# Faculty and Student Development

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# XSEDE

Extreme Science and Engineering
Discovery Environment

NSF

# XSEDE Vision

The eXtreme Science and Engineering Discovery Environment (XSEDE):

enhances the productivity of scientists and engineers by providing them with new and innovative capabilities

and thus

*XSEDE accelerates open scientific discovery by enhancing the productivity of researchers, engineers, and scholars and making advanced digital resources easier to use.*

# XSEDE Education Mission

- To prepare a diverse community of the current and next generation of researchers, scholars, educators, and practitioners in the use of data analysis and management, modeling, simulation, and visualization techniques.

XSEDE

# Assistance with Program Development

- Campus visits
- Model programs and competencies to shorten the time to implementation
- Assistance with program proposals

# Developing Faculty Expertise

- Faculty professional development workshops
  - Two to six day workshops on a variety of topics
    - Computational thinking
    - Computational science education in science and engineering domains
  - Focus on local/regional audiences to reduce travel costs
  - Subsidies for faculty to travel to workshops at other sites
  - http://computationalscience.org/

# Special Workshops for Faculty and Students

- Development of synchronous and asynchronous education and training sessions
  - Multi-site broadcasts of workshops
  - Training and education modules (See http://www.xsede.org)
  - Experimenting with full courses that can be widely shared for credit and non-credit inclusion in curricula (e.g. https://www.xsede.org/education-outreach-blog/-/blogs/xsede-seeking-partner-institutions-to-offer-course-in-applications-of-parallel-computing

# Repository of Shared Materials

- Developing a repository of computational science education materials
  - Reviewed by professional staff and faculty
  - Indexed by subject and a detailed competency-based ontology
  - Goal: trusted, comprehensive source of information for computational science educators
  - http://hpcuniversity.org/resources/search/

# Some Other Opportunities

- Journal of Computational Science Education
  - [www.jocse.org](http://www.jocse.org)
  - Peer reviewed articles on computational science education experiences
- Become a reviewer or contributor to the online repository
- Blue Waters Graduate Fellowship Program
  - [https://bluewaters.ncsa.illinois.edu/fellowships](https://bluewaters.ncsa.illinois.edu/fellowships)

# XSEDE Scholars Program

- Select 40 undergraduate and graduate students in all domains annually for a year-long program

- Emphasis on under-represented students including women and minorities

- Students learn about HPC and XSEDE resources

- Students participate in annual XSEDE Conference

- Regular webinars on HPC technologies, programming methods, science, and mentoring

- Applications due in April 2014

XSEDE

# Summer Research Experience

- Select 10-15 undergraduate or graduate students annually for summer internships

- Students receive a 2 week institute to enhance their computational science skills

- Students are immersed in a summer internship with staff or users of XSEDE

- Students attend annual XSEDE Conference to share their research experiences

- Applications due near first of the year

# International HPC Summer School

- Annual week-long summer workshop engaging 80 graduate students and postdocs from Canada, Europe, Japan, and United States

- Hosted by Compute Canada, European Union Seventh Framework Program's Partnership for Advanced Computing in Europe (PRACE), RIKEN Advanced Institute for Computational Science (AICS), and XSEDE

- Students are immersed in HPC challenges in multiple disciplines, HPC programming proficiencies, performance analysis and profiling, algorithmic approaches and numerical libraries, data-intensive computing, and scientific visualization

XSEDE

# XSEDE Regional Workshops

- Two-day workshops for faculty and students

- Focus on getting started with XSEDE resources and XSEDE education program

- Concentration on education and training for underrepresented communities

# XSEDE[14]

JULY 13-18, 2014
ATLANTA MARRIOTT MARQUIS

Call for participation announced!

www.xsede.org/xsede14

# Collaborate on Program Development

- Take advantage of free XSEDE services
  - Education and training program
  - Workshops for faculty
  - Student courses
- Partner with XSEDE staff for funding additional education and research opportunities