XSEDE Education Program

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XSEDE

Extreme Science and Engineering Discovery Environment

XSEDE Education Program Goals

- Prepare the current and next generation of researchers, educators and practitioners.
- Create a significantly larger and more diverse workforce in computational sciences
- Inculcate the use of digital services as part of their routine practice for advancing discovery.

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

Special Workshops for Faculty and Students

- Development of synchronous and asynchronous education and training sessions
  - Multi-site broadcasts of workshops
  - Online training and education modules
  - Experimenting with full courses that can be widely shared for credit and non-credit inclusion in curricula (e.g. https://cvw.cac.cornell.edu/apc/default)

Blue Waters Online Courses

- Similar in format but focused on more advanced topics
- Topic for Spring 2016
  - Designing and Building Applications for Extreme Scale Systems
  - Taught by William Gropp, University of Illinois
- Possible second course
- Watch for formal announcements soon

Other XSEDE Online Materials

- https://portal.xsede.org/web/xup/online-training
- Materials on a wide range of technical topics
- Free self-paced tutorials
- Could be embedded in a class or used to help students advance their skills

XSEDE Badging Program

- Beginning to add assessments to both live and online training events
- Assessments used to earn a badge on that topic
- Should be added to a number of materials in the near future
- Provides a way to measure expertise for both academic and non-academic learners

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/

Opportunities for Students

- Blue Waters Graduate Fellowship Program
  - https://bluewaters.ncsa.illinois.edu/fellowships
  - Modeled after NSF fellowship
  - Students enrolled at US institution
  - US Citizens or landed immigrants
  - Focus on advanced computational science research that can use Blue Waters
  - Deadline this year – February 3, 2016

More Student Opportunities

- Blue Waters undergraduate internships
  - Year-long program for undergraduates
  - Two-week intensive training on parallel computing techniques
  - Work with a mentor on a project for the rest of the year
  - Need both applicants and mentors with projects

Some Other Opportunities

- Journal of Computational Science Education
  - www.jocse.org
  - Peer reviewed articles on computational science education experiences
- Become a reviewer for JOCSE or reviewer and contributor to the online repository

Opportunities for Students and Faculty

- Internships
  - Within XSEDE
  - List of opportunities on HPCU site
- Fellowships
  - Blue Waters Graduate Fellowship
- XSEDE Scholars Program
- Faculty workshops

New Chapter of the ACM

- SIGHPC Education Chapter
  - http://sighpceducation.acm.org/
  - Inexpensive to join
  - Webinars on education opportunities and programs
  - Reviewing training and education materials to create a list of high quality materials

Question and Discussion