Broadening Participation

NSF AND BEYOND

MPS CEOSE LIAISON
ROBERT MEGGINSON

Committee on Equal Opportunities in Science and Engineering (CEOSE)

- CEOSE
- Congressionally mandated advisory committee to the NSF that reports to Congress biennially http://www.nsf.gov/od/oia/activities/ceose/index.jsp (just Google NSF CEOSE)
- 13-16 members, mostly from universities (http://nsf.gov/od/oia/activities/ceose/members.jsp)
- Diverse in gender, race/ethnicity, position; discipline, region, age, disabilities

Committee on Equal Opportunities in Science and Engineering (CEOSE)

- Provides advice concerning:
  - Implementation of the provisions of the Science and Engineering Equal Opportunities Act
  - Other policies and activities to encourage full participation of women, minorities and persons with disabilities in STEM
- Has 3 meetings per year
- 166 CEOSE recommendations beginning with first biennial report to Congress in 1996

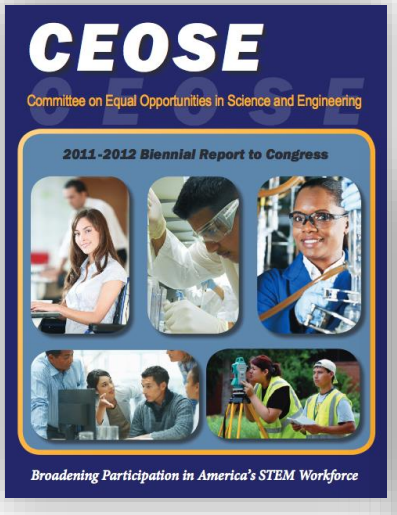
Committee on Equal Opportunities in Science and Engineering (CEOSE)

- Leadership:
  - Dr. Ira Harkavy, Chair (Associate Vice President and Founding Director, Barbara and Edward Netter Center for Community Partnerships, University of Pennsylvania
  - Dr. Louis Martin-Vega, Vice-Chair, Professor and Dean, College of Engineering, North Carolina State University
- Membership (13–16):
  - Members serve as a CEOSE liaison to another advisory committee (13 besides CEOSE itself) within NSF
    - Bob Megginson, Professor of Mathematics, University of Michigan – MPS AC
- CEOSE Federal Liaisons – Reps from other federal agencies

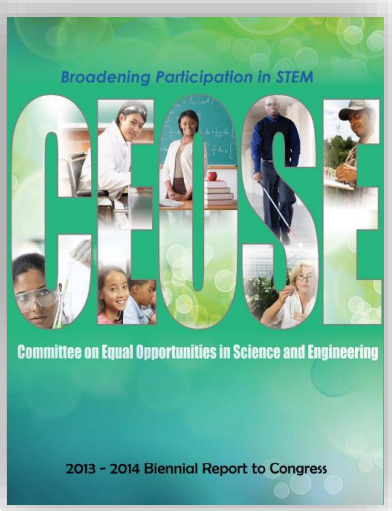
CEOSE Reports

Every two years, the Committee prepares and transmits to the NSF Director a report on its activities during the previous two years and proposed activities for the next two years.

The Director transmits to Congress the report, unaltered, together with such comments as the Director deems appropriate.



2011-2012 Report



2013-2014 Report

Reports from 1996-2014: http://www.nsf.gov/od/oia/activities/ceose/index.jsp

2011-2012 CEOSE Report

Lays the groundwork for a new direction: To better address **emerging challenges** and the **limited progress being made** in improving broadening participation in STEM, as well as the findings in this report and other national reports, the Committee on Equal Opportunities in Science and Engineering recommends that **NSF implement a bold new initiative**, focused on broadening participation of underrepresented groups in STEM, similar in concept and scale to NSF's centers, that emphasizes **institutional transformation and system change**; collects and makes accessible **longitudinal data**; defines **clear benchmarks** for success; supports the translation, replication and expansion of **successful broadening participation efforts**; and provides significant **financial support to individuals** who represent the very broadened participation that we seek.

2013-2014 CEOSE Report

CEOSE elaborates on how to implement the bold initiative through a framework of **five essential practical components** for successful implementation:

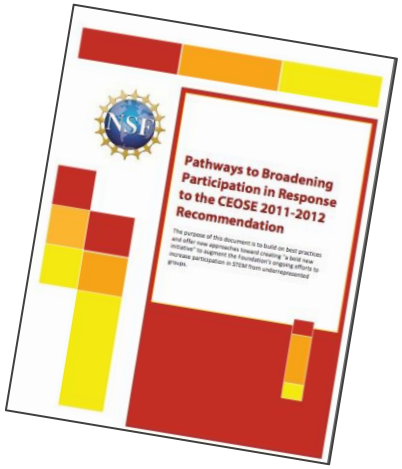
- Develop and implement an effective preK-20+ system of STEM pathways that significantly increase participation of underrepresented individuals at every stage of schooling and across all STEM fields;
- Provide stable and sufficient direct support for individuals who represent the very broadened participation that we ultimately seek;

2013-2014 CEOSE Report

- ***Support the further development of a science of broadening participation grounded in empirical research***; obviously requires involvement of the social sciences
- Conduct field experiments including assessment of interventions and outcomes to understand and mitigate the barriers to broadening participation; and
- Recognize the field-specific nature of the broadening participation challenge by embedding and engaging the bold initiative within and across all NSF directorates and divisions. (All hands on deck, but the oars may be different.)

What is NSF doing with Broadening Participation in Response to the CEOSE Recommendation for a Bold Initiative?

- Broadening Participation Working Group
  - Established April 2007; predates CEOSE 2011–2012 report
- Pathways to Broadening Participation in Response to the CEOSE 2011-2012 Recommendation
  https://www.nsf.gov/od/broadeningparticipation/PathwaysToBroadeningParticipationInResponseToCEOSE2011-2012Recommendation_Nov2014.pdf
- Contains an appendix with an extensive list of resources for those served by MPS



Coming Soon:
https://www.nsf.gov/mps/broadening_participation/index.jsp

MPS Broadening Participation Resources

NSF has a strong commitment to broadening participation. Groups underrepresented in MPS research include women, African Americans, Hispanic Americans, Native Americans, and persons with disabilities.

The links below provide a sampling of information that may help Principal Investigators and others in broadening participation in their activities. This list is not meant to be exhaustive or to imply any special endorsement by MPS (or NSF).

Recruitment

- NSB Report: The Science and Engineering Workforce - Realizing America's Potential 03-69
- NSB Report on Broadening Participation 04-41
- Race-Neutral Approaches to Diversity [student recruitment]
- Finding Qualified Minorities and Women [faculty recruitment]
- Faculty Recruitment Handbook (U MI) [faculty recruitment]
- Disabilities Workshop Final Report
- Sloan Manual [student recruitment]
- American Psychological Association Minority Recruitment, Retention, and Training [faculty recruitment]

RETENTION and MENTORING

- Preparing Women and Minorities for the IT Workforce [retention of students]
- MentorNet [mentoring students through untenured faculty]
- Optimizing the Learning Environment for Students with Disabilities [including links to laws and other resources, broken down by disability type]
- Visual Impairment Links [employee retention, with links to other resources]
- American Psychological Association Minority Recruitment, Retention, and Training [faculty recruitment]

RESOURCES

- NSF Statistics: Science and Engineering Indicators
- Implicit Association Tests
- Diversity Myths and Realities
- 2007 Diversity Update
- Land of Plenty report: Diversity as America's Competitive Edge in Science, Engineering and Technology
- NSF-Funded Science Diversity Center
- Gender Equity Indicators in the USA
- National Institutes of Health (NIH) The Office of Research on Women's Health (ORWH)
- NIH Women of Color
- National Academies' Committee on Women in Science, Engineering, and Medicine (CWSEM)

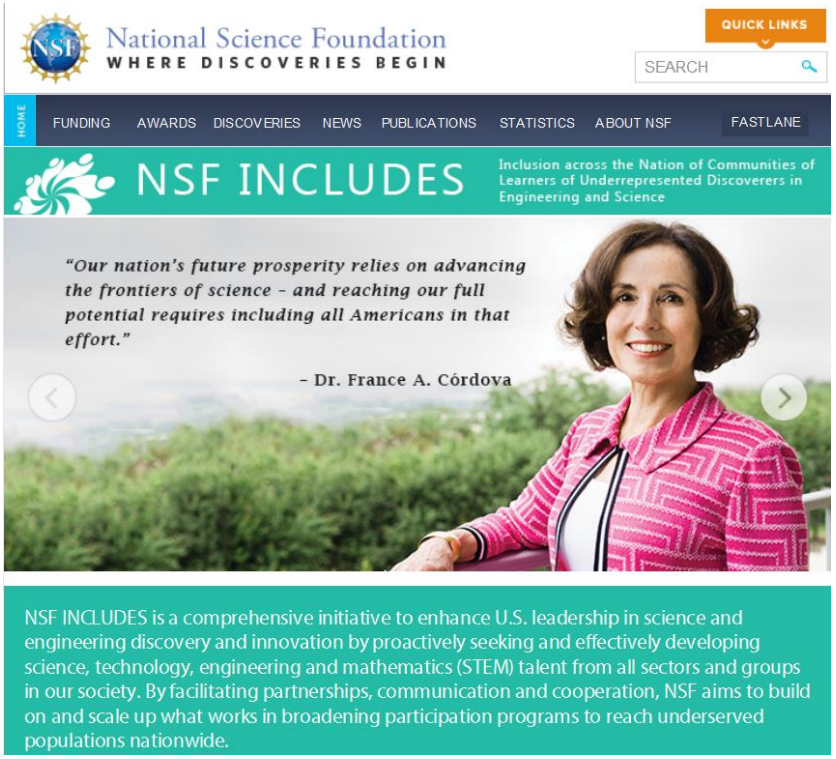
NETWORKS and ORGANIZATIONS

- National Federation for the Blind (NFB) Learning Resources [includes link to NSF supported National Center for Blind Youth in Science]:
- Society for Advancement of Chicanos and Native Americans in Science (SACNAS)
- National Organization for the Professional Advancement of Black Chemists & Chemical Engineers (NOBCChE)
- National Society of Black Physicists (NSBP)
- American Indian Science & Engineering Society (AISES)
- National Society of Hispanic Physicists (NSHP)
- Women in Engineering Programs and Advocates Network (WEPAN)
- Association for Women in Science (AWIS)
- American Association of University Women (AAUW)

NSF INCLUDES

- **I**nclusion across the **N**ation of **C**ommunities of **L**earners of **U**nderrepresented **D**iscoverers in **E**ngineering and **S**cience
- FY16 Budget Request - $15.5 million and
  FY17 Budget Request - $16.0 million
- Mobilize the STEM communities to bring renewed focus to solving broadening participation (BP) challenges by addressing a set of "bold visions for inclusion" at the national level, collectively.

NSF INCLUDES



http://www.nsf.gov/news/special_reports/nsfincludes/index.jsp?WT.mc_id=USNSF_51

CEOSE – February 2016

- Theme: Building an Accountability System for Broadening Participation
- Topics: NSF INCLUDES, Broadening Participation Research, BP Program Evaluation in CISE, Evaluation and Assessment Frameworks for a Bold New Initiative, 2015-2016 CEOSE Report to Congress

February 2016 CEOSE Meeting

- Five new members: Dr. Garikai Campbell, Morehouse College; Dr. Peter Eden, Landmark College; Dr. Jose Fuentes, Pennsylvania State University; Dr. Loretta Moore, Jackson State University, and Dr. Nai-chang Yeh, California Institute of Technology
- Co-Chairs of the NSF INCLUDES (Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science) updated CEOSE on what has happened with the INCLUDES initiative over the past year (e.g., Internal and external stakeholder input; Science and Technology Policy Institute's (STPI's) work on the broadening participation portfolio across NSF; a Dear Colleague Letter notifying universities and other interested parties about the solicitation for pilots

- The Science and Technology Policy Institute discussion with CEOSE revolved around how to measure the value and/or impact of the programs, whether there are patterns of success, how to measure impact through sustained collaboration, and whether there are pathways or connections between or among programs.
- The Chair of CEOSE focusing on what implementation science is and the need for participatory action research to promote the inclusive involvement of individuals affected in all stages of the research process.

- Panel Discussion: Evaluation of NSF BP Programs in CISE (Directorate for Computer and Information Science and Engineering) focused on evaluation challenges. Challenges include different goals, methods, approaches, scales (national, local, etc.) of the projects funded, documenting at the institution level, variations in aggregation of alliance data at the program level, and measuring institutional change and infrastructure development outcomes as well as individual level outcomes.
- CEOSE members' discussion with the Director focused on the next CEOSE report, which will focus on accountability—what it means for NSF to hold a community accountable, what it means to hold individual institutions accountable, and what it means for NSF to hold itself accountable.

- Part of the broadening participation discussion that CEOSE is having with the ADs is to determine what worked and what didn't. We need access to relevant evaluation programs at the project and program levels. Such information will help CEOSE's efforts in developing an accountability framework.
- The next CEOSE meeting will be held June 8-9, 2016 and the following meeting October 13-14 will be an on-site rather than virtual meeting and will follow the accountability workshop.

2015-2016 CEOSE Report

- Focus on Accountability and Metrics
  - NSF
  - Institutions and Investigators funded by NSF
- Focus on "What has worked" and "How to Scale"
- NSF Evaluation and Assessment Capability
  - Key partner in this effort

CEOSE

Thank You!