



DRIVING TOMORROW

Our plan to lead and innovate

Twin Cities Campus Strategic Plan
Grand Challenges Research

Transforming the University of Minnesota through the Enhancement of Interdisciplinary Research

Provost's Grand Challenges Research Initiative—Phase 3

March 2018

Spotlighting Three Grand Challenges for 2019–20:

Enhancing Individual and Community Capacity for a Changing World

Advancing Health through Tailored Solutions

Feeding the World Sustainably

We invite faculty to participate in interdisciplinary research opportunities that will continue to distinguish University of Minnesota scholars as leaders in addressing the critical challenges of our state, nation, and world.

Opportunities in 2019–2020 will focus on the challenges of *Enhancing Individual and Community Capacity for a Changing World*, *Advancing Health through Tailored Solutions*, and *Feeding the World Sustainably*. Work at the intersection of Grand Challenges has resulted in exciting interdisciplinary team efforts. Consequently, proposals that address the intersection of these three Grand Challenges—or the intersection of one of the three with either of the other two Grand Challenges, of *Assuring Clean Water and Sustainable Ecosystems* or *Fostering Just and Equitable Communities*—are welcome. The latter two challenges were the focus of the previous Grand Challenges Research phase.

The current call is purposely aligned with the April 18, 2018, *Grand Challenges Research Expo: Inspiring Ideas, Creating Change*. The Expo is designed to connect individuals from a range of disciplines who have similar topical research interests. It will feature mechanisms for faculty, students, and staff to share and expand on ideas that might lead to proposal development. Interactive sessions will also address features of interdisciplinary research that might challenge new teams, including identifying team members across disciplines, engaging external partners, clarifying disciplinary terminology, integrating work styles and identifying best practices. Small monetary incentives for pre-proposal development will be provided to faculty who explore new ideas with new research colleagues during the day-long Expo. Details and criteria are described below.

Due to the important alignment with the April 2018 Grand Challenges Research Expo, the deadline for Phase 3 pre-proposal and subsequent full proposal submissions occur on a more expanded timeline than in previous years. Please make special note of deadlines that are described below.

Phase 3 of the Provost's Grand Challenges Research Initiative builds on two earlier phases engaging the Twin Cities campus community and partners. Phase 1, in 2016, focused on all five Grand Challenges embraced by the campus, and allocated \$3.6 million in internal research investments to 29 teams. **Phase 2**, in 2017, focused on *Assuring Clean Water and Sustainable Ecosystems* and *Fostering Just and Equitable*

Communities, with \$2.96 million allocated to six team projects—a smaller number than in Phase 1, but at higher levels of support. The current Phase 3 call will similarly focus on larger awards to successful teams.

The Grand Challenges Research Pre-Proposal call is a competitive process for interdisciplinary teams, focused on a smaller number of larger awards—up to \$500,000 per award—but with opportunities for smaller awards as well. This process strives to target research projects that will distinguish the University of Minnesota faculty as leaders in addressing three specific challenges: *Enhancing Individual and Community Capacity for a Changing World*, *Advancing Health through Tailored Solutions*, and *Feeding the World Sustainably*—or the integration of any of the five Grand Challenges. (Proposed work at the intersection of *Assuring Clean Water and Sustainable Ecosystems* and *Fostering Just and Equitable Communities* was included in the previous call, and is not included in this round. Research at the intersection of either of these two Grand Challenges with any of the three Phase 3 challenges, however, is included.)

The proposal and selection process is iterative; initial pre-proposal submissions are only two-page statements. Following initial review, a relatively small number of teams submitting the most promising pre-proposals will be invited to develop and submit full proposals, with an expectation that a reasonably high proportion of those invited to submit full proposals will be funded.

We actively encourage participation from scholars from all disciplines across the campus. A fundamental commitment of the Grand Challenges Research initiative is that disciplinary perspectives from the full array of fields are necessary to address effectively the interrelated issues of the Grand Challenges. All five Grand Challenges problems benefit from combined expertise from sciences and engineering, social sciences, humanities and arts, and the professions—business, design, law, health and medicine, and policy. We hope that the response to the major focus on these three Grand Challenges in Phase 3 is for faculty to ask, “How might my expertise be brought to bear significantly in addressing one of the three challenges or an intersection with other Grand Challenges?”

The Grand Challenges Research Initiative advances the integrative research goals that are one component of the *Twin Cities Campus Strategic Plan Driving Tomorrow*. The goal of this initiative is to elevate the University’s interdisciplinary research strengths for greater impact on the critical societal issues facing our state and the world. We seek to build on past allocations to appreciably deepen the University’s impact. Through the new competitive call, we strive to identify exciting opportunities to foster new interdisciplinary collaborations, spur creative interdisciplinary approaches, integrate research across disciplines and colleges, and strengthen productive research interactions within and beyond the University.

Guidelines follows for Grand Challenges Research Phase 3:
Competitive Call for Proposals
and
Grand Challenges Research Opportunity (Seminar Series)
for Graduate and Professional Students and Post-docs



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Our ten-year plan to lead and innovate

Twin Cities Campus Strategic Plan

Grand Challenges Research

Grand Challenges Research—Phase 3

Competitive Call for Proposals

March 2018

Successful Grand Challenges Research proposals will be funded at levels up to \$500,000. We expect most funded projects to range between \$120,000 and \$400,000, based on the goals of the proposed research. We emphasize that interdisciplinary proposals at smaller funding amounts are also encouraged. Awards are non-recurring and are to be expended within two years.

Special Pre-Proposal Development Awards

The *Grand Challenges Research Expo Inspiring Ideas, Creating Change* (gcresearch-expo.umn.edu) provides the forum for faculty to exchange ideas with new colleagues, ideally leading to the creation of new interdisciplinary teams. To encourage these potentially fruitful interactions, new colleagues have the opportunity to be awarded \$500 to pursue an idea and development of an interdisciplinary team. Process and criteria for this pre-proposal development award include:

- Attend the Grand Challenges Research Expo and identify a new partner(s) from another discipline during the interactive idea sessions. Agree to pursue an idea that could be the basis for a pre-proposal submission.
- Submit a description of not more than 500 words that describes your idea and intent to explore pre-proposal development that would include an expanded team. The description should include:
 - Names, titles, department/center affiliation, emails, and phone numbers of the two or more **new colleagues** pursuing the idea;
 - Note the Grand Challenge or intersection of Grand Challenges to be addressed;
 - State the core concept of the interdisciplinary research project that could be proposed
 - State the ways that this idea and the combination of interdisciplinary expertise represented by the partner faculty members is new and could lead to new knowledge; and
 - Include the kinds of expertise that would be needed to develop an interdisciplinary pre-proposal, including University-based scholars and representatives from external communities.
- Submit the 500-word idea description to gcrsrch@umn.edu by **Friday, April 27, 2018**.
- Following a review of idea descriptions, a pre-proposal development award of \$500 will be made to successful idea partners who are committed to submitting a pre-proposal by the Wednesday, June 6, 2018 deadline.

Overall, the key feature of the call is its iterative process that includes the following steps:

- Submission of two-page pre-proposal—due **Wednesday, June 6, 2018**
- Formal peer review of pre-proposals will result in an invitation to submit a full proposal to those who describe particularly promising research ideas – invitations extended by **August**.
- Invited full proposals—due **Wednesday, October 10, 2018**
- Award announcements—**January 2019**. Awarded funds will be available immediately for use in Spring semester, 2019

Elements of participation

- Two or more individuals must be named as co-PIs; at least one must be a tenure-track faculty member;
- The co-PIs and the overall research team must represent an interdisciplinary collaboration that bridges disciplines, ideally across colleges, and that will make a substantial new contribution to the University's position as a leader in addressing the Grand Challenge;
- Teams are encouraged to include post-docs, students, other members of the University's scholarly community, and external partners in aspects of the proposed work.

Guidelines for two-page pre-proposal submissions (no more than 2 pages, 12-point font, single spaced, 1-inch margins)

- **Co-PI contact information.** Provide names, titles, departmental or center affiliations, emails, and phone numbers on a separate cover page.
- **Research team members.** Provide names, titles, departmental or center affiliations, also on your cover page. Postdocs, students, and external partners should be included, if known.
- **Level of funding.** State the approximate level of funding to be requested for the proposed project; no detailed budget is required at the pre-proposal stage. The amount is an estimate, since it may change during the iterative process of review and discussion.
- **Pre-proposal description.** Describe your idea. In doing so, address the following six questions: 1) How will this research enable the University to establish a new signature contribution in research on individual and community capacity building, advancing health, feeding the world, or an intersection with any of the five Grand Challenges? 2) How is this team well positioned to address the idea? 3) What is the potential for this research to catalyze additional interdisciplinary opportunities and external funding in order to position the University as a leader in the field? 4) How will the research contribute to beneficial outcomes to society in addressing the Grand Challenge? 5) What will the research entail – methodologies, activities, engagement with external partners, other? 6) How will you measure impact, including on best practices for interdisciplinary research?
- **Grand Challenges criteria.** Those who are invited to submit full proposals should be prepared to also address the relationship of the proposed research to the [eight Grand Challenges research criteria outlined in the Twin Cities Campus Strategic Plan](#) (pages 29–32). The two-page pre-proposal does not need to address these criteria explicitly, however.

Evaluation and review

Pre-proposals will be evaluated on:

- Potential of the research to have a substantial impact on the Grand Challenge **and** to position the University to play a leadership role with respect to the Challenge,
- Scholarly strength and interdisciplinary scope of the proposed team, including its engagement of external partners,
- Likely impact on shaping change in the University, and
- Potential to leverage substantial external funding.

Review process. Peer review of pre-proposals and final proposals will be conducted by an interdisciplinary panel of distinguished scholars who are well versed in the development of the Twin Cities Campus Strategic Plan and the Grand Challenges Research initiative. Final reviews may also include eminent external reviewers selected for fit with the proposed research. Collegiate deans will discuss funding recommendations, and the Executive Vice President and Provost will determine the final grant awards.

Please submit your two-page pre-proposal to gcrsrch@umn.edu by Wednesday, June 6, 2018. Inquiries can also be sent to gcrsrch@umn.edu.

Phase 3 Grand Challenges Research Opportunity for Graduate and Professional Students and Post-docs Seminar Series

To be appropriate for the University of Minnesota, a Grand Challenge research problem should be one that engages students, postdoctoral associates and fellows, and other trainees in innovative and groundbreaking ways. A key part of our mission is training future leaders, practitioners, and global citizens who can address complex and important challenges.

The institution's intent is to develop Grand Challenges research collaborations that centrally involve graduate and professional students, and that also provide experiential and intercultural learning opportunities.

With attentiveness to graduate and professional students and post-docs, Phase 3 of the Grand Challenges Research initiative will include the launch of a set of seminars at the 8xxx level, offered as expressly interdisciplinary instruction in the skills for and exemplary experiences in grappling with complex societal challenges. These credit-bearing seminars will be listed under the Grand Challenges designator, and will serve as a supplementary curriculum for graduate and professional students who wish to go beyond their degree-program coursework to focus on scholarly engagement with interdisciplinary Grand Challenges.

The Grand Challenges Research seminar series will be offered beginning in Spring 2019.