

Division of Integrative Organismal Systems (IOS) Virtual Office Hour

Welcome! We will begin the Virtual Office Hour soon. Please submit questions in the Zoom Q&A box.

Division of Integrative Organismal Systems (IOS) Welcome!



Program Directors in attendance today:Anna Allenakallen@nsf.govMelissa Colemanmelcolem@nsf.govSuzy Rennsrenn@nsf.gov

Administrative Support & Technical Assistance: Janice Hermann – Program Specialist



IOS Virtual Office Hour Today's Topics

- Updates and Reminders
- Recent Solicitations and Dear Colleague Letters (DCLs)
- NSF101: Navigating NSF for New and Established Investigators
- Q&A



NSF's Broadening Participation Portfolio

Relevant opportunities

Dear Colleague Letter: STEM access for Persons with Disabilities (STEM-APWD)

- <u>NSF 23-160</u>
- Seeks to increase the participation of persons with disabilities in STEM fields

Two new programs! Established Program to Stimulate Competitive Research (EPSCoR)

- EPSCoR Collaborations for Optimizing Research Ecosystems (E-CORE) Research Infrastructure Improvement (RII) Program (<u>NSF 23-587</u>)
- EPSCoR Research Incubators for STEM Excellence (E-RISE) RII Program (<u>NSF 23-588</u>)



Administrative Updates & Reminders

- New PAPPG anticipated in January 2024
- Collaborators and Other Affiliations (COA) is needed for **all** PI's and senior personnel.
- Use the PAPPG approved text for Letters of Collaboration.
- Include the proposal **you are submitting** as 'Pending' in the Current and Pending documentation.
- Safe & Inclusive Working Environments for Off-campus or offsite research

If off-campus/off-site research is proposed, the box indicating that **must** be checked on Cover Page

A 2-page SAI Plan is **required** to be uploaded as a Supplemental Document if you are applying to a BIO CORE solicitation or another program participating in the BIO/GEO SAI Plan Pilot. See the <u>BIO</u><u>Homepage</u> for more information and participating programs.



NSF News!



- December 14, 2023
- <u>https://new.nsf.gov/news/notice-to-the-research-community-on-ai</u>
- Covers:
 - Use of generative AI by reviewers in merit review
 - Use of generative AI in proposal preparation
 - Implementation and guidance on appropriate use





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News

Recent Solicitations and DCLs

Core IOS solicitation (23-547), PBI (20-576), and PGRP (23-559) – No deadlines and no submission limits

DCL: Bioinspired Design Collaborations to Accelerate the Discovery-Translation Process (BioDesign) (23-055)

IOS Synthesis Center for Understanding Organismal Resilience (23-564) – preliminary proposal Jan. 12, 2024

Mid-Career Advancement (MCA) (22-603) – Feb. 1-March 1, 2024

Enabling Discovery through GEnomics (EDGE) (21-546) – Feb. 15, 2024

Emerging Mathematics in Biology (eMB) (24-513) – March 11, 2024



January 2024 Virtual Office Hour: Catalyzing Across Sectors to Advance the Bioeconomy (CASA-Bio)

- Working to create a unified strategy to advance the U.S. bioeconomy across government, private sector, and research communities
 - Funder stakeholders identify synergistic priorities
 - Research community provides their ideas on R&D areas for the bioeconomy
- Launched in response to the Executive Order on Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure American Bioeconomy
- How to get involved:
 - Now, visit **www.casa-bio.net** for information
 - In 2024, watch for Town Halls and Workshops for Research Community input



IOS Virtual Office Hour Reminders

- Submit questions in the Zoom Q&A box
- Project-specific questions are best addressed individually by contacting a Program Director
- Next IOS Virtual Office Hour: Jan 18, 2024

Topic: Catalyzing Across Sectors to Advance the Bioeconomy (CASA-BIO)







NSF101: Navigating NSF for New and Established Investigators



U.S. NSF Structure

Office of the Director (OD) Director

Deputy Director

Chief Operating Officer

Chief of Research Facilities

Chief Information Officer

Chief of Research Security, Strategy and Policy

Chief Diversity and Inclusion Officer

Chief of Staff

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)
NSF				

How the BIO Divisions Support Research Across Scales



Supporting Researchers Throughout Their Career

						Professional
K - 12	Undergrad	Postbacc	Grad	Postdoc	New Faculty	Mid-Career Faculty
Research Experiences for K-12 Teachers (BIORETS)	Research Experiences for Undergrads (REU) Research Coordination Networks for Undergraduate Biology Education (RCN-UBE)	Research and Mentoring Networks for Postbaccs (RaMP)	Graduate Research Fellowships (GRFP)	Postdoc Fellowships (PRFB)	Faculty Early Career Development (CAREER) Capacity Building (BRC-BIO)	Mid- Career Advancement (MCA)



How do you find out about NSF funding opportunities?

What types of outreach by NSF have you engaged with or participated in the past 3 years?

- NSF-wide Virtual Grants Conference
- Other NSF hosted conference or workshop
- BIO Quarterly Newsletter
- Other NSF emails (including those from other Directorates/Offices)
- NSF social media (X, Facebook, LinkedIn, YouTube, Pinterest)
- BIO and/or IOS Blogs
- IOS Virtual Office Hours
- Town Halls at Scientific Conferences
- In person or virtual visits to my campus/department by Program Directors
- Individual Appointments at Conferences
- Individual Scheduled Meetings Online
- Email correspondence with Program Directors
- Email feedback on 1-pagers (concept outlines)
- None except today's Virtual Office Hour
- Other



Proposal Submission Process: PI Perspective



Essential Documents



PROPOSAL AND AWARD POLICIES AND PROCEDURES GUIDE





Effective January 30, 2023 NSF 23-1 OMB Control Number 3145-0058

Division of Integrative Organismal Systems Core Programs

PROGRAM SOLICITATION NSF 23-547

REPLACES DOCUMENT(S):

NSF 21-506 National Science Foundatio

NSF Directorate for Biological Sciences Division of Integrative Organismal Syste Sant

Full Proposa Proposals Accepted Anytin

IMPORTANT INFORMATION AND REVISION NOTES

REVISION NOTES

IOS continues to accept unlimited no deadline full pro that may be submitted by an individual investigator. als may be submitted any day, any time with no limit on the number of pro This solicitation contains two submission tracks: The Core Programs Track and the IntBIO Track.

ntBIO Track: An Integrative Research in Biology (IntBIO) Track has been added

Proposers should note that proposals to the IntBIO Track require additional infor regram description and in the additional solicitation-specific review criteria.

Safe and Inclusive Working Environments: The Directorate for Biological Sciences requires that proposers who include off-campus or off-site research part of the regards labering. In a superventing documentation, a Plan for Safe and Inclusive Working Environments. Proposals submit and and part of the Conformerents Plan, The Interactional Plan for Safe and Plan for Safe and Plan for Safe and Plan for Safe Plan for Plan for Safe and Plan for Safe and Plan for Safe and Plan for Safe and Plan for Safe Plan for Plan for Safe and Plan for Safe and Plan for Safe and Plan for Safe and Inclusive Working Environments can be found in the additional propead planed planted by the solicitation.

Any proposal submitted in response to this solicitation should be submitted in accordance with the NSF Proposal & Award Po-

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Division of Integrative Organismal Systems Core Programs (IOS)

opsis of Program:

s submission of collaborative proposals to tackle bold questions in biology that require an integra ses. Integrative biological research spans sub-disciplines and incorporates cutting-dege methods provide the second understanding and from biological numbers from the second secon

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(next update Jan 2024)

PAPPG + Solicitation

Essential Document - Proposal & Award Policies & Procedures Guide (PAPPG)



NATIONAL SCIENCE FOUNDAT







The "Basics"

- Provides guidance for proposal preparation and submission to NSF
 - Who can submit proposals?
 - What is allowed in the budget?
 - Format + required documents
- Describes the merit review process by which proposals will be reviewed

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• Share this with your Grants Office

Essential Documents - Solicitations

Division of Integrative Organismal Systems Core Programs PROGRAM SOLICITATION

NSF 23-547

REPLACES DOCUMENT(S): NSF 21-506



Full Proposal Deadline(s):7 Proposals Accepted Anytime

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This solicitation contains two submission tracks: The Core Programs Track and the IntBIO Track.

IntBIO Track: An Integrative Research in Biology (IntBIO) Track has been added.

Proposers should note that proposals to the IntBIO Track require additional information that reviewers will be asked to evaluate. These are described in the program description and in the additional solicitation-specific review criteria.

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SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Division of Integrative Organismal Systems Core Programs (IOS

Synopsis of Program:

The Division of Integrative Organismal Systems (IOS) Core Programs Track supports research to understand why organisms are structured the way they are and function as they do. Proposals are welcomed in all of the core scientific program areas supported by the Division of integrative Organismal Systems (IOS). Areas of Inaput priciade, but are not initiated to, developmental biology and the evaluation of morphology, physiological processes, symbioses and microbial interactions, interactions of organisms with biolic and abolic environments, plant and animal environments, and animal behavior. Proposals should focus on organisms as the hiological organization. Principal Investigators are encouraged to apply systems approaches that will lead to conceptual and heoretical insights and predictions about energient organismal properties.

The httpD Track invites submission of collatorative proposals to tackle hold questions in biology that require an integrated approach to make substantive progress. Integrative biological research agent sub-disciplines and incorporate colling-edge methods, tools, and concepts from each to produce groundbracking biological discovery that is supengistic, such that the sum is greater than the parts. The research should produce a novel, holdisci understanding of how biological systems function and internat caroos different tactes of expansion. Q.g., from the substantive supervised of the supervised systems function and internat caroos different tactes of expansions. Q.g., from the supervised of the supervised system function and internat caroos different tactes of expansions. • Deadline / Target Date

• Synopsis

- Program Directors (who to ask questions)
- Eligibility (Do you and your institution qualify for this program?)
- Budget limitations
- Do you need a Pre-Proposal or Letter of Intent?
- Are there any solicitation specific criteria?
- How much money is available, how many awards are expected?

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Division of Integrative Organismal Systems Core Programs (NSF 23-547)

NSF 23-547

Core Programs Track



- Behavioral Systems Cluster
- Developmental Systems Cluster
- Neural Systems Cluster
- Physiological and Structural Systems Cluster
- Plant Genome Research Program





To support *collaborative* scientists for innovative, *integrative* research on fundamental questions that cross different scales of biological organization, using perspectives and approaches from more than one biological *subdiscipline*

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BIO and Biomedical Research: What Isn't Funded

- **Biological research on mechanisms of disease** in humans, including on the etiology, diagnosis, or treatment of disease or disorder, is **normally not supported**.
- Biological research to develop animal models of such conditions, or the development or testing of procedures for their treatment, also are not normally eligible for support.
- However, research with etiology, diagnosis or treatment-related goals that advances knowledge in engineering, mathematical, physical, computer, or information sciences is eligible for support. Bioengineering and assistive information technology research to aid persons with disabilities also is eligible

Source: NSF PAPPG 23-1

Questions?



Merit Review Process

No Deadline/Deadline/Target Date
 Ad hoc review and/or
 Ad hoc review and/or
 Panel
 Program Director makes recommendation

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Note that this varies across NSF

Merit Review Criteria

Intellectual Merit (IM):

All NSF projects should be the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.

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



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Who is your audience?

- Ad Hoc reviewers
 - Experts in your specific area
 - Aim to recommend 4-5 reviewers
- Panelists
 - Generalists in the programmatic area you are submitting to
 - e.g. developmental biologists (both plant and animal)



A Proposal is Different Than a Paper

A Paper is:

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

A Proposal is:

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



CONTACT A PROGRAM OFFICER WHEN YOU...

- have a question about research fit
- want to serve as a reviewer
- get a new position and have new contact info
- have questions regarding your reviews
- or any other question!

(We are not scary! Promise!)

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Merit Review Criteria (aka- your rubric!)

• 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



5 Review Elements

- 1. Will the work advance knowledge, and benefit society?
- 2. Is the work creative or potentially transformative?
- 3. Is the work plan sensible, and how will they know if they're successful?
- 4. Is the team qualified?
- 5. Do they have adequate staff support and facility resources?



Structure Your Proposal to Address These 5 Review Elements

1. Build a compelling introduction and project description



Address the Intellectual Merit. Catch the reader's attention immediately by stating up front what you want to do, and why it's exciting and important.

RE2: is the work creative/ transformative? Present your specific **hypotheses** to be tested. Explain your compelling observations and the work it will take to develop and test your hypotheses.

Explain why previous studies have been insufficient to address this research question and how your research questions and methods are different.



Explain why your methods were chosen for the study (e.g., field site, experiment and/or model).

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Structure Your Proposal to Address These 5 Review Elements

2. Lay out a clear work plan, timeline, and role for each participant

RE3: is the work plan clear?

- Formulate a timeline with tasks
- Explain how each analysis or model connects to your hypotheses



- Clarify the specific role of each investigator + student + postdoc
- Show that the work is feasible within your timeline

RE5: do they have the right lab and collabs?

Include letters of collaboration and money in the budget if neededUse the Facilities, Equipment, & Other Resources section wisely

Strengths of Highly Competitive Proposals

- Novel idea/research question
- Well balanced feasibility and boldness
- Research plan addresses the question(s)
- Well justified
- Well written (clear and logical; limit jargon)
- The PI is qualified (Biosketch, Facilities & Other Resources, Project Description)
- Meaningful collaborations are in place (if needed) Letters of collaboration
- Facilities are available (at the institution or through collaboration)



Most common mistakes - scientific

- Failure to comply to PAPPG
- Work is too close to what has been done before i.e., incremental
- Project has either too large a scope or is too narrowly focused to be exciting
 - e.g., Proposed research is more than the listed personnel could accomplish in the given time frame.
- Proposed methods/resolution/research plan are not likely to yield results that will address the stated goals of the project
- The experiment/theoretical/analytical design is flawed
- Resources not available or PI has not demonstrated sufficient expertise



Proposal Submission Process: PI Perspective



Q&A Time



Recent Solicitations and DCLs

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- Working to create a unified strategy to advance the U.S. bioeconomy across government, private sector, and research communities
 - Funder stakeholders identify synergistic priorities
 - Research community provides their ideas on R&D areas for the bioeconomy
- Launched in response to the Executive Order on Advancing Biotechnology and Biomanufacturing Innovation for a Sustainable, Safe, and Secure American Bioeconomy
- How to get involved:
 - Now, visit **www.casa-bio.net** for information
 - In 2024, watch for Town Halls and Workshops for Research Community input



IOS Cluster and Program Contacts

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Next IOS VOH: January 18, 2024

Topic: Catalyzing Across Sectors to Advance the Bioeconomy (CASA-BIO)

