



# GEM3

Genes by Environment  
Modeling · Mechanisms · Mapping

**Announcement:  
Internal Idaho NSF EPSCoR Seed Funding Opportunity #3**

**[Apply Here!](#)**

**NSF EPSCoR Research Infrastructure Improvement (RII) Track-1:  
Linking Genome to Phenome to Predict Adaptive Responses of Organisms to Changing Landscapes  
Award OIA-1757324**

**“Genes by Environment: Modeling, Mechanisms, and Mapping (GEM3)”**

**December 1, 2020**



## GEM3 Seed Funding Program

### GEM3

This Seed Funding program is part of Idaho's multi-year (2018-2023) statewide NSF Established Program to Stimulate Competitive Research (EPSCoR) Track-1 Research Infrastructure Improvement (RII) award, "Genes by Environment: Modeling, Mechanisms, and Mapping (GEM3)." The project is highly aligned with Idaho's *Higher Education Research Strategic Plan*.

GEM3 includes a statewide collaborative academic research program committed to Idaho EPSCoR's "ONEIdaho" philosophy. Faculty and students at Idaho's universities and colleges work collaboratively across institutions on basic research; integration of science disciplines; integration of research, education, and workforce development; and fostering integration of science and stakeholders.

#### **GEM3 Vision**

*Idaho leads the nation with thriving, collaborative, and inclusive research to discover and predict how plants, animals, and people interact and adapt to changing environments, resulting in the sustainable management of natural resources.*

#### **GEM3 Mission**

*To discover fundamental knowledge of genetic mechanisms and train a diverse workforce to inform evidence-based management of natural resources.*

### **Purpose of Seed Funding**

GEM3 Seed Funding allows project leadership and the Idaho research community to respond quickly and effectively to new opportunities as well as pursue high impact, potentially transformative research. Its principal objective is to catalyze *new research* on focal species, species interactions, ecosystems, genomics/phenomics, and other *emerging areas* related to the scope of the GEM3 award. It is aimed at groups or individuals that emphasize the collaborative development and testing of important ideas and theories, cutting-edge analysis of recent or existing data and information, and/or investigation of social ecological systems issues.

Seed Funding is not intended to support or supplement ongoing activities of the GEM3 award, nor is it intended to substitute for NSF individual investigator funding.

Results of Seed Funding should enable the submission of proposals to NSF and other funding agencies, and/or result in conference presentations and publication of papers in peer reviewed journals, and/or other data products or innovations. It is also an important mechanism to broaden participation of institutions, faculty, and students from underrepresented groups.

### **Types of Seed Funding**

Three types of Seed Funding awards are available, as described below:

- **Small Research Seed Funding** (up to \$50,000 direct cost for one year): The primary purpose of these awards will be to support the ideas of early career faculty who are initiating new research on topics related to GEM3; established faculty pursuing new research directions are also eligible. The award will

provide support for exploratory and/or high-risk, high-return research for which preliminary data are needed to write competitive grant proposals.

- **Large Research Seed Funding** (up to \$150,000 direct cost total for no more than two years): These awards will support collaborative research in topics related to GEM3. Proposing teams must include faculty from at least two Idaho academic institutions and at least two disciplines (e.g., biology, geosciences, social science). Projects also must integrate research across at least two GEM3 components (Modeling, Mechanisms, Mapping). Collaboration with tribal, state or federal agency, or industry collaborators is encouraged.
- **Workforce Development Seed Funding** (up to \$30,000 direct cost for one year): These awards will provide support to strengthen education, workforce development, internship and/or training opportunities related to GEM3, including with agency, underrepresented community, or tribal collaborators. Proposed activities must be coordinated with ongoing GEM3 programming.

### **Eligibility**

Any faculty member (research, tenure-track, or tenured) at an Idaho university or college may submit a proposal. Research proposals/projects must be led by faculty members; however, faculty status is not required to request Workforce Development Seed Funding. Prior or current involvement in the NSF EPSCoR RII Track-1 GEM3 project is NOT a prerequisite for participation in this Seed Funding program. Faculty members not yet involved in GEM3 are strongly encouraged to contact GEM3 leads at the respective institutions to explore synergies. Postdocs are encouraged to serve as co-principal investigators to gain project co-leadership experience. Early-career faculty involved in GEM3 are strongly encouraged to apply or to serve as collaborators on research seed funding proposals.

Project must be related to the scope of the GEM3 award, as articulated in the NSF proposal and the GEM3 Strategic Plan. Proposers are encouraged to read more information found at: <https://www.idahogem3.org>.

Individuals may be involved in any number of Seed Funding proposals; however, they may serve as the lead investigator on only one proposal per application deadline. In addition, investigators may not serve as lead on more than one concurrent, active GEM3 seed funding award. Lead investigators on an active GEM3 seed funding award may submit proposals in response to this announcement if the start-date of the proposed project does not overlap with the current award. Investigators with active GEM3 seed funding awards who have not met the expectations of a seed funding awardee (see below) are not eligible to apply.

### **What Seed Funds Will Support**

Seed Funds are intended to catalyze projects in emerging areas that are clearly related to (but do not duplicate) the research and education scope of the current EPSCoR RII Track-1 GEM3 award. Proposers should clearly identify the areas to be investigated and their relevance to and synergy with the GEM3 project as a whole.

Future announcements may formally identify emerging areas in updated calls for Seed Funding proposals. This will be done with input resulting from review of the NSF-approved RII Strategic Plan, the Project Advisory Board (PAB), the External Evaluator, and the NSF Reverse Site Visit and Site Visit. For this December 2020 announcement seed funding proposals are encouraged for research supporting emerging integration of science consistent with the scope of the GEM3 vision and supported activities. This might include but is not limited to: cross taxa integration; integration across scales; disciplinary integration (i.e., interdisciplinary or transdisciplinary research), and; integrative or convergent methodologies. Please refer to the [GEM3 2020](#)

[Reverse Site Visit Response report](#) and the [GEM3 integration and convergence frameworks](#) for information on current integration efforts in GEM3.

All proposals must clearly identify: 1) how proposed work relates to GEM3 goals; 2) how the proposed work falls outside of funded GEM3 activities; 3) how the proposal will support faculty, post-doc, student or other human resource development; and 4) how the work will be leveraged in future proposals (i.e., how is it a “seed”).

Funding may support any category of expense normally supported by NSF. This includes up to one month of summer salary for involved faculty, as well as support for postdocs, technicians, graduate research, and/or undergraduate students. It may also provide for graduate student exchanges within the state. All expenditures must comply with expectations for federal NSF awards and Idaho EPSCoR policies.

### **Proposal Timeline and Submission**

Seed Funding competitions will be announced at least annually and advertised statewide. The program is administered by the Idaho EPSCoR Office. Proposals may not be submitted at other times outside of advertised due dates. Awarded projects are expected to start no later than Fall Semester 2021.

The range in number of awards anticipated in response to this December 2020 announcement are:

- Small Research Awards: 3 to 6
- Large Research Awards: 1 to 2
- Workforce Development Awards: 2

PIs at any institutions *other than the U of I* should route proposals through their Office of Sponsored Programs prior to submission to the Idaho EPSCoR Piestar RFX system.

Proposals should be submitted [HERE](#) as a single complete PDF document with graphics embedded in the document. The deadline to submit your proposal is **12:00 p.m. Pacific Time, February 19, 2021**.



**IMPORTANT!** Only proposal submissions submitted via Idaho EPSCoR Piestar RFX system will be considered for funding.

Proposers will be notified of award decisions and provided written feedback approximately one month after submission.

### **Expectations of Awardees**

**Management.** The proposing Principal Investigator (PI) will be responsible for managing the activities of the award including logistics, gathering participant information, overseeing finances, providing information for evaluation and assessment, and submitting the final report. Awarded funds must be expended during the specific performance period of the Seed Funding project.

**Reporting.** PIs of Seed Funding awards must provide a brief report of the Seed Funding efforts and outcomes for quarterly internal GEM3 meetings, research product updates (November), and for each annual report to NSF (prepared in May). The PI and all participating scientists will need to report evidence of productivity such as: external proposal submissions related to the Seed Funding award and the result or success of such proposals; relevant presentations, publications, and data products.

**Evaluation.** Individuals and teams funded by these awards are expected to demonstrate productivity and success in winning competitive external research funding. An External Evaluator will periodically track and report on progress toward the research competitiveness objectives. Participants are expected to respond to evaluation questionnaires and inquiries during and after the performance period of Seed Funding awards.

**Faculty Development.** All awardees are encouraged to be engaged in proposal development training and/or to utilize proposal development services offered through the WFD component of GEM3 or their respective institutions. This is a requirement for Small Research awardees.

**Funding Source Acknowledgement.** Acknowledgement of the funding source is required and should be formatted such as: "This product was made possible by the NSF Idaho EPSCoR Program and by the National Science Foundation under award number OIA-1757324."

### Proposal Preparation

Seed Funding proposals must include the information requested below. A maximum of 6 pages of project narrative are allowed (including the title page and summary) to describe the project, using a font size and style that is compliant with NSF proposal guidelines.

Component	Max pg.	Content
<b>I. Title Page</b>	1 p.	<ul style="list-style-type: none"> <li>Project Title</li> <li><i>Please indicate one: Small Research, Large Research, Workforce Development</i></li> <li>Principal Investigator, including title/rank, affiliation, and contact information</li> <li>Co-Investigator(s), including title/rank and affiliation</li> <li>Project date range (start and end months)</li> </ul>
<b>II. Project Summary</b>	1 p.	<ul style="list-style-type: none"> <li>Summary, including statements to address Intellectual Merit and Broader Impacts as defined by NSF</li> </ul>
<b>III. Project Description</b> (to include but not limited to)	4 p.	<ul style="list-style-type: none"> <li>Problem statement</li> <li>Project rationale (i.e., why this, why now, how this will advance GEM3-related research/education)</li> <li>Scientific questions/hypotheses addressed (for research proposals)</li> <li>Proposed approach and activities</li> <li>Role of participating investigators, collaborators, and institutions</li> <li>A time-table of key activities, outputs/deliverables, and outcomes</li> <li>Statement of anticipated impacts</li> </ul>
<b>IV. Bio</b>	2 p. ea.	<ul style="list-style-type: none"> <li>NSF-compliant 2-Page Biographical Sketch for each investigator</li> </ul>
<b>V. References Cited</b>	2 p.	<ul style="list-style-type: none"> <li>References may be provided in any commonly accepted citation style</li> </ul>
<b>VI. Budget*</b>	1 p.	<ul style="list-style-type: none"> <li>NSF-compliant Budget Justification narrative</li> </ul>

	1 p.	<ul style="list-style-type: none"> <li>Budget table or spreadsheet, using NSF budget categories (<i>optional templates available by contacting Tami at tnoble@uidaho.edu</i>)</li> </ul>
<b>VII. Letters</b>	3 p. total	<ul style="list-style-type: none"> <li>Letters of collaboration (per NSF guidelines) are allowed, yet optional</li> </ul>

**Budget Guidance:** Please use the following information when developing budgets.

<b>Fringe Rates As of 11/23/20</b>	<b>UI</b>	<b>BSU</b>	<b>ISU</b>
Faculty/Summer Salary	30.7%	20.47%	21.7974%
Professional/Faculty/Exempt*	-	20.47%	21.7974%
Staff	41.80%	-	-
Classified*	-	21.57%	21.1034%
Students/GTA/FT	2.10%	4.00%	0.4864%
Summer Students	2.10%	9.00%	8.1364%
Temp Help/Part-time	7.90%	9.00%	8.1364%
Yearly Health Insurance	-	\$11,650	\$11,650

\*Add Yearly Health Insurance

<b>In-State Tuition as of 11/23/20</b>	<b>UI</b>	<b>BSU</b>	<b>ISU</b>
Spring 2020 Full-time 9 credits+	\$4,938	\$4,819	\$4,963
Student Health Insurance	\$951	-	-
One Summer Credit	\$549	\$368	\$505

M.S. student minimum 12-month salary: \$24,000

Ph.D. student minimum 12-month salary: \$28,840

Postdoc minimum 12-month salary: \$55,000

*Multi-year requests must plan for a 3% annual increase for salaries and fringe rates, and a 5% annual increase for tuition.*

### **Proposal Review Process**

Seed Funding proposals will be selected by the GEM3 Research & Education Convergence team after merit review, input, and recommendations from other internal and external experts. This team will strategically represent the statewide RII Track-1 award as Seed Funding is allocated to respond to new opportunities and potentially transformative research as envisioned by NSF EPSCoR.

Review may include content experts at any of Idaho's research universities who are not significantly involved in the GEM3 project. External experts will include but are not limited to GEM3 Project Advisory Board (PAB) members. Large Research Seed Funding requests will also be reviewed by at least one content expert who is external to the State and the PAB.

A written summary of the feedback from proposal peer-review and a brief explanation relative to the criteria for the award decision will be provided to each proposal lead.

### **Proposal Review Criteria**

To the extent practicable with an abbreviated proposal format, GEM3 Seed Funding requests will be judged in accordance with general NSF expectations stated in the RII Track-1 Program Announcement and rephrased below.

### **Intellectual Merit and Broader Impacts**

Reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful.

Specifically, the following elements will be considered in the review:

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

### **Additional Seed Funding Review Criteria**

Reviewers for the Seed Funding competition will also consider the following specific aspects of Intellectual Merit and Broader Impacts important for NSF EPSCoR awards, as applicable:

*Alignment* – is the request aligned and responsive to the nature of the Seed Funding program described in this announcement? To what degree do the proposed activities advance the elements of the respective type of GEM3 Seed Funding opportunity?

*Research Capacity* (for Research Seed Funding) – What is the potential of the project to increase the capacity of the participating organizations and capability of project participants to propose and implement research activities in the future? How well is the project aligned with GEM3 research and education topics and goals?

*Jurisdictional Impacts* (for all Seed Funding) – How do the proposed activities promote organizational connections and linkages within the jurisdiction, as well as between private and public sectors? How well does the project leverage existing resources from GEM3 or otherwise? Is the project outcome-oriented, with clear deliverables, outcomes, and anticipated impacts?

*Integration of Project Elements* (for all Seed Funding) – How well are the project elements (especially education, workforce development, and diversity) aligned and integrated with the research activities? What are the added value and benefits that can be achieved uniquely through integrating the project elements with research via an RII project? What is the potential of the project to reach its education and workforce development goals and objectives as a result of the proposed activities?

*Workforce Development* (for all Seed Funding, especially Workforce Development Seed Funding) - What is the potential to enhance research and education capacity through the recruitment, mentoring, and professional development of students, junior researchers, and faculty (including early career)? What novel and effective ways are proposed to broaden the participation of women and minorities underrepresented in STEM (also: persons with disabilities, the economically disadvantaged, rural populations, or first-generation college students), especially in the proposed area(s) of research? How well will the project enhance participation and research capacity at non-research intensive and minority-serving institutions?

### **NSF EPSCoR Research Infrastructure Improvement (RII) Track-1 Project Information**

NSF Award Search for GEM3: [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1757324](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1757324)

GEM3 website: <https://www.idahogem3.org>

Idaho EPSCoR: <https://www.idahoepscor.org>

NSF EPSCoR RII Track-1 Announcement:

[https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf17562&org=NSF](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf17562&org=NSF)



### **Questions?**

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