

Supporting Statement (3145-0136)

REQUEST FOR CLEARANCE OF THE DIVISION OF UNDERGRADUATE EDUCATION PROJECT
INFORMATION RESOURCE SYSTEM
(DUE-PIRS)
Attachment C

Section A

Introduction

This request for Office of Management and Budget (OMB) review asks for renewal of the data collection component of the Division of Undergraduate Education's (DUE) Project Information Resource System (PIRS) that was initially cleared in 1998, under EHR Generic Clearance 3145-0136. It is being submitted under this request for re-clearance of the EHR Generic Clearance since the approval will expire in January 2008. OMB 3145-0136 collects data about education and training programs of the National Science Foundation (NSF).

A.1. Circumstances Requiring the Collection of Data

DUE serves as the focal point for NSF's agency-wide effort in undergraduate education. The programs and leadership efforts of DUE aim to strengthen and ensure the vitality of undergraduate education in science, technology, education, and (STEM) for all students, including:

- Science, mathematics, and engineering majors
- Students in science and engineering technology programs
- Future teachers at the elementary and secondary school levels
- Science majors seeking scientific and technical literacy

Programs within the Division enhance the quality of instruction in the diverse institutions of higher education (i.e., 2- and 4-year colleges and universities). Particular emphasis is placed on improving access for all segments of U.S. society, including paraprofessionals, persons with disabilities, and populations underrepresented in STEM studies or in STEM technical and teaching careers. Faculty members who vigorously combine teaching with scholarship are essential to quality education in STEM at any level and in any institution. Examples of DUE programs include:

- **Course, Curriculum, and Laboratory Improvement (CCLI):** The goal of this program is revitalizing and improving the quality of undergraduate STEM education for all students at all institutions. To achieve this goal the CCLI program promotes (1) development and evaluation of exemplary materials incorporating effective educational practices; (2) enhancement of current faculty and preparation of future faculty; (3) adaptation and implementation of effective materials and pedagogies; (4) improvement of laboratories and field experiences through provision of equipment for student use and support of curriculum development; and (5) dissemination of effective educational materials and practices.
- **National STEM Digital Library:** Building on work supported under the multi-agency Digital Libraries Initiative, this program aims to establish a national digital library that will constitute an online network of learning environments and resources for science, technology, engineering, and mathematics (STEM) education at all levels. In FY 2004, the program will accept proposals in three tracks: (1) *Pathways* projects are expected to provide stewardship for the content and services needed by major communities of learners. (2) *Services* projects are expected to develop services that support users, collection providers, and the Core Integration effort and which enhance the impact, efficiency, and value of the library. (3) *Targeted Research* projects are expected to explore specific topics that have immediate applicability to collections, services, and other aspects of the development of the digital library.
- **Advanced Technological Education (ATE):** The quality of the nation's high technology workforce depends on strong and innovative SMET education at associate degree granting institutions. Such

education should creatively serve first-time students, returning students, and workers seeking new career opportunities or new skills in a changing economy. To be effective, technological education programs require partnerships among 2- and 4-year colleges, universities, secondary schools, business, government, and industry. The ATE program promotes improvement in technical education delivered at the undergraduate and secondary school levels. This program is managed jointly by DUE and the Division of Elementary, Secondary, and Informal Education.

A.2. Purposes and Uses of the Data

The information collected in this task is required for effective administration, communication, and program and project monitoring; for meeting reporting requirements; for measuring attainment of NSF's program, project and strategic goals as laid out in NSF's Strategic Plan; and as a baseline for future program evaluations.

The DUE-PIRS system is a division-wide collection activity designed to track the outcome of projects in all programs in DUE, to disseminate information collected by both NSF FastLane and the DUE-PIRS system, and to promote discussion about and access to the activities of all DUE-funded research by the research community and the public. It enables principal investigators (PIs) of DUE awards to describe specific results of their efforts to improve undergraduate teaching and curricula in science, mathematics and engineering. The DUE-PIRS collection is integrated with and complements information collected under other existing DUE and NSF mechanisms, and supplements the data reported in proposals, annual reports, and final reports.

The information is used by the public, particularly prospective proposers, to determine what work has been done and what is currently under way in the programs of DUE. Data collected are instantaneously published on the EHR Web site. Members of the public can use the on-line system (found at https://www.ehr.nsf.gov/PIRS_PRS_Web/Search/default.asp) to generate customized reports using data collected by the PIRS system.

Within DUE, this information is used for program monitoring, reporting needs for PART, GPRA and division annual reports, and communication to the field of education research. The information will be used by REC to support program impact assessment and evaluation needs and to provide analytical and policy support to EHR. Data from the collection are also used in decisions about the continuation of programs. The data are also used in aggregate form to report to EHR management. In addition, the data are shared in aggregate form in discussions, speeches, and seminars on the topics of educational research.

A.3. Use of Information Technology To Reduce Burden

The DUE-PIRS system makes use of computer and information technology to reduce the burden on respondents and deliver timely information.

Wherever possible, data are drawn from existing NSF databases, including FastLane (the main proposal and award database) and are pre-filled in the DUE-PIRS system. FastLane includes the information collected as proposals are submitted and during the award process, such as identifying information about the PI and institution. Information submitted through FastLane as part of the annual and final reporting process to NSF, and is a major portion of the publicly-available information from PIRS about DUE projects.

The DUE-PIRS system then collects additional data about each award using the World Wide Web and user-friendly forms. Data are collected via the Web to minimize the burden on respondents and because data are stored directly in the database, reducing transcription errors while making the data immediately available. The DUE-PIRS system is designed to simplify data entry and data retrieval-for example, rich context-sensitive help is available for individual data elements.

The public also access data via the Web using standard Web tools, such as a Web-based search engine. The Web provides immediate access to public information in the PIRS database and optional links to the Web sites of individual projects, at the on-line system found at https://www.ehr.nsf.gov/PIRS_PRS_Web/Search/default.asp.

This collection complies with Section 508, the 1998 amendment to the Federal Rehabilitation Act, which mandates that the electronic and information technology used by Federal agencies be made accessible to all people with disabilities.

A.4. Efforts To Identify Duplication

The DUE-PIRS system does not duplicate other NSF efforts, and asks respondents to submit only data not reported elsewhere. Wherever possible, data are drawn from existing NSF databases and used to pre-fill items to further minimize overall response burden.

A.5. Small Business

Only a small amount of data will be collected from any small business organizations. Based on data for the last 5 years, fewer than 18 small businesses would be affected by this survey and each one would spend less than 1 hour responding to the survey.

A.6. Consequences of Not Collecting the Information

The data are used to monitor projects supported by DUE programs, to provide quantitative information in response to GPRA and PART reporting requirements, and to inform DUE and NSF decision-making. In addition, information collected will be disseminated to the broad undergraduate STEM education community, including current and prospective investigators. Less timely and complete information will adversely affect the quality and currency of all these endeavors.

A.7. Special Circumstances Justifying Inconsistencies with Guidelines in 5 CFR 1320.6

All data will be collected in a manner consistent with the guidelines in 5 CFR 1320.6.

A.8. Consultation Outside the Agency

The notice inviting comments on the EHR Generic Clearance (OMB 3145-0136) was published in the Federal Register August 24, 2007, Volume 72, Number 164, page 48694. No comments were received.

The system was developed with extensive consultation with potential respondents and users who participated in extensive testing of alpha and beta versions of survey instruments.

A.9. Payments or Gifts to Respondents

No payments or gifts will be provided to respondents.

A.10. Assurance of Confidentiality

All persons submitting proposal or project reports through the current NSF FastLane System receive detailed Privacy Act notices and a public burden statement as well as the specific citations for that system regarding the applicable NSF Systems of Records. Separate detailed notification is currently provided in FastLane regarding specific demographic information that is requested on individuals who work on NSF projects. This notification covers the voluntary nature of such submissions as well as the agency's commitment that such information will be closely held and used only in accordance with official procedures. OMB previously has approved both of these notifications.

Users of this voluntary submission process are also notified that their responses will be made public.

A.11. Questions of a Sensitive Nature

There are no questions of a sensitive nature.

A.12 Estimates of Response Burden

A.12.1. Number of Respondents, Frequency of Response, and Annual Hour Burden

For the years 2002 - 2004 the total number of annual respondents was 2,101 depending on the count by individual question. In any one year the number of active awards, and likely number of respondents, is 1,800 but having entered in data in a previous year, the respondent is not required to enter any new information in any subsequent year, therefore the highest expected number of responses in a particular year would be those new awards made by the division, or in the estimate below about 600.

The responses to the question on Project Goals by year, as example, are:

Year	Number of awards responding
2004	760
2003	725
2002	616

Based on the number of potential respondents, the estimated annual response burden is 1200 person-hours. Data are collected from all active projects. Respondents are the faculty members who serve as the PIs of each project, who respond annually.

The response burden is estimated in the following table.

Type of project	Number of respondents	Estimated burden	Total Burden
Newly funded projects	600	1	600
Continuing projects	1,200	.5	600
Total	1,800		1,200

This estimate is based on the following assumptions:

1. Each year 600 newly funded projects will complete first time responses, which require 1 hour each ($600 \times 1 \text{ hr} = 600 \text{ hrs}$).
2. After initial entry into the program, about 1,200 respondents will complete annual follow-up responses, which require an average of 0.5 hours each ($1,200 \times 0.5 \text{ hr} = 600 \text{ hrs}$).

A.12.2. Hour Burden Estimates by Each Form and Aggregate Hour Burdens

The DUE-PIRS system consists of one data entry form that respondents can enter information into and then update as needed. As mentioned above, respondents will be faculty serving as project PIs and the estimated total annual response burden is 1,200 person-hours. Burden is minimized by the fact that the Web-based screens of the survey request data in simple check-off and narrative response formats, so little if any time is required for familiarization with the system.

A.12.3. Estimates of Annualized Cost to Respondents for the Hour Burdens

The estimated annual cost for all respondents is \$36,000. Respondents are, for the most part, faculty members. An estimated yearly faculty salary is \$63,000 for 2,080 hours, yielding \$30.00 per respondent hour.

Type of respondent	Number of respondents	Estimated burden	Hourly rate	Total Burden
Newly funded projects	600	1	\$30	\$18,000
Continuing projects	1,200	.5	\$30	\$18,000
Total	1,800			\$36,000

A.13. Estimate of Total Capital and Startup Costs/Operation and Maintenance Costs to Respondents or Record Keepers

There is no overall annual capital and maintenance cost burden to respondents or record keepers that results from the DUE-PIRS system other than the time spent responding to the survey.

It is usual and customary for individuals involved in implementing DUE-funded projects to keep descriptive records. In order to be funded by NSF, institutions must follow the instructions in the NSF Grant Proposal Guide (GPG) that is cleared under OMB 3145-0058. The GPG requires that all applicants submit requests for NSF funding and that all active NSF awardees do administrative reporting via FastLane, an Internet-based forms system. Thus, principal investigators for DUE-PIRS awards make use of standard office equipment (e.g., computers), Internet connectivity that is already required as a startup cost and maintenance cost under OMB 3145-0058, and free software (e.g., Netscape or Microsoft Explorer) to respond.

A.14. Estimates of Costs to the Federal Government

The total annualized ongoing cost to the Federal Government for Web site maintenance is estimated to be \$10,000.

A.15. Changes in Burden

There is no change in burden.

	Respondents	Annual Response Burden
Burden Requested in 2004 Submission	1,800	1,200
Burden Requested in 2007 Submission	1,800	1,200

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

As soon as data are reported in the DUE-PIRS system, they are made available to the public through the division's share of the NSF Web site (custom reports can be generated at https://www.ehr.nsf.gov/PIRS_PRS_Web/Search/default.asp). The intent in making these data public is to generate discussion within the undergraduate education community about methods and findings of DUE projects and to allow public access to information about the current efforts to improve science and engineering education.

A.17. Approval to Not Display Expiration Date

Not applicable.

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

No exceptions apply.

Section B

Introduction

B.1. Respondent Universe and Sampling Methods

The sample size is the entire universe of projects. There will be an estimated annual average of 1800 DUE awards. These sites will be heterogeneous in terms of the characteristics of the participating institutions as well as the particular focus of each project's activities.

Collection Title	Respondent Universe	Sample Size
Division of Undergraduate Education Project Information Resource System (DUE-PIRS)	1800	1800

B.2. Information Collection Procedures/Limitations of the Study

This data collection uses a Web-based survey. Each respondent will provide answers each year during the duration of their NSF funding.

NSF understands the limitations of the this data collection, particularly in terms of using the data to determine program effectiveness. Data collected through the system are not used to determine the ultimate effectiveness of its STEM educational interventions, but are used in program planning and management, to report on agency activities and goals, and to lay the groundwork for future evaluations.

B.2.1. Statistical Methodology for Stratification and Sample Selection

This data collection is a census, so no sampling is required.

B.2.2. Estimation Procedure

Not applicable.

B.2.3. Degree of Accuracy Needed for the Purpose Described in the Justification

Not applicable.

B.2.4. Unusual Problems Requiring Specialized Sampling Procedures

Not applicable.

B.2.5. Use of Periodic (Less Frequent Than Annual) Data Collection Cycles

Not applicable.

B.3. Methods for Maximizing the Response Rate and Addressing Issues of Nonresponse

Information is collected from the PI of each DUE award. Because the survey is integrated with the NSF annual report process, required of all active grantees each year an award is active. However the survey is cumulative so that any awardee with a multi-year award is required to only enter data into PIRS once in the three year period and if the PI provides responses or updates in subsequent years, the system records only the latest entry. While the survey is required as part of the annual report process and individual report can be submitted without completion of one required PIRS field, each PI must enter at least a minimum amount of information. Therefore the response rate in any one year would be near 50%, when counting the number of total possible respondents or 100% if using the total of all new awards in that year. Because the bulk of survey is voluntary, only one question is a required field, and the per-year response rate would suggest that in the first year of an award and subsequent annual report, that all are addressing the survey.

B.4. Tests of Procedures or Methods

The survey was developed over 7 years ago and at that time involved extensive consultation with potential respondents and users who participated in extensive testing of alpha and beta versions of survey instruments. The collection instrument has been operational for the last 6 years and during that time the questions and format have proven reliable for respondents.

B.5. Names and Telephone Numbers of Individuals Consulted

Agency Unit

Herb Levitan, National Science Foundation, (703) 292-4627.

DUE will be responsible for data collection and analysis under the direction of Herb Levitan.