

Request for Proposals – The Freshman Research Initiative at ISU¹

The Freshman Research Initiative (FRI) at ISU introduces freshman undergraduates to authentic research. The goal is to engage more freshmen students in doing science, increase their enthusiasm for science and start to develop the skills involved in asking scientific questions that can be systematically investigated.

To reach a large number of freshmen students, the FRI project consists of streams that have 10-20 freshmen students working collaboratively on a research project. This model complements the traditional model where one or two freshmen might work in a research lab. Some background and references on types of FRI projects can be found in <http://www.engage.iastate.edu/fri>. We currently have five FRI streams in place during Spring 2016, see <https://fri.las.iastate.edu/> for details. Other examples of research streams can be found at the University of Texas, Austin [website](#): Our earlier HHMI project has also sponsored a dozen [research streams](#) that enroll freshmen to senior students

We invite faculty members or departments to submit a proposal for a FRI research stream in STEM and encourage faculty to envision research streams that are closely aligned with their research programs. To engage as many students as possible and to maximize flexibility a stream can

- Utilize publicly available data in your research area or remote-accessible instrumentation, which reduces the learning curve for freshmen students and reduces demands on your time and lab facilities.
- Be part of the Broader Impacts section of an NSF proposal
- Connect to research being done in either your lab, or a research center on campus
- Involve service learning projects.

We require that a project be connected to a first year Learning Community either in your department, or as part of an interdisciplinary learning community. This provides a built-in community for the collaborative project and is a potential source of funds for peer mentors. It is an excellent way to involve students into your major early, especially if they are predominantly enrolled in service courses run by other departments.

The HHMI grant will provide up to \$6000 funding in the first year to help each FRI stream get started. These funds can be used for equipment, supplies and/or salary support for teaching assistants or a postdoc to develop the stream. For example some streams have used a ¼ time TA for a few months to expand one-on-one research projects into a research stream. Some projects use part of the funding to help with the first year of operational costs. However, part of the goal is to work with each stream to develop a plan to have ongoing operating costs not paid by the HHMI grant. We are encouraging streams to include sustainability from the outset. If the \$6000 is not sufficient to get your stream started, please contact Jeff Essner jessner@iastate.edu

The plan for ongoing costs does not need to be fully finalized by the time of application, but faculty are encouraged to consider how the operation costs of their stream will be covered through a combination of tuition, lab fees, and research group resources, e.g. Broader Impacts.

To help our students and to move towards sustainability, a research stream should offer course-credit to students and ideally count towards the major lab requirements. This has the potential of receiving

¹ Supported by the Howard Hughes Medical Institute, the College of Liberal Arts and Sciences and the Provost,

operating funds from lab fees and tuition. Options that can be discussed with your curriculum committee are to offer

- Laboratory credit for intro classes
- Credit as an independent study course

It is anticipated that new streams will be first held in the Spring 2017 semester when freshmen students have started integrating into ISU. But Fall projects are welcome as well.

Projects can request a 2nd year funding to refine the project after the first year, or bridge towards fully covering operating costs in their 3rd year.

Applications are limited to 2 pages and should include the following:

- Research description
- Approximate structure of project, i.e. timeline during the semester
- Starting semester
- Mechanism for credit/connection to course or research credit
- Connection to a Freshmen Learning Community. If you do not connect with a Learning Community, please describe your plans of using peer mentors. Note you can get peer mentor funds from Learning Communities.
- Number of students – both small (6 students) and large (50 students) research streams will be considered
- Equipment needs and justification
- Space needs
- Names of individuals planning and implementing the first iteration of the research stream
- Tentative plans for paying for ongoing costs. Sources of ongoing costs could include lab fees, departmental teaching budgets, and grant funds from broader impacts.
- Training of graduate students through the CIRTL Network with a Teaching As Research project is encouraged:
http://www.cirtl.net/CoreIdeas/teaching_as_research,
<http://www.cirtl.net/tarprojects> and <http://www.celt.iastate.edu/grad-students-postdocs/cirtl-professional-development/>

Proposals should be submitted to Elizabeth Sandquist at esandq@iastate.edu by April 1, 2016.