

Frontier Science Fund
College of Liberal Arts and Sciences
Call for Proposals 2023

The Frontier Science Fund advances and accelerates high-risk, high-reward scientific research projects in the College of Liberal Arts and Sciences.

Scientific research at Iowa State University addresses many different problems with very different time horizons. Some work addresses issues of immediate relevance to communities, businesses or industry, likely to lead to tangible results over a few months or a couple of years, and this work is important. Yet in a scientifically and technologically advanced society like the United States, research projects with longer time horizons and whose potential economic significance may not be realized for a decade or more, are just as important. They are the investments that a country makes in order to stay at the cutting edge of science and ensure a technologically and economically competitive future, not just next year, but in the next decade and maybe even the next century. The Frontier Science Fund is intended to support and advance high-quality scientific research of this nature which might have fundamental consequences.

- **Eligibility:** The proposal must be led by a LAS tenure-eligible faculty member (the Principal Investigator, or PI) in a science department¹, and there is no limit on the number of ISU Co-PI's. Faculty may not be included on more than one Frontier Science proposal per funding cycle. Support for non-LAS collaborators will be limited to travel.
- **Award amount:** The College expects to fund approximately two proposals per year, for up to \$50,000 per year and up to 2 years in duration.
- **Due dates:** Full proposals will be due March 1, 2023.
- **Project focus:** The program will place priority on projects with the potential for significant impacts on the LAS research mission. Awarded funds can be used for research and/or team building activities, but these activities must include, at a minimum, a visit by the PI to each of the sponsors targeted in the funding action plan (visits can be in the form of videoconference calls with program officers) and appropriate team-building workshops or meetings to assure integration of all members of the team.
- **Dissemination of findings:** Before completion of the funding period, the PI and/or project team will meet with the Associate Dean to develop a plan to communicate project advances to broader (e.g., campus-wide) audiences. This will include promotion and dissemination via college communications and public presentations. Within 3 months of completion of the funding period, the project team will submit a short report, suitable for non-experts, to assist the College in communicating the project to diverse audiences.
- **Cost-share** funding amounting to at least 10% of the total Frontier Science grant funding will be expected from departments, programs, faculty incentive accounts, or other sources, distributed on a pro-rated basis for PIs/co-PIs in different departments. This 10% cost share will be added to the total LAS Frontier Science investment (i.e., a project funded by a \$50,000 per year Frontier Science Fund grant will have a total of at least \$55,000 per year available funding).

Application process

Proposal Instructions. Frontier Science proposals should be uploaded as single pdf documents to [this CyBox folder](https://iastate.app.box.com/f/ee665c01923d4137925a09d14f30a3f3) (<https://iastate.app.box.com/f/ee665c01923d4137925a09d14f30a3f3>) by 5:00 pm March 1, 2023. Questions can be directed to Associate Dean Jo Anne Powell-Coffman japc@iastate.edu, with a copy to Megan Walker mwalker3@iastate.edu. The application should include the following:

- 1) Title page. The proposal should include a title page that lists the proposal title and the senior participating investigator(s), along with their organizational or departmental affiliation, and a brief, 300-word summary of the proposal that is understandable to the general public.
- 2) Project description (3-4 pages): The narrative should highlight the longer-term potential of the proposed research. It should describe any anticipated barriers or technical difficulties that makes it a high-risk, but high-reward project. The narrative should make clear how the requested Frontier Science funds would mitigate these challenges and enable the PI or the team to be successful in securing extramural funds and in advancing longer-term goals.
 - Budget: Projects will begin July 1, 2022, and the budget limit is \$50,000 per year. Projects can be 1 or 2 years in duration. A budget form is provided. Budgets should include the required cost share. Support for non-LAS collaborators will be limited to travel. Any supported students must be supervised by an LAS faculty member.
- 3) Budget justification: In a 1-page summary, explain and justify the budget request.
- 4) Strategy for seeking additional grant support: Describe plans to secure additional, extramural funding for this project. Include approximate dates for submissions.
- 5) Biosketches for the PI and Co-PI's (2- or 3-page NSF or NIH-style biosketch encouraged).
- 6) Current and pending funding. Include a list of current and pending external research support for each PI or Co-PI. Also, list any internal grant funding.

Review Criteria and Selection Process. The following criteria will be used when evaluating proposals:

- Does the project provide a compelling description of the significance of the research and the proposed project over the long term? Applications should describe the importance of the problem and the magnitude of the potential impact.
- Is this project high-risk, high-reward scientific research? Examples of risk include, but are not limited to, innovative methodologies, novel hypotheses, or projects that bring together new teams with great long-term potential.
- Are the goals, objectives, and expected results stated clearly? Are potential barriers identified and addressed?
- Does the PI and/or project team (as it exists or will collaborators developed through the proposed work) have the expertise and experience necessary to carry out the project?
- Have extramural funding opportunities been identified, and are they appropriate to the project needs and directions? Will the proposed project plan advance the team's plans to grow extramurally-funded research in LAS? Does the proposal provide information that justifies the project as non-overlapping with existing funded projects?

Proposals will be reviewed and ranked by a team of ISU scientists assembled by the Associate Dean, mindful of potential conflicts of interest. Proposals should be written in a manner appropriate for review by a broad team that includes non-experts. The Dean will discuss the rankings with the Dean's leadership team and make final funding decisions.

Project reports and dissemination of project findings

- The LAS Associate Dean for Research will meet with the funded project teams at least once annually, to review progress and decide on allocating the following year's funding.
- Annual progress reports will be due April 1 of each year and will include a concise narrative describing progress toward project goals. The report should also describe progress towards dissemination of scholarship and towards securing extramural funding. In rare cases in which the potential impacts of extended funding are especially compelling, the College may approve a no-cost extension of the funds or provide a third year of Frontier Science funding.
- Project teams will work with the Associate Dean to develop a plan to communicate project advances. This may include working with the LAS communications team to develop news articles or giving public presentations. Within 3 months of project completion, the project team will submit a short report, suitable for non-experts, to share the impact of the project with current and potential donors.

¹ Eligible science departments are BBMB, EEOB, GDCB, Geological and Atmospheric Sciences, Chemistry, Physics and Astronomy, Computer Science, Statistics and Mathematics