

**COMMITTEE ON EQUAL OPPORTUNITIES IN
SCIENCE AND ENGINEERING (CEOSE)
National Science Foundation**

**MEETING MINUTES
June 24 - 25, 2015**

MEETING PARTICIPANTS

CEOSE Members Present

Dr. Mary M Atwater, The University of Georgia
Dr. Karl S. Booksh, University of Delaware, DE
Dr. Nancy Cantor, Rutgers University - Newark
Dr. C. Michael Gooden, Integrated Systems Analysts, Inc.
Dr. Ira Harkavy, CEOSE Vice Chair, University of Pennsylvania, Philadelphia, PA
Dr. Robert Jones, University at Albany, NY
Dr. Alicia Knoedler, University of Oklahoma
Dr. Daniela Marghitu, Auburn University
Dr. Louis Martin-Vega, North Carolina State University
Dr. Robert Eugene Megginson, University of Michigan
Dr. George Middendorf, Howard University, Washington, DC
Dr. Wendy Raymond, CEOSE Chair, Williams College, Williamstown, MA
Dr. Keivan G. Stassun, Vanderbilt University, TN
Dr. Lydia Villa-Komaroff, Cytonome/ST
Dr. Joseph A. Whittaker, Morgan State University, MD

CEOSE Members Absent

Dr. Charles Isbell, Georgia Institute of Technology, GA

Federal Agency Liaisons Present

Dr. Johnnetta B. Cole, Smithsonian Institution
Dr. Meldon Hollis, White House Initiative on Historically Black Colleges and Universities

Speakers/Panelists

Dr. Orlando Taylor, Chicago School of Professional Psychology
Dr. Kimarie Engerman, University of the Virgin Islands
Dr. Christa Washington, North Carolina State University
Dr. Clytrice Watson, Delaware State University
Dr. Kelly Mack, Association of American Colleges and Universities
Dr. Jaquelina Falkenheim, NSF/SBE/NCSES
Ms. Katherine Hale, NSF/SBE/NCSES
Ms. Nora Boretti, Government Accountability Office
Dr. Scott Edwards, Harvard University

Dr. Lydia Villa-Komaroff, Cytonome/ST
Dr. Bevlee Watford, NSF/ENG/EEC
Dr. Sally Dickerson, NSF/SBE/BCS
Dr. Kathleen McCloud, NSF/MPS/OAD
Dr. F. Fleming Crim, NSF/MPS/OAD
Dr. Pramod Khargonekar, NSF/ENG/OAD
Dr. James Kurose, NSF/CISE
Dr. Joan Ferrini-Mundy, NSF/EHR
Dr. Clifford J. Gabriel, NSF/OD
Dr. Margaret Cavanaugh, NSF/GEO
Dr. Jane Silverthorne, NSF/BIO/OAD
Dr. Wanda E. Ward, NSF/OD/OIA

CEOSE Designated Federal Officer – Executive Liaison

Dr. Wanda E. Ward, Office Head, Office of Integrative Activities (OIA), National Science Foundation (NSF)

CEOSE Acting Executive Secretary

Dr. Joan Burrelli, Senior Analyst, NSF/OIA

CEOSE Scientific/Technical/Administrative Staff

Mr. Steven Buhneing, IT Specialist, NSF/OIA

Ms. Victoria Fung, Program Analyst, NSF/OIA

Day One

June 24, 2015

Welcome/Introduction

Dr. Wendy Raymond, CEOSE Chair, called the meeting to order and welcomed CEOSE members and other meeting attendees. Following introductions and announcements, she reported on the Executive Teleconference with Dr. Richard Buckius, Chief Operating Officer/NSF, held June 15, 2015. Information discussed included an overview of the FY 2016 budget and potential budget cuts for SBE and GEO, Dr. Córdoba's meetings with the Congressional Black and Hispanic Caucuses, and the NSF INCLUDES workshop. Additionally, Dr. Raymond congratulated Dr. Wanda Ward on her appointment as Assistant Director for Broadening Participation in the Office of Science and Technology Policy (OSTP). She also thanked CEOSE members, and particularly Keivan Stassun, for completing the CEOSE biennial report to Congress. CEOSE members also identified topics to discuss with NSF Leadership.

NSF Executive Liaison Report

Dr. Wanda E. Ward, CEOSE Executive Liaison and Head of the Office of Integrative Activities (OIA), thanked CEOSE for their constructive engagement with NSF, their forward-looking posture, and their contribution to the national agenda on broadening participation. She introduced Dr. Suzanne Iacono, who replaces her as Head of the Office of Integrative Activities and as CEOSE Executive Liaison. Dr. Ward mentioned the White House Forum on Excellence and Innovation Through Diversity in the STEM Workforce that was held June 22-23, 2015 and some of the topics addressed, and mentioned the approximately 20 Science of Science and Innovation Policy representatives at NSF for 10 weeks. She noted that CEOSE's 2011-12 report to Congress catalyzed and served as a major driver for the FY 2016 budget and for the INCLUDES initiative. She also noted that this is the last meeting for Drs. Keivan Stassun, Joe Whittaker, and Karl Booksh and that CEOSE needs to be thinking about who will serve as liaisons to the NSF Advisory Committees.

Other updates included:

- The NSF Evaluation and Assessment Capability initiative includes reference to the evaluation of broadening participation under the FY 2016 budget.

- The NSF Broadening Participation initiative launched an internal BP challenge series. The first was for ideas for improving diversity among proposal submitters. The second will be on ideas for future directions for the BP portfolio.
- NSF had input into Gender Summit 5 – South Africa. Drs. Ward and Cantor were speakers.

Leadership Panel Discussion: FY2016 INCLUDES Initiative

Following introductions, representatives from the NSF directorates discussed the INCLUDES (Inclusion Across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science) initiative beginning with the recent Director’s Workshop on June 3.

The Assistant Directors (ADs) and representatives from NSF directorates praised the rich discussion and input from the community at the workshop and the many potential directions and ideas that came out of the meeting, and stressed that NSF is in the early stages of defining the focus of the initiative. Dr. Joan Ferrini-Mundy noted that there needs to be a bit of discussion on what is meant by broadening participation in order to set goals, for example, is the goal to move more rapidly in broadening participation? is it closing the K-12 achievement gap? CEOSE input on that definition and on clarification on outcomes expected would be appreciated. The ADs noted the need for large networks and alliances for sustainability, and the need for stakeholders to come together on common directions, goals, and measurements. CEOSE members expressed concern about the availability of funding to sustain INCLUDES, the need to not lose sight of the individuals while concentrating on the big picture, the need to involve social science in the effort, and the need to broaden the community of voices at the table. One particular issue was the lack of a community of disability and how that must be taken into account in the framework of INCLUDES. One solution put forth would be sets of smaller alliances around concerns; another could be programs that don’t require self-identification. Other topics of discussion were the GLOBE program in the Geosciences Directorate and ways to establish some new partnerships within that framework. ADs expressed NSF-wide support and funding for INCLUDES as well as input at the division level. In terms of INCLUDES, one idea raised was that of a focus on first-generation college-goers. CEOSE, while acknowledging the importance of economic status, pointed out the need to continue to focus on underrepresented group with a special focus on race.

Discussion with NSF Director

Dr. Raymond welcomed Dr. Buckius, NSF Chief Operating Officer, who was representing the NSF Director, Dr. Córdoba. Dr. Buckius praised the 2013-14 CEOSE report and mentioned that in their June 15 teleconference, Drs. Raymond and Harkavy expressed a lot of interest in the FY 2016 budget. He presented a series of slides on the budget showing a number of scenarios under the various House and Senate bills and noted that nothing is settled yet. Planning for the FY 2017 budget request to Congress is currently underway and the submission to OMB is due on September 14.

Discussion with CEOSE members centered on the impact of expected budget cuts on NSF’s broadening participation efforts. Dr. Buckius noted that NSF has several budget scenarios and contingency plans and that INCLUDES will move forward under all of the current scenarios as it has the strong support of the Director and the ADs. The strongest challenge is how to involve the wider community. Because CEOSE reaches into many communities, it has a role in extending that reach, such as involvement with professional societies. In light of current budget constraints, CEOSE also

expressed concern that a large fraction of research budgets go to facilities and that broadening participation needs to become a bigger part of facilities. Dr. Iacono said that for large investments, all have a large outreach component, but are not doing it across the board and showing the impact. CEOSE noted that people need guidance on broadening participation and they need better data. One solution could be a portal-type mechanism, such as the EPSCoR or ADVANCE portals, to disseminate data and expertise.

Other topics addressed included the need to focus on inclusion around the intersectionality issues of race, gender and/or disability and the committee's plan to move to accountability in the next biennial report to Congress.

At the end of the discussion, Dr. Raymond noted that several members are leaving the committee and that Dr. Iacono will be collecting nominations for CEOSE membership that will be forwarded to the Director for final decision on appointments.

NSF Broadening Participation Working Group Update

Dr. Bevlee Watford updated CEOSE on the history and recent activities of the NSF Broadening Participation Working Group, noting that the current working group was formed in 2014 to provide a response to CEOSE's 2011-2012 broad vision. Their second report, the Framework for Action, is still waiting sign off from the Office of the Director. The working group's IdeaShare challenge went out on February 9, 2015 and had the second highest response rate to any IdeaShare challenge, the next IdeaShare challenge will come out shortly. Right now, the working group needs some new leadership and new members. Dr. Iacono is stepping in as chair, and will appoint new members to replace those members who have left. In response to a CEOSE question about funding of the working group, Dr. Iacono said the broadening participation projects get money from all over the Foundation and that potential FY2016 budget cuts for NSF are not necessarily budget cuts for broadening participation. In response to another CEOSE question about minority faculty IPAs, Dr. Watson stated that for many minority faculty, coming to NSF is something they have not considered, and advertising for rotator positions could be improved. CEOSE underscored the importance of the Broadening Participation Working Group to NSF and to CEOSE because of their connection to NSF and to the community of principal investigators. In response to a CEOSE question about best practices and barriers to participation, Dr. Watford stated that, although we have a handle on programs that work, we do not have a lot of information on successful broadening participation activities that are part of awards of programs not included in the broadening participation portfolio.

Day one adjourned at 5:00pm.

Day two

February 26, 2015

The Chair began the second day of the meeting by reminding members that changes are happening in leadership and membership. Dr. Ward is leaving and Dr. Iacono is taking her place and Drs. Whittaker, Booksh, and Stassun will be leaving soon. Dr. Ward explained the structure of advisory committees and term appointments and the need to maintain continuity in a balanced way and informed the committee that Dr. Córdova will be seeking nominations for CEOSE membership

Panel Discussion: Women of Color in Academic Leadership—Opportunities for Underrepresented Scholars (OURS) program

Dr. Orlando Taylor, of the Chicago School of Professional Psychology, and principal investigator for the Opportunities for Underrepresented Scholars: Women of Color in Academic Leadership (OURS) program, presented data on the extent of underrepresentation of women, and particularly women of color, in STEM and among STEM faculty. He presented information on the OURS program whose mission is to increase the pool of women, especially women of color, in the STEM disciplines, for leadership roles in STEM and other institutional roles at both Historically Black Colleges and Universities and Tribal Colleges and Universities. The OURS program includes a 10- month online graduate curriculum based on Institutional Needs Assessments and Individual Leadership Effectiveness Assessments, requires an action learning project at the home campus, and provides access to a career and personal coach to each participant. Within the first year of the program, approximately 30% of OURS graduates were promoted to leadership positions.

Three successful graduates of the OURS program—Dr. Christa Washington, North Carolina State University, Dr. Kimarie Engerman, University of the Virgin Islands, and Dr. Clytrice Watson, Delaware State University—presented information on their action learning projects, which included developing a first-year student leadership program, improving academic advising services, and implementing a faculty development program on the promotion and tenure process.

CEOSE asked the group about dissemination of the model, connections with search committees, and the issue of leadership vs. power. Dr. Kelly Mack, who organized and presented at the OURS session at the Gender Summit 5 – South Africa, explained that some power is power by association and that the OURS program participants have mentors which give access to seats of power. Dr. Ward thanked the group, noted the impact of their presentations in South Africa, and encouraged CEOSE to think about the issue of STEM leadership development for women of color as well as other underrepresented groups.

Presentation on Women, Minorities, and Persons with Disabilities in Science and Engineering Digest

Dr. Jaquelina Falkenheim and Ms. Katherine Hale of the NSF National Center for Science and Engineering Statistics (NCSES/NSF) thanked CEOSE for its letter to the Census Bureau supporting keeping the question on field of bachelor's degree in Census's American Community Survey. In response to CEOSE's and others concerns, Census decided to keep the question, thus ensuring that NSF will continue to have quality data on participation by members of underrepresented groups in the STEM workforce.

Dr. Falkenheim and Ms. Hale provided an overview of the report *Women, Minorities, and Persons with Disabilities in Science and Engineering*, a biennial report that was first published in 1982 in response to the Science and Engineering Equal Opportunities Act. The report's Digest has key statistics in areas like enrollment, field of the degree, employment status, occupation, and academic appointment. They presented a number of charts from the report and some of the main "takeaway"

findings including:

- In terms of degree awards, women are well represented in psychology, the biological sciences, and the social sciences (excluding economics).
- Women are better represented in these fields than in more math-intensive fields such as engineering, computer sciences, mathematics, and the physical sciences.
- Underrepresented minorities also fare better in psychology and the social sciences (excluding economics) than in other S&E fields but these groups are still not close to being fairly represented.
- Women and underrepresented minorities are more likely to be in occupations that involve training in the social sciences, counseling, or health. Women are less likely than men to be employed as scientists in math-based fields such as engineering and the physical sciences.
- In academic employment, women have made substantial progress across all S&E fields; progress has been slower for underrepresented minorities.

They also provided a demonstration of how to access the web-based source of data for the *Women, Minorities, and Persons with Disabilities in Science and Engineering* report.

CEOSE members commented on the term “math-based disciplines” which, although useful in some contexts, detracts from problems in some areas, e.g., geosciences that are not as math-based, on the lack of mention of master’s degree data, on the lack of focus on persons with disabilities in the report, on changes in the disability question in the Survey of Earned Doctorates, and on the lack of inclusion of science and math education in the definition of science and engineering. Dr. Falkenheim noted that there are data on master’s degrees and master’s en route to the PhD, that the organization of the Digest (and elimination of the separate section on disabilities) was changed in response to a reviewer comment, but that that section could be included in the next edition, that the change in the disability question was a government-wide mandate, and that data on science and math education are available although not included under the definition of science and engineering.

Thematic Focus on Women and Girls in STEM

Ms. Nora Boretti, of the Government Accountability Office (GAO), reported on GAO’s recent report “Women in STEM Research: Federal Agencies Differ in the Data They Collect on Grant Applicants (GAO-15-291R). The report is the first of two requested by Congresswomen Eddie Bernice Johnson, Rosa DeLauro, and Louise M. Slaughter. It looks at what data are collected on grant applicants in six agencies—the National Institutes of Health, National Science Foundation, Department of Defense, Department of Energy, National Aeronautics and Space Administration, and Department of Agriculture—that represent 90% of federal STEM research. The authors excluded social sciences and psychology from the study because they wanted to focus on the fields in which women are underrepresented. They focused on what data elements federal agencies collect and how they are housed and tracked. Of the six agencies, only NSF has no disciplinary information. DOD, DOE, and NASA have no data on sex or race of grant applicants and they have only partially or minimally integrated data systems.

GAO is now working on the second report which will focus on women’s participation in federal research and which will analyze data available on success rates, examine what federal agencies are doing to enforce Title IX, and examine what actions federal agencies could take.

CEOSE members expressed concern that the report is excluding psychology and the social sciences. In some social science fields, such as economics, women are underrepresented, and in fields where women are well represented, they may not be receiving grants at a proportional rate. In addition, at NSF, grants under cross-cutting initiatives, such as climate change, may include social sciences. CEOSE members recommended including psychology and the social sciences in the study, suggested that GAO look in NSF's data mining tools, and recommended that GAO take into account the problems with missing demographic data.

CEOSE member Dr. Lydia Villa-Komaroff, co-chair of the National Academy of Science's Committee on Advancing Institutional Transformation for Minority Women in Academia, reported on the Academy's workshop "Seeking Solutions: Maximizing American Talent by Advancing Women of Color in Academia." The Committee commissioned several reports for the conference. Donna Ginther and Shulamit Kahn's report, which focused on career pathways, found that women of color are less likely to graduate from college, to get a PhD in science and engineering, to get a tenure track job in a non-minority academic institution, and are more likely to be in a non-tenure track positions and in a minority-serving institutions. Sylvia Hurtado's report found that women of color disproportionately occupy positions with the least power and authority and they are least likely to be full professors. A presentation by Joan Williams at the conference focused on biases faced by all women and by women of color. She found that African American women are judged more harshly than are white women or African American men when they make mistakes; African American women are expected to fail, but when they do not, the reason is assumed to be charity rather than merit; Hispanics appear to be subject to assumptions of even lower competence than African American women; Hispanic women are also assumed to be new immigrants, with the associated negative class and competence biases; and Asian American women tend to be viewed as either technically competent but lacking in leadership abilities, or as passive and therefore less competent.

CEOSE members recognized that the topic of implicit bias is important, but that many postsecondary students are not at the point where it is mainly implicit bias. They mentioned that there are still roadblocks, such as the Graduate Record Examination, that limit students from underrepresented groups' access to graduate education. Members also questioned the use of the term implicit bias in that it implies that everybody has it and that it cannot be controlled. They stressed that in CEOSE's next report to Congress, they need to deal with K-12 education and the significance of race (and culture), and deal with the question of hurdles and biases, including those related to class, that limit full participation in STEM..

Discussion of Federal Liaisons Reports

Verbal liaison reports were given by representatives from the Smithsonian Institution and the White House Initiative on Historically Black Colleges and Universities. Issues discussed included integrating arts and science in Science, Technology, Engineering, Arts, and Mathematics (STEAM), the Smithsonian's new initiative to include women and girls of color in museums through internships and fellowships, minorities' lack of access to economic resources, the need for federal agencies to coordinate funding for HBCUs, and the need for a broad federal strategy for HBCUs.

Discussion of Committee Reports by CEOSE Liaisons to NSF Advisory Committees

CEOSE Liaisons to NSF Advisory Committees discussed the major broadening participation issues addressed at recent meetings. Dr. George Middendorf reported that the Office of

International Science and Engineering Advisory Committee is looking for opportunities for working with CEOSE and that opportunities for minority students studying abroad are promising. He also reported (as a stand-in for Dr. Villa-Komaroff) that the Social, Behavioral and Economic Science Advisory Committee discussion focused on the flat trends for participation by underrepresented minorities, the recent Dear Colleague Letter: Stimulating Research Related to the Science of Broadening Participation, the role of SBE in broadening participation and implicit bias, and the potential cuts in the FY 2016 SBE budget. Dr. Joseph Whittaker, liaison to the Geosciences Advisory Committee, reported that diversity remains a great challenge in the geosciences and that they are looking at ways to address it through learning from successes and working on partnerships with other agencies. Dr. Louis Martin-Vega, liaison to the Engineering Advisory Committee, reported that one-third of the most recent meeting was devoted to INCLUDES and involved discussion with several ADs and breakout sessions looking at different approaches to broadening participation, including scaling local successes, catalytic innovation, and collective impact strategies, and emphasizing that one solution would not fit all situations. Dr. Keivan Stassun, liaison to the Mathematics and Physical Sciences Advisory Committee, reported that a major issue in that directorate is portfolio balance. Because of flat or declining budgets, facilities have become a larger share of funding and grants have become a declining share, resulting in a decline in diversity. Dr. Alicia Knoedler, liaison to the Budget and Operations Advisory Committee, made some slides about the Broadening Participation Working Group and INCLUDES that could be used by other CEOSE members.

Planning for the 2015/2016 Biennial Report to Congress and preparation of the 2013/2014 CEOSE Report flyer

Dr. Wendy Raymond reiterated the idea that the 2015-16 biennial report should focus on accountability and metrics and put forward several questions around which the committee might structure the report:

- How much investment/funding for facilities vs. grants?
- How do we define successes?
- What are the structural barriers that impede broadening participation, e.g., standardized testing, closing the gap in preK-20+ education, idea of merit.

CEOSE members supported those foci and also expressed the need to have ways to disseminate information through, for example, EPSCoR or ADVANCE-type portals; the need to hold all types of academic institutions including minority-serving and research institutions accountable; the need to involve other federal agencies; the need to lead the dialogue on broadening participation including what it means and how to do it. The Committee thought that the upcoming report should build on the two previous reports, reiterating the grand challenge outlined in the 2011-12 report, the strategies outlined in the 2013-14 report, and for the 2015-16 report, lay out the strategies for achieving accountability at the individual, institutional, and NSF levels. They also thought the report should emphasize the importance of the Broadening Participation Working Group; the need for institutional change; the need for closing the opportunity gap; and examples of what works.

Dr. Ward outlined four points that may contribute to how to frame the next report:

- How to achieve scalability through INCLUDES,
- The need to have disaggregated data and evidence brought to a diverse perspective/framework,

- Consideration of underrepresented minorities across all socio-economic status levels and the issue of college affordability, and
- Explicit and implicit barriers to broadening participation and not just bias.

Drs. Keivan Stassun and George Middendorf agreed to work on the flyer summarizing the 2013-14 report and Dr. Wendy Raymond will work on the cover letter. Staff will provide a copy of the previous letter and the list of groups contacted for the 2011-12 report. The deadline for the flyer will be July 31.

Announcements and Final Remarks

The next meeting will be a virtual meeting on October 15, 2015. Issues to be considered may include structural barriers, the opportunity gap, and successful strategies for broadening participation. Dr. Ward encouraged the committee to consider issues of intersectionality.

The meeting adjourned at 2:45.