REMOTE & AUSTERE CONDITIONS
GRAND CHALLENGE

Request for Proposals (RFP)

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Table of Contents

Program Description
The University of Utah Vice President for Research Office is excited to announce the Remote and Austere Conditions (RAC) Grand Challenge. This initiative seeks to fund innovative research projects that focus on developing novel techniques, technologies, and methods for remote and austere environments.

The University of Utah supports research, engages communities, and cares for patients across the largest geographical area in the U.S. The intermountain region is vast, sparsely populated, and supported by limited infrastructure. The geography is varied from rugged mountains to barren deserts and prone to extreme environmental hazards including droughts, blizzards, and earthquakes. Residents navigate countless obstacles driven by scarce resources and severe access issues. These challenges make the intermountain region an ideal location for studying remote and austere conditions. The U.S. Army defines remote and austere conditions as "environments where access to clean water, electricity, and to a fixed or mobile medical facility is significantly degraded or denied, and where diagnostic and treatment resources and medical personnel are unavailable or limited for extended periods of time." These conditions are common in frontier counties, areas with less than 20 people per square mile and a travel time of at least 30 minutes to basic services. Approximately 56% of the U.S. is frontier and the majority of that is concentrated in the intermountain region.

The Remote & Austere Conditions (RAC) Grand Challenge funds innovative responses to the threats and obstacles of these extreme environments. From advances in communication and robotics, breakthroughs in patient triage and patient resuscitation, to effective behavioral and community interventions, the RAC Grand Challenge seeks bold approaches to enhance the safety and well-being of populations living in challenging areas with limited or no resources.

Topic Areas of Interest
Proposals can focus on **any challenge** within remote and austere conditions. Some possible suggested topics include:
- Power generation: How to generate and sustain energy in and for remote areas.
- Resuscitation Techniques: Innovative approaches to manage critically ill patients in remote conditions.
- Environmental hazards: Remote areas are vulnerable to numerous environmental threats (e.g., wildfire, blizzards, floods, storms, earthquakes, tornados, etc) and researchers across multiple domains seek to identify, mitigate, and prepare for these threats.
- Telemedicine and Digital Health: Solutions that leverage technology to provide medical care at a distance.
- Remote Education and Learning: Developing effective infrastructure and techniques to deliver remote education is a priority.
- Portable Diagnostic Tools: Development of lightweight, durable, and easy-to-use diagnostic devices suitable for austere environments.

- Preparation for the Austere: Development of new training and supplement paradigms to equip individuals to rapidly acclimatize to remote and extreme environments.
- AI and ML: Applications of artificial intelligence and machine learning to solve healthcare, communication, exploration, and natural resource challenges in remote areas.
- Low Energy High Output Remote Sensors (structural or biologic): Development of innovative sensor technologies that can detect environmental or biologic hazards in austere settings.
- Training, Simulation, and Upfitting: Programs and tools to enhance the skills of workers in remote and austere conditions.

As noted, these are simply examples of possible research topics to be explored for the RAC Grand Challenge. From a topic standpoint, research teams are encouraged to push the boundaries and seek to continually expand what it means to conduct research focused on remote and austere conditions.
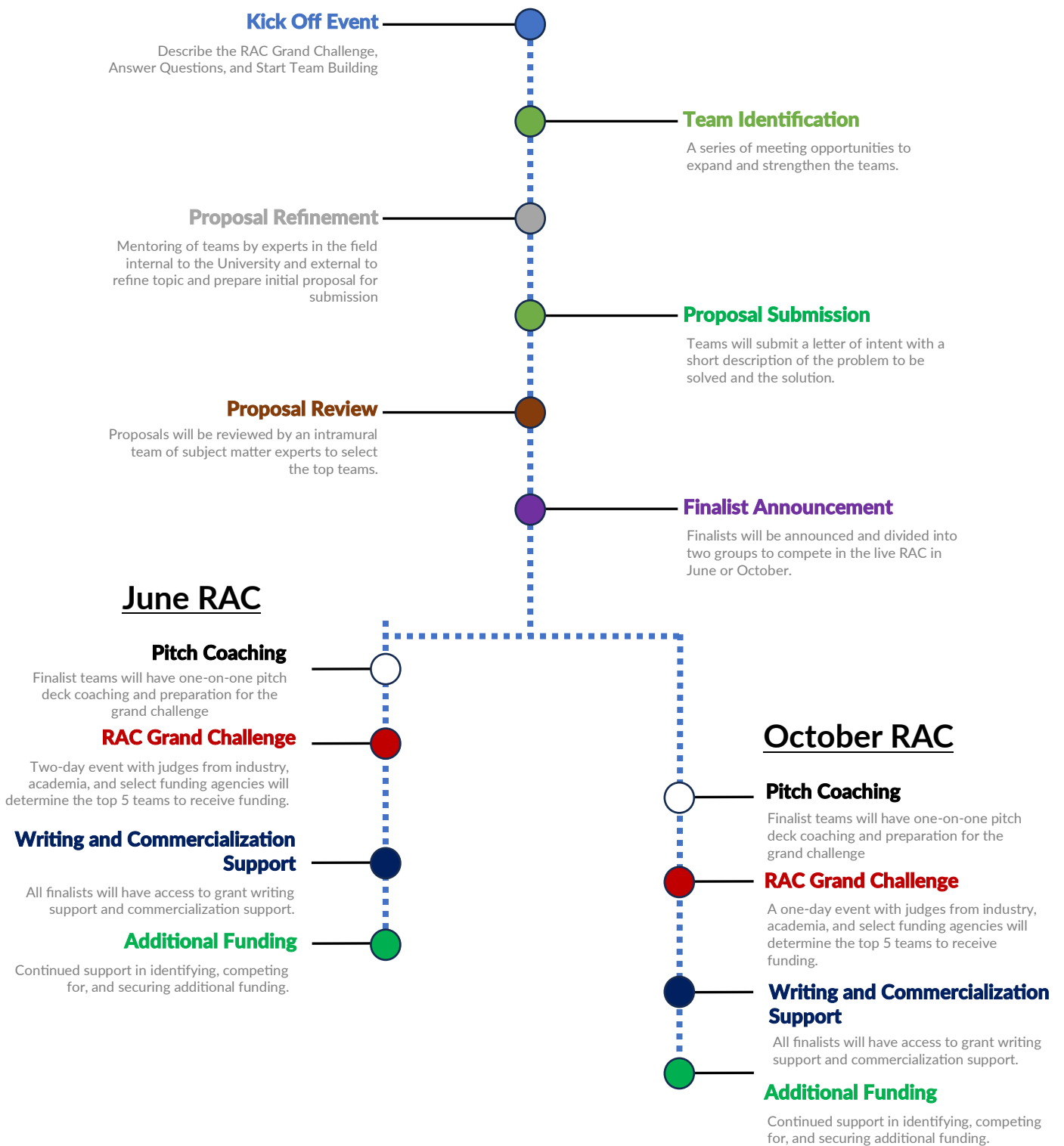
Grand Challenge Format
To participate in the RAC Grand Challenge, teams will submit a short proposal for review in April of 2024, and selected teams will then receive pitch coaching prior to final presentations in either June or October of 2024. The Grand Challenge will be judged by a panel of experts from relevant scientific fields, industry, and funding agencies with a direct interest in remote and austere conditions. Selected teams will be funded for the 2024-2025 academic school year. Awards will be up to $250,000 of direct costs, and indirect costs will not be provided. All funded teams are expected to seek extramural support within 180 days after the end of the award.

Team Formation
Weekly meetings will commence in February of 2024 designed to help build RAC teams. General meetings as well as topic specific meetings will be held, and dates and locations will be provided as they are scheduled. The RAC planning committee is also interested in helping assemble teams. Therefore, any interested participants with a specific idea who need assistance identifying possible collaborators are urged to contact the planning committee at RACGrandChallenge@Utah.edu.

Timeline of Events

Kick Off Event

Describe the RAC Grand Challenge, Answer Questions, and Start Team Building

Team Identification

A series of meeting opportunities to expand and strengthen the teams.

Proposal Refinement

Mentoring of teams by experts in the field internal to the University and external to refine topic and prepare initial proposal for submission

Proposal Submission

Teams will submit a letter of intent with a short description of the problem to be solved and the solution.

Proposal Review

Proposals will be reviewed by an intramural team of subject matter experts to select the top teams.

Finalist Announcement

Finalists will be announced and divided into two groups to compete in the live RAC in June or October.

June RAC

Pitch Coaching

Finalist teams will have one-on-one pitch deck coaching and preparation for the grand challenge

RAC Grand Challenge

Two-day event with judges from industry, academia, and select funding agencies will determine the top 5 teams to receive funding.

Writing and Commercialization Support

All finalists will have access to grant writing support and commercialization support.

Additional Funding

Continued support in identifying, competing for, and securing additional funding.

October RAC

Pitch Coaching

Finalist teams will have one-on-one pitch deck coaching and preparation for the grand challenge

RAC Grand Challenge

A one-day event with judges from industry, academia, and select funding agencies will determine the top 5 teams to receive funding.

Writing and Commercialization Support

All finalists will have access to grant writing support and commercialization support.

Additional Funding

Continued support in identifying, competing for, and securing additional funding.

Eligibility Criteria
- Faculty members at the University of Utah with at least a 0.5 FTE.
- Postdoctoral students, graduate students, and undergraduate students are encouraged to work within a faculty-led team.
- All teams are encouraged to be composed of at least three faculty or research scientists from at least two colleges on campus.
- Must be available for the Grand Challenge event in June or October of 2024.

Required Application Materials
1. **Applicant Information/Cover Page:** To be collected by InfoReady directly
2. **Problem Statement (250 words):** Please provide a brief problem statement that identifies the problem you are attempting to solve. Include a description of the impact of the problem you are solving.
3. **Research Narrative (500 words):** Please provide the "solution" to your problem statement via a research narrative. The research narrative must provide a succinct overview of the proposed project/solution and a description of how this solution is innovative or novel compared to current best practices. Please address the feasibility of this project with the resources currently available at the University of Utah and how this project aligns with RAC Grand Challenge.
4. **Timeline (250 words):** Please provide a succinct timeline of your proposed project with defined quarterly milestones that can be clearly measured. If funded, these milestones will be the basis for the quarterly reports required during the funding period.
5. **Team (250 words):** Please highlight the unique qualifications of the team that make you ideally suited to carry out this work. Every member of the team does not need to be mentioned, but a description of how key personnel will contribute to the project is important.
6. **Budget:** Please briefly outline your anticipated budget for this project/solution. Budget outlines do not need to be formal and should not exceed $250,000 total.
7. **References:** This section is for references that were included in the problem statement or research narrative. There is no word limit for this section.

Review Process
Proposals will be reviewed based on their innovation, scientific merit, potential impact, feasibility, and alignment with the RAC Grand Challenge's goals.

Important Deadlines

- FOA Release Date: Friday, January 5, 2024
- Kickoff Event: Friday, January 19, 2024, at 12:30pm (MST). Location TBD.
- Internal Application Due: Tuesday, April 2nd, 2024 (by 11:59pm MST)
- Finalist Announced: May 7, 2024
- Pitch Deck Due Date: May 28, 2024
- RAC Grand Challenge: June 2024, October 2024 (dates TBD)
- Project Start Date: July 2024, November 2024 (dates TBD)

Submit an Application

Internal proposal submissions will be due on April 2nd, 2024, at 11:59 pm (MST). Must be submitted using InfoReady.

RAC Competition Link: https://utah.infoready4.com/#freeformCompetitionDetail/1925709

Contact Information

For more information or questions regarding the RAC Grand Challenge, please contact: RACGrandChallenge@Utah.edu. For questions about using InfoReady, please contact: vprgrants@utah.edu.