Broadening Participation in Computing

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CISE Education & Workforce Program
BPC Department Plans Workshop
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# CISE BPC ACTIVITIES

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<td>CRA-W CREU and DREU</td>
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<td>Tapia, Grace Hopper</td>
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<td>PROFESSORS</td>
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% WOMEN OF INTENDED CS MAJORS

- Computer Science
- Physical Science
- Engineering

HERI Freshman Survey 2018
34% \downarrow \quad 17.0\%
CISE BP Strategic Plan

“It will take more than good intentions or business as usual, however, to reverse longstanding underrepresentation. It will take committed, focused, and sustained efforts on the part of many in the computing community.”
Guiding Principles for BPC Effort

• BPC requires culture change in colleges/universities, departments, classes, research groups, professional organizations & K-12
• Culture change begins with enhanced exposure to BPC throughout the CISE community
• PI engagement must be tailored to individuals and organizations as appropriate
BPC: A BRIEF TIMELINE

- **July 2017**: DCL NSF 17-110
- **June 2018**: Visioning Workshop Alexandria, VA
- **July 2018**: Department Chairs’ Workshop Salt Lake City, UT
- **July 2018**: Program Solicitation NSF 18-569
- **November 2018**: BPC Review-O-Rama
- **November 2019**: Dept Plans
- **March 2018**: Infrastructure Workshop Alexandria, VA
- **October 2018**: BPC Showcase Alexandria, VA
- **January 2019**: BPCnet Live!
Components of BPC effort

Requirements: Encourage → Require meaningful BPC activity in an expanding set of CISE Programs

Support: Provide resources and support for PIs

Review/Report: Require reporting of BP outcomes in annual reports
Multiple Approaches to BPC Requirement

- Research Activities
- Faculty Development
- Departmental Development
- Outreach Activities
Broadening Participation in Computing (BPC)

- BPC requires culture change in the computing community
  - increased exposure and engagement
- CISE now requires meaningful BPC activities in all Core research programs
  - Equip program officers and reviewers to evaluate BPC activities in proposals
- White paper of best practices and resources on BPCnet.org
**Getting Started**

**Context**
- Describes problem and goal
  - Clearly describe the problem you seek to serve with your initiative; identify the target population and how the intervention will serve their unique needs
  - Mentions one or more BPC activities that PI will engage in

**Evolving**
- Aligns problem and goal with needs of target population; Exhibits some awareness of BPC issues
  - Describes one or more BPC activities and how PI will be involved
  - Describes plan for engaging with partners and use of tools and resources to support activities

**Impactful**
- Aligns problem or goal with needs and strengths of target population and informed by evidence and prior BPC work
  - Provides cohesive set of well-described BPC realistic and achievable activities connected to goals and needs; Builds on evidence-based approaches and BPC resources

**Strategy**
- Provides clear plan with timeline and personnel and builds on evidence-based BPC approaches
- Describes plan for engaging with partners and use of tools and resources to support activities
- Identifies underrepresented population with a demonstrated understanding of cultural competency and cultural relevance of overall plan and its intended impact

**Resources**
- Lists potential partners, tools, and resources
- Identify how partners, tools, and resources will be leveraged to inform and support needs of identified population
- Describes plan for engaging with partners and use of tools and resources to support activities
-Builds knowledge of evidence-based BPC tools and resources and establish partnerships to inform and support their use

**Target**
- Utilizes local and national data to make informed decisions about population to serve; consider relevant demographics for the target population in all aspects of BPC plan; use data to select activities
- Identifies underrepresented population with a demonstrated understanding of cultural competency and cultural relevance of overall plan and its intended impact
- Identify strengths and needs of target population, build collaborations with identified population, and provide evidence of authentic partnerships
- Authentically involves underrepresented population is in the strategies identified in the plan, including planning, activities and dissemination

**Measurement & Dissemination**
- Tracks already-collected data for your department or institution about the target group
- Describe measures; connect measures to activities; develop plan to share results within institution
- Describes measurement plan to collect data at one time point to identify needs and goals; Provides local dissemination plan
- Aligns data collection efforts with goals; develop an iterative process to use data to strengthen efforts over time; use validated assessment instruments; Identify internal and external audiences for dissemination
- Uses data on current BPC status; measurement plan and metrics are aligned with goals; system for using the results to inform strategies; dissemination plan to reach target population and BPC community
- Developed and curated by CRA (M. Hall, N. Amato) and NCWIT (L. Sanders, D. Richardson)
- Best and promising practices: Evidence-based and vetted resources
- Programs-in-a-box
- Not just *What* but *How*
- Showcase for BPC-A Alliances, NSF-supported projects, etc.
White paper

• 2 experts from each panel
  Captured what was learned
  from the panels

• Created a description of
  components and
  characteristics of meaningful
  BPC plans
Key Takeaways of White Paper

• Ideal BPC plan is well-developed, impactful, and cohesive
  • Describes an evidence-based, sustained response to a well-articulated aspect of broadening participation

• Many CISE PIs, especially those new to BPC, will not initially be in a position to develop or execute such an ideal plan
  • Every effort should be made, however, to articulate a plan in which the actions and impacts are clear and compelling.
Encourage units to develop their own departmental BPC plans to which their faculty can contribute
  • e.g., 1-2 pages of department plan + 1 page of project-specific plan
  • Enable *sustained* cultural change & assessment of impact

**BPC Plan Components**
  • Context: What are your demographics and local challenges/opportunities?
  • BPC Mission: What is the strategic mission of your dept w.r.t BPC?
  • Goals and Activities: What are your specific and measurable goals? What activities contribute to those goals?
  • Metrics for success: How will you monitor and review progress toward BPC goals?
BPC Plan Logistics

- CISE Core Solicitation (19-589)
  - Medium & Large must have approved plan at time of award
  - Proposals that submit plan will receive comments
  - PO

- Common Pitfalls
  - Broader Impacts != BPC
  - Assuming BPC → K12 Outreach
  - Novelty vs. building upon best practices and existing efforts
  - Not connecting activities to BP goals
  - Listing goals without strategies
Talent is everywhere. Not all talent has access.

- Megan Smith, former U.S. Chief Technology Officer