



**September 29, 2017**

**National Science Foundation  
Report to the Education and Human Resources Advisory Committee on  
Building Capacity at Hispanic Serving Institutions**

The Acting Assistant Director for Education and Human Resources (EHR) and the Chair of the EHR Advisory Committee established a Subcommittee to advise NSF on the design of a new undergraduate program for Hispanic Serving Institutions (HSI), in order to build capacity at institutions of higher education that typically do not receive high levels of NSF grant funding.

Inside is the advice offered by the Subcommittee regarding the design of the new HSI program.

The Subcommittee met August 14, 2017, and submitted the report to the EHR AC on September 22, 2017. The EHR AC accepted the report on September 29, 2017.

**Summary of the  
Building Capacity at Hispanic Serving Institutions Subcommittee  
of the  
Advisory Committee of the Directorate for Education and Human Resources**

**I. Introduction**

The National Science Foundation (NSF) has a long-term commitment to broadening the participation of underrepresented groups in science, technology, engineering, and mathematics (STEM) education and careers. A key component of that commitment is increasing the participation, retention, and graduation rates of underrepresented minorities seeking associate or baccalaureate degrees in STEM fields. Recognizing the importance of Hispanic Serving Institutions (HSIs) to the Nation's STEM enterprise and as directed by Congress, NSF plans to develop a new undergraduate STEM education program for HSIs.

**Legislation**

Two pieces of recent legislation provide guidance to the National Science Foundation. The Explanatory Statement for the Consolidated Appropriations Act, 2017, Public Law 115-31, enacted on May 5, 2017, states:

“The agreement also directs NSF to establish an Hispanic Serving Institution (HSI) program at no less than \$15,000,000 as authorized in 42 U.S.C. 1862o-12. The agreement encourages NSF to use this program to build capacity at institutions of higher education that typically do not receive high levels of NSF grant funding.”

In addition, the American Innovation and Competitiveness Act of 2017 states:

“The Director shall award grants on a competitive, merit-reviewed basis to Hispanic-serving institutions (as defined in section 502 of the Higher Education Act of 1965 (20 U.S.C. 1001a) to enhance the quality of undergraduate STEM education at such institutions and to increase the retention and graduation rates of students pursuing associate's or baccalaureate degrees in science, technology, engineering, and mathematics.”

**Actions of the National Science Foundation**

Responsibility to establish the program was assigned to the Directorate for Education and Human Resources (EHR); to guide the development of the program, the Acting Assistant Director (AD) for EHR appointed a working group to develop the program including the first solicitation calling for proposals. Under the AD's guidance, the working group has taken several actions to seek input from the HSI community to inform the new program. These actions include (1) making awards for conferences, (2) conducting three virtual listening sessions, and (3) establishing and convening the Building Capacity at Hispanic Serving Institutions Subcommittee of the EHR Advisory Committee.

(1) *Conference awards*: NSF released a [Dear Colleague Letter](#) (DCL) on June 6<sup>th</sup>, 2017, announcing its intention to establish an HSI program and inviting the submission of conference proposals to identify challenges and opportunities in undergraduate STEM education at two-year and four-year HSIs. The following four awards were funded in FY17 based on submissions for the July 6, 2017 deadline:

- [1748199](#): *Hispanic-focused STEM Ideas for Inspiration and Innovation*, Nova Southeastern University, FL (December 11-12, 2017)
- [1748526](#): *Transforming STEM Education in Hispanic Serving Institutions - Regional Insights from the Southwest*; University of Arizona, AZ (November 18-20, 2017)
- [1748533](#): *Understanding and Improving Readiness and Student Transitions*, University of Houston, TX (February 16-18, 2018)
- [1748570](#): *Pathways for Hispanic Students in STEM*, University of California-Irvine, CA (January 22-24, 2018)

Proposals submitted through September 30<sup>th</sup>, 2017 are eligible for funding in FY18.

(2) *Listening sessions*: NSF invited two- and four-year HSIs to provide feedback regarding critical barriers and opportunities at their institutions. The three audio-only sessions were held in mid-August 2017 and were hosted by working group members. The listening sessions were attended by over 300 participants from over 100 institutions.

(3) *The Building Capacity at Hispanic Serving Institutions Subcommittee*: The Acting Assistant Director for EHR and the Chair of the EHR Advisory Committee established the Subcommittee and charged it “to provide NSF with advice that will inform the design of a new undergraduate program for HSIs, in order to “build capacity at institutions of higher education that typically do not receive high levels of NSF grant funding.” The Subcommittee was specifically asked to identify the most critical challenges and opportunities regarding undergraduate STEM education at two-year and four-year HSIs, and potential actionable solutions that fall within NSF’s mission and that could be addressed in a new NSF program. A complete statement of the Subcommittee’s charge is attached as Appendix A. The Subcommittee’s composition and advice comprise the remainder of this report.

The Subcommittee undertook the effort to generate this report independently. The opinions, findings, and conclusions or recommendations expressed in this report are those of the Subcommittee and do not necessarily reflect the views of the Advisory Committee to the Education and Human Resources Directorate or the National Science Foundation.

## II. The Building Capacity Subcommittee

### Composition

The Building Capacity at Hispanic Serving Institutions Subcommittee was designed to gather advice from HSI campus leaders. The membership included two EHR Advisory Committee members, including the Advisory Committee Chair who is the Chancellor of the Community College District of Los Angeles, and 14 other campus leaders representing a cross-section of HSI types, sizes, and geographic locations. The Subcommittee roster is attached as Appendix B.

### Meeting

The Subcommittee met on Monday, August 14<sup>th</sup>, 2017 at NSF headquarters in Arlington, VA. The meeting agenda is attached as Appendix C. A briefing book prepared by NSF staff and forwarded to Subcommittee members in advance of the meeting is available at <https://www.nsf.gov/ehr/Materials/HSIMeetingBriefingBook.pdf>. Presentations by four distinguished speakers (see Appendix D) provided information to the Subcommittee regarding the growth in numbers of HSIs, the diversity and commonalities of HSIs, the communities in which they are situated, and the unique value of HSIs.

## III. Advice

Based on the discussions at the August 14, 2017 meeting, the Subcommittee had the following general advice regarding the design of the new HSI program:

- **Be strategic and inclusive.**  
Even relatively small amounts of funding can be used to catalyze big changes. NSF should focus the program to avoid spreading it too thinly over too many topics. One aim of the new program should be to support transformative change in institutions. The community of HSIs includes various kinds of institutions of higher education, with different missions, challenges, and student populations. The new program should consider this diversity and design strategies enabling many different types of institutions to access NSF resources. One important outcome could be to enable more two-year institutions or predominantly undergraduate four-year institutions to prepare competitive proposals and thus gain access to the broader NSF portfolio of grant opportunities to support their STEM education and education research activities.
- **Use academic institutional partnerships.**  
Encouraging and supporting partnerships between institutions with mature and less mature research infrastructure could give the latter institutions access to services and facilities not generally available to them, including faculty grant-writing assistance, institutional review boards to review and approve research that includes the use of human or animal subjects, administrative infrastructure

such as a sponsored research office and library resources, and research infrastructure to enable research experiences for partner institution faculty and undergraduate students. Partnering institutions could also offer opportunities for graduate students and postdocs to gain experience teaching and mentoring diverse groups of undergraduates.

- **Incentivize cross-sector collaboration.**

Partnerships between industry and communities are essential to HSI student success. In addition to fostering partnerships among HSIs, the program should connect academic institutions to industry. Some possibilities include creating opportunities for translational research and rotation or externship programs at companies that are heavily vested in science and engineering. This would help to transform the training environment at HSIs.

- **Promote the implementation of cost-effective practices.**

Determine what ‘moves the needle’ and at what cost. Many interventions may work at some level, but all have different costs, determined by the price and availability of physical and human resources and by the environment in which the interventions will be conducted. With limited funding, interventions must be effective and cost-effective.

- **Building the program will be a process; initiate it soon and fine-tune it as it progresses.**

NSF will likely need to launch the program before all community input has been received. NSF should continue to seek input from the HSI community after the program begins and make appropriate adjustments. In addition to its extant dissemination efforts, NSF should synthesize and publish the ‘lessons learned’ from its programs so that the field, including those preparing proposals to the new program, may base their educational designs on effective practices. More research on effective pedagogies is needed.

Members of the Subcommittee also shared more specific ideas concerning important issues that might be supported by the new program:

- **Faculty development**

The new program should permit institutions to request funds to cover the expenses for faculty members needing release time for activities such as redesigning courses, conducting research, preparing grant proposals, or leading institutional change initiatives. Supporting these opportunities could develop a research culture at institutions that have not previously received high levels of NSF funding.

- **Curriculum redesign**

Entry level courses in the STEM disciplines should be redesigned to support learning and ensure that they do not function as gatekeeper courses. Attention should be given to determining whether remedial courses are supportive of or

harmful to student success and whether they are genuinely needed. Although redesign is essential in many disciplines, it is particularly important to consider in entry-level mathematics courses.

- **Undergraduate research**

The Subcommittee emphasized the importance of undergraduate research experiences, which are one approach to engaged student learning. Paid research experiences are particularly useful, since financial aid and full-time enrollment are predictive of degree completion. Involving students in preparing publications based on their research will also help in student retention.

- **Transitions**

Mechanisms are needed to facilitate student transitions from high school to college, from two-year to four-year institutions, and from institutions of higher education to STEM careers. Developing intentional pathways from K-12 to college and the world of work should be a shared responsibility of educational institutions at all levels.

- **Metrics for success**

The Subcommittee recommended that HSIs use a variety of metrics and to assess success. Moving past graduation rates as the only measure of student and institutional success is a must. Currently, Integrated Postsecondary Education Data System (IPEDS) data do not count part-time and transfer students. Transfer students are effectively counted as drop-outs at the institution where they were initially enrolled. At the same time, the institutions into which students transfer do not get credit for transfer students' degree completion. Measurement of success should also take into account the phenomenon of "swirling" (i.e., the movement of students back, forth, and laterally among two-year and four-year institutions of higher education). Use of qualitative and quantitative data sources is encouraged.

Appendix A. Subcommittee Charge

Appendix B: Subcommittee Roster

Appendix C. Subcommittee Meeting Agenda

Appendix D. Speaker Biosketches

### **Charge to: Building Capacity at Hispanic Serving Institutions Subcommittee of the Advisory Committee of the Directorate for Education and Human Resources**

NSF has a long-term commitment to broadening the participation of underrepresented groups in science, technology, engineering, and mathematics (STEM) education and careers. A key component of that commitment is increasing the participation, retention, and graduation rates of underrepresented minorities seeking associate or baccalaureate degrees in STEM fields. NSF recognizes the importance of Hispanic Serving Institutions (HSI) to the Nation's STEM enterprise. The Consolidated Appropriations Act 2017, Public Law No. 115-31, provides the following additional guidance to the National Science Foundation:

#### **Hispanic-Serving Institutions [HSI] Program—**

*The agreement also directs NSF to establish an Hispanic Serving Institution (HSI) program at no less than \$15,000,000 as authorized in 42 U.S.C. 1862o-12. The agreement encourages NSF to use this program to build capacity at institutions of higher education that typically do not receive high levels of NSF grant funding.*

The Foundation seeks to establish a program for HSI that will make an important contribution to broadening the participation of underrepresented groups in STEM. It is anticipated that the program will focus on undergraduate STEM education at two-year and four-year institutions.

**To advise NSF regarding the characteristics of the program, the Directorate for Education and Human Resources Advisory Committee is appointing the Building Capacity at Hispanic Serving Institutions Subcommittee.** The subcommittee will be composed of: Chair Francisco Rodriguez, 3-5 additional EHR Advisory Committee members, and approximately 20 campus leaders representing a range of HSI types, sizes, and geographic locations.

**Charge:** The subcommittee is charged to provide NSF with advice that will inform the design of a new undergraduate program for HSI to “build capacity at institutions of higher education that typically do not receive high levels of NSF grant funding.” The subcommittee is specifically asked to identify the most critical challenges and opportunities regarding undergraduate STEM education at two-year and four-year HSI and potential actionable solutions that fall within NSF's mission and that could be addressed in a new NSF program.

**Background information:** There will be one in-person meeting of the subcommittee at the NSF headquarters in Arlington, VA, on Monday, August 14, 2017, from 8:00 a.m. to 2:30 p.m. NSF staff are developing data and summary information to inform the subcommittee's discussion and staff will be available to support the work of the subcommittee. A technical writer will be present to take notes and draft a report with support from NSF staff. The report will be sent to members of the subcommittee for review. It is anticipated that there will be one follow-up virtual meeting to discuss and approve the report which will then be submitted to the EHR Advisory Committee. The target for completing and approving the report is September 30, 2017.

## Appendix B

### Building Capacity at Hispanic Serving Institutions Subcommittee of the Advisory Committee of the Directorate for Education and Human Resources

**Chair: Francisco C. Rodriguez, PhD**

*EHR AC chair*

*Chancellor*

Los Angeles Community College District

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**Building Capacity at Hispanic Serving Institutions Subcommittee  
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## Appendix C

### **Building Capacity at Hispanic Serving Institutions Subcommittee of the Advisory Committee of the Directorate for Education and Human Resources**

Monday, August 14, 2017  
National Science Foundation, 4201 Wilson Boulevard, Arlington, VA  
Stafford I, Room 880

**Charge:** The subcommittee is charged to provide NSF with advice that will inform the design of a new undergraduate program for HSIs to build capacity at institutions of higher education that typically do not receive high levels of NSF grant funding. The subcommittee is specifically asked to identify the most critical challenges and opportunities regarding undergraduate STEM education at two-year and four-year HSIs, and potential actionable solutions that fall within NSF's mission and that could be addressed in a new NSF program.

**Guiding Question:** What does NSF need to know to build the capacity of HSIs that typically do not receive high levels of NSF funding?

**Sub-questions:** What does 'building capacity' mean to you? If an institution received a capacity-building grant from NSF, how would it know if its efforts had been successful?

**8:00am-8:30am**                      **Arrive at Reception & Information Center; proceed to Room 880**

**8:30am-8:45am**                      **Opening Remarks**

**Dr. Joan Ferrini-Mundy**, *Chief Operating Officer, NSF*  
**Dr. William (Jim) Lewis**, *Acting Assistant Director, EHR*  
**Dr. Francisco Rodriguez**, *Subcommittee Chair; Chancellor, Los Angeles Community College District; Chair, EHR Advisory Committee*

**8:45am-9:00am**                      **Meeting Overview and Introductions**  
Dr. Francisco Rodriguez

**9:00am-11:00am**                      **Guest Panelist Presentations and Discussion**  
Moderator, Dr. Joan Walker

**Dr. Anne-Marie Nuñez**, *Associate Professor of Higher Education and Student Affairs, The Ohio State University*  
**Dr. Sylvia Hurtado**, *Professor of Education, University of California Los Angeles*  
**Dr. Antonio Flores**, *President and Chief Executive Officer, Hispanic Association of Colleges and Universities (HACU)*  
**Ms. Deborah A. Santiago**, *Chief Operating Officer and Vice President for Policy, Excelencia in Education*

**11:00am-11:15am**                      **BREAK; Remainder of meeting is closed.\***

**11:15am-11:45am**

**\*Discussion: Challenges to Building Capacity**

Moderator, Dr. Francisco Rodriguez

***Guiding Question:***

What are the most pressing challenges that you face at your institution in terms of building capacity for undergraduate STEM education?

**11:45am-12:00pm**

**Pick up box lunches; Proceed to breakout group locations**

**12:00pm-1:00pm**

**\*Breakout groups: Opportunities for Building Capacity**

Facilitated by members of EHR's HSI Working Group

***Guiding Questions:***

What could the new NSF HSI program look like? What kind of activities, with what partnerships, would strongly support building capacity in undergraduate STEM education?

**1:00pm-1:15pm**

**Return to Room 880**

**1:15pm-2:15pm**

**\*Report-out and Discussion**

***Guiding Questions:***

What's the most important thing for NSF to do first? What are the implications of today's discussions for development of the new HSI undergraduate STEM education program?

**2:15pm-2:30pm**

**\*Wrap-up and Closing Remarks**

**Dr. William (Jim) Lewis**, *Acting Assistant Director, EHR*

**Dr. Francisco Rodriguez**, *Subcommittee Chair; Chancellor, Los Angeles Community College District; Chair, EHR Advisory Committee*

**Next steps:** A draft report of this meeting will be sent to you for review on Friday, August 25<sup>th</sup>. We welcome your comments on the report by Friday, August 31. The report will be used, along with results from the virtual meeting, to inform the HSI program solicitation.

*\*closed sessions*

### Building Capacity at Hispanic Serving Institutions Subcommittee of the Advisory Committee of the Directorate for Education and Human Resources

**Dr. Antonio Flores**  
*President and Chief Executive Officer*  
*Hispanic Association of Colleges and Universities (HACU)*



On February 26, 1996, Antonio R. Flores became the third president and chief executive officer of the Hispanic Association of Colleges and Universities (HACU). Established in December 1986 with 18 founding members, HACU is a national organization that represents more than 450 colleges and universities that collectively serve two-thirds of the more than 3 million Hispanic students in U.S. higher education across 37 states, the District of Columbia and Puerto Rico. HACU's international membership of leading higher education institutions is also an important HACU constituency. Prior to his position at HACU, Flores served as director of programs and services for the Michigan Higher Education Assistance Authority and the Michigan Higher Education Student Loan Authority. His statewide responsibilities included policy analysis and development, legislative affairs, administrative leadership for programs, technical assistance and outreach services for all Michigan colleges and universities, program evaluation and research, and overall management.

**Dr. Sylvia Hurtado**  
*Professor of Education, UCLA*



Sylvia Hurtado is Professor, Graduate School of Education and Information Studies at UCLA, in the Division of Higher Education and Organizational Change. She is currently Director of the Higher Education Research Institute, which houses the Cooperative Institutional Research Program (CIRP). CIRP is the longest-running empirical study of higher education involving data collection on students and faculty. Her numerous publications focus on undergraduate education, student development in college, and diversity in higher education. She is past President of the Association for the Study of Higher Education (ASHE), and served on the boards of the Higher Learning Commission and initiatives of the Association of American Colleges and Universities. Recent national projects include research on how colleges are preparing students to participate in a diverse democracy (U.S. Department of Education), the pathways of underrepresented students' in scientific research and professional careers (National Institutes of Health/National Science Foundation), and student and institutional outcomes of diverse and broad access institutions in higher education (Ford Foundation). She obtained her degrees from UCLA (Ph.D.), Harvard Graduate School of Education (M.Ed.) and Princeton University (A.B.).

## Building Capacity at Hispanic Serving Institutions

### Subcommittee of the Advisory Committee of the Directorate for Education and Human Resources

**Dr. Anne-Marie Nuñez**

**Associate Professor of Higher Education and Student Affairs, The Ohio State University**



Nuñez's research focuses on how factors such as race, ethnicity, class and linguistics shape postsecondary opportunities. She is noted for groundbreaking research on first-generation students, Latinos, migrant students, English learners and Hispanic-serving institutions. Her articles have appeared in *Educational Researcher*, *Harvard Educational Review* and *The Journal of Higher Education*. She has published book chapters in the *Handbook of Theory and Research in Higher Education* and *New Directions for Higher Education*. Her co-edited book, *Hispanic-Serving Institutions: Advancing Research and Transformative Practice*, received a 2016 International Latino Book Award. A former associate professor at the University of Texas at San Antonio, she received the 2011 Association for the Study of Higher Education Council on Ethnic Participation Award for her research on historically underserved groups. She serves as associate editor of *The Journal of Higher Education*, published by The Ohio State University Press. She holds doctoral and master's degrees from UCLA, a master's degree from Stanford University, and a bachelor's degree from Harvard University.

**Ms. Deborah A. Santiago**

**Chief Operating Officer and Vice President for Policy at *Excelencia* in Education**



**Deborah A. Santiago** is the co-founder, Chief Operating Officer and Vice President for Policy at *Excelencia* in Education. For more than 20 years, she has led research and policy efforts from the community to national and federal levels to improve educational opportunities and success for all students. She co-founded *Excelencia* in Education to inform policy and practice compel action, and collaborate with those committed and ready to act to increase student success. Her current work focuses on federal and state policy, financial aid, Hispanic-Serving Institutions (HSIs), and effective institutional practices for student success in higher education. She has been cited in numerous publications for her work, including *The Economist*, the *New York Times*, the *Washington Post*, *AP*, and *The Chronicle of Higher Education*. Deborah is an Aspen Institute Pahlara fellow and serves on the board of [thedream.us](http://thedream.us).