REQUEST FOR CLEARANCE OF DATA COLLECTION FOR THE

Implementation Evaluation of the ADVANCE Program

Conducted by the Urban Institute

Funded by the National Science Foundation

Request Submitted by:

Directorate for Education and Human Resources
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230

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Section A

Introduction to the Supporting Statement

Program Name: ADVANCE

The National Science Foundation (NSF), requests that the Office of Management and Budget (OMB) approve, under the Paperwork Reduction Act of 1995, clearance for NSF to conduct data collection efforts for the evaluation of the ADVANCE Program funded by the Directorate for Education and Human Services (EHR) at NSF.

The NSF funds research and education in science and engineering through grants, contracts, and cooperative agreements to more than 2,000 colleges, universities, and other research and/or education institutions in all parts of the United States. The Foundation accounts for about 20 percent of Federal support to academic institutions for basic research. The mission of EHR is to achieve excellence in U.S. science, technology, engineering and mathematics (STEM) education at all levels and in all settings (both formal and informal) in order *to support the development of a diverse and well-prepared STEM workforce*. The ADVANCE Program is one of the efforts designed and supported by NSF to achieve this goal.

Program Overview: ADVANCE

The ADVANCE Program was established by NSF in 2001 to address the underrepresentation and inadequate advancement of women on STEM (Science, Technology, Engineering, and Mathematics) faculties at postsecondary institutions. Although women faculty in STEM have made progress towards achieving parity with their male counterparts, stubborn gaps exist at all junctures along the academic pipeline, from entry into a tenure-track faculty position to attainment of tenure, promotion to senior academic ranks, and assignment to positions of leadership in academe.

The ADVANCE Program is designed to allow institutions to identify specific structural and policy barriers to women's representation and progress inherent in their own institutions and, most importantly, to devise and pursue remedial strategies. Through funding provided for up to five years to successful applicants, the ADVANCE program has encouraged and supported the development of interventions to remedy the under-representation of women in academe, with the explicit goal of institutionalizing and disseminating successful practices in the hopes that reforms will outlive the funding phase and spread to other institutions.

The ADVANCE program has three main components: Institutional Transformation, Leadership, and PAID projects[1]. Each of these components represents a distinct approach to addressing barriers to women's underrepresentation and lack of advancement in STEM academic careers:

Institutional Transformation Awards: Begun in 2001, these awards encourage changes in institutional and departmental systems and infrastructure to increase the representation of women STEM faculty and their advancement to senior ranks and leadership positions.

Leadership Awards: Leadership awards were established in 2001 to build on the contributions of organizations and individuals who have been leaders in increasing participation and advancement of women in academic science and engineering careers and to help them sustain, broaden and initiate new activities.

PAID (Partnerships for Adaptation, Implementation and Dissemination): Established in 2006, this funding incorporates the Leadership awards and supports analysis, adaptation, dissemination and use of existing innovative materials and practices known to be effective in increasing the representation and participation of women in science and engineering careers.

Evaluation Overview: the Study Design

Program components. The main focus of this implementation study will be on the core component of ADVANCE—the Institutional Transformation (IT) awards. We will also conduct a descriptive analysis of PAID and Leadership awards in terms of key project characteristics.

Cohorts. As table 1 shows, every cohort of IT awards for which reasonable outcomes data might be expected (that is, sufficient time has elapsed since the award) will be included in the evaluation. Therefore, all grantees in cohorts 1 and 2 (1991 and 1992) will be included, and current grantees (2006) excluded. In addition, all existing cohorts of Leadership and PAID awards as of the start date of this evaluation will be included because analysis of these two program components will be purely descriptive in nature and no data on outcomes will be collected.

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[1] Note that Fellowship awards given in 2001 and 2002 are excluded from the evaluation.

ADVANCE Component 1: Institutional Transformation (IT)

As a process evaluation, the main objectives of the study are to (1) document how grantees have structured their strategies and activities to meet the ADVANCE IT goals and identify major models that emerge; (2) identify the major theories of changes on which these strategies seem to be based; and (3) describe how grantees have implemented institutional change processes. The study will also examine whether and how approaches chosen by grantees differ by institutional types, characteristics and context.

The determination of projects' success in achieving most of the ADVANCE intermediate and long-term outcomes is beyond the scope of this evaluation and will be addressed in the summative evaluation to be conducted in the future. We will, nevertheless, attempt to document the degree to which projects have been able to institutionalize and disseminate aspects of institutional transformation achieved by the project.   The process evaluation will also situate the projects' approaches and strategies within the institutional change literature.

Conceptual Framework

Figure 1, found on the next page, is a conceptualization of the process by which grantees achieve project goals. The shaded area shows the focus of the process evaluation, which—as described above—is to document strategies of institutional transformation within the context of the institutional change literature and the context of the institutions themselves.
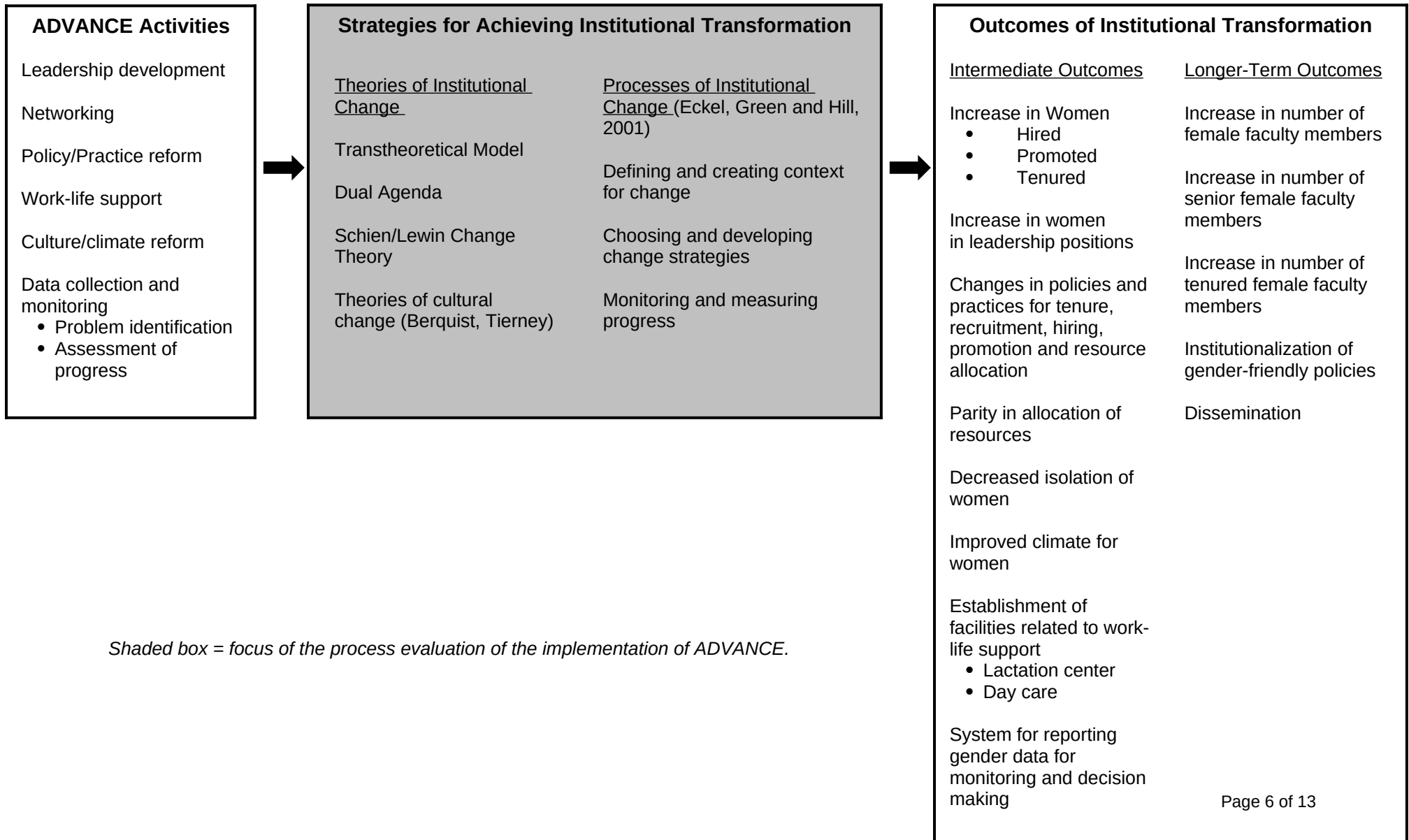
Study Questions

The following questions guide the process evaluation of the IT component:

- What are the main components/activities pursued by the grantee institutions to achieve the project goals?

- What identifiable models emerge from the constellation of activities chosen by the individual grantees to implement their projects?   Do these vary by institutional characteristics?

- Which major theories of institutional change can be identified in the approaches that undergird the main models?

- How have the individual grantees chosen to implement the three processes of institutional change (identified in the conceptual model)?   Which implementation strategies have been successful? Does the way the grantee institutions implement processes of institutional change vary by institutional characteristics or context? By IT model?

Figure 1. Conceptual Framework: NSF's Institutional Transformation Program

Institutional Transformation Process Evaluation Focus

ADVANCE Activities

Leadership development

Networking

Policy/Practice reform

Work-life support

Culture/climate reform

Data collection and monitoring
- Problem identification
- Assessment of progress

Strategies for Achieving Institutional Transformation

Theories of Institutional Change

Transtheoretical Model

Dual Agenda

Schien/Lewin Change Theory

Theories of cultural change (Berquist, Tierney)

Processes of Institutional Change (Eckel, Green and Hill, 2001)

Defining and creating context for change

Choosing and developing change strategies

Monitoring and measuring progress

Outcomes of Institutional Transformation

Intermediate Outcomes

Increase in Women
- Hired
- Promoted
- Tenured

Increase in women in leadership positions

Changes in policies and practices for tenure, recruitment, hiring, promotion and resource allocation

Parity in allocation of resources

Decreased isolation of women

Improved climate for women

Establishment of facilities related to work-life support
- Lactation center
- Day care

System for reporting gender data for monitoring and decision making

Longer-Term Outcomes

Increase in number of female faculty members

Increase in number of senior female faculty members

Increase in number of tenured female faculty members

Institutionalization of gender-friendly policies

Dissemination

Shaded box = focus of the process evaluation of the implementation of ADVANCE.

Data Collection

The evaluation of IT entails two primary modes of data collection: telephone interviews and case studies.

Telephone interviews with grantees of the first two cohorts of nineteen institutions (2001 and 2002) will be conducted to gather implementation data as well as information on changes in policies and practices, institutionalization and dissemination of ADVANCE approaches, and other relevant information. Main informants will include the project director as well as additional key personnel who may be identified by the project director.

Case Studies will involve site visits and in-depth interviews with faculty and administrators as well as focus groups with faculty. Data gathered during the site visits will be used to construct case studies, which will yield greater understanding of how interventions were implemented within diverse settings, what barriers and facilitating factors were encountered, how barriers were addressed and how facilitating factors were leveraged.

ADVANCE Component 2: Leadership Awards

The evaluation of the Leadership component of ADVANCE will be descriptive and will rely on a review of documents to provide a summary analysis of the characteristics of Leadership awards made. All available dimensions of Leadership awards will be analyzed and reported to provide NSF with a descriptive landscape of awards to date.

The population of awards funded in 2001, 2003, and 2005 (30 awards) will be included. After the document review is finalized, awards found at institutions selected for site visits will be interviewed during the visits to assess the role these awards may have played in enhancing the achievement of gender equity at selected IT awardee institutions. Three leadership awards have been made at institutions that also had an IT award in the cohorts included in this evaluation.

ADVANCE Component 3: PAID Awards

The last component of ADVANCE to be studied—Partnerships in Adaptation, Implementation, and Dissemination (PAID)—was recently launched. Therefore, the evaluation will review available documents to provide a summary analysis of the main characteristics of PAID awards, similar to that conducted for Leadership awards.

The population of awards funded thus far (15 awards to 19 institutions in 2006) will be included (i.e., no sampling will be carried out). Lastly, if institutions selected for case study site visits (as part of the IT component of the evaluation) also are recipients of PAID awards, questions regarding these awards will be incorporated in interviews and focus groups. Six PAID awards have been made at institutions that also had a IT award in the cohorts included in this evaluation.

A.1. Circumstances Requiring the Collection of Data

The ADVANCE program was initiated in 2001. Since then the NSF has invested over $130 million to support ADVANCE projects at more than one-hundred institutions of higher education and STEM-related not-for-profit organizations in forty-one states, the District of Columbia, and Puerto Rico. A process evaluation of the ADVANCE program has not been conducted previously so results of an in-depth analysis of program implementation data would not be available except from the current proposed data collection activities. Data collected in this evaluation will enable program administrators to better assess their funding approach and to make informed decisions regarding funding award strategies and program development. It will also serve as a foundation for a future summative evaluation of outcomes by models identified through this process evaluation. Lastly, the evaluation data will enable the NSF to more effectively meet their annual Government Performance and Results Act (GPRA) reporting responsibilities.

A.2. Purposes and Uses of the Data

The purpose of this proposed data collection is to support the implementation evaluation of the ADVANCE Program.

A.3. Use of Information Technology and Burden Reduction

The use of automated information technology is limited in this study. Document review, however, will be facilitated through direct download of project documents from the NSF project database. A member of the research team from the Urban Institute has successfully completed training to obtain clearance to access the NSF project database. In an effort to minimize burden on participants, the evaluation will rely upon information that can be obtained through extant data sources. Only data not available through other sources will be collected.

Telephone Interviews. Based on information available from other sources, we designed a telephone interview protocol to obtain needed information regarding the implementation of ADVANCE at each grantee site, information generally not available through other sources. In some instances, information from other sources will be inserted into the interview protocol so that it can be verified and/or updated by the interviewee. In others, we may purposefully ask a question as a validity check on extant data. Responses and general feedback obtained during field tests (details provided below) guided the wording of questions, addition of probes, and exclusion of questions deemed unnecessary. See the Appendix for the telephone interview protocol, and section B4 for details regarding the field test of this instrument

Case Study Site Interviews and Focus Groups. After conducting the review of project documents as well as the telephone interviews with all former grantees, we will analyze the data to select six sites for in-depth study and to develop protocols to be used during the site visits. In case study sites, we will interview project staff and university administrators, and conduct focus groups with faculty. Once the protocols are developed—at present scheduled for late 2009—they will be sent to OMB to be appended to this package.

A.4. Efforts to Identify Duplication

The implementation evaluation of the ADVANCE Program does not duplicate other NSF efforts. The data being collected for this evaluation have not and are not being collected by either NSF or other institutions.

A.5. Impact on Small Businesses or Other Small Entities

No small businesses will be involved in this study.

A.6. Consequences of Not Collecting the Information

If the information is not collected NSF will be less prepared to meet its accountability requirements, and to make future program decisions. Findings drawn from the data collected and analyzed in this evaluation will enable NSF to assess its success in broadening participation in the STEM workforce.

A.7. Special Circumstances Relating to the Guidelines in 5 CFR 1320.6

The data collection will comply with 5 CFR 1320.6.

A.8. Consultation Outside the Agency

A copy of the Federal Register Notice is provided with this application. The Notice was published in Vol. 74, No. 4, Monday, May 18, 2009. No comments were received.

The evaluation design was developed in consultation with NSF staff from the Division of Human Resource Development (HRD), which is the division within the Directorate for Education and Human Resources (EHR) that funds the ADVANCE Program, and an advisory board comprised of experts in higher education, organizational change, and gender equity.

The advisory board will meet with evaluators annually to review evaluation activities and provide advice on plans for activities during the following year. They will also provide feedback on an as-needed basis. The first advisory board meeting was held in March 2009. Advisory board members provided input into the design of the evaluation and the interview protocol included in this application.

A.9. Payments or Gifts to Respondents

No payment or gifts will be provided to respondents.

A.10. Assurance of Confidentiality

Participants in this evaluation will be assured by the Urban Institute that the information they provide will not be released in any form that identifies them as individuals. Evaluation findings on the projects will be reported in aggregate form in the final report. The evaluation contractor, The Urban Institute, has extensive experience collecting information and maintaining the confidentiality, security, and integrity of data.

In compliance with Urban Institute policy, the evaluators will undergo IRB clearance prior to collecting any data and will adhere to the following confidentiality and data protection procedures in conducting this evaluation:

▶ Confidentiality pledge: Evaluation team members will be instructed to treat all data collected as confidential. In addition, all staff members participating in work related to the ADVANCE evaluation will sign a confidentiality pledge (found in the Appendix). Any new or additional staff involved with this project in the future will be asked to sign a confidentiality pledge which will be retained in our files.

▶ Interviewees will be informed (1) regarding security procedures in place (specifically, that their names will not be linked to information collected), (2) that data will only be reported in the aggregate and without identifying sources, (3) that participation in the study is voluntary and (4) that there will be no consequences to non-participation.

▶ Restricted Access: Access to the database used to store answers, as well as any electronic files that may contain confidential information, will be strictly limited to authorized project members only; no others will be authorized such access.

▶ Storage: Hard copies of paper files (such as hand-written notes and interview transcripts) or tapes will be kept in a locked file. Access to these documents will be restricted to the principal investigator and primary researchers in charge of the data collection.

▶ Disposal: All paper documents and tapes will be shredded as soon as the need for the hard copies no longer exists.

▶ Backups: All basic computer files will be duplicated on backup disks to allow for file restoration in the event of unrecoverable loss of the original data. These backup files will be stored under secure conditions (locked file cabinet, as identified in the Urban Institute IRB security plan for the evaluation) and access will be restricted to authorized project personnel.

▶ Reporting: All data shall be reported in aggregate form and will not contain any identifying information on the interviewee.

▶ Identifiers: The database created to store interview transcripts will contain no identifiers (no names, addresses or phone numbers) as it is not needed for analyses.

▶ Linkage file: A linkage file containing identifying information will be stored under secure conditions in case it is needed for subsequent follow up or verification. This linkage file will only be available to the evaluation Co-Principal Investigators.

A.11. Justification for Sensitive Questions

Data collection instruments will not include any sensitive questions (see the telephone interview protocol included in the Appendix).

A.12. Estimate of Hour Burden Including Annualized Hourly Costs

Estimates for the hour burden below are based on time estimates derived through field-tests already completed for the telephone interview. Estimates for the site visit interviews are based on average response time of similar instruments used in other studies.

Burden Calculation

Type of Collection	Type of respondent	No. Respondents	Hours per respondent	Total Hour Burden
Telephone Interview	Project Directors (PD)	19	1.25	23.75
	Persons suggested by PD	19	0.75	14.25
In-Person Interviews (6 site visits)	Administrators	48	1.00	48.00
	Other awardees*	7	0.75	5.25
Focus Groups (2 per site; 6-8 faculty per focus group)	Faculty	96	1.00	96.00
TOTAL		**189**		**187**
TOTAL (rounded up)**		**200**		**200**

*includes Leadership and PAID awards given at an institution receiving an IT award. Among IT awards, 6 also received PAID awards and 3 received Leadership awards.

**to have flexibility to interview additional respondents flagged during interviews / focus groups.

A.13. Estimate of Other Total Annual Cost Burden to Respondents or Record-keepers

There are no annualized capital/startup or ongoing operation and maintenance costs involved in collecting the information. Other than the opportunity costs represented by the time to complete the interviews and focus groups, there are no direct monetary costs to study participants.

The opportunity costs associated with this data collection can be quantified by taking the average hourly wage of faculty included in the focus groups, project directors interviewed by telephone, and administrators interviewed during site visits, as follows.

Total overall cost to the respondents is estimated to be $9,904. For the telephone interviews with project directors and the in-person administrator interviews, total cost is derived by multiplying the time burden (e.g., 1.25 hours per project director, three quarters of an hour for additional interviewees suggested by the project director, and 1 hour per administrator) by the average hourly wage of a full professor at a public university, adjusted upward as noted in the table below. For the faculty focus groups, total cost is derived by multiplying the time burden (1 hour) by the average hourly wage

of an associate professor, also adjusted upward. Note that, for estimation purposes, we use the associate professor salary as an average because faculty of all ranks will be included in the focus groups (assistant, associate, and full professors). The table below shows the estimated total cost to respondents, by type of respondent, and provides details regarding sources of data and adjustments.

Estimated Annualized Costs

Respondent Type	Hourly Salary Estimate*	Burden Hours per Respondent	Total Number of Respondents Across Sites	Total Burden Hours Across Sites	Estimated Annualized Costs
Telephone Interviews					
Project Directors (PDs)	$62.21	1.25	19	23.75	$1,478
Persons Suggested by PDs	$62.21	0.75	19	14.25	$887
In-Person Interviews					
Administrators	$62.21	1	48	48	$2,986
Other Awardess	$62.21	0.75	7	5.25	$327
Focus Groups					
Faculty	$44.04	1	96	96	$4,227
Total					**$9,904**

*The hourly rate was estimated by taking the national average 2007/08 salaries of $103,521 for full professors and $73,275 for associate professors at public universities, dividing them by 2080 hours, and multiplying the resulting figure by 1.20 to adjust for higher salaries in STEM fields and at some of the universities receiving ADVANCE grants. Note that these estimates are higher than those published by the National Center for Education Statistics (NCES)--$97,100 and $69,900 respectively. For salary data see: http://www.aaup.org/aaup; http://www.insidehighered.com/news/2008/04/14/aaup; and http://nces.ed.gov/programs/coe/2008/section5/table.asp?tableID=940.

A.14. Annualized Cost to the Federal Government

The estimated cost to the Federal Government for the entire data collection (and all related activities) included in this request for approval is $314,695. This cost estimate includes: instrument development and field-testing; staff training; site recruitment; site visit travel and per diem; data collection and transcription; analysis; report writing; and expenses related to advisory board meetings.

A.15. Explanation for Program Changes or Adjustments

This is a new collection of information.

A.16. Plans for Publication, Analysis, and Schedule

Timeline for data collection and analysis. The Evaluation of the ADVANCE Program is a three-year evaluation that covers October 17, 2008 – September 30, 2011. Collection of information for this evaluation begins with a thorough literature review, review of ADVANCE project documents, and identification of preliminary models. It is followed by telephone interviews with project heads (September - October, 2009) and case study site visits involving interviews and focus groups (March – June, 2010). Data collection will last approximately 11 months. Subsequent analyses will take place in the fall of 2010. The final report will be submitted in June 2011.

Publications.   The Urban Institute is conducting this third-party evaluation of the implementation of the ADVANCE Program on behalf of NSF, but is forbidden contractually from publishing results unless permitted to do so by NSF. After the final

report is submitted, NSF will determine whether the quality of the products deserves publication. Often it is only after seeing the quality of the information delivered by the study that NSF decides the format (raw or analytical) and manner (in the NSF-numbered product Online Document System (ODS) or simply a page on the NSF Web site) in which to publish. NSF plans to publish at least one analytical report in the ODS for the ADVANCE Program within two years of the study's conclusion, which is estimated to be 9/30/2011. This means that the report will be available on the NSF Web site within two years of the conclusion of the evaluation. NSF classifies formal publications as reports, not statistical reports. The NSF may chose to allow the Urban Institute to publish the report in its website or through policy or academic publications, provide the Urban Institute obtains proper approvals and adheres to NSF requirements.

A.17. Approval to Not Display Expiration Date

Not applicable.

A.18 Exceptions to Item 19 of OMB Form 83-I

No exceptions apply.