhance partnerships (*internationally, or with other agencies*)**
Broad dissemination to enhance scientific + technological understanding	**Enhance infrastructure (*labs, equipment, + work in developing countries*)**	**Local impacts (*policies @ state + local level*)**

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A Proposal is Different Than a Paper

A Paper is:

1. a scholarly pursuit: individual passion, past-oriented, work that has been done
2. theme-centered: theory and thesis
3. expository rhetoric: explaining to the reader, impersonal tone, objective, dispassionate
4. individualistic: primarily a solo activity
5. few length constraints: verbosity rewarded
6. specialized terminology: “insider jargon”

A Proposal is:

1. aimed at sponsor goals: service attitude, future-oriented, work that should be done
2. project-centered: objectives and activities
3. persuasive rhetoric: ’selling’ the reader, personal tone, conveys excitement
4. team-focused: feedback needed
5. strict length constraints: brevity rewarded
6. accessible language: easily understood

Porter (2007) The Journal of Research Administration; Volume XXXVIII, No.2: p. 37-43

Essential Documents

PAPPG + **Solicitation**

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BIO Outreach and Blogs

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/

SCIENCE HAPPENS HERE

Share your story!

#NSFstories

Join NSF in highlighting your amazing research, discoveries, innovation and more happening across the country and around the world.

- ☑ Tag your location and use our IG filter, graphics or simply post a photo or video with #NSFstories
- ☑ We will amplify your posts and share your stories. We will also share your stories at events, hold competitions, feature on our blog and more!

Toolkit: nsf.gov/ScienceHappensHere

NSF Needs You!

Become an NSF Reviewer

- Peer review process depends on qualified reviewers from the academic, industrial, and government sectors.
  - Provide helpful advice on the merits of proposals and constructive comments to proposers that strengthen their projects.
  - Learn about:
    - Peer review process
    - Common problems with proposals
    - Strategies to write strong proposals
  - Meet colleagues and NSF program officers
- Send an e-mail to the PO of the program(s) that fits your expertise
  - Introduce yourself and identify your areas of expertise
  - It is most helpful if you also attach a 2-page CV

Sign up to be a Reviewer

Funding Opportunities: Early career, established investigators, and special programs

Friday 12:15-1:15

- MCA Mid-Career Advancement
- BIO-LEAPS Leading Cultural Change through Professional Societies of Biology
- RCN Research Coordination Networks
- BoCP Biodiversity on a Changing Planet
- EEID Ecology and Evolution of Infectious Diseases
- IIBR Infrastructure Innovation for Biological Research
- EDGE Enabling Discovery through Genomic Tools
- ORCC Organismal Response to Climate Change

NSF Contact Information

The Behavioral Systems Cluster

- Suzy Renn, srenn@nsf.gov
- Jodie Jawor, jjawor@nsf.gov
- Colette St. Mary, cstmary@nsf.gov

IOSBSC@nsf.gov

Questions?