
Division of Mathematical Sciences
Office of Cyberinfrastructure

National Science Foundation

# WELCOME TO THE EXTREEMS-QED WEBINAR

October 23, 2012

# What does EXTREEMS-QED stand for?

**Ex**peditions in **T**raining, **Re**search, and **E**ducation for **M**athematics and **S**tatistics through **Q**uantitative **E**xploration of **D**ata

- A program jointly sponsored by the Directorate of Mathematical and Physical Sciences and the Office of Cyberinfrastructure;
- Supporting efforts to educate the next generation of mathematics and statistics undergraduate students to confront new challenges in computational and data-enabled science and engineering (CDS&E).

# Program Officers

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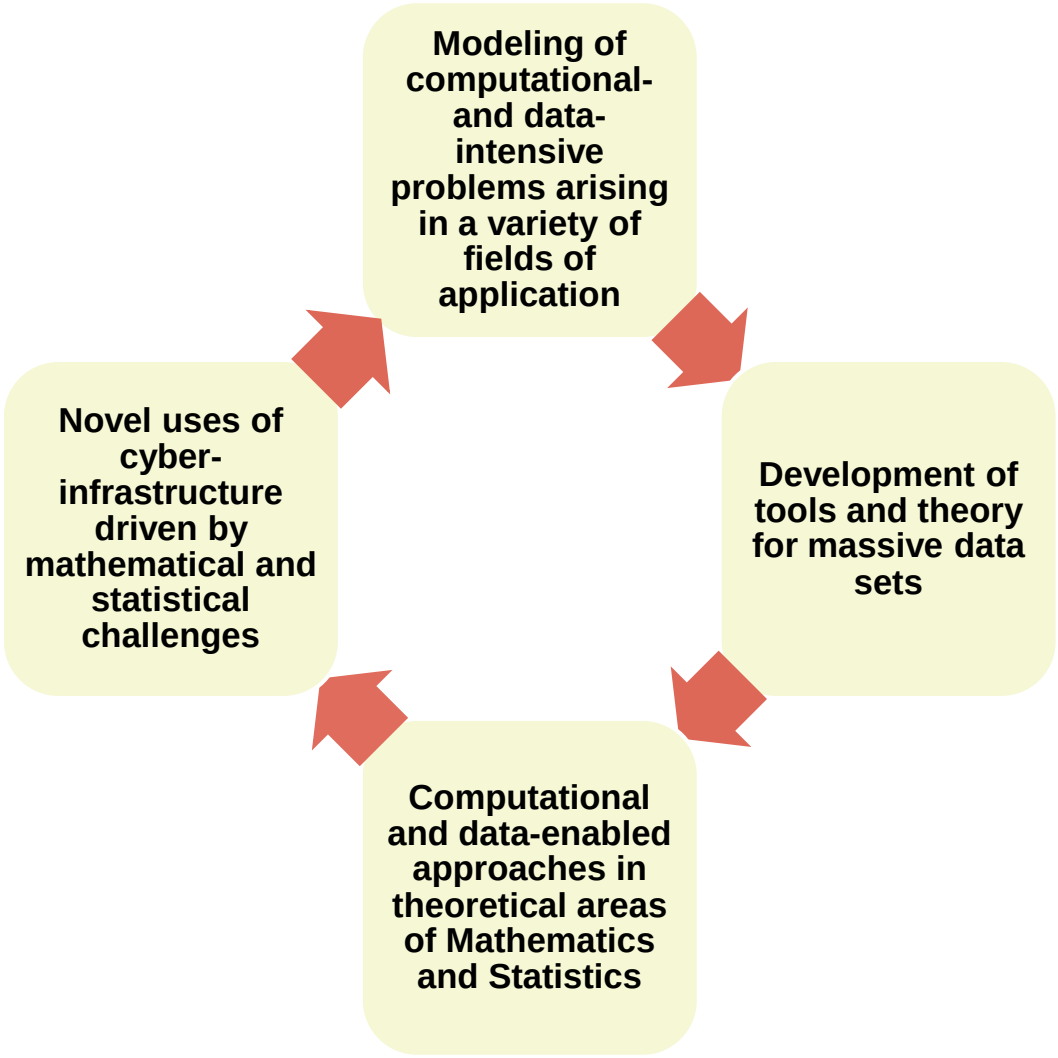
# CDS&E: A New Discipline

Lying at the intersection of applied mathematics, statistics, computer science, core science, and engineering, the field of computational and data-enabled science and engineering (CDS&E) complements Theory and Experimentation.

CDS&E has been transforming research and learning through the use of cyberinfrastructure to:

- model, simulate, measure, and visualize complex scientific and engineering concepts;
- create resources for scientific investigation and education;
- foster interdisciplinary collaborations.

# Mathematical and Statistical Research in CDS&E: Broadly Defined to Include

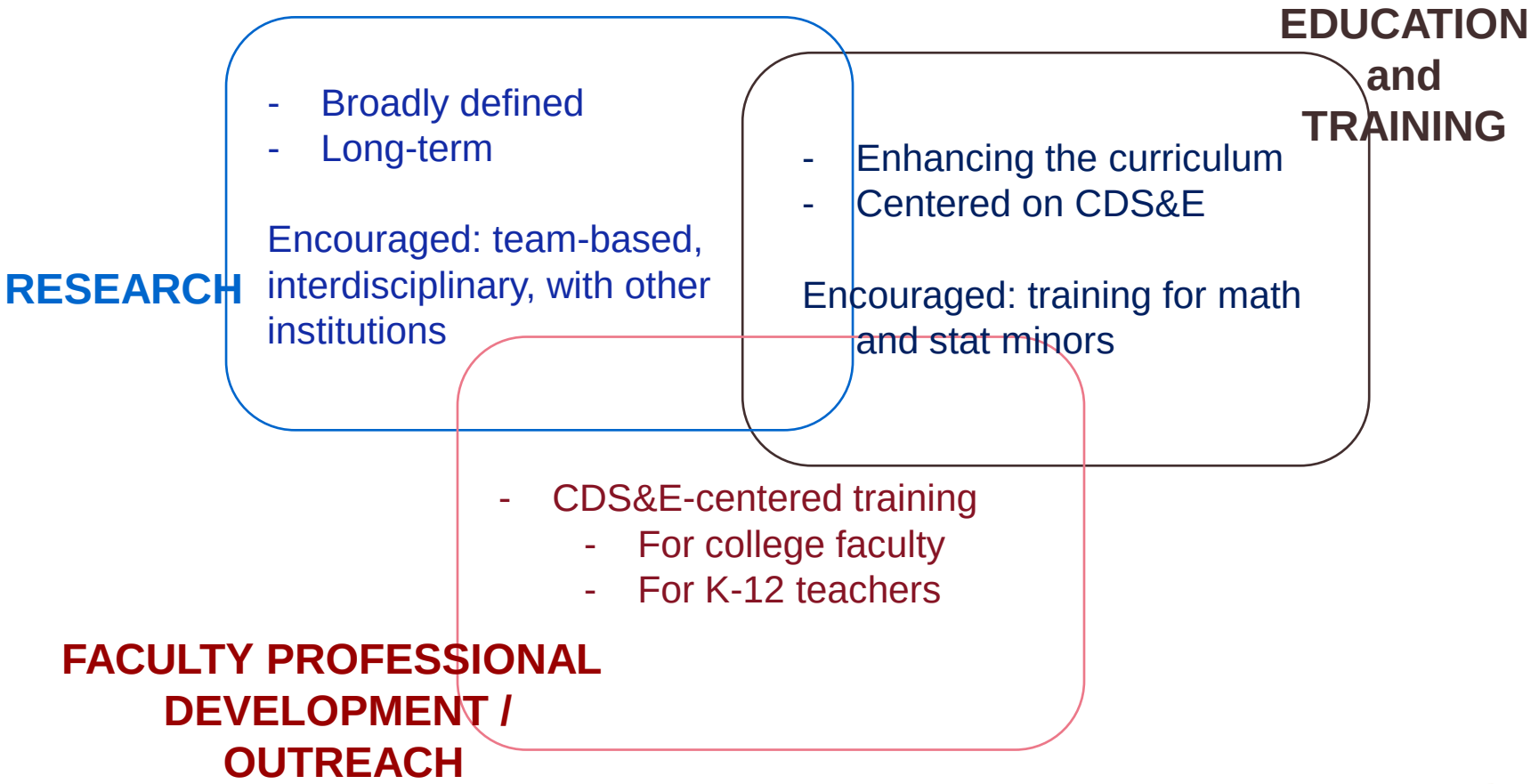



For other examples, please see Section I of the Program Solicitation

# Funded Projects: Expectations

- Undergraduate research/hands-on experiences centered on CDS&E;
- Significant changes to the undergraduate curriculum;
- Broad institutional support and department-wide commitment that encourage collaborations within and across disciplines;
- Professional development activities for faculty or K-12 teachers;
- Leverage and advance the use of cyberinfrastructure resources (e.g. data archives, networks) for data exploration.

# Required Project Components




Emphasis on the various components may be different.

# Cyberinfrastructure (CI): Priorities

- Educational activities that incorporate CI considerations, such as:
  - Hands-on engagement with CDS&E technologies (simulations, sensors, data-analytics, etc.);
  - Developing CI competences (programming, data management, simulation-building, etc.);
  - Cyber-enabled pedagogies (eBooks, online resources, etc.).

- Efforts that leverage and advance major NSF investments in CI:
  - Advanced computing systems;
  - Data storage systems and repositories;
  - Visualization environments;
  - Virtual organizations and collaboratories.

Examples of NSF CI investments can be found at http://www.nsf.gov/od/oci/cif21/cybinf_list.jsp

# Important Project Features

- Student Activities and Mentoring.
- Recruitment Plan.
- Post EXTREEMS-QED Plan.
- Dissemination/CDS&E Community-Building.
- Project Assessment, Evaluation, Reporting.

# Review Criteria

- Intellectual Merit: The Intellectual Merit criterion encompasses the potential to advance knowledge;

- Broader Impacts: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

- Check the New Proposal and Award Policies and Procedures Guide (Chapter III)!
  http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13001

# Solicitation-Specific Criteria

Transformative nature of the project:

- The potential to contribute to a paradigm-shifting integration of CDS&E into undergraduate STEM research, education and training.
- Development of model programs that enhance student learning and may be adapted easily by other sites.
- Impact on the training of faculty or K-12 teachers.

# Eligibility and Budget

- Universities and four-year colleges accredited in and having a campus located in the US acting on behalf of their faculty members.
- Two-year colleges or community colleges may serve as non-lead organizations in collaborative proposals or receive support via subcontracts.
- Total award sizes are limited to an average of $200,000 per year (or $250,000 per year when four-year colleges or universities collaborate with two-year colleges).

# Project Budget

May include items such as:

- Faculty salaries (including course buy-outs);
- Support for coordination activities;
- Equipment, and other direct costs (e.g., materials, publication costs, software/data development);
- Student stipends;
- Funds for organizing/attending workshops for faculty professional development.

# How many awards are anticipated?

- In FY 2013, up to $4 million will be invested in proposals submitted in response to this solicitation (subject to availability of funds).
- An estimated four to six awards will be funded during FY 2013.
- Some of the projects are expected to have five-year duration, and others to have a shorter (2-3 year) duration.

# How does one apply?

- Follow the instructions provided in:
  - The solicitation http://www.nsf.gov/pubs/2012/nsf12606/nsf12606.htm
  - The Proposal and Award Policies and Procedures Guide http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf13001
- Consult:
  - FastLane FAQ and Grants.gov FAQ: www.fastlane.gov
  - The Sponsored Research Office at your institution.

# Deadline

**Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

- **January 31, 2013**
- November 06, 2013
- First Wednesday in November, Annually Thereafter

# Questions and Answers

- For the remaining time, we will hold a Q&A session.
- Answers to questions will be included in the FAQ.
- Further questions?
  - EXTREEMS-QED FAQ to appear in a few days on http://www.nsf.gov/pubs/2012/nsf12606/nsf12606.htm
  - Email acalini@nsf.gov or nkannan@nsf.gov

# Credits



# THANK YOU