Widening Implementation & Demonstration of Evidence-Based Reforms (WIDER)

PROGRAM SOLICITATION
NSF 13-552

National Science Foundation

Directorate for Education & Human Resources
  Division of Undergraduate Education

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

> July 03, 2013

IMPORTANT INFORMATION AND REVISION NOTES

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG)**,** NSF 13-1**,** was issued on October 4, 2012 and is effective for proposals submitted, or due, on or after January 14, 2013. Please be advised that the guidelines contained in NSF 13-1 apply to proposals submitted in response to this funding opportunity. Proposers who opt to submit prior to January 14, 2013, must also follow the guidelines contained in NSF 13-1.

Please be aware that significant changes have been made to the PAPPG to implement revised merit review criteria based on the National Science Board (NSB) report, National Science Foundation's Merit Review Criteria: Review and Revisions. While the two merit review criteria remain unchanged (Intellectual Merit and Broader Impacts), guidance has been provided to clarify and improve the function of the criteria. Changes will affect the project summary and project description sections of proposals. Annual and final reports also will be affected.

A by-chapter summary of this and other significant changes is provided at the beginning of both the *Grant Proposal Guide* and the *Award & Administration Guide*.

Please note that this program solicitation may contain supplemental proposal preparation guidance and/or guidance that deviates from the guidelines established in the Grant Proposal Guide.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

> Widening Implementation & Demonstration of Evidence Based Reforms (WIDER)

Synopsis of Program:

> The chief goal of WIDER is to transform institutions of higher education into supportive environments for STEM faculty members to substantially increase their use of evidence-based teaching and learning practices. The first recommendation in the Report of the President's Council of Advisors on Science and Technology (PCAST), "Engage to Excel," is to increase widespread implementation of evidence-based practices in order to increase persistence in STEM and contribute to the goal of producing 1 million additional STEM graduates.

> Through this process, WIDER seeks to substantially increase the scale of application of highly effective methods of STEM teaching and learning in institutions of higher education, by employing instructional materials and methods that have a convincing evidentiary basis of effectiveness. In particular WIDER seeks this transformation for high enrollment, lower division courses required for many STEM majors and taken by many other students to fulfill general education distribution requirements.

> Included in our broad definition of effective STEM teaching and learning are not only instructional practices in traditional learning environments, but also modern laboratory methods and field research, proven distance education methods (or hybrid designs incorporating both face-to-face and distance methods), and improved approaches to motivating student interest in STEM. In all cases, the primary goal of WIDER is to increase substantially the scale of these improvements within and across the higher education sector in order to achieve:

> (1) Improved student learning;

> (2) Increased numbers of students choosing STEM majors, particularly from demographic groups underrepresented in STEM;

> (3) Improved retention in the first two years of undergraduate study and to graduation of all STEM majors.

Applicants may apply for WIDER grants to begin institutional planning efforts, to support implementation efforts for evidence-based teaching and learning practices, and for research on how to increase the importance placed on evidence-based practices in institutional strategic planning and faculty rewards.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Myles Boylan, Program Director, EHR/DUE, telephone: (703) 292-4617, email: mboylan@nsf.gov

- Maura Borrego, Program Director, EHR/DUE, telephone: (703) 292-7855, email: mborrego@nsf.gov

- Maria Oliver-Hoyo, Program Officer, EHR/DRL, telephone: (703) 292-4313, email: moliverh@nsf.gov

- Claudia Rankins, Program Officer, EHR/HRD, telephone: (703) 292-8109, email: crankins@nsf.gov

- Dawn Rickey, Program Officer, EHR/DUE, 835, telephone: (703) 292-4674, email: drickey@nsf.gov

- Carol Stoel, Program Officer, EHR/DGE, telephone: (703) 292-8624, email: cstoel@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.076 --- Education and Human Resources

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 30 to 50

Grants will be made in 4 tracks. See the Award Information Section for more information.

Planning grants: up to 20 awards

Institutional Implementation grants: up to 12 awards

Community Implementation grants: up to 12 awards

Research grants: up to 10 awards

Anticipated Funding Amount: $20,000,000

pending availability of funds

Eligibility Information

Organization Limit:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

Because the goal of WIDER is institutional transformation, an organization may submit only one Planning **or** one Institutional Implementation proposal for a given deadline. There are no restrictions on the number of Community Implementation or Research proposals that an individual or organization may submit.

Limit on Number of Proposals per PI:

None Specified

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable

- **Preliminary Proposal Submission:** Not Applicable

- **Full Proposals:**
    - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
    - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.

- **Indirect Cost (F&A) Limitations:** Not Applicable

- **Other Budgetary Limitations:** Not Applicable

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

    July 03, 2013

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements: Standard NSF reporting requirements apply.

TABLE OF CONTENTS

I. INTRODUCTION

The chief goal of WIDER is to transform institutions of higher education into supportive environments for STEM faculty members to substantially increase their use of evidence-based teaching and learning practices. Included in our broad definition of evidence-based teaching and learning practices are more extensive use of modern laboratory methods, proven distance education methods (or hybrid designs incorporating both face-to-face and distance methods), and improved approaches to motivating student interest in STEM and supporting students' efforts to succeed in STEM courses. In all cases, the primary goal of WIDER is to increase substantially the scale of these improvements within and across the higher education sector in order to achieve

(1) Improved student learning;

(2) Increased numbers of students choosing STEM majors, particularly from demographic groups underrepresented in STEM;

(3) Improved retention in the first two years and to graduation of all STEM majors.

Applicants may consider applying to WIDER at different levels of scale:

Planning grants may be requested by single institutions or groups of collaborating institutions in order to develop a strategic

approach for leveraging plans to increase institutional commitment to evidence-based teaching and learning.

Institutional Implementation proposals may be requested by single institutions to assist in carrying out plans for increasing the level of evidence-based teaching and learning. Institutional Implementation proposals would be expected to cover multiple STEM departments or disciplines.

Community Implementation proposals may be submitted by consortia of multiple institutions of higher education, disciplinary societies, and college and university associations. Community Implementation proposals might focus on a single discipline in order to reach a tipping point of commitment to use of evidence-based teaching and learning methods.

Research grants may be requested to develop greater understanding of how to change the culture of higher education by placing very high value on undergraduate student achievement in STEM within single institutions or more broadly.

WIDER is interested in supporting all types of higher education institutions that offer STEM courses and/or undergraduate degrees.

WIDER is a research and development initiative. Projects in all tracks are expected to contribute to the knowledge base about how to effect desirable changes in undergraduate STEM education through their evaluation and dissemination activities.

II. PROGRAM DESCRIPTION

WIDER is fundamentally about achieving institutional transformation. It is about substantially improving the uptake of educational innovations and practices that evidence supports as effective. WIDER is not about supporting more innovation but rather is focused on innovation propagation and diffusion. The key to successful WIDER applications is to improve STEM education practices at large scale. WIDER activities may emphasize improvements that are relatively easy to implement, such as supplemental instruction. There are many such changes that are not highly discipline-specific and can be supported through institution-wide centers. A primary emphasis of WIDER, however, is on discipline-based educational improvements that typically require more departmental involvement and departmental resources to support.

WIDER will facilitate institutional efforts to increase and enhance the use of evidence-based instructional practices in undergraduate STEM courses in their STEM departments. It is anticipated that these actions will lead to improved student learning and achievement in STEM for both STEM majors and non-majors, for all demographic groups of undergraduate students. WIDER will support research and demonstration of specific approaches to achieving widespread, sustainable implementation of evidence-based teaching and learning. Included in the definition of "evidence-based practices" are improvements in students' educational experiences through improved advising, mentoring, learning communities, and use of modern instructional technologies.

While the achievement of all students studying STEM is improved by evidence-based methods of education, in some STEM disciplines there are educational practices that are particularly effective for women or certain under-represented groups, including first-generation-in-college students, African American students, Hispanic students, and students with disabilities. Hence, the focus of WIDER on encouraging institutional commitment to evidence-based practices includes the additional encouragement to implement practices that are particularly effective for students from these demographic backgrounds. The References Section of this Solicitation includes some additional information about practices that have been found to be particularly helpful to the achievement of students under-represented in STEM majors.

Although the emphasis of WIDER is on increasing uptake of evidence-based teaching approaches, the goals of WIDER may be met more effectively in projects that also monitor student achievement. Thus proposed implementation projects may wish to consider students' experiences and outcomes, and may propose to connect faculty-focused efforts to evidence of increased learning and other positive student outcomes.

WIDER solicits proposals that employ innovative and promising strategies, develop effective partnerships, and implement catalytic approaches toward achieving its goal. In most cases, proposals will need to consider how to define and measure effective teaching in ways that will be credible to the faculty.

Through WIDER-supported projects, WIDER also seeks to learn if change theories and models from business, K-12, and the social sciences can be adapted to promote broadly within institutions evidence-based instructional and curricular improvements in undergraduate STEM by accomplishing the underlying cultural change that would often be required.

The most competitive implementation proposals will be based on explicit theories of change and will test hypotheses about transforming undergraduate teaching in STEM by examining the impact of deliberate processes of change. Applicants should include a description of their theory of change in the project description section of the proposal. Each proposal should include an implementation design, describe a data collection and analysis approach, and provide a clear statement of the kind of evidence that would indicate the proposal has been successful. It is expected that the findings from each WIDER implementation will be informative for the broader community.

In general, WIDER will accept any proposal that addresses the general goal and objectives of WIDER. Bold ideas for dramatically changing the status quo are especially sought. Although it has been observed that significant change in higher education is particularly hard to achieve (see Section C of the references), the prospects for bold change in the delivery of effective higher education have never been better.

WIDER will fund a set of proposals that will significantly expand our knowledge base about how to effect desirable changes in undergraduate education and, when implemented, will contribute towards educating a diverse and capable STEM workforce and STEM literate college graduates. For this reason, the Program seeks to support applications from a variety of institutions offering STEM courses, ranging from community colleges to research universities.

Expected Proposal Features

Although proposed projects may vary considerably in the approaches they take, the number of academic institutions involved, the number of faculty and students that participate, and in their stage of development, all promising projects share certain characteristics.

Use of and Contribution to Knowledge about STEM Education: Projects should reflect high quality science, technology, engineering, and mathematics education. They should use methods derived from existing knowledge concerning effective undergraduate STEM education, build on existing projects where possible, and discuss the logic of the proposed approach.

Implementation grant applicants are urged to describe their theory of change.

Participation by high ranking administrators: Because the focus of implementation grants is on transformational change, there must be significant participation by academic officers from department chairs, deans, and higher levels to improve the prospects for success and sustainability in later years.

Participation and Contribution to STEM Education Community-Building: Investigators should expect to interact with others in the STEM education community engaged in quality improvement, to enable sharing of knowledge and experience in developing and evaluating approaches to widening the use of evidence-based teaching and learning practices.

Dissemination: Applicants should have a plan for adding to knowledge about institutional transformation by disseminating key knowledge gained during their projects. This can be designed as part of participation in STEM Education community building. Bold, innovative dissemination strategies are encouraged.

Project Evaluation: All projects should have an evaluation plan that includes both a strategy for monitoring the project as it evolves to provide feedback to guide these efforts (formative assessment) and an evaluation scheme to measure the effectiveness of the project in achieving its goals and for identifying positive and negative findings when the project is completed (summative evaluation). The complexity of the evaluation will depend on the project, and these efforts should be led by knowledgeable individuals who look objectively at the project's progress and outcomes. Additional information about project evaluation is available from the 2010 NSF User-Friendly Handbook for Project Evaluation (J. Frechtling, et. al., Weststat Inc.). This can be obtain at the following location as a download: http://hub.mspnet.org/index.cfm/22603.

Program Evaluation: The Division of Undergraduate Education (DUE) expects to conduct an early on-going program evaluation to determine how effectively the WIDER Program is achieving its goals. In addition to project-specific evaluations, all funded projects will be expected to cooperate with this third party program evaluation and respond to all inquiries, including requests to participate in surveys, interviews and other approaches for collecting data needed to evaluate the WIDER Program. The special review criterion for broader impacts of implementation projects is intended to assist project and program evaluations.

Some Examples of Possible Proposals

1. Planning grant proposals to catalyze institutional efforts to achieve significantly wider use of evidence-based teaching and learning practices. Such proposals should attempt to determine the path forward by developing a good understanding of the current state of teaching and learning within the institution.

2. Research grant proposals to tackle the issue of how to measure and take inventory of effective teaching practices, and also how to assure these remain effective. Proposals of this type could also include some steps to create an inventory and plans to subsequently use the inventory data as a springboard to increase the use of evidence-based effective practices.

3. Institutional Implementation proposals to transition a cluster of STEM departments or the entire institution to full use of evidence-based teaching and learning practices in lower division courses. This might encompass a number of activities designed to get the instructional staff to pull together to inspire STEM majors and non-majors.

4. Community Implementation proposals to create consortia of institutions across colleges, universities, disciplinary societies, college and university associations, and accrediting organizations to build greater commitment to evidence-based teaching and learning practices in one or more STEM disciplines.

5. Community Implementation proposals to offer faculty professional development efficiently, based on existing research on effective professional development. Widespread change towards evidence-based teaching practices will require resources for faculty professional development. Professional development can occur within individual institutions, but it may be more efficient to provide development resources nationally. For examples, some professional societies offer new faculty professional development opportunities. This could be expanded to offer faculty online courses on evidence-based practices within their undergraduate discipline. The MOOC approach may be particularly promising in delivering effective training. [A MOOC is a Massively Open Online Course, where "open" connotes both widely available to interested enrollees and "inexpensive."]

Background

Research and development, much of it federally funded, has produced numerous demonstrations of educational practices within STEM disciplines that achieve substantially improved learning and completion rates in lower division STEM courses compared to traditional instructional practices. The current status of evidence-based teaching and learning improvements is documented in a major consensus study by the National Academies funded by the National Science Foundation, "Discipline-Based Education Research (DBER): Understanding and Improving Learning in Undergraduate Science and Engineering" (Committee on the Status, Contributions and Future Directions of Discipline-Based Education Research, May, 2012). This same Committee (located in the Board on Science Education in the National Academies) intends in the spring to publish a companion volume to this DBER Report, focused on effective teaching practices in each of the STEM disciplines covered in the Report. Numerous earlier reports have described a large variety of effective teaching practices.

Despite the myriad advances in STEM teaching and learning know-how, it is the sense of policy makers and practitioners (and evident in accounts published in articles in academic journals) that highly effective teaching and learning practices are still not in widespread use in most institutions of higher education.

Increasingly, published accounts are available to quantify the extent of awareness and use of evidence-based practices in single undergraduate disciplines and key courses in a sample of institutions of higher education. Typically, these accounts use individual instructors in an academic department as the unit of analysis. Some of these accounts are included in the reference section of this Solicitation. WIDER specifically seeks to expand knowledge at various organizational levels as well, e.g., institutions, departments and disciplines.

Numerous national reports and discussions about the issue of teaching effectiveness at STEM education workshops identify the faculty reward system as a significant barrier or disincentive to widespread adoption of evidence-based teaching. Today, improved capabilities for measuring effective teaching, both directly and through measurement of student learning gains, have eased the way to making teaching as a key factor in promotion and tenure decisions. WIDER recognizes that in many institutions, widespread adoption or adaptation of evidence-based teaching practices will require that instructors have access to professional development in order to obtain the requisite training. As part of this training, instructors also need to be convinced of the advantages of employing evidence-based practices. Because there is the possibility that initial efforts to adopt or adapt evidence-based practices will in some cases founder, due to imperfect implementation for example, it is also important to provide an institution's instructional staff with ongoing professional development and technical support capability.

WIDER recognizes that it is seeking to change the culture in institutions of higher education by elevating effective teaching and student learning to levels of high importance in faculty hiring, promotion, and tenure decisions, if this is necessary to achieve widespread use of evidence-based teaching methods. To complement and strengthen efforts to improve the teaching practices of the faculty members who are on a tenure track, this goal can be achieved by providing doctoral students access and encouragement to learn about effective, evidence-based teaching practices in their STEM disciplines.

Parallel Efforts Aligned with WIDER

Other organizations in the higher education sector have also been working towards the goal of improved educational practice at the undergraduate level. Notably, the Association of American Colleges and Universities (AAC&U) initiated an effort called Liberal Education and America's Promise (LEAP) in 2005. Through LEAP, a number of dimensions of undergraduate education have been explored - essential learning outcomes, high impact educational practices to achieve those learning outcomes, and the use of authentic assessment methods to monitor whether undergraduates learn to apply their learning to complex problems and real-world challenges. As of March 2012, 8 states and 340 institutions had committed to being LEAP partners.

The National Survey of Student Engagement (NSSE) began in 2000 at the Indiana University Center for Postsecondary Research as a way of measuring (through student surveys of course experiences) the teaching practices of faculty and how these correlated with educational effectiveness. NSSE has been administered to 1,400 institutions of higher education. More recently, the Faculty Survey of Engagement (FSSE) has been developed and administered to samples of institutions and faculty. Both are designed to help instructors understand the array of practices that typically support improved student learning experiences. The Center has developed professional development materials to assist institutions in creating faculty workshops to increase the uptake of effective practices. The Center also conducts research to quantitatively measure the improved impact of certain educational practices.

Some Current National Efforts Supported with Private Grant Funds

In the last year, a number of efforts have been announced supported by private foundations that are aligned with the goal of WIDER. These include:

- Support from the Carnegie Foundation for the Advancement of Teaching and the Alfred P. Sloan Foundation for The Bay View Alliance (BVA), a consortium of research universities carrying out applied research on the leadership of cultural change for increasing the adoption of improved teaching methods at universities.
- A major grant from the Leona M. and Harry B. Helmsley Charitable Trust to support a five-year initiative sponsored by the Association of American Universities (AAU) to improve the quality of undergraduate teaching and learning in STEM fields at its member institutions.
- Support from the Alfred P. Sloan Foundation and the Teagle Foundation to finance the plan of The Council of Graduate Schools (CGS) to make grants to seven universities to develop new approaches for enhancing graduate student skills and understanding in the assessment of undergraduate learning.

References

A. Examples of the Evidentiary Base for Improved Teaching and Learning Practices

Kuh, George D. (2008). Brief summary of *High-impact educational practices: What they are, who has access to them, and why they matter.* Washington, DC: Association of American Colleges and Universities.

Labov, J., with S. Singer, M. George, H. Schweingruber, and M. Hilton (2009). Effective Practices in Undergraduate STEM Education; Part 1: Examining the Evidence, *CBE-Life Sciences Education* Vol.8, fall 2009, pages 157-161.

National Research Council, Natalie Nielsen, Rapporteur, Planning Committee on Evidence on Selected Innovations in Undergraduate STEM Education, Board on Science Education (2011). Division of Behavioral and Social Sciences and Education, Promising Practices in Undergraduate Science, Technology, Engineering, and Mathematics Education. Washington, DC: National Academies Press.

National Research Council, Committee on the Status, Contributions, and Future Directions of Discipline Based Education Research, Board on Science Education (2012). Discipline-Based Educational Research: Understanding and Improving Learning in Undergraduate Science and Engineering. Washington, DC: National Academies Press.

National Research Council, Committee on Defining Deeper Learning and 21st Century Skills, J.W. Pellegrino and M.L. Hilton (editors). (2012). Education for Life and Work: developing transferable knowledge and skills in the 21st Century. Washington DC: National Academies Press.

B. Some Findings on Improving the Achievement of Under-Represented Student Groups

Busch-Vishniac, I. J., & Jarosz, J. P. (2004). Can diversity in the undergraduate engineering population be enhanced through curricular change? *Journal of Women and Minorities in Science and Engineering*, Vol. 10, No. 3.

Cole, D. & Espinoza, A. (2008). Examining the academic success of Latino students in science, technology, engineering, and mathematics (STEM) majors. *Journal of College Student Development*, Vol. 49, pages 285-300.

Members of the Committee on Underrepresented Groups and the Expansion of the Science and Engineering Workforce Pipeline (2010). NAS Report. *Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads.* ISBN: 0-309-15969-5. http://www.nap.edu/catalog/12984.html

Ong, M., Wright, C., Espinosa, L. L., & Orfield, G. (2011). Inside the double bind: A synthesis of empirical research on undergraduate and graduate women of color in science, technology, engineering, and mathematics. *Harvard Educational Review*, Vol. 81, No. 2, pages 172-209.

C. Some Surveys of the Diffusion of Effective Teaching Practices

Borrego, M., Froyd, J. E., & Hall, T. S. (2010). Diffusion of engineering education innovations: A survey of awareness and adoption rates in U.S. engineering departments *Journal of Engineering Education, Vol. 99*, No. 3, pages 185-207.

Froyd, J., with M. Borrego, S. Cutler, M. Prince, and C. Henderson. (2013). Estimates of Use of Research-Based Instructional Strategies in Core Electrical or Computer Engineering Courses, Accepted for publication in *IEEE Transactions on Education, Vol. 56,* No. 3.

Henderson, C., with M. Dancy (2009). The impact of physics education research on the teaching of introductory quantitative physics in the United States, *Physical Review Special Topics: Physics Education Research, Vol. 5*, No. 2.

Macdonald, R.H., Manduca, C.A., Mogk, D.W., & Tewksbury, B.J. (2005). Teaching Methods in Undergraduate Geoscience Courses: Results of the 2004 On the Cutting Edge Survey of US Faculty. *Journal of Geoscience Education*, 53(3), 237.

D. The Challenges of Reforming Educational Practices in Higher Education

Brownell, S. with K. Tanner (2012). Barriers to Faculty Pedagogical Change: Lack of Training, Time, Incentives, and Tensions with Professional Identity, *CBE-Life Sciences Education,* Vol. 11, winter 2012, pages 339-346.

Clark, M., with J. Froyd, P. Merton, and J. Richardson (2004). The evolution of curricular change models within the foundation coalition. *Journal of Engineering Education, Vol. 93* No. 1, pages 37-47.

Connolly, M., with J. Bouwma-Gearhart and M. Clifford (2007). The birth of a notion: The windfalls and pitfalls of tailoring a SoTL-like concept to scientists, mathematicians, and engineers. *Innovative Higher Education, Vol. 32*, No. 1, pages 19-34.

Ewell, P. (2002). Across the Grain: Learning from Reform Initiatives in Undergraduate Education. A monograph that is publically available on the Teagle Foundation web site at: http://www.teaglefoundation.org/teagle/media/library/documents/resources/2002_AAHE_Monograph_Ewell.pdf.

Fairweather, J. (2009). Linking Evidence and Promising Practices in Science, Technology, Engineering, and Mathematics (STEM) Undergraduate Education, a Status Report for The National Academies National Research Council Board of Science Education, number 17 at: http://www.nsf.gov/attachments/117803/public/Xc--Linking_Evidence--Fairweather.pdf.

Fairweather, J. The Mythologies of Faculty Productivity: Implications for Institutional Policy and Decision-making, *Journal of Higher Education* 73 (2002): 26-48.

Harward, D.W. (editor). (2012). Transforming Undergraduate Education; Theory that compels and practices that succeed. New York: Rowman & Littlefield Publishers, Inc.

Henderson, C., with M. Dancy (2007). Barriers to the Use of Research-Based Instructional Strategies: The Influence of both Individual and Situational Characteristics, *Physical Review Special Topics: Physics Education Research, Vol. 3*, No. 2.

Hutchings, P., with M.T. Huber and A Ciccone (2011). The Scholarship of Teaching and Learning Reconsidered: Institutional Integration and Impact. San Francisco: Jossey-Bass, 2011.

E. Theories of Change

Henderson, C., with A. Beach and N. Finkelstein (2011). Facilitating change in undergraduate STEM instructional practices: An analytic review of the literature. *Journal of Research in Science Teaching, Vol. 48*, No. 8, pages 952-984.

W.K. Kellogg Foundation, Logic Model Development Guide (2004). Battle Creek, Michigan

Kezar, A.J. (2001). Understanding and facilitating organizational change in the 21st century: Recent research and conceptualizations, *ASHE-ERIC Higher Education Report, Vol. 28*, No. 4.

F. Research on Change in Higher Education with Possible Implications for WIDER

Eckel, P. with M. Green, and B. Hill, (2001) *Riding the Waves of Change: Insights from Transforming Institutions; On Change V*, An Occasional Paper Series of the ACE Project on Leadership and Institutional Transformation and The Kellogg Forum on Higher Education Transformation.

Kezar, A.J. with P. D. Eckel (2002). The Effect of Institutional Culture on Change Strategies in Higher Education: Universal Principles or Culturally Responsive Concepts? (2002) *The Journal of Higher Education*, Vol. 73, Number 4, July/August 2002, pp. 435-460.

Rogers, E. M. (2003). *Diffusion of Innovations* (5th edition) New York, NY: Free Press

Senge, P., with N. Cambron-McCabe, T. Lucas, and B. Smith (2012). Schools that Learn: A Fifth Discipline Fieldbook for Educators, Parents, and Everyone Who Cares about Education. New York: Crown Publishing Group.

III. AWARD INFORMATION

The program invites four kinds of proposals, pending the availability of funds.

Planning grants are designed to facilitate institutional planning for transition to a much higher commitment to evidence-based teaching and learning practices. WIDER recognizes that its goal will often require significant planning to carry out at the institutional level. Planning grant proposals may request up to $250,000 over 2 years. Up to 20 will be supported.

Institutional Implementation grants will be awarded to institutions that have made a commitment and are ready to implement substantive changes to support evidence-based teaching and learning practices. Proposals may request up to $2,000,000 over 3 years; however, it is expected that the amount requested will scale with the number of STEM disciplines, faculty members and/or students impacted. Up to 12 Institutional Implementation grants will be made.

Community Implementation grants up to $750,000 over three years will be awarded to consortia and/or professional organizations that propose to marshall their combined resources towards the goals of WIDER. Consortia would have the advantage of providing specialized resources, perspectives, and influences from its members that would not be available in a single institution of higher education. Potential also exists for scientific societies, other professional societies, college and university associations, and accrediting organizations to contribute to the goal of WIDER, and proposals are welcomed from these organizations as well. Up to 12 Community Implementation grants will be made.

Research projects that contribute to our broader understanding of how single institutions or types of institutions

can successfully encourage greater use of evidence-based teaching and learning practices in STEM disciplines may request up to $500,000 over 4 years. Up to 10 Research grants will be made.

IV. ELIGIBILITY INFORMATION

Organization Limit:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

Because the goal of WIDER is institutional transformation, an organization may submit only one Planning **or** one Institutional Implementation proposal for a given deadline. There are no restrictions on the number of Community Implementation or Research proposals that an individual or organization may submit.

Limit on Number of Proposals per PI:

None Specified

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.4 of the Grant Proposal Guide provides additional information on collaborative proposals.

Important Proposal Preparation Information: FastLane will check for required sections of the proposal, in accordance with *Grant Proposal Guide* (GPG) instructions described in Chapter II.C.2. The GPG requires submission of: Project Summary; Project Description; References Cited; Biographical Sketch(es); Budget; Budget Justification; Current and Pending Support; Facilities, Equipment & Other Resources; Data Management Plan; and Postdoctoral Mentoring Plan, if applicable. If a required section is missing, **FastLane will not accept the proposal.**

Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions. If the solicitation instructions do not require a GPG-required section to be included in the proposal, insert text or upload a document in that section of the proposal that states, "Not Applicable for this Program Solicitation." Doing so will enable FastLane to accept your proposal.

The standard Grant Proposal Guide or NSF Grants.gov Application Guide instructions for proposal preparation apply.

Please note that Section II, Program Description, contains important information about preparing proposals.

In addition, note that Section VI, NSF Proposal Processing and Review Procedures, contains the following requirement:

Inclusion of Baseline Data: Baseline data should be included as a supplemental document for all Institutional Implementation proposals and in Community Implementation proposals where relevant in order to provide the context for the impact of the WIDER project. Provide information on the extent of the use of evidence-based instructional practices in the department(s) involved in the proposed project. Be specific as to what these practices are, in what departments and specific courses they are employed, and how

many students are typically enrolled in these courses.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

    July 03, 2013

D. FastLane/Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

    Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

    Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

- **For Proposals Submitted Via Grants.gov:**

    Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www07.grants.gov/applicants/app_help_reso.jsp. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

    Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in the GPG as Exhibit III-1.

A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/meritreview/.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Empowering the Nation Through Discovery and Innovation: NSF Strategic Plan for Fiscal Years (FY) 2011-2016*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the core strategies in support of NSF's mission is to foster integration of research and education through the programs, projects and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students, and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the variety of learning perspectives.

Another core strategy in support of NSF's mission is broadening opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.

- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.

- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. (GPG Chapter II.C.2.d.i. contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including GPG Chapter II.C.2.d.i., prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and

- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
    a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
    b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

Additional Solicitation Specific Review Criteria

In reviewing WIDER proposals, the standard criteria will be expanded to include the following additional review criteria as appropriate

to the nature of the proposed work:

Intellectual Merit:

1. Do the proposers give a detailed and thorough analysis of local and/or discipline-specific conditions and opportunities for instructional practice in undergraduate STEM education? Have they identified a compelling problem or opportunity of local and/or national significance that would be addressed by their proposed activities?

2. Does the proposed approach build on strengths of the proposing organization(s) but clearly include new and innovative strategies?

3. Have the proposers articulated a theory of change which is supported by the literature on institutional and/or faculty change?

4. Are administrators at appropriate levels involved to improve chances for effective project outcomes, particularly for Planning and Institutional Implementation proposals?

Broader Impacts:

Inclusion of Baseline Data: Baseline data should be included as a supplemental document for all Institutional Implementation proposals and in Community Implementation proposals where relevant in order to provide the context for the impact of the WIDER project. Provide information on the extent of the use of evidence-based instructional practices in the department(s) involved in the proposed project. Be specific as to what these practices are, in what departments and specific courses they are employed, and how many students are typically enrolled in these courses.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Research Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is

contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Special Award Conditions: The Division of Undergraduate Education (DUE) expects to conduct an early on-going program evaluation to determine how effectively the WIDER Program is achieving its goals. In addition to conducting their own project-specific evaluations, all funded projects will be expected to cooperate with this third party program evaluation and respond to all inquiries, including requests to participate in surveys, interviews and other approaches for collecting data needed to evaluate the WIDER Program.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Myles Boylan, Program Director, EHR/DUE, telephone: (703) 292-4617, email: mboylan@nsf.gov

- Maura Borrego, Program Director, EHR/DUE, telephone: (703) 292-7855, email: mborrego@nsf.gov

- Maria Oliver-Hoyo, Program Officer, EHR/DRL, telephone: (703) 292-4313, email: moliverh@nsf.gov

- Claudia Rankins, Program Officer, EHR/HRD, telephone: (703) 292-8109, email: crankins@nsf.gov

- Dawn Rickey, Program Officer, EHR/DUE, 835, telephone: (703) 292-4674, email: drickey@nsf.gov

- Carol Stoel, Program Officer, EHR/DGE, telephone: (703) 292-8624, email: cstoel@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, National Science Foundation Update is a free e-mail subscription service designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the NSF web site.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

Related Programs:

The goals and objectives of the following NSF programs are overlapping with the major goal of WIDER:

- Advanced Technological Education Centers
- Historically Black Colleges and Universities - Undergraduate Program (HBCU-UP)
- Tribal Colleges and Universities Program (TCUP)
- Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP)
- Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics (TUES)
- Centers of Research Excellence in Science and Technology (CREST)
- Louis Stokes Alliances for Minority Participation (LSAMP)
- Cyberlearning: Transforming Education
- Research in Engineering Education (REE)
- Expeditions (still being designed at this time)

The identified "Related Programs" are complementary to WIDER. All these programs share the goal of seeking to improve undergraduate STEM education. WIDER could be viewed in part as a program to propagate educational practices developed in these other NSF programs, particularly TUES, that have strong evidence from use in higher education of superior effectiveness for most students.

Some examples of these complementary relationships are:

- WIDER shares an institutional implementation goal with two tracks within the HBCU-UP program design: The "Implementation" track and the "Achieving Competitive Excellence Implementation" track. A key difference is that all academic institutions are eligible to apply for WIDER grant support.

- WIDER shares a goal with the ADVANCE program of influencing the culture of higher education in order to achieve broader participation by all stakeholders. In the case of ADVANCE the focus is on improving the prospects of women faculty members and administrators. In the case of WIDER the focus is on improving the learning prospects in STEM for all students.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230

- **For General Information** (NSF Information Center)**:** (703) 292-5111

- **TDD (for the hearing-impaired):** (703) 292-5090

- **To Order Publications or Forms:**

    Send an e-mail to: nsfpubs@nsf.gov

    or telephone: (703) 292-7827

- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Division of Administrative Services
National Science Foundation
Arlington, VA 22230

| Policies and Important Links | Privacy | FOIA | Help | Contact NSF | Contact Web Master | SiteMap |

The National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230, USA
Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (800) 281-8749

Last Updated:
11/07/06
Text Only