Harnessing the Data Revolution (HDR): Data Science Corps (DSC) NSF 19-518

WEBINAR: December 17, 2018, 10:30 am – 11:30 am Eastern

https://www.nsf.gov/pubs/2019/nsf19518/nsf19518.htm

Agenda

- Introduction
- Welcome from NSF Leadership

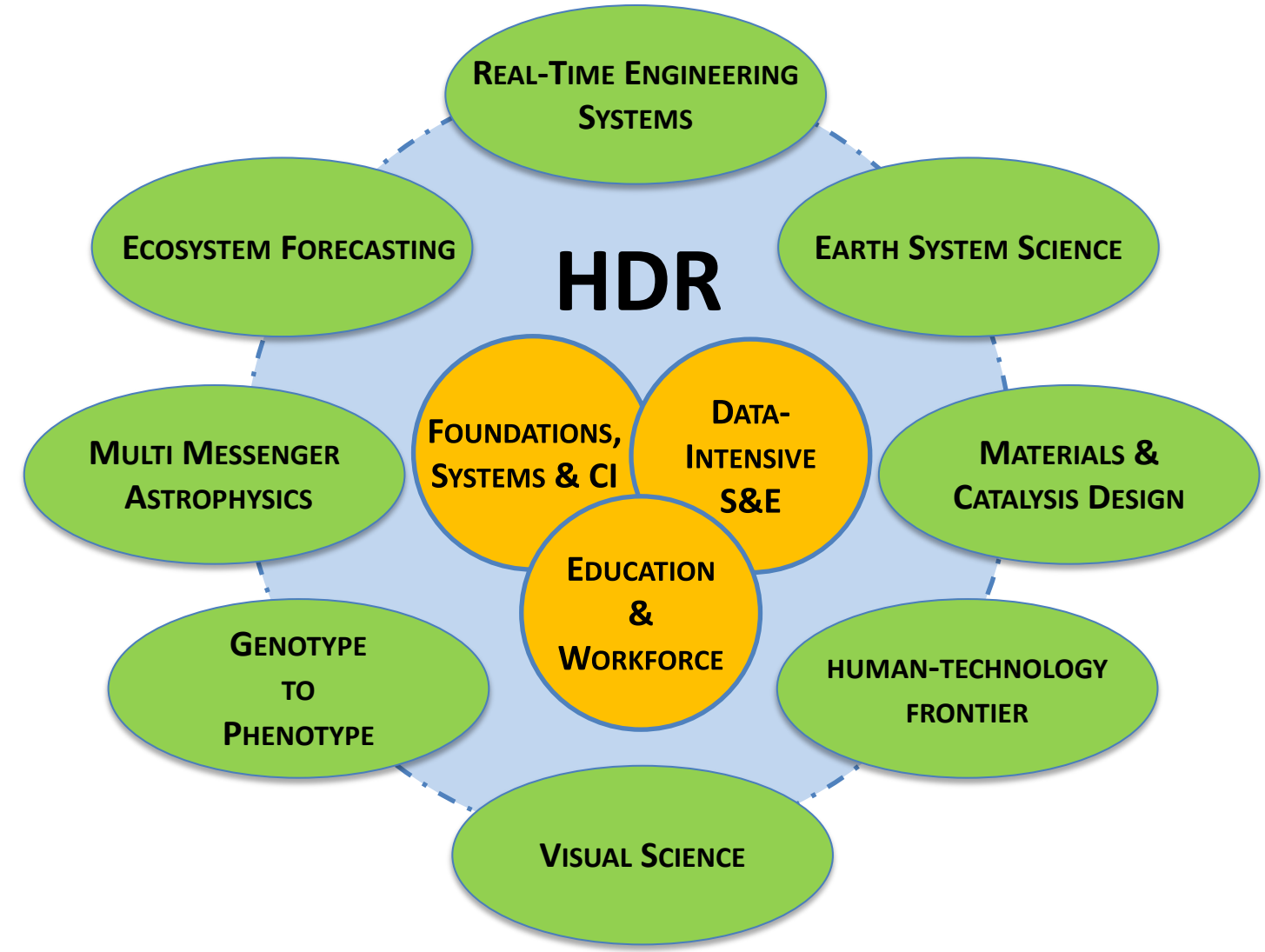
  Juan C. Meza (MPS) and Manish Parashar (CISE/OAC)
- Overview of Program: Program Directors

  Stephanie E. August (NSF/EHR), Cheryl Eavey (NSF/SBE), Nandini Kannan (NSF/DMS), Aidong Zhang (NSF/CISE)
- Solicitation Specific Requirements
- Review Criteria
- Q&A

*"Engage NSF's research community in the pursuit of **fundamental research in data science and engineering**, the development of a cohesive, federated, national-scale approach to **research data infrastructure**, and the development of **a 21st-century data-capable workforce**."*

Harnessing the Data Revolution Vision

HDR will enable new modes of data-driven discovery that will allow fundamental questions to be asked and answered at the frontiers of science and engineering



Harnessing the Data Revolution (HDR): Solicitations

- **EDUCATION AND WORKFORCE DEVELOPMENT**

Harnessing the Data Revolution (HDR): Data Science Corps (DSC)
Building Capacity for HDR

PROGRAM SOLICITATION
NSF 19-518

- **DATA-INTENSIVE SCIENCE AND ENGINEERING**

Harnessing the Data Revolution (HDR): Institutes for Data-Intensive Research in Science and Engineering - Ideas Labs (I-DIRSE-IL)

PROGRAM SOLICITATION
NSF 19-543

Data Science Corps Program

- The Data Science Corps (DSC) is the education and workforce development component of the NSF Harnessing the Data Revolution (HDR) ecosystem.
- HDR DSC provides support for integration of real-world data science projects into classroom instruction.
- Undergraduate students receive stipends to participate in data science projects.

Data Science Corps Goals

- Build capacity for harnessing the data revolution at the local, state, national, and international levels to help unleash the power of data in the service of science and society.
- Provide practical experiences, teach new skills, and offer teaching opportunities, in a variety of settings, to data scientists and data science students.

Data Science Corps Team Requirements

- Participation by more than one organization is expected in each *Data Science Corps* award:
  - Coordinating Institution
    - Coordinate, monitor, and evaluate award activities
    - Provide faculty professional development and mentoring

    Role is described in detail in the solicitation
  - Implementation Institution(s)
    - Design projects with coordinating organization
    - Implement Data Science Corps in 1+ undergraduate data science courses
    - Provide stipends to support undergrads

    Role is described in detail in the solicitation

Submission Limits

- Each institution is allowed to submit *only one* proposal
  - Lead proposals and collaborative proposals count
  - Subawards do not count
- Each individual may participate in *only one* project as PI, Co-PI or senior personnel
  - Subawardee does not count
- If multiple submissions are received from an institution or an individual
  - The first submission received from an institution or individual will be retained
  - Subsequent submissions will be returned without review

Proposal Preparation Guidelines

Full Proposal Submission Window:

January 28, 2019 – February 4, 2019

In addition to the requirements listed in the PAPPG NSF 18-1, *special requirements apply*

Project description

- Focus on what and how the supported undergraduate students will participate in real-world data science projects - in the local community, industry, government, academia, non-profits…
  - Incorporated as part of a data science curriculum, such as
    - capstone projects
    - summer internships
    - coop programs
    - study abroad programs, or
    - similar experiences

Assessment of student learning and program evaluation are required

- *Student assessment* should aim to address impact of the hands-on experiences on
  - Participants' gains in content knowledge and superskills
  - Student persistence, including long-term employment, in a STEM related career path
- *Award evaluation* should address the overall impact of DSC
  - Achievement of goals
  - Characteristics of an effective DSC award
  - Effectiveness in developing models for communication and engagement among disciplines at the student level, among faculty, within the workforce
  - Effectiveness of certain types of projects for certain students, organizations, and/or communities
  - Value that specific project produce for the communities they serve

Budget

- Award sizes are expected to range from **$1M to $1.2M (total cost)** with durations of up to 3 years.
- 25-30 undergrad students per year ($5000 per student in stipend) across coordinating and implementation organizations
- Coordinating organization
  - PI, project coordinator, communications, evaluation, travel and materials, usual administration and other expenses
  - Stipends for undergraduate students
- Implementation organization
  - Stipends for undergrad students
  - (Co-)PI or other support staff, student travel

PROPOSAL REVIEW
General review criteria

NSF Review Criteria

- **Intellectual Merit**: Encompasses the potential to advance knowledge

- **Broader Impacts**: Encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

NSF Broader Impacts

<u>Broader Impacts</u> encompassing the potential to benefit society and contribute to achieving specific, desired societal outcomes, including:

(1) participation of women, persons with disabilities, and members of **underrepresented groups**

(2) science, technology, engineering, and mathematics **education**

(3) increased **public scientific literacy and engagement** with science and technology

(4) development of a **diverse, globally competitive workforce**

(5) increased **partnerships between academia and industry**

(6) improved national **health, security and economic competitiveness**

(7) enhanced **infrastructure for research and education**

SOLICITATION-SPECIFIC REVIEW CRITERIA

Diverse participation linked to courses and training

- ***Organizational diversity:*** Whether the proposal has ensured diversity among participating organizations, e.g., by reaching across many types of IHEs, including research universities, two- and four-year colleges, and MSIs.
- ***Linkage to undergraduate curricula, internships and/or other placement programs:*** Whether there are clear linkages to existing or new undergraduate courses, as well as internship, traineeship, study aboard, and/or other relevant programs at institutions.

Real-world experience and community connections

- ***Current/prior experience in data science projects:*** Whether the proposing team has a demonstrated track record and prior experience with implementing data science projects in academia, industry, government, non-profit, and/or other relevant sectors, and the ability to clearly identify specific projects in such settings.
- ***Connection to stakeholder communities:*** Whether the proposing team has demonstrated linkages with relevant stakeholders in industry, local/state/federal governments, non-profits, international organizations, and/or other sectors.

Solicitation-Specific Supplementary Documents

- Schedule of activities (limited to 2 pages)
  - Tentative meetings of collaborators
  - Data Science Corps meeting
- Letter of collaboration
  - From named participating organizations
  - See PAPPG, Chapter II.C.2.j.

Questions?

Q&A 1

Q. Given the institutional proposal limit of one proposal submission per organization, would a non-lead collaborative proposal submission from an organization (i.e., not as a subawardee) count against that non-lead organization's institutional proposal limit?

A. **Yes**.

Q&A 2

Q. The solicitation calls for a "coordination organization" and one or more "implementation organization(s)". Must organizations be different universities or institutions, different colleges, different departments?

A. **No**. But the solicitation also says, “participation by more than one organization is expected in each *Data Science Corps* award.” So if much of the activity in the project is concentrated at one university, that will work against the project in the review process.

Q&A 3

Q. Do all the undergraduate students/participants need to be data science majors?

A. **No**. Students enrolled in any STEM degree program are eligible to participate.

Thank you!

- Remember to *read the solicitation* carefully!

- Cognizant program officers:

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The presentation, audio file and transcript will be posted later today at:
https://www.nsf.gov/events/event_summ.jsp?cntn_id=297443&org=CISE