



# Division of Integrative Organismal Systems (IOS) – Virtual Office Hour

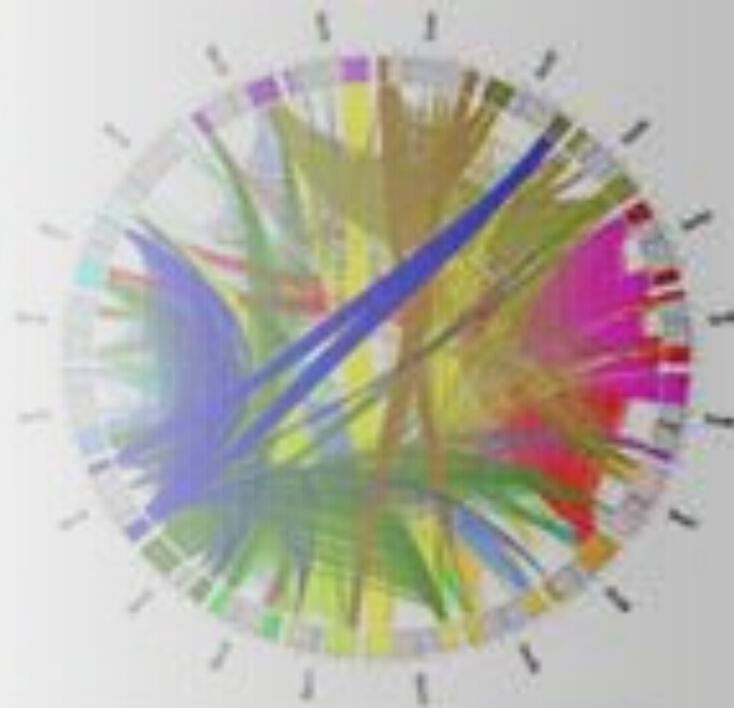
Welcome to the IOS Virtual Office Hour. We will begin soon.  
Please submit questions via the Q&A Box available to you on Zoom



Division of Integrative Organismal Systems (IOS) – **Welcome!**

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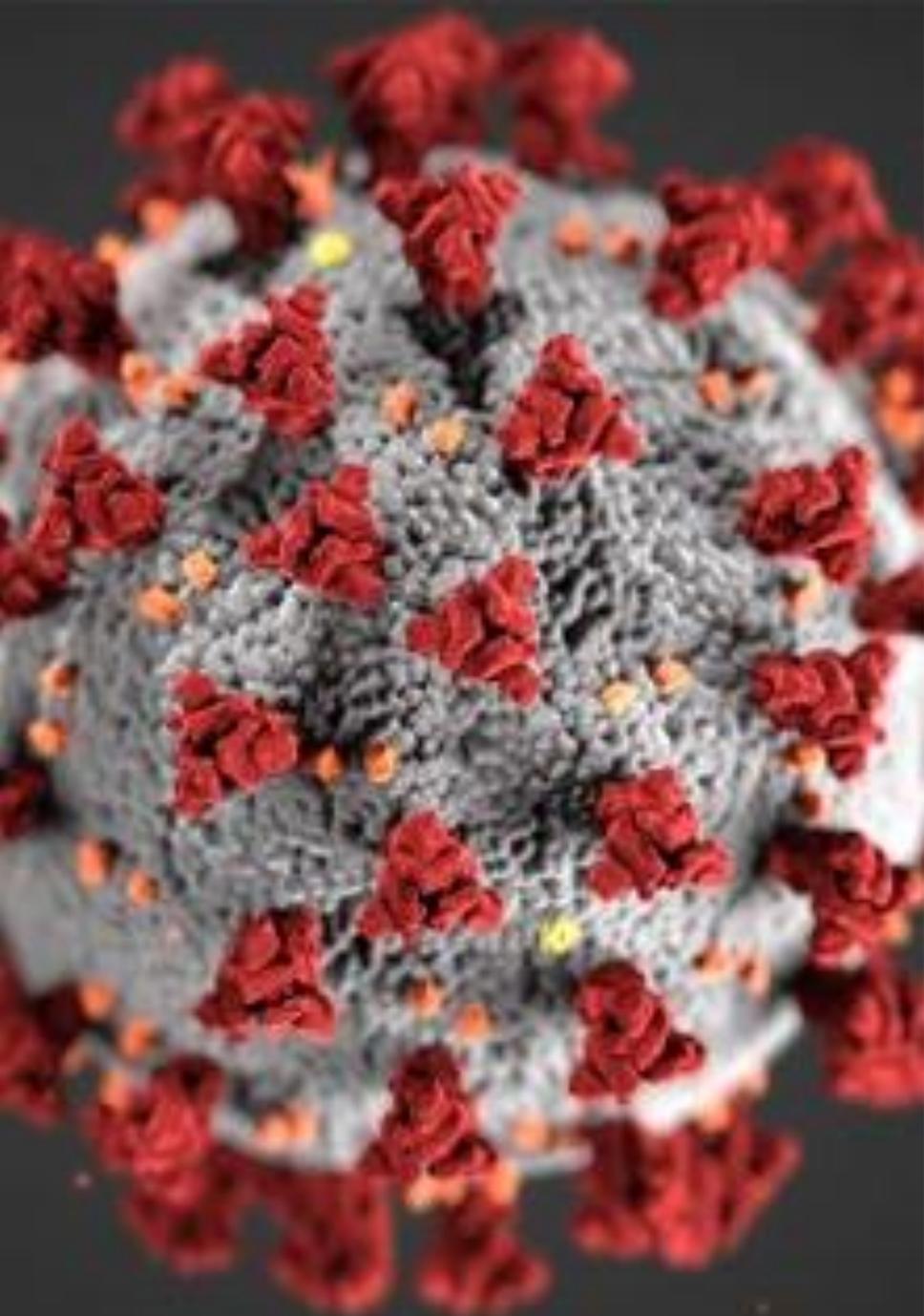
- Program Directors in attendance today:
  - Jodie Jawor – [jjawor@nsf.gov](mailto:jjawor@nsf.gov)
  - Ted Morgan – [tmorgan@nsf.gov](mailto:tmorgan@nsf.gov)
  - Courtney Jahn – [cjahn@nsf.gov](mailto:cjahn@nsf.gov)
  - Jennifer Troyer – [troyerj@mail.nih.gov](mailto:troyerj@mail.nih.gov)
    - National Human Genome Research Institute, NIH
- Administrative Support & Technical Assistance
  - Janice Hermann – Program Specialist



# IOS Virtual Office Hour:

- Submit your questions via the Q&A function on your screen.
- For recently asked questions and future office hour topics, see the IOS Blog ([www.iosblog.nsfbio.com](http://www.iosblog.nsfbio.com))
- For specific questions about your project, please contact a Program Director
- Next IOS Virtual Office Hour: [16 February 2023](#), Infection Biology Research in IOS





# COVID-19

- We recognize that developments related to COVID-19 continue to cause havoc and disruption of research programs and lives.
- Please see NSF's main page for information related to OMB Memorandum M-21-20 and NSF's implementation of the memorandum, CDC guidance, Department of State travel information, and research-related information:
  - [https://www.nsf.gov/news/special\\_reports/coronavirus/](https://www.nsf.gov/news/special_reports/coronavirus/)
- **Please note:** If you have an ongoing award and your research has been impacted by COVID-19 responses at your university or field site please make note of that in your annual reports in the **Changes/Problems section**

# IOS Virtual Office Hour

## Today's Topics:

- Solicitations and Dear Colleague Letters (DCLs)
- **E**nabling **D**iscovery through **G**Enomics (EDGE; NSF 21-546) – both NSF and NIH program officers here today
- Open question and answer period



# Recent Solicitations and DCLs

Core IOS solicitation (21-506), PBI (20-576), and PGRP (21-507) – No deadlines and no submission limits

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Organismal Systems and Infection Biology DCL (22-016) – No deadlines and no submission limits

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Integrative Research in Biology (IntBIO; 21-622) – **Jan. 24, 2023**

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Biology Integration Institutes (BII; 23-511) – **Feb. 21, 2023** (updated solicitation)

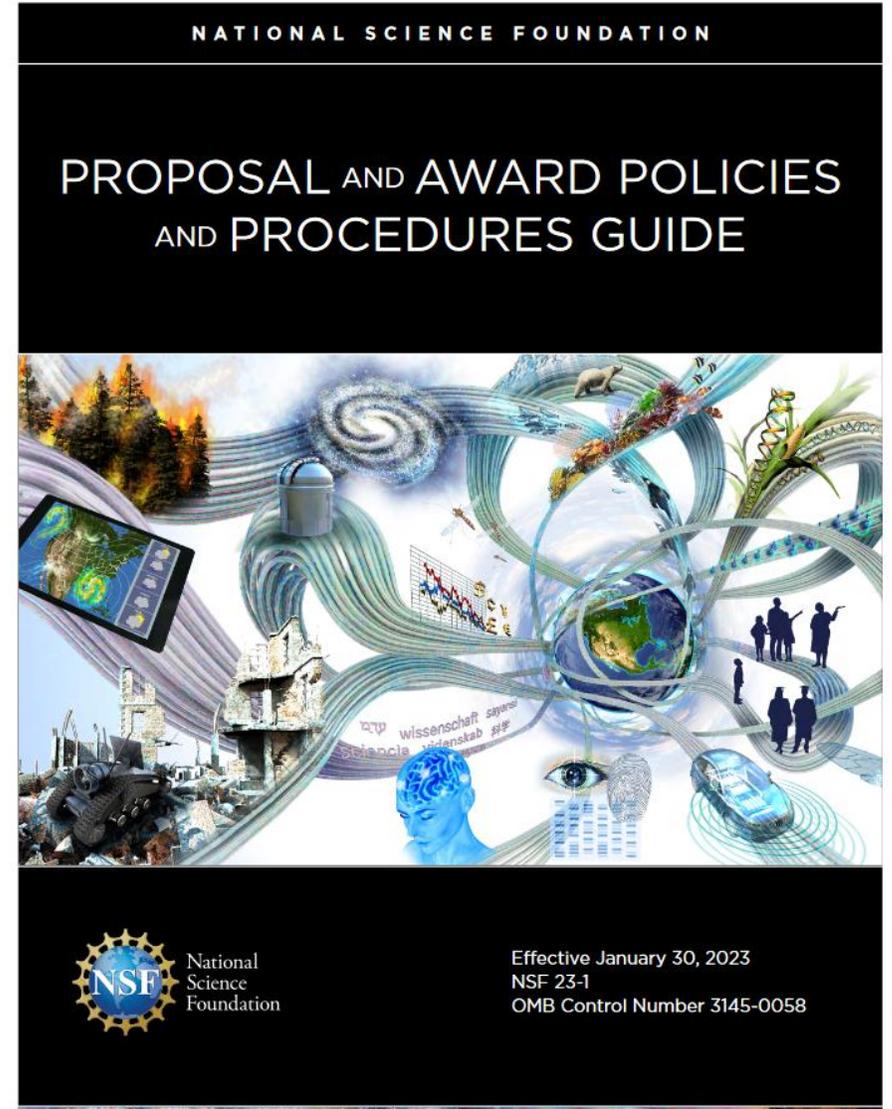
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Biodiversity on a Changing Planet (BoCP; 23-542) – **March 29, 2023** (updated solicitation)



# Messages from our Administrative Staff

- Beginning **30 January 2023** a new Proposal & Award Policies & Procedures Guide (NSF 23-01 PAPPG) will be in effect
  - Early on in the new PAPPG, a list of important changes you want to be aware of, check those out carefully.
- Program Specialists who do *compliance checking* want you to be aware of:
  - Biographical Sketches: Must use NSF approved or SciENev form, **3** pages per person, include all listed on the cover page. Limit of **5** products for each category (synergistic activities!).



# EDGE Program

## Enabling Discovery through Genomics

EDGE Working Group:  
Ted Morgan (NSF/IOS)  
Jennifer Troyer (NIH/NHGRI)

Suzy Renn (NSF/IOS)  
Courtney Jahn (NSF/IOS)  
Matt Fujita (NSF/DEB)  
Steve Ellis (NSF/DBI)  
Manju Hingorani (NSF/MCB)

**January 19, 2023**

**Deadline: February 16, 2023 at 5 pm submitter's local time**

**[BIOEDGE@NSF.GOV](mailto:BIOEDGE@NSF.GOV)**



# EDGE Webinar Outline

## 1. Program Overview

- a. Purpose and goals
- b. Examples of programmatic fit
- c. Partnership with the National Human Genome Research Institute

## 2. Submission Requirements

- a. Deadline
- b. Proposal sections

## 3. Review Criteria

- a. NSF merit review criteria
- b. EDGE Solicitation-specific criteria
- c. NIH review criteria

## 4. Questions



# Program Overview

## Purpose

Enable advancement of understanding the relation between genomes and phenomes—relevant to *Understanding the Rules of Life: Predicting Phenotype*

## Goals

To support:

- (1) development of **tools**, approaches, and infrastructure for testing cause and effect hypotheses between gene function and phenotypes in **organisms for which such methods are presently unavailable**
- (2) hypothesis-driven **research** that tests cause-and-effect relations between genotype(s) and phenotypes **in diverse organisms within the context (environmental, developmental, social, and/or genomic) in which they function**. Use of traditional model organisms is permitted, but proposals must **demonstrate the generalizability of the results** beyond the focal species across contexts.



# Program Overview

## Functional Genomics Tools (FGT) track

For example:

- Development of mutant libraries and/or high-quality reference genomes
- Generalizable high-throughput phenotyping methods
- Innovative approaches for manipulating individual genes or multiple genes simultaneously
- Innovative approaches to test gene function in targeted, single cells in organisms
- Innovative approaches for establishing function of single or networks of genes

## Complex Multigenic Traits (CMT) track

For example:

- Systems-level analysis of the gene regulatory networks underlying complex traits
- Innovative analytical approaches to linking genes and complex traits
- Elucidation of the causal connections across levels of biological organization that underlie complex multigenic traits
- Elucidation of multi-genome/epigenome interactions with the environment, with the goal of predicting complex organismal phenotypes across contexts



**Use of Diverse Organisms to Advance Functional Genomics**

# Program Overview

## Both tracks:

Higher priority will be given to projects that:

- **cross disciplines** within biology, combining organismal biology with cellular, evolutionary, or ecological research
- demonstrate approaches that are **generalizable** beyond single-gene, single-trait, or single-diseases relevant phenotypes

Program **considers applications** that:

- can demonstrate utility or relevance to human or disease-relevant model organisms
- will advance the science of genomic medicine
- will incorporate genomics to improve the effectiveness of healthcare

**Use of Diverse Organisms to Advance Functional Genomics**



# Program Overview

## Functional genomics EDGE does not support:

- Genome-scale research or tool development for agriculturally relevant plant species
- Proposals focused exclusively on bioinformatic tool development

**Questions about your project's fit for the EDGE Program  
and for which track?**

Send a **brief synopsis** (~ 1 page) to **[BIOEDGE@nsf.gov](mailto:BIOEDGE@nsf.gov)**



# Program Overview

**NSF program in partnership with the National Human Genome Research Institute of the**  **National Institutes of Health**

To:

- Promote scientific exchange across communities traditionally supported by the respective agencies and allow for synergies that will accelerate advancement in functional genomics
- Leverage evolutionary relationships in advancing understanding of the functional mechanisms that connect genotype-to-phenotypes and the ability to predict phenotype
- Strengthen the links between fundamental research and societal needs



# Program Overview

National Human Genome Research Institute



National Institutes of Health

Supports development of resources, approaches, and technologies that will accelerate genomic research

- Structure of genomes, biology of genomes, genomics and biology of disease
- Use of genomics to advance the science of medicine and improve the effectiveness of healthcare
- Genomic research in the ethical, legal and societal implications of genomics and genetics research, bioinformatics, technology development, and research training and career development
- Generalizable methods and knowledge about genomics in relation to human health

NHGRI will consider EDGE applications that can demonstrate ***utility or relevance to human health or disease***, provided they also focus on the ***development of methods or novel applications*** that demonstrate ***approaches that are generalizable*** beyond single-gene, single-trait, or single-disease relevant phenotypes



# Submission Requirements for EDGE

(Section V of the solicitation)

## Proposal submission deadline

**February 16, 2023; 5 PM submitter's local time**

## Title

Functional Genomic Tools track: "FGT:...."

Complex Multigenic Traits track: "CMT:...."

## Titled sub-sections of the Project Description

FGT and CMT proposals:

- Intellectual Merit
- Broader Impacts

additional sub-section for FGT proposals:

- Research Community Impact



# Submission Requirements for EDGE

(Section V of the solicitation)

## Supplementary Documents

FGT or CMT proposals that *involve multiple organizations*:

- Project Management Plan

Additional Supplementary Document *for FGT proposals*:

- Dissemination and Education Plan

Where relevant:

- Human Subjects Protection
- Vertebrate Animal Section

## Data Management Plan

required per the Proposal and Awards Policies and Procedures Guide NSF 23-1



# Submission Requirements

(Section V of the solicitation)

## Letters of Collaboration

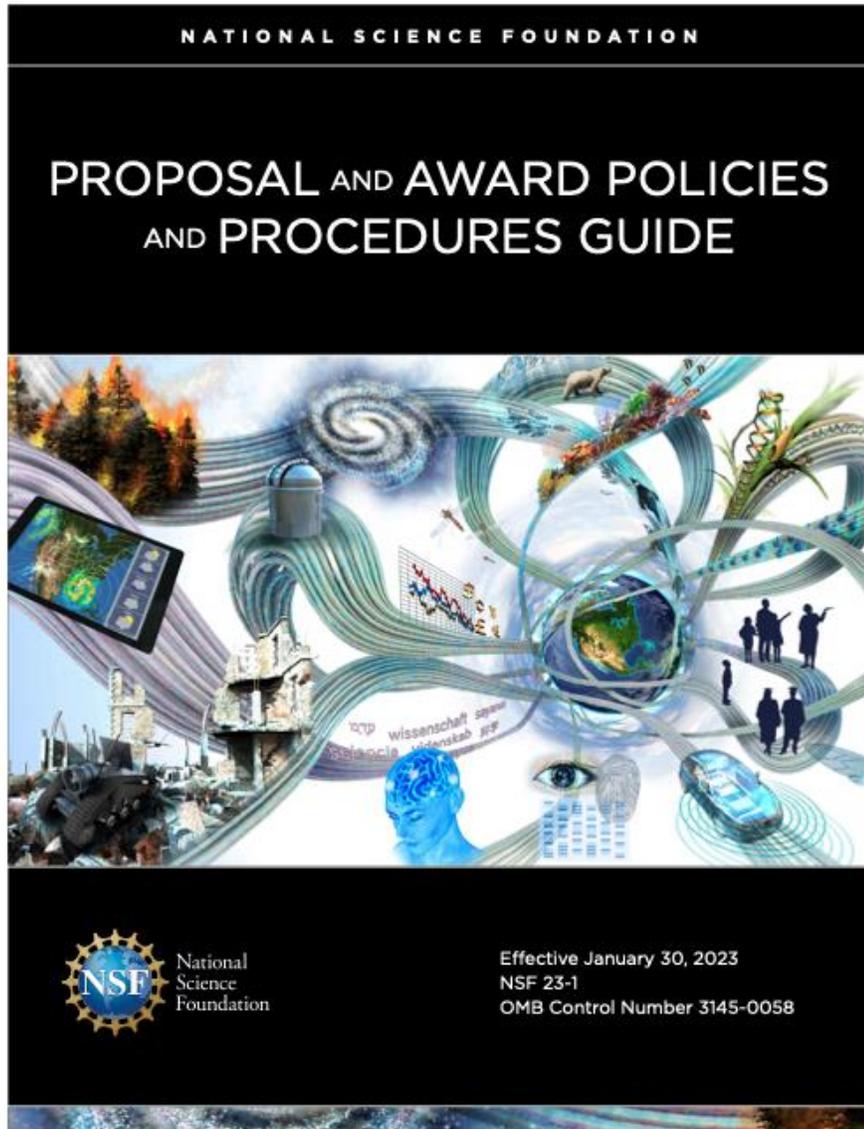
- prescribed format per the Proposal and Awards Policies and Procedures Guide NSF 23-1
- **Letters of support are not allowed**

## Budget and Duration

- up to \$2 million in combined direct costs (summed over all components of the project if the proposal is a collaborative submission)
- up to 4 years



# New PAPPG 23-1 in effect for 2023 EDGE



## Summary of Changes to the PAPPG (NSF 23-1)

*Effective date January 30, 2023*

<https://beta.nsf.gov/policies/pappg/23-1/summary-changes>

**For proposals using off-campus or off-site research there is a new requirement that must be in place.**

**Chapter II.E.9, Safe and Inclusive Working Environments for Off-Campus or Off-Site Research,** describes the new requirement for the AOR to certify that an organization has a plan in place for safe and inclusive research for any proposal that proposes to conduct off-campus or off-site research. This section also provides considerations for plan development, communication, and dissemination.

# Review Criteria

(Section VI of the solicitation)

**Intellectual Merit** – Potential to advance knowledge

**Broader Impacts** – Potential to benefit society and contribute to the achievement of specific societal outcomes

Elements considered in the review for both criteria:

- What is the potential for the proposed activity to
  - Advance knowledge and understanding within its own field or across different fields (**Intellectual Merit**); and
  - Benefit society or advance desired societal outcomes (**Broader Impacts**)?
- To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
- 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?
- How well qualified is the individual, team, or organization to conduct the proposed activities?
- Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?



# Review Criteria

(Section VI of the solicitation)

## Solicitation-specific review criteria

For **FGT** proposals:

- Potential catalytic impact on advancing research and research communities using organisms named in the proposal
- Potential catalytic impact of the enabling tools, approaches, and infrastructure on advancing research and research communities
- Quality and potential for rapid and high impact of the Dissemination and Education Plan

Features of successful **FGT** proposals:

- Clearly describe the community need for the new tools or application of tools in new systems
- Present a detailed plan to implement novel or very challenging techniques in new system
- Include a strong plan for training and dissemination to enable community use of new tools
- Focus on the tool development and do not confuse the presentation with other study objectives

For FGT proposals that involve multiple organizations:

- Quality of the **Project Management Plan** and likelihood of successful project coordination



# Review Criteria

(Section VI of the solicitation)

## Solicitation-specific review criteria

For **CMT** proposals:

- Extent to which the proposed hypotheses test or demonstrate causal links between genomes and phenomes
- Potential to advance theory and understanding of complex multigenic trait expression
- Potential to inform predictive understanding of complex phenotypes based on genomic information
- Degree to which generalizability of the conclusions across diverse research organisms will be demonstrated

Features of successful **CMT** proposals:

- Include a specific, explicitly stated & testable hypothesis
- Clearly describe the rationale for selection of study organisms in a phylogenetic context
- Emphasis those aspects of the study with generalizable relevance to other biological systems
- Are focused on hypothesis-driven research and not burdened by less-developed tools aspects

For **CMT** proposals that involve multiple organizations:

- Quality of the **Project Management Plan** and likelihood of successful project coordination



# NIH Review Criteria and EDGE

(Section VI of the solicitation)

## Solicitation-specific review criteria

### NIH Review Criteria:

- Overall impact
- Significance
- Investigator(s)
- Innovation
- Approach
- Environment

If applicable:

- Protection of human subjects
- Vertebrate animals
- Biohazards
- Budget and period of support



# Process at-a-glance

1. Proposal submission in accordance with submission requirements specified in Solicitation NSF 21-546 – proposals are submitted via Research.gov or grants.gov
2. Proposal review managed by NSF in consultation with NHGRI
3. Identification of meritorious proposals that may be recommended for funding by either NSF or NIH
  - a. Proposals selected for funding by NSF will be handled in accordance with standard NSF procedures
  - b. Proposals selected for funding consideration by NIH will be invited to submit reformatted applications to NIH's Center for Scientific Review

**Proposal submission deadline**

**February 16, 2023, 5 PM submitter's local time**



# EDGE Virtual Office Hours

## Questions?

To submit questions, use the **Q&A function** at the bottom of your Zoom screen

EDGE Program page:

[https://nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=505480](https://nsf.gov/funding/pgm_summ.jsp?pims_id=505480)

EDGE contact: [BIOEDGE@NSF.GOV](mailto:BIOEDGE@NSF.GOV)



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# Division of Integrative Organismal Systems (IOS)

## Contacts for IOS Clusters/Programs:

- Jodie Jawor – Behavioral Systems Cluster ([jjawor@nsf.gov](mailto:jjawor@nsf.gov))
- Anna Allen – Developmental Systems Cluster ([akallen@nsf.gov](mailto:akallen@nsf.gov))
- E. Floh Thiels – Neural Systems Cluster ([ethiels@nsf.gov](mailto:ethiels@nsf.gov))
- Diane Jofuku Okamuro – Plant Genome Research Program ([dokamuro@nsf.gov](mailto:dokamuro@nsf.gov))
- Ted Morgan – Physiological and Structural Systems Cluster ([tmorgan@nsf.gov](mailto:tmorgan@nsf.gov))



# Blogs and Virtual Office Hours Across BIO

## IOS in Focus

<https://iosblog.nsfbio.com/>

## DEBrief

<https://debblog.nsfbio.com/>

## DBInfo

<https://dbiblog.nsfbio.com/>

## MCB Blog

<https://mcbblog.nsfbio.com>



