School of Integrative Plant Science (SIPS) Graduate Student Grand Challenge Fellowships – Request for Proposals

02/15/2024

Funds are available to support a cohort of four graduate students with SIPS “Grand Challenge Fellowships” (GCFs). Each GCF provides two years of complete funding to an incoming graduate student, plus funds to attend an interdisciplinary scientific meeting. This RFP applies to students who start in the Fall semester 2025. The program will continue for at least another year beyond that. The program seeks to:

1. Recruit and support a diverse cohort of SIPS graduate students
2. Stimulate engagement with the four SIPS Grand Challenges
3. Stimulate new inter-sectional collaborations within SIPS

The following outlines program procedures.

Grand Challenges

1. Sustainable crop production and food security
Safeguarding future food security for all with sustainably managed nutritious crops in diverse production systems, under a changing climate, with minimal loss to weeds and pathogens

2. Plants and ecosystem health
Integrating climate change mitigation and adaptation to secure ecosystem and human health and foster climate justice in diverse environments

3. Plant production and ecosystem services in urban/peri-urban environments
Enhancing food access and ecosystem services for equitable human and ecosystem health in high population areas

4. Biodiversity, evolution, and molecular mechanisms
Generating and harnessing fundamental knowledge of plants, their associated microbes, and their relationships with the environment

Eligibility

Teams of two or more faculty can apply. A key goal of the program is to promote collaborative research involving faculty from different SIPS sections. Each team must include at least two faculty with primary appointments in different SIPS Sections. Faculty who are in SIPS Fields, but who have primary affiliations with non-SIPS units (e.g., SIPS adjunct faculty from the USDA-ARS or Boyce Thompson Institute) are welcome to participate in a team in addition to the multi-section SIPS faculty team.

Faculty members may not participate in more than one team applying for a GFC.

Grand Challenge Fellowships will only fund PhD (not MS) students. Faculty teams should plan accordingly.
Timeline

Apr. 29  Faculty submit proposals to Cindy Twardokus (ct259@cornell.edu)
May 28  Four projects selected by GFC
Jun – Feb  Faculty teams engage with SIPS communications and relevant admission committees to recruit and rank potential graduate Fellows
Feb. 15  Admission offers are made
Apr. 15  Identify replacements if Fellowship nominees decline offers

Application

Each faculty team should submit a one-page proposal and a one-page mentoring and recruitment plan. Four proposals to be funded are chosen by the Graduate Fields Council (GFC) with approval from the SIPS Director and SIPS Associate Directors. The GFC will seek to fund a diversity of ideas. Conflict of Interest procedures will follow NSF guidelines. Rubrics for ranking:

Intellectual Merit

1. Scientific excellence
2. How well the proposal aligns with a SIPS Grand Challenge(s)
3. Merit of the inter-Section collaboration
   - Does the proposal involve a new collaboration? (co-PIs who are already funded together would be eligible but not given top priority)
   - Interdisciplinary impact
   - Potential impact on SIPS through the research and program building
4. Prospect for funding the post-fellowship 3 years of study
   - Confirmed availability of post-fellowship funding for the student will not be a requirement. However, identifying grant opportunities germane to the proposed research would be advantageous, and substantial uncertainty of being able to fund the remaining three years would be a potential concern

Mentoring and recruitment

5. Mentoring plan
   a. Cross-Field rotation plan. The GCF will be required to rotate in a minimum of two labs, but three-lab rotations are preferred. The GCF can rotate in labs of faculty who are not hired by SIPS (see Eligibility), but the major adviser must be a faculty member whose primary appointment is in SIPS.
   b. Selection of Major Adviser. Faculty advising teams will be composed of faculty from multiple SIPS graduate Fields and students will engage in cross-Field rotation. After rotations, the student should be free to select their major adviser even if the adviser's Field differs from the Field of admission. Identify the possible major advisers for the student, the plan for cross-Field advising and support, and the timeline for selecting major and minor advisers. Describe plans for transferring the student between graduate Fields if needed.
   c. Professional development plans
   d. Faculty training in inclusive mentoring. Several workshops and seminars have been offered to faculty in recent years: have you participated? what other training efforts can you document?
e. Equity, inclusion and belonging activities
f. Student creativity and input within the research and selection of Special Committee. Students should have creative input into how their research addresses the SIPS Grand Challenges. Discuss opportunities the student will have in directing research efforts.

6. Recruitment plan
   - Short project descriptions will be linked to all the Field admissions pages so that applicants know of their existence and can talk to faculty about the opportunity. Further recruitment ideas beyond this would be welcome, especially plans for recruiting students from underrepresented backgrounds in science.

Faculty team responsibilities

Faculty in teams given a fellowship should ideally join the Admissions Committee of their respective fields. This will provide access to all applications to identify strong candidates to approach about fellowship funding. Faculty may ask applicants for further materials (e.g., ask an applicant to write a statement about why the project is interesting and why the applicant would be good fit).

If a GCF recruit declines. Once a match is made between the faculty team and an applicant, the fellowship becomes part of the applicant’s offer letter. Faculty teams should have alternates in case the applicant declines the offer. If no replacement is found, the fellowship funding will roll over to the following year.

Fellowships are part of the student’s funding plan. Once fellowships are awarded, the fellowship becomes part of the student funding plan. This means that if the student and the faculty team separate (e.g., an ineffective mentoring outcome, or change in interest of the student) the funding remains affiliated with the student. The project and its set of research ideas would stay with the faculty who proposed the project (the student would choose a different line of research). To retain Fellowship funding, Fellows could only transition to a faculty member with a primary appointment in SIPS.

Extra activities associated with being a Grand Challenge Fellow

1. The fellowship comes with two years of funding. Prior to the second year of funding (e.g., during the summer after their first year), the Fellow would have a Special Committee meeting along with a representative of the GFC. If progress toward fulfilling the SIPS Grand Challenge research project was deemed inadequate, a course correction plan would be specified for the second year. In conjunction with this meeting, the GCF would write a description of how the student’s own intellectual input has contributed to addressing the SIPS Grand Challenge and provide an outline of how the
Fellowship proposal might develop into a dissertation. This document corresponds to part (e) of the Mentoring Plan rubric for application selection.

2. Participation in the organizing, topic selection, and presentation selection of the SIPS Symposium as part of an Annual Retreat. Recipients of Schmittau-Novak awards will also participate.

Extra clauses to include in the offer letter to Grand Challenge Fellows

1. If students separate from their SIPS Grand Challenge mentors, they would be required to identify a new advisor with a primary appointment in SIPS to retain GCF funding. They would be able to join the lab of a PI with a primary affiliation outside SIPS if the PI is a member of a SIPS field and has funding.
2. Funding to attend a conference outside of the usual Field disciplinary conferences ($1,500)
3. Extra activities described above would be summarized in the offer letter:
   a. “You will participate in research as described in the Grand Challenge Fellowship proposal attached. Within this research framework you will have the opportunity to innovate and propose experimental approaches that you will document after your first fellowship year.”
   b. “In your second year, you will participate in the annual SIPS science symposium Planning Committee, with activities that include the selection of topics and presentations.”