We invite faculty to participate in two 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 2017–18 will focus on the challenges of Assuring Clean Water and Sustainable Ecosystems or Fostering Just and Equitable Communities—or an integration of the two. These challenges are two of the five interrelated Grand Challenges identified through a campus-wide process last year. Opportunities in subsequent years will highlight the other three Grand Challenges areas: Advancing Health through Tailored Solutions, Enhancing Individual and Community Capacity for a Changing World, and Feeding the World Sustainably.

The Grand Challenges Research—Phase 2 process engages the Twin Cities campus community through two opportunities that are distinct from the two-tiered grants process launched in Phase 1 of the Provost’s Grand Challenges Research Initiative.

One opportunity is a competitive call for proposals from interdisciplinary teams (the Grand Challenges Research Proposal track). The other is a call for nominations, including self-nominations, to participate as a Grand Challenges Research Scholar in a research collaborative for an extended period of intense interdisciplinary engagement to shape a vision for a major new initiative (the Grand Challenges Research Scholar Collaborative track).

The Grand Challenges Research Proposal call is a competitive process for interdisciplinary teams, focused on a smaller number of larger awards—up to $600,000 per award—but with opportunities for smaller awards as well. This process strives to target research projects that will distinguish the University of Minnesota scholars as leaders in addressing two of the Grand Challenges identified through a campus-wide process: Assuring Clean Water and Sustainable Ecosystems or Fostering Just and Equitable Communities—or an integration of the two. 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 high proportion of those invited to submit full proposals will be funded.

Aligned with the overall objective of the Grand Challenge Research initiative, the Institute on the Environment (IonE) offers an enhanced opportunity specific to Assuring Clean Water and Sustainable Ecosystems. Using additional criteria that privilege impact and societal translation, the IonE will provide
In addition, an integrated team of researchers drawn from the pool of applicants responding to the Grand Challenges Research Call for Competitive Proposals. The funds from IonE are in addition to those made available to Grand Challenges Research through strategic plan implementation. Additional criteria are included in the guidelines for Grand Challenges Research pre-proposals.

The Grand Challenges Research Scholar Collaborative aims to provide a dual opportunity for individual faculty members with strong interest in interdisciplinary research focusing on the Grand Challenge of Assuring Clean Water and Sustainable Ecosystems or that of Fostering Just and Equitable Communities—or their intersection. The first opportunity provided by this initiative is professional development: Through a concentrated investment of time with an interdisciplinary cohort, individual faculty will explore new research directions and strategies. The second opportunity—which defines the primary purpose of this track—is to develop, in collaboration with other members of the cohort, a plan of action for exciting major initiatives focused on one or the other of the two Grand Challenges, or their intersection. Drawing on the University’s existing research, programmatic, and infrastructural strengths, selected faculty will participate directly in shaping how our community mobilizes these strengths to address major challenges in the foreseeable future. The latter is a crucial opportunity to foster institutional transformation.

Although Phase 2 focuses on only two of the five Grand Challenges research areas, we actively encourage participation from scholars from all disciplines across the campus. A fundamental commitment of the Provost’s Grand Challenges Research Initiative is that disciplinary perspectives from the full array of fields—sciences and engineering, social sciences, humanities and arts, and the professions—are necessary to address effectively the interrelated issues of Assuring Clean Water and Sustainable Ecosystems and Fostering Just and Equitable Communities.

We hope that the response to the focus on these two Grand Challenges is for faculty to ask, “How might my expertise be brought to bear significantly in addressing one or the other of these challenges?” At the same time, we want to emphasize that the Grand Challenges Research Initiative will continue beyond Phase 2. Each of the five Grand Challenges will be the focus of attention either next year or the year after. Those who choose not to participate in the challenges of clean water/sustainable ecosystems or just and equitable communities may engage in subsequent years when the other three Grand Challenges areas will be highlighted—Advancing Health through Tailored Solutions, Enhancing Individual and Community Capacity for a Changing World, and Feeding the World Sustainably.

Phase 2 of the Grand Challenges Research Initiative builds on Phase 1, launched last year, to advance the integrative research goals that are one component of Driving Tomorrow, the Twin Cities Campus Strategic Plan. The goal of Grand Challenges Research Phase 2 is to elevate the University’s interdisciplinary research strengths for greater impact on the critical societal issues facing our state and the world. In Phase 1, $3.6 million was allocated to 29 projects across all five Grand Challenges. In Phase 2, we seek to build on that initial allocation to appreciably deepen the University’s impact on two Grand Challenges. Through both the competitive call and the collaborative 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 for the Grand Challenges Research Proposals follow.

See separate guidelines for the Grand Challenges Research Scholar Collaborative:
https://strategic-planning.umn.edu/gc-research-initiative-phase2

In addition, an online FAQ document provides further details for developing submissions.
Successful Grand Challenges Research proposals will be funded at levels up to $600,000. We expect most funded projects to range between $150,000 and $450,000, 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.

The process for submitting a Grand Challenges Research proposal is as follows:

- Submission of two-page pre-proposal—due March 20, 2017
- 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 early May
- Full proposals as invited—due July 5
- Award announcements—September 2017. Awarded funds will be available immediately for use in fall semester 2017

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, singlespaced, 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 on your cover page as well. 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 clean water and sustainable ecosystems, just and equitable communities, or an intersection of these two 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?

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.

• **Additional criteria for Institute on the Environment award submissions.** In addition to guidelines for the submission of pre-proposals for Grand Challenges Research, please refer to the criteria below for submissions to be considered for IonE funding.

The Institute on the Environment (IonE) recognizes that all disciplines contribute to a responsible water future, including engineering, natural and social science, the humanities, and policy. Further, integrated research in water sustainability should address both the descriptive and the normative, seek to understand the drivers of behavior and behavioral change, and seek to align technology, policy, and society to build a more sustainable future for Minnesotans and global citizens.

- **Outcomes-oriented research.** Makes a causal link between research and implementation, showing how work in the project will promote clean water and/or water use efficiency. Teams should have strong connections to stakeholders, leading to outcomes beyond the academy. Proposals should explain the desired social outcome of the work—in Minnesota and its relevance nationally and internationally—and provide methods for identifying if progress toward that goal is achieved. Of course, research also should be suited for publication in leading journals.

- **Innovation.** Includes innovation in the way funds are used. For instance, teams might initiate a new post-doc program that would form a cohort of recent PhDs from a range of fields. Projects that pursue innovative ways of bringing new or underrepresented people or stakeholders to the project will be particularly competitive.

- **Opportunity gaps.** Privileges economic development and/or the attainment of a sustainable future for a wide range of people and places, including minority populations and people who bear a disproportionate impact of impaired waters.

Aligned with the overall objective of the Provost’s Grand Challenge Research Initiative, the IonE aims to grow and build research teams so that they have a capacity to contribute to similar problems in the future. The IonE also seeks to enhance recognition of the University as a leading institution for significant, cutting-edge work on sustainability topics, including water sustainability.
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,
- 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 Provost’s 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 provost will make the final grant awards.

Please submit your two-page pre-proposal to gcrsrch@umn.edu by Monday, March 20, 2017. Inquiries can also be sent to gcrsrch@umn.edu.

Note: This is one of two opportunities for faculty as part of the Provost’s Grand Challenges Research Initiative Phase 2. Please see separate guidelines for the Grand Challenges Research Scholar Collaborative (https://strategic-planning.umn.edu/gc-research-initiative-phase2).