## FY 2009-2010 PLAN AND BUDGET FOR THE EXPENDITURE OF REVENUES AVAILABLE FROM THE BOARD OF REGENTS SUPPORT FUND WITH AN OVERVIEW OF PRELIMINARY RESULTS OBTAINED

### SUBMITTED TO THE GOVERNOR AND LEGISLATURE IN ACCORDANCE WITH THE CONSTITUTIONAL PROVISIONS OF ARTICLE VII, SECTION 10.1

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JANUARY 22, 2009

BY THE

BOARD OF REGENTS

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### PLAN AND BUDGET FOR THE EXPENDITURE OF REVENUES AVAILABLE FROM THE BOARD OF REGENTS SUPPORT FUND FISCAL YEAR 2009-2010

### **PREFACE**

The Governor, Legislature, and public should recognize that a sound educational system at all levels and in all disciplines--which is well-supported on a consistent basis--is crucial to enhancing academic programs and units and promoting economic development, the two goals of the Constitutional amendment which created the Louisiana Education Quality Support Fund (hereinafter referred to as Board of Regents Support Fund). The four programs of the Board of Regents Support Fund (BoRSF) pursue different but related strategies in the quest to achieve these goals. All disciplines are eligible to compete in the Graduate Fellows, Enhancement, and Endowed Chairs Programs, thus reflecting the Board's broad and long-range commitment to strengthen all disciplines and, in so doing, to promote long-term economic development through the enhancement of higher education in general. Competition in the Research and Development (R & D) Program has generally been restricted to those disciplines where the promotion of basic and applied research is essential for near-term economic development, although, beginning in FY 2004-05, one of the R & D subprograms has focused on research efforts in the arts, social sciences, and humanities. (See section 5.4 below.)

### 1. INTRODUCTION

According to Article VII, Section 10.1, of the Louisiana Constitution, at least sixty days prior to each regular session of the Legislature the Board of Regents must submit to the Governor and the Legislature a proposed plan and budget for the expenditure, during the coming fiscal year, of money available to higher education from the Board of Regents Support Fund. Higher education's portion of these funds may be spent for "any or all" of the following purposes: (1) endowment of chairs for eminent scholars (hereinafter referred to as the Endowed Chairs Program); (2) recruitment of superior graduate students (the Graduate Fellows Program, including Traditional Graduate Fellows, Graduate Fellowships for Teachers, and the SREB Doctoral Scholars Program); (3) carefully defined research efforts (the R & D Program, including the Research Competitiveness Subprogram, the Industrial Ties Research Subprogram, and the Awards to Louisiana Artists and Scholars [ATLAS] Subprogram); and (4) enhancement of the quality of academic, research, or agricultural departments or units within a university (the Enhancement Program, including the Traditional Enhancement Program, the Undergraduate Enhancement Program, the Endowed Professorships Program, the Enhancement Program for Two-Year Institutions, the Louisiana Systemic Initiatives Program [LaSIP], the Undergraduate Scholarships Program, and the Post-Katrina Support Fund Initiative). A more extensive discussion of the Board's use of the Support Fund to ameliorate the effects of Hurricane Katrina and Rita appears in Section 5.5.7 of this Plan and Budget.

### 1.1 BOARD OF REGENTS SUPPORT FUND PROJECTION, FY 2009-2010

The amount budgeted in FY 2008-09 (\$32,116,788) was again used as the base amount in budgeting the FY 2009-10 BoRSF Plan and Budget.

### 1.2 BUDGET RATIONALE AND PREAMBLE

In deliberations about the Board of Regents Support Fund Plan and Budget for FY 2009-2010, the Board again noted the persistence of four related Support Fund issues requiring long-range strategic planning:

- steadily increasing demands for Support Fund resources under all four Program components with concomitant increases in proposal quality and outstanding results achieved, including the leveraging during the grant period of \$1.66 in non-State money for every Support Fund dollar awarded;
- > the State's expanding emphasis on economic development and diversification;
- > unusually great and increasing demands for resources to create endowments--for eminent scholars, professorships, and first-generation undergraduate scholarships; and,
- > the need for improved data collection and enhanced evaluation to better inform decision making

Additionally, the Board continues to direct some money from Support Fund programs to assist higher education institutions in the recovery and rebuilding efforts necessitated by the hurricanes. Nevertheless, it is vital that robustness be maintained in all four interrelated Support Fund components. While the Board lauds the growth in private philanthropy reflected in the increased applications for endowed chairs, professorships, and undergraduate scholarships, the Regents are also mindful that significant cuts in budgets for Enhancement, R & D and Recruitment of Superior Graduate Students would jeopardize the viability of these components and hence impair the overall quality of the Support Fund programs. Endowed chairholders and professors must have basic infrastructural equipment, supportive cutting-edge research in affected departments and units, and top quality graduate students in order to achieve the results expected of them.

### 1.3 ADOPTION OF FY 2009-2010 PLAN AND BUDGET

The following plan and budget for FY 2009-2010 were adopted by the Board of Regents at its meeting of January 22, 2009.

### 2. LONG-RANGE PLANNING AND EVALUATION

### 2.1 LONG-RANGE PLANNING

In FY 1987-88 the Board of Regents determined that, in addition to the Constitutionally-required annual plan and budget which set forth short-term programmatic goals and fiscal objectives, long-range strategic plans were required to accomplish the interrelated purposes and goals of the Support Fund. The short-term activities outlined in the annual plans and budgets could then be shaped by these long-term goals.

The first such plan evolved from a carefully researched "White Paper" prepared by the Louisiana Stimulus for Excellence in Research (LaSER) Committee. Titled Strategic Plan for Higher Education's Portion of the Louisiana Education Quality Support Fund , it was adopted in 1988. Cognizant of changes in economic conditions which affected academic issues, the Board in 1993 adopted a revised plan, titled Board of Regents Support Fund Long-Range Strategic Plan for Higher Education. It maintained the central themes and strategies of the earlier plan, adjusted to changing conditions and lessons learned from experience. In 1999 the Board adopted a third revised plan to guide the Support Fund through FY 2005-06. In the wake of Hurricanes Katrina and Rita, the Board extended that Strategic Plan through FY 2006-07, and at its meeting of June 22, 2006 adopted the FY 2007-08 through FY 2013-14 Strategic Plan . The current Plan continues the approach of balancing continuity based on effectiveness, with revisions reflecting "lessons learned."\*

<sup>\*</sup>Copies of the 1988, 1993, 1999, and 2007 Strategic Plans are available in the Board's office.

### 2.2 LONG-RANGE EVALUATION

To ensure that the Board of Regents Support Fund achieves its goals, the Board, beginning in FY 1990-91, implemented a systematic comprehensive evaluation process. This process involved four stages: (1) collection of background information; (2) submission to the Board by project directors of annual and/or final project reports; (3) submission of additional information one year after project termination; and (4) an evaluation by out-of-state experts of individual projects as well as the overall program. In the spring of 1994 such an evaluation was conducted by a distinguished panel of out-of-state experts. The Panel concluded that the Board of Regents Support Fund Program "is effectively and efficiently administered, that it is addressing some of the State's economic development and higher education infrastructure needs, and that it has been successful in attracting federal funds to the State."\*

With the opportunity to see the various Support Fund programs in operation over a period of years, new insights have been gained. Accordingly, the Board engaged in a thorough revision of the long-range evaluation system. That process began with the comprehensive review of the Endowed Chairs Program during the summer and fall of 1998. The Endowed Chairs review culminated in the March, 1999 adoption of the Board of Regents Endowed Chairs Policy, which further strengthened a program with already impressive accomplishments. Similarly, the FY 1999-2000 comprehensive review of the Endowed Professorships Program led to the adoption, in December, 2000 of the Board of Regents Endowed Professorships Policy, providing for the improvement of that program. The FY 2000-01 review of the Recruitment of Superior Graduate Students Program led to the adoption in January, 2002 of recommendations designed to elevate the program's accomplishments. The FY 2001-02 review of the Research and Development Program led to recommendations intended to improve and strengthen this already highly successful program. In each instance, insights from the review led to the adoption of measures that will further strengthen these programs and thus maximize their positive impact on Louisiana higher education. The process is continuing during FY 2008-09, as a distinguished team of experts is again comprehensively assessing the Eminent Scholars for Endowed Chairs Program in spring, 2009. The R & D Program will be comprehensively evaluated during FY 2009-10, with other Support Fund programs to be assessed in future years on an annual rotating basis.

### 3. AN OVERVIEW OF PRELIMINARY RESULTS OBTAINED

Significant benefits have begun to accrue to the State as a result of the investment of this money in higher education. The results reported herein are even more impressive when one understands that: (1) realization of the <u>full</u> benefit of investment in higher education is a long-term proposition, and final results only become obvious after a period of many years; (2) reported results include <u>only benefits derived during the life of the grants awarded</u>, and do not attempt to measure the many benefits which accrue to affected institutions after the conclusion of the relatively brief time of Support Fund contracts; and (3) no specific benefits beyond the initial private match are claimed as a result of the Endowed Chairs for Eminent Scholars Program, and no specific external grants are attributed to the Recruitment for Superior Graduate Students program.

Annual and/or final reports have been used since the inception of the Board of Regents Support Fund Program to monitor the progress of all projects. A few of the most significant achievements are described in the following sections.

<sup>\*</sup>This Panel's report is available in the Board's office.

### 3.1 STATEWIDE RESULTS

- \* \$1.043 billion in external funds has been generated from Federal, private, and industrial sources as a result of the Board of Regents Support Fund investment in higher education, thereby significantly increasing the total monies available for higher education. This represents a return of \$1.66 for every Board of Regents Support Fund dollar invested in higher education since the inception of the programs. The figure reflects only dollars generated during the life of the awards--additional revenues were/will be generated after the expiration of the awards.
- \* Increased collaboration and coordination of efforts between Regents and BESE, as evidenced by the renewal of the \$37 million joint LaSIP effort to reform K-12 and undergraduate instruction in math and science, the subsequent funding of the Delta Rural Systemic Initiative, and the joint efforts of the two boards to improve education through the Blue Ribbon Commission on Teacher Quality. (See Attachment I for descriptions of these projects.) Those collaborative efforts also contributed to the funding of Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) by the U.S. Department of Education for \$15 million from 2002 2008. The GEAR UP Program received a new \$18 million award in 2008, with the extension set to run through 2014.
- \* 2,711 grants and/or contracts have been awarded to Louisiana universities from external funding agencies directly as a result of Board of Regents Support Fund investments.
- \* An analysis performed by the Louisiana Department of Economic Development concluded that, for all completed Industrial Ties Research Subprogram projects, 48% had either been successfully commercialized or were in the process of commercialization. Forty-five percent (45%) of those projects that were successfully commercialized are protected by a patent and/or license. Additionally, almost 60% of all completed projects reported significant to moderate industrial interaction.
- \* Increased institutional collaboration has resulted, as evidenced by the multi-million dollar, multi-institutional grants awarded to the Board of Regents on behalf of statewide university consortia for research reform initiatives. Their purpose is to increase the amount of federal research and development money awarded to Louisiana scientists and engineers statewide. (See descriptions of awards in Attachment I.)
- \* 170 patents have been issued, and another 106 applications are pending.

### 3.2 RESULTS FROM SELECTED PROJECTS

See Attachment II for brief summaries of the achievements of several selected projects.

### 3.3 MULTIPLIER EFFECTS

Using the input/output table constructed by the Bureau of Economic Analysis in the U. S. Department of Commerce and housed in the Department of Economics at LSU, one can estimate the "multiplier" effects that such an infusion of new dollars creates on the Louisiana economy in terms of new revenues, income, and jobs for Louisianians.

The effect of the \$1.043 billion in new revenues generated from Board of Regents Support Fund projects is estimated as follows:\*

- > approximately \$2.13 billion in new revenues to Louisiana firms and organizations;
- approximately \$861 million in new income for Louisiana citizens; and
- approximately 37,340 new jobs for Louisianians.
- 4. LEVERAGING BOARD OF REGENTS SUPPORT FUND MONEY, EXPANDING BOARD OF REGENTS SUPPORT FUND OPPORTUNITIES, AND PROMOTING MULTI-INSTITUTIONAL COOPERATION AND COLLABORATION

The Board began co-sponsoring research projects with the National Science Foundation (NSF) and supporting the development of scientific research and educational infrastructure in Louisiana under NSF's Experimental Program to Stimulate Competitive Research (EPSCoR) during FY 1988-89. In FY 1991-92 the Board decided to dedicate a portion of the Board of Regents Support Fund monies as matching commitments for two new statewide, multi-institutional initiatives to be submitted in national competitions for Federal funds in areas which coincide with Constitutionally prescribed Board of Regents Support Fund activities. The reasons for, and goals of, this decision were fourfold:

- To continue and accelerate the leveraging of Federal money with Board of Regents Support Fund investments--as is being accomplished by principal investigators of individually-funded Board of Regents Support Fund projects described in Attachment II of this Plan and Budget;
- To expand opportunities available under the Board of Regents Support Fund Programs;
- To reinforce the building of infrastructure that had begun under the traditional Board of Regents Support Fund Programs, which is necessary to enable Louisiana's universities to compete more successfully for Federal research money; and,
- > To promote multi-institutional collaboration and cooperation among Louisiana's colleges and universities.

The FY 1991-92 Board of Regents Support Fund Plan and Budget described the dedication of Board of Regents Support Fund money as State matching commitments for these multi-year Federal grant proposals then in preparation (FY 1990-91) under the auspices of the Board of Regents. Each proposal required significant State matching money as a condition of funding.

<sup>\*</sup>These estimates were determined through application of a formula developed by Dr. Loren Scott of LSU-BR, who authored "The Impact on the Louisiana Economy of \$66.5 Million in Outside Research Funding at LSU," January, 1990.

### 4.1 FUNDED PROPOSALS: JOINT BOARD OF REGENTS SUPPORT FUND/FEDERAL PROGRAMS WITH STATEWIDE IMPACT

The Board was successful in the competitions described above. These efforts served to solidify a partnership between the Support Fund and the National Science Foundation. This partnership has grown over the years to include relationships with the National Aeronautics and Space Administration, the Department of Defense, the Department of Energy, the Department of Commerce, the Environmental Protection Agency, and the National Institutes of Health. Support Fund obligations for these federal grants appear below in chart form. (See Chart I.) A more detailed description of each grant, including the federal funds received from each, can be found in Attachment I.

The Board's decision to augment the Support Fund by using a part of it to pursue federal matching grants opportunities has borne significant fruit. It has enabled the State to progress from a point in 1985-86 at which it could not receive even minimal support from NSF for research collaborations to the current situation, which finds Louisiana among the elite of EPSCoR states in terms of successful research-related activities.

### CHART I

FEDERAL GRANT	TYPE OF SUPPORT FUND ACTIVITY	AMOUNT OF ANNUAL MATCHING COMMITMENT	AMOUNT OF TOTAL MATCHING COMMITMENT	FY: IN WHICH COMMITMENT IS APPLICABLE	TOTAL LENGTH OF COMMITMENT IN YEARS
NSF/EPSCoR* LaSER Implementation	TR ENH: 30% R&D: 70%	Yr. 1 \$685,043 Yr. 2 440,202 Yr. 3 191,791	\$1,317,036	1988-89 through 1990-91	3*
NSF/SI LaSIP	TR ENH, UG ENH, PLEx: Prorata	\$1 Million	\$5 Million	1991-92 through 1995-96	5
NSF/EPSCoR LaSER Advanced Development Program	TR ENH: 1/3 GR FEL: 1/3** ITRS: 1/3	\$1.2 Million	\$4.8 Million	1991-92 through 1994-95	4
NASA/ LaSPACE	RCS: 60% GR FEL: 40%**	\$100,000	\$500,000	1991-92 through 1995-96	5
NSF/SI LaCEPT	TR ENH: 100%	\$500,000	\$2.5 Million	1992-93 through 1996-97	5
DOE/EPSCoR Implementation	TR ENH: 60% RCS: 40%	\$519,795	\$1,039,590	1993-94 through 1994-95	2
DOD/EPSCoR Planning	TR ENH: 100%	\$ 25,000	\$ 25,000	1993-94	1
NASA/EPSCoR Implementation	TR ENH: 50% RCS: 25% GR FEL: 25%**	\$500,000	\$1.5 Million	1994-95 through 1996-97	3
1993 DEPSCoR Implementation	TR ENH: 50% RCS: 25% GR FEL: 25%**	Yr. 1 \$166,666 Yr. 2 166,666 Yr. 3 166,667	\$500,000	1994-95 through 1996-97	3
NSF/SI Teaching Scholars	TR ENH: 100%	\$ 50,000	\$250,000	1994-95 through 1998-99	5
NSF/EPSCoR LaSER Systemic Initiatives	TR ENH: 60% UG ENH: 10% R&D: 20% GR FEL: 10%**	\$1 Million	\$3 Million	1995-96 through 1997-98	3
DOE/EPSCoR Implementation Renewal	TR ENH: 10% R&D: 70% GR FEL: 20%**	\$800,000	\$3.2 Million	1995-96 through 1998-99	4
NSF/SI LAMP	TR ENH: 100%	Yr. 1 \$200,000 Yrs.2-5 \$500,000	\$2.2 Million	1995-96 through 1999-2000	5
NASA LaSPACE Renewal	RCS: 50% GR FEL: 50%**	\$100,000	\$400,000	1996-97 through 1999-2000	4
1995 DEPSCoR Implementation	TR ENH: 50% R&D: 25% GR FEL: 25%**	Yr. 1 \$551,439 Yr. 2 311,740 Yr. 3 311,972	\$1,175,151	1996-97 through 1998-99	3
NSF/SI LaSIP Renewal	TR ENH: 100%	\$1 Million	\$5 Million	1996-97 through 2000-01	5
NASA/EPSCoR Implementation Renewal	TR ENH: 50% RCS: 25% GR FEL: 25%**	\$500,000	\$1 Million	1997-98 through 1998-99	2
NSF/SI Delta Rural SI	TR ENH: 100%	\$200,000	\$1 Million	1997-98 through 2001-02	5
LaCEPT Supplemental	TR ENH: 100%	\$100,000	\$300,000	1998-99 through 00-01	3
1997 DEPSCoR Implementation	TR ENH: 50% R&D: 25% GR FEL: 25%**	\$250,000	\$750,000	1997-98 through 1999-2000	3

NSF/EPSCoR New Cooperative Agreement	TR ENH: 75% R&D: 25%	\$1 Million	\$3 Million	1998-99 through 2000-01	3
1999 DEPSCoR Implementation	TR ENH: 100%	Yr. 1 \$65,998 Yr. 2 61,900 Yr. 3 61,900	\$189,798	1999-2000 through 2001- 02	. 3
EPSCoT	TR ENH: 100%	\$300,000	\$300,000	1999-2000	1.5
NASA/EPSCoR Continuation Funding	TR ENH: 100%	\$250,000	\$250,000	1999-2000	1
NASA/EPSCoR Preparation Grant	TR ENH: 100%	\$100,000	\$100,000	1999-2000	100 100
NASA LaSPACE Continuation	TR ENH: 100%	\$200,000	\$1,000,000	2000-01 through 2004-05	5
EPA/EPSCoR 2000	TR ENH: 100%	Yr. 1 \$255,261 Yr. 2 244,739	\$500,000	1999-2000 through 2000-01	2
LAMP Phase II	TR ENH: 100%	\$500,000	\$2.5 Million	2000-01 through 04-05	5
NSF/EPSCoR Research Infrastructure Improvement	TR ENH: 100%	\$1 Million	\$3 Million	2001-02 through 2003-04	3
NASA/EPSCoR 2000	TR ENH: 100%	\$700,000	\$2.1 Million	2001-02 through 03-04	3
EPA/EPSCoR 2001	TR ENH: 100%	Yr. 1 \$250,000 Yr. 2 244,542	\$494,542	2002-03 through 2003-04	2
NSF/EPSCoR Research Infrastructure Improvement II	TR ENH: 100%	\$1 Million	\$3 Million	2003-04 through 2005-06	3
DOE/EPSCoR Implementation 2004	TR ENH: 100%	\$400,000	\$1.2 Million	2004-05 through 2006-07	3
NASA/EPSCoR 2000 Renewal	TR ENH: 100%	\$493,280	\$986,560	2004-05 through 2005-06	2
LAMP Phase III	TR ENH: 100%	\$500,000	\$2.5 Million	2005-06 through 09-10	5
NASA LaSPACE Continuation II	TR ENH: 100%	\$200,000	\$1 Million	2005-06 through 2009-10	5
NASA/EPSCoR 2006 - Infrastructure	TR ENH: 100%	\$125,000	\$375,000	2006-07 through 2008-2009	3
NASA/EPSCoR 2006 - Research 1	TR ENH: 100%	\$250,000	\$750,000	2006-07 through 2008-2009	3
NASA/EPSCoR 2006 - Research 2	TR ENH: 100%	\$250,000	\$750,000	2006-07 through 2008-2009	3
NSF EPSCoR Cyber RII	TR ENH: 100%	\$1 Million	\$3 Million	2006-07 through 2008-2009	3
DOE EPSCoR Implementation Renewal	TR ENH 100%	\$400,000	\$1.2 Million	2007-08 through 2009-10	3
NSF EPSCoR RII Track 1 (Pending)	TR ENH 100%	\$2 Million	\$10 Million	2009-10 through 2013-14	5
NASA EPSCoR (Pending)	TR ENH 100%	\$625,000	\$1.875 Million	2009-10 through 2011-12	3

<sup>\*</sup>The 13 research projects that were a part of the first NSF/EPSCoR award received Board of Regents Support Fund money for two years prior to receiving NSF support in January of 1989 (FY 1988-89), for a total of five years and \$3,374,355 in Board of Regents Support Fund money. This chart reflects only years three through five of Board of Regents Support Fund money (or \$1,317,036), since only that period of State support that coincides with Federal Support can be counted as part of the State's matching commitment. (See Section 4.1.1.)

<sup>\*\*</sup> Because of the nature of the Graduate Fellows Program, money for this component must be committed in the fiscal year prior to expenditure. For this reason, the first year's Graduate Fellows portion of matching funds committed to a particular project was usually actually charged to Enhancement or R&D, or prorated between the two program components. (Chartlpb.09 C:JW folder)

### 4.2 PENDING PROPOSALS:

The NASA EPSCoR program supports two components: a "core" infrastructure development component and a research project component. It is expected that NASA will issue new solicitations for both components in 2009. Results from these competitions will not be known until late 2009 or early 2010.

NSF EPSCoR will issue a new solicitation for an expanded Research Infrastructure Improvement Track 1 award in 2009. The project duration will be increased from three to five years, and the maximum annual award amount will be increased from \$3 million to \$4 million. The Board will submit a proposal in response to this solicitation during fall, 2009. Results from the competition are expected during spring, 2010.

### 4.3 SPECIAL EFFORTS TO PROMOTE THE SUBMISSION OF MULTI-DISCIPLINARY, MULTI-INSTITUTIONAL PROPOSALS

The Board has long recognized the potential of multi-disciplinary and/or multi-institutional projects to enhance academic quality and promote economic development, as well as to make the most prudent use of scarce State resources. Accordingly, the Board has encouraged these kinds of proposals since the inception of the Board of Regents Support Fund, not only in the joint Federal/State efforts described in Section 4.1 of this Plan and Budget, but also in the proposals submitted under the traditional Board of Regents Support Fund Program components. The best known manifestations of the Board's support of proposals of this type are an \$800,000 award to fund the Louisiana Academic Library Network (LaLINC) proposal, which has computerized databases and linked academic libraries throughout the State, and one award of \$3,500,000 to help support the efforts of the Louisiana Optical Network Initiative (LONI).

To further emphasize its belief in the potential of multi-disciplinary, multi-campus efforts to achieve Board of Regents Support Fund goals and promote the best interests of the State, in its most recent solicitation for proposals, as well as in the 1993, 1999, and 2006 revisions of the Strategic Plan, the Board specifically encouraged the submission of collaborative efforts which would provide statewide benefits. Beginning with its FY 2000-01 budget, and continuing in FY 2009-10, the Board has set aside funds from the Traditional Enhancement program each year for the funding of these types of projects. The Board reaffirms the eligibility and encourages the submission of multi-disciplinary, multi-institutional proposals in all Board of Regents Support Fund Program components for FY 2009-2010. Consistent with the increased emphasis being placed on interdisciplinary research throughout the academic community and the increase of quality proposals submitted in this category, the Board first increased the funds available for awards in this category to \$950,000 in the plan and budget for FY 2004-05. The \$950,000 level has been maintained since, but is pegged as a percentage of the Traditional Enhancement budget (20%) in the FY 2009-10 plan and budget. Any unexpended multi-disciplinary money will revert to discipline-based Traditional Enhancement. (See Section 5 below.)

### 5. BOARD OF REGENTS SUPPORT FUND PROGRAM COMPONENTS

### 5.1 BUDGETARY CONTINGENCIES

If Board of Regents Support Fund money for higher education is greater than the \$32,116,788 projected, overages shall be returned to the Traditional Enhancement Program until its allocation reaches \$6,000,000. Any amount thereafter shall be returned to the Traditional and Undergraduate Enhancement components and the

Research and Development subprograms on a pro-rata basis. In the event that <u>reductions</u> are necessary, they are to be made on a pro-rata basis among the Undergraduate Enhancement and the Enhancement Program for Two-Year Institutions program components.

### 5.2 ENDOWED CHAIRS FOR EMINENT SCHOLARS - \$3,220,000

### Overview/Rationale

The Endowed Chairs for Eminent Scholars Program, introduced in 1987, is designed to enhance the recruitment and retention of distinguished university faculty at institutions throughout Louisiana. Through the 2007-2008 fiscal year, 277 chairs have been funded at twenty-four institutions, and the program has generated a total endowment (counting private match) of \$307 million.

The program pairs a 60% private-sector match with a 40% Board of Regents award to endow a chair to be filled by a scholar of high renown and great ability. The Board endows chairs in any discipline at two levels: \$1 million total endowment (\$600,000 match/\$400,000 BoRSF) and \$2 million total endowment (\$1.2 million match/\$800,000 BoRSF).

The competition established to determine endowment awards is rigorous and highly selective. A panel of out-of-state experts reviews proposals on an annual basis, and recommends for funding those most representative of and able to achieve the goals of the program. Stringent rules governing the selection of the faculty recipient are designed to ensure his or her excellence. An endowed chair must be filled through a national search and the committee conducting the search must include at least one individual recognized as an expert in the field of the chair, but who is not affiliated with the institution, the private donor, or the Board of Regents. While a chair recipient may be selected from within the affected campus, this should occur infrequently and may only be done when a national search has documented the national and/or international eminence of the prospective chairholder.

As the national search guarantees the past reputation of the chairholder, periodic peer reviews of the chairholder are intended to assure continued accomplishment. Chairholders are held to standards of performance which require that they maintain a continuing record of scholarly and creative endeavors, leadership activities, exceptional teaching, attraction of high-quality students and enhancement of the State's economy.

### Important Historical Milestones

- ➤ Funds first awarded in 1987
- ➤ Has been budgeted at ≥\$3.2 M since 1990
- ➤ "First-come, first-served" replaced by Competitive Process in 1993
- ➤ Legislative supplemental appropriations, beginning in FY 1995-96 and continuing in most years since then, have enabled the funding of 99 additional chairs
- Comprehensive Reviews conducted in 1993 and 1998; Recommendations adopted for significant strengthening, especially in 1999; An additional comprehensive review is underway during FY 2008-09

"Special Provisions for Public Four-Year Campuses with Less than Three Eminent Scholars Chairs" adopted in 2001 - allowed public, four-year institutions with fewer than three chairs to invert the 60:40 private funds/public funds ratio, but retained the principle of competition without favor. Through FY 2005-06 when the "special provisions" expired, nine chairs, (three from Northwestern State University, two from Louisiana State University - Alexandria, Southern University - Baton Rouge, Southern University - New Orleans, and Grambling), were funded under its aegis. One additional proposal from Southern University - New Orleans was funded under special circumstances in FY 2006-07.

### 5.3 RECRUITMENT OF SUPERIOR GRADUATE STUDENTS - \$4,082,000

The Recruitment of Superior Graduate Students (RSGS) Program provides resources to select departments to bring top-quality students to their graduate programs. Through the 2007-2008 fiscal year, the Board of Regents has provided over one thousand graduate fellowships to a spectrum of departments at fourteen institutions in Louisiana. About 10% of these fellowships have been awarded to programs specifically targeting in-service teachers in mathematics and science disciplines pursuing master's degrees in Education. While the economic and cultural impact of these fellowships is difficult to quantify, it is clear that the program has contributed highly educated employees to Louisiana industry, expert teachers at levels from kindergarten to college, and a community of enthusiastic, energetic, and dedicated students to further the educational and research agendas at colleges and universities across the State.

The Traditional Graduate Fellows and Graduate Fellowships for Teachers (GFT) subprograms have been part of RSGS since 1993. The Board became a full participant in the Southern Regional Education Board (SREB) Minority Scholars Program in FY 2007-08. The Traditional subprogram primarily supports excellent doctoral-level programs, but also allows stipends for students at master's-level programs of distinction. The GFT subprogram offers support to pre- and in-service teachers seeking master's degrees in science and/or mathematics. To apply for GFT awards, an applicant institution must offer a program that can be completed in one academic year plus an additional summer, to allow teachers to finish within a single year's sabbatical from the classroom. Fellowship recipients, further, must pledge to teach in a Louisiana school system for at least one year after completing the master's degree, to insure that Louisiana students reap some of the benefits of the State's support of these teachers. The GF, GFT, and SREB subprograms provide a comprehensive opportunity for departments across the State to receive assistance in the training and support of graduate students.

Timely implementation of the Graduate Fellows Program requires the following schedule: year one, awarding the grant; year two, recruiting by awardees of superior graduate students; and year three, disbursing funds committed under the grant. For example, colleges and universities that submit successful proposals during the current fiscal year (FY 2008-09) will have a full year (FY 2009-10) during which to recruit students who, in turn, will enroll in Louisiana universities' graduate programs for the first time in the fall of 2010 (FY 2010-11).

The \$4,082,000 budgeted for this category for FY 2009-2010, therefore, is entirely for previous obligations, including: (a) \$811,000 for fourth-year funding of graduate fellows who began their course of study in AY 2006-2007; (b) \$1,054,000 for third-year funding of graduate fellows who began their course of study in AY 2008-2009; and (c) \$1,042,000 for funding of second-year graduate fellows who began their course of study in AY 2008-2009; and (d) \$1,150,000 for funding of graduate fellows who will begin their course of study in AY 2009-2010. This information is included in the current year's plan to notify the Governor and the Legislature that an amount of

approximately \$4.1 million will have been committed from the FY 2010-2011 Support Fund prior to the time that the annual plan and budget are submitted for that year.

In keeping with the conceptual framework to use Support Fund money to enhance all areas of higher education, all disciplines are eligible to compete in the Graduate Fellows Program. Those disciplines accorded a higher priority for Louisiana's economic development are eligible to compete every year. To determine the eligibility of specific disciplines in the Graduate Fellows Program for FY 2009-2010, see Chart II.

### **CHART II**

### ELIGIBILITY OF DISCIPLINES\* IN THE GRADUATE FELLOWS PROGRAM

### GROUP I-ELIGIBLE EVERY YEAR

Biological Sciences
Chemistry
Computer and Information Sciences
Earth/Environmental Sciences
Engineering A and B
Health/Medical Sciences\*\*
Physics/Astronomy

### GROUP II - ELIGIBLE IN FYs 2006-07, 2008-09, 2010-2011, 2012-13

Agriculture
Business
Education, including Literacy
Mathematics

### Group III - ELIGIBLE IN FY 2007-08, 2009-2010, 2011-12, 2013-14

Arts Humanities Social Sciences

\*The listing of those sub-disciplines which are included in these larger groupings is in Attachment III.

\*\*Effective with the Board action of June 22, 1995, the LSU Health Sciences Centers in New Orleans and Shreveport and the Tulane University Health Sciences Center are permitted to submit a maximum of three proposals each when "Health and Medical Sciences" is an eligible category. "Health and Medical Sciences" was made eligible each year in the 1999 revision of the Strategic Plan.

### 5.4 CAREFULLY DEFINED RESEARCH EFFORTS - \$ 5,485,000

A total of approximately \$3,100,000 will be required during FY 2009-10 to honor prior commitments for multi-year projects in the Board of Regents Support Fund R&D Program. Since most research projects are multi-

year endeavors, the Board has historically been conservative in recommending an increase in funds dedicated for new research projects in the R & D Program. Allocations for new awards in the R & D program peaked at approximately \$2.8 million in FY 1990-91. The budget for new R & D projects was reduced in FY 1991-92, in part because of a slight drop in total Support Funds available, but primarily as a result of the matching commitments required for federal grants.

The Research Competitiveness Subprogram has been consistently successful since its inception in FY 1986-87. Accordingly, the Board has made every effort to fund this subprogram at the highest possible level. The amount devoted to this subprogram for first-year awards was increased to \$1.5 million in FY 1999-2000 and has been maintained since except in those years when ominously low economic forecasts mandated mid-year budget cuts. Beginning in FY 2006-07, and continuing in the FY 2009-10 Plan and Budget, the amount for first-year awards was reduced to \$1,350,000 to facilitate funding of the Post-Katrina Support Fund Initiative.

The Industrial Ties Research Subprogram has not enjoyed such a pattern of unbroken success. Louisiana's relatively undiversified industrial economy and its dearth of large industrial-based corporations (only one Fortune 500 company and relatively few industries with substantial capacity for R & D spending) have made it difficult for university faculty to foster meaningful partnerships with industries based in the State. The Board has significantly reduced the funding level for this subprogram to reflect this reality, with the amount available for first-year funding of this component stabilized at \$650,000 for several years. To free up funds for the Post-Katrina Support Fund Initiative, the amount was further reduced (by 10% to a first-year level of \$585,000) for FY 2006-07. This level is maintained for FY 2009-10.

While the Board has to date focused the R & D Program almost exclusively on the sciences, mathematics, and engineering, the Regents remain cognizant of their responsibility, elucidated in each Strategic Plan since 1988, to improve the quality of education "at all levels in all disciplines." The comprehensive review of the R & D Program during FY 2001-02 documented the need for a subprogram with emphasis on the arts, social sciences, and humanities. This subprogram, modeled after the internationally famous Guggenheim Foundation Program, was inaugurated at a funding level of \$500,000 FY 2004-05. The funding level for this subprogram, now named the Awards to Louisiana Artists and Scholars (ATLAS) subprogram, remained at \$500,000 for FY 2005-06, but was reduced in FY 2006-07 to \$450,000 in order to free up funds for the Post-Katrina Support Fund Initiative. The \$450,000 level will be maintained in FY 2009-10.

A more detailed discussion of the R & D subprograms for which relevant historical data exists appears below.

### 5.4.1 Research Competitiveness Subprogram (RCS)

The RCS is a stimulus program directed only toward those researchers who are at the threshold of becoming competitive in the Federal R & D marketplace. It is designed to assist these researchers to overcome the barriers that have prevented them from competing successfully at the national level for R & D funds. RCS is also directed only to those researchers who clearly show strong potential for enhancing their competitive status within the time span of a Board of Regents Support Fund grant. In every year since the subprogram's inception, far more Louisiana university researchers who fit this funding profile have submitted quality research proposals to RCS than the Board has been able to support and encourage with funding.

Disciplines eligible to compete for basic research funds in the RCS are restricted to the sciences and engineering (as defined by the National Science Foundation), agriculture, and health and medical sciences. Most disciplines are eligible on a staggered, two years on-two years off basis; however, three disciplines which are

accorded the highest priority for economic development (biological, computer/information, and earth/environmental sciences) are targeted for funding annually. To determine the eligibility of specific disciplines in the RCS for FY 2009-10 see Chart III.

### CHART III

### ELIGIBILITY OF DISCIPLINES\* IN THE RESEARCH COMPETITIVENESS SUBPROGRAM

### GROUP I - ELIGIBLE EVERY YEAR

Biological Sciences Computer and Information Sciences Earth/Environmental Sciences

### GROUP II - ELIGIBLE IN FYs 2006-07, 2007-08, 2010-11, 2011-12

Agricultural Sciences
Engineering A (Chemical, Civil, Electrical, etc.)
Mathematics
Physics/Astronomy
Social Sciences

### Group III - ELIGIBLE IN FYs 2008-09, 2009-10, 2012-13, 2013-14

Chemistry Engineering B (Industrial, Materials, Mechanical, etc.) Health and Medical Sciences

\*The listing of those sub-disciplines which are included in these larger groupings is in Attachment III.

### 5.4.2 <u>Industrial Ties Research Subprogram (ITRS)</u>

The principal goal of the ITRS is to fund research proposals that have significant **near-term** potential for contributing to the development and diversification of the Louisiana economy. Accordingly, all proposals and funded projects must demonstrate strong interest from and continued involvement by the private sector and/or non-state public agencies. Because the ITRS also functions as a stimulus subprogram, funded projects should either (a) bring about significant near-term federal or private-sector funding of research with commercial applications or (b) enhance or establish a Louisiana business or industry that will attract significant external revenues to the State.

To ensure that no opportunities with the potential to promote economic development and diversification would be overlooked, the Board has, since 1993, opened competition in the ITRS to proposals from any and all research areas. Further, the Board has attempted to encourage university/industry initiatives through cooperation with the Governor's Economic Development Cabinet and with related entities such as the Louisiana Department of Economic Development.

### 5.4.3 Awards to Louisiana Artists and Scholars (ATLAS) Subprogram

The Awards to Louisiana Artists and Scholars (ATLAS) Subprogram provides support for major scholarly and artistic productions with potential to have a broad impact on a regional and/or national level. The Support Fund awards are accompanied by paid sabbaticals from the faculty members' institutions which facilitate the completion of manuscripts for publications and/or provide recognition for the efforts of artists, playwrights, composers, composers, etc. The subprogram allows the State to profit from its rich cultural traditions and makes Louisiana's expertise and creativity in these disciplines known to the rest of the nation.

### 5.4.4 Summary of FY 2009-10 Research and Development Expenditures

	(RCS and ITRS only)	<b>\$3,100,000</b>
Prior Commitments	(RCS and TIRS only)	\$1,350,000
New Awards -	RCS	• • • • • • • • • • • • • • • • • • • •
	EED C	\$ 585,000
# 1	TTRS	\$ 450,000
	ATLAS	
•		\$5,485,000
R & D PROGRAM	I TOTAL	40,100,000

### 5.5 ENHANCEMENT OF THE QUALITY OF DEPARTMENTS OR UNITS - \$18,289,744

NOTE:

Matching commitments for all Federal Matching Grants Program proposals for which Federal approval has not been received as the date of submission of the affected Plan and Budget will be accommodated from the Enhancement Program. The Board has elected to operate in this manner because of (a) the uncertainty of a proposal's potential success in the national competition for Federal funds, (b) the Board's policy that any unexpended money in the Chairs, Graduate Fellows, and/or R&D program components annually revert to Traditional Enhancement for new awards in that component, (c) the difficulty and uncertainty surrounding moving Board of Regents Support Fund money from one Board of Regents Support Fund Program component budget to another, once budgeted in the prior year's appropriation process, and (d) the fact that all projects of this nature contain elements, in varying degrees, that enhance academic departments and units at colleges and universities.

After weighing interrelations among the four components of the Support Fund, the Board has concluded that enhancement of the instructional and research infrastructure of departments and units remains a fundamental need, essential to accomplishing the goals of the other three Program components. For this reason, the Board shall dedicate \$18,289,744 to the Enhancement Program in FY 2009-10. Thus, approximately 57% of the total funds available for awards in FY 2009-10 have been dedicated to this component, reflecting the Board's strong commitment to the program under which the majority of the State's colleges and universities are most competitive and successful.

Approximately \$7,094,699 of the \$18,289,744 budgeted for Enhancement awards in FY 2009-2010 will be required to honor prior commitments for multi-year projects. Of this amount, \$300,000 has been budgeted for potential second-year commitments for two-year proposals to be approved in FY 2008-09 under the Traditional and/or Undergraduate Enhancement programs. Traditional and Undergraduate Enhancement proposals are currently undergoing competitive external review and the Board will make funding decisions about them in April or May of 2009. A total of \$1,100,000 has been promised as the State's matching commitment under three current jointly-funded Board of Regents Support Fund/Federal Matching Grants, including: (a) \$200,000 for the fifth year of the

NASA LaSPACE project; (b) \$500,000 for the fifth year of the LAMP Phase III project; and (c) \$400,000 for the third year of the DOE EPSCoR project.\* Additionally, \$500,000 is reserved for the fourth year of the current LaSIP project, and \$5,194,699 is reserved for the fourth year of Post-Katrina Support Fund Initiative projects initially funded in FY 2006-07.

After deducting these projected commitments for multi-year enhancement projects and the commitments and projected commitments for Federal matching opportunities, \$11,195,045 will be available for new enhancement projects submitted for funding consideration in FY 2009-10. Maintenance of the highest possible budgetary allocations to the Enhancement Programs is particularly important, because: (a) the Enhancement Programs build the infrastructure at universities which is critical to the success of the other three Support Fund programs; and (b) not only are the Enhancement Programs the ones in which all universities are eligible to compete, they are also the ones under which the majority of campuses most successfully compete. Significantly, 67% of the total funds available for new awards will be dedicated to the Enhancement Program. (See Chart V, "Overview of FY 2009-10 Board of Regents Support Fund Budgetary Allocations by Program Component" in Section 6 of this Plan and Budget.)

### 5.5.1 <u>Undergraduate Enhancement Program</u>

Some colleges and universities without sizeable graduate programs have not been aggressive in submitting enhancement proposals. To continue to affirm the principle that improvement of infrastructure is essential at <u>all</u> academic levels, the Board shall dedicate \$1,620,000 to improve education at the primarily undergraduate institutions.

Prerequisites for participation in the Undergraduate Enhancement Program are as follows: (1) the campus may not offer more than two doctoral programs; and (2) the department applying may not offer a doctoral degree. It should be noted that the maximum number of doctoral programs a campus may offer and still be eligible to participate in the Undergraduate Enhancement Program was lowered from ten in FY 1991-92 to two for FY 1992-1993 and beyond. The Board took this action to promote maximum participation by primarily undergraduate campuses in this Program.

Participation in the Undergraduate Enhancement Program does not preclude campuses from competing for other Enhancement money, and quality considerations continue to form the basis for all funding decisions. The same rotation of disciplines (Chart IV) and types of projects eligible under the Traditional Enhancement Program are also eligible in the Undergraduate Enhancement Program, and the same regulations apply to proposals. Surplus amounts not awarded in the Undergraduate Program will be transferred to the Traditional Enhancement Program.

### 5.5.2 Endowed Professorships Program

This program was created by the Board and incorporated into the Enhancement Program in FY 1990-91, and funds were first allocated to endow professorships in FY 1991-92. The funding of an endowed professorship requires the college or university to raise at least \$60,000 from external sources, to be matched by \$40,000 from the Support Fund, thus establishing an endowed professorship valued at a minimum of \$100,000.

<sup>\*</sup>A summary of the funded proposals referenced above may be found in Attachment I.

Since its inception the Board has been concerned that too many eligible campuses were not reaping the benefits possible through the Endowed Professorships Program. One manifestation of this concern appeared in the FY 1995-96 Plan and Budget, when the Board first allowed campuses to use Federal funds as the matching source for one endowed professorship per year. The Board has also encouraged campuses to maximize efforts to attain matching funds for endowments from private philanthropic sources. In the Endowed Professorships Policy which emanated from the FY 1999-2000 comprehensive review of the program, the Board adopted the following strategy to broaden inclusiveness:

Beginning in FY 2001-02, the campuses listed below, which have received fewer than five professorships since inception of the program, will receive \$60K from the Support Fund, to be matched with \$40K in private funds. Once a campus has attained five professorships, it will no longer be eligible for funding under this ratio, and will revert to the \$60K private:\$40K Support Fund ratio.

- 1. Baton Rouge Community College
- 2. Bossier Parish Community College
- 3. Grambling State University
- 4. LSU-Eunice

- 5. River Parishes Community College
- 6. South Louisiana Community College
- 7. Southern University-New Orleans
- 8. Southern University-Shreveport

The Board initially set aside \$580,000 from the Reserve Fund to accommodate this special funding. The eight campuses listed above will require a total of 29 professorships to enable each to have five funded professorships. 29 X \$20,000 (the difference in 60:40 versus 40:60) = \$580,000. Additional money was set aside for this purpose to accommodate Louisiana Delta Community College and Southern University - Baton Rouge Law Center in FY 2003-04, and, effective in FY 2005-06, L. E. Fletcher Technical Community College and Sowela Technical Community College. This special provision will expire at the end of FY 2008-09.

This year, as in previous years, the Board searched diligently to identify money in the Support Fund to continue this Program. Measured against the pressing financial needs of higher education, every component of the Support Fund is severely underfunded. Consequently, each dollar used to fund new programs means that fewer dollars are available for critical needs elsewhere. Nevertheless, due to the overriding imperative to strengthen faculty at colleges and universities statewide, the fact that this Program enhances and promotes recruitment and retention of outstanding faculty, and the ever-increasing success of campuses statewide in raising private matching funds, the Board of Regents shall continue to fund the Endowed Professorships Program during FY 2009-10 at the level of \$2,680,000. These funds will enable each four-year campus to endow two professorships, and each two-year campus to endow one professorship, assuming that private matching monies can be secured and all regulations can be met. The money "saved" by reserving only one professorship per two-year institution per year has since been used in the manner described in the Section 5.5.3.

### 5.5.3 Enhancement Program for Two-Year Institutions

The Board's belief that improvement of educational quality is essential at all academic levels and in all disciplines drove the establishment, beginning in FY 2002-03, of the Enhancement Program for Two-Year Institutions. The absence of federal calls in FY 2002-03 for grants requiring a state match enabled the Board to use the funds normally made available for federal matching opportunities to "jump-start" the two-year institutions, particularly those which had recently joined the Louisiana higher education system.

Campuses eligible for participation in this program are Baton Rouge Community College, Bossier Parish Community College, Delgado Community College, L. E. Fletcher Technical Community College, Louisiana Delta Community College, LSU-Eunice, Nunez Community College, River Parishes Community College, South Louisiana Community College, Southern University-Shreveport, and Sowela Technical Community College. Campuses participated during the spring of 2002 in the development of rigorous criteria which parallel, to the degree feasible, the criteria used in other BoRSF Enhancement components. A competitive peer-review process is used to prioritize successful proposals.

It is the Board's belief that proceeding in this manner will provide not only an opportunity for the two-year institutions to participate meaningfully in the BoRSF, but also an invaluable training experience in the grant writing and capacity-building that all institutions of higher education must undertake. Cognizant that all or most of the funds devoted to this purpose in FY 2002-03 were likely to revert to the Federal Matching Grants Program in future years, the Board has attempted to provide a financial foundation for the continuance of the subprogram. To wit, the Board has modified its policy for the disbursal of funds for endowed professorships (described in Section 5.5.2 above) so that at least \$440,000 per year will be available to sustain this program. Additional funds will continue to be taken from the Traditional Enhancement Program. One million dollars (\$1,000,000) was allotted to this program in FY 2003-04, and the FY 2004-05 allocation for the Enhancement Program for Two-Year Institutions was raised to \$1,200,000. The \$1,200,000 level was maintained for FY 2005-06. The FY 2006-07 level of \$1,080,000 reflected a reduction of 10% to provide funds for the Post-Katrina Support-Fund Initiative. The \$1,080,000 level is maintained for FY 2009-10. Any unexpended funds will revert to the Traditional Enhancement Program.

### 5.5.4 The Louisiana Systemic Initiatives Program (LaSIP)

The Louisiana Systemic Initiatives Program (LaSIP) first competed successfully for National Science Foundation (NSF) funding in 1991. At that time it received \$10 million from NSF, matched by \$5 million each from the Board of Regents and the Board of Elementary and Secondary Education (BESE). The project involves K-12 reforms which require leadership from colleges and universities, as well as revisions in teacher education programs. LaSIP was one of only two statewide initiatives (Connecticut) which received a five-year renewal in 1996. Federal support ended in FY 2000-01. From the beginning, NSF emphasized that Federal money would only be used to seed the project, with the major continuing financial commitment to emanate from state and/or private sources.

During its ten-year existence LaSIP was repeatedly cited by NSF as a model program. The project's exemplary nature was a major contributing factor in the 1996 renewal. Further, LaSIP has achieved significant results statewide in the improvement of student scores on both criterion-referenced and norm-referenced tests. It has the potential to be a major resource for school districts throughout the State in achieving accountability goals.

Mindful that the federal funding stage for this project was drawing to a close, the Board determined that the educational reform impulse at once spearheaded and buttressed by LaSIP should not die. Accordingly, the Board committed \$500,000 per year for five years, beginning in FY 2001-02, to continue LaSIP activities. The money came from the Reserve Fund, and was contingent upon the provision of a like sum annually from BESE and supplemental funding from the Legislature. Both the Regents and BESE approved five-year renewals at \$500,000 per year for the Program at their meetings in January, 2006. Since FY 2006-07, the Regents contribution to this program has come from the Board of Regents Support Fund Plan and Budget. \$500,000 will again be devoted to LaSIP during FY 2009-10.

### 5.5.5 Endowed Undergraduate Scholarship Program for First-Generation College Students

The State faces a well-documented impending crisis in terms of educating its future workforce. According to statistics provided by the National Center for Higher Education Management Systems (NCHEMS), for every 100 students entering the ninth grade this fall only about 56 will graduate from high school four years hence. Only 33 will attend college, and only 22 will receive a baccalaureate degree within six years of college entry. Research indicates that this massive "pipeline leakage" is due primarily to socioeconomic factors. Many worthy Louisiana students are now effectively denied this opportunity either because the assistance provided under the TOPS program is not sufficient to make a college education affordable for them or because they approach but fall short of satisfying all of the requirements necessary to qualify for the TOPS program.

The Board has now implemented a merit- and needs-based program to address this situation. Eligible students must be Louisiana residents who are "first-generation" college students (neither parent has earned a baccalaureate degree), who have been awarded the federal Pell grant, and have been admitted to the institution awarding the scholarship. Each four-year institution will be guaranteed one (1) \$40,000 endowed scholarship fund challenge grant annually to match a private/institutional contribution of \$60,000. Each two-year institution will be guaranteed one (1) \$20,000 endowed scholarship fund challenge grant annually to match a private/institutional contribution of \$30,000. Proceeds will be used to establish/enhance a permanent endowed scholarship fund. The interest earnings from the fund(s) will be awarded at the discretion of the institution to eligible students and may be divided among multiple recipients, provided that each student receives at least \$1,000 per year in program funds. In addition to scholarship proceeds, institutions will provide student recipients with structured support through active and engaged advising, and institutions will provide students with meaningful campus employment of at least ten (10) hours per week over and above the scholarship. The program will continue to be funded at the level of \$1,000,000 during FY 2009-10.

### 5.5.6 Traditional Enhancement Program

Based on its continuing review of academic programs, coupled with evaluation of Board of Regents Support Fund projects, the Board anticipates that the acquisition of research and instructional equipment will remain indefinitely as the area of greatest need in the Enhancement Program. Indeed, during the first three years in which the Board of Regents Support Fund operated, instrumentation was the only type of request allowed in the Enhancement Program. Beginning in FY 1989-90, the Board invited the submission of other types of enhancement requests, due primarily to the eligibility of selected non-scientific and non-engineering disciplines for the first time. Some types of enhancement requests other than instrumentation include, for example, curriculum revision projects and colloquia to be presented by outstanding out-of-state scholars.

In an attempt to limit the commitment of future Board of Regents Support Fund money, in FY 1989-90 the Board further decided that equipment can only be purchased in the initial year of a project and that, for projects which envision multi-year funding, the following stipulations apply: (1) no project may be of more than two years in duration; (2) no project may request more than \$50,000 in the second year; and (3) a limit of \$1 million will be placed on the total of all second-year commitments in the Traditional Enhancement Program. This year, the Board decided to continue to allow the submission of Enhancement requests other than for instrumentation, with the same stipulations as adopted previously.

After deducting all previous and projected commitments for other components of the Enhancement Program, only \$2,190,045 remains for new projects submitted in the Traditional Enhancement Program in FY 2009-10. This amount would increase from the Plan and Budget as submitted only if allocated money is not

expended in one of the other Support Fund programs. However, as indicated in section 5.1, all funds in excess of \$32,116,788 shall be placed in the Traditional Enhancement category until a funding level of \$6,000,000 is reached. Further, the Board will use money from its Reserve Fund as required to preserve the integrity of this vital component.

In keeping with the conceptual framework to use Support Fund money to enhance all areas of higher education, all disciplines are eligible to compete in the Traditional Enhancement Program on a rotating basis as set forth in the <u>Strategic Plan</u>. To determine the eligibility of specific disciplines for FY 2009-10, see Chart IV.

### **CHART IV**

### ELIGIBILITY OF DISCIPLINES\* IN THE TRADITIONAL AND UNDERGRADUATE ENHANCEMENT PROGRAMS

### GROUP I - ELIGIBLE IN FYs 2006-07, 2009-10, 2012-13

Agricultural Sciences

Arts

Earth/Environmental Sciences

Engineering A (Chemical, Civil, Electrical, etc.)

Health and Medical Sciences

### GROUP II - ELIGIBLE IN FYs 2007-08, 2010-2011, 2013-14

**Business** 

Chemistry

Education

**Mathematics** 

Physics/Astronomy

### GROUP III - ELIGIBLE IN FYs 2008-09, 2011-2012

**Biological Sciences** 

Computer and Information Sciences

Engineering B (Industrial, Materials, Mechanical, etc.)

Humanities

Social Sciences

<sup>\*</sup>See the listing of those sub-disciplines which are included in these larger groupings in Attachment III.

### 5.5.7 Post-Katrina Support Fund Initiative (P-KSFI)

The storms of August and September, 2005 decimated Louisiana and other sections of the Gulf Coast. In addition to the diaspora of its population, the State's economy, infrastructure, tax-base, and research, both basic and applied, have suffered. The affected region encompasses coastal areas unparalleled for the productivity of its natural resources, its diverse recreation, its unique culture(s), and the quality of its creative and performing arts. While the catastrophic dimensions of the storms would be difficult to overstate, the resulting situation did present an unprecedented opportunity for faculty and students to participate in the recovery and rebuilding of both urban and rural areas.

To facilitate this endeavor, the Board established, at its December 8, 2005 meeting, a five-year program to be funded through an annual allocation of approximately \$5 million from the Board of Regents Support Fund. Although it involves the redirecting of substantial funds from established BoRSF programs, it is essential to addressing priorities that have emerged since the storms. Utilizing monies unspent in the FY 2005-06 competitions, in addition to budget adjustments in established programs and revised budget projections, the Initiative has significant potential for leveraging of BoRSF funds to attain federal and private monies. Thus, the total money available to the Initiative should be significantly more than the approximate \$5 million per year provided through the BoRSF.

Subsequent to the submission of the FY 2006-07 Plan and Budget, the Board's staff conducted several meetings with campus representatives, ultimately resulting in a call for White Papers from the campuses which indicated their priority needs, as well as their thoughts relative to the development of the Initiative. The Board's staff forwarded these White Papers to a panel of experts selected under the auspices of the American Academy for the Advancement of Sciences (AAAS). AAAS hosted interviews during September 2006 in which campus representatives responded to detailed questions arising from their White Papers.

AAAS issued final reports in November 2006 which recommended the following: (1) that the P-KSFI be subdivided into Primarily Research and Primarily Education subprograms and (2) that the disciplines eligible for funding be limited to biological sciences, material sciences, and information technology. After responses to the report were received from the campuses in December 2006, the Board ultimately approved the requests for proposals (RFPs) for the Initiative at its meeting of January 25, 2007.

Forty-one proposals were submitted in response to the RFPs. An intensely competitive peer-review process, multi-stage for primarily research proposals and single-stage for the primarily education proposals, culminated in the awarding of \$25,231,210 over a period of five years to eleven proposals involving participation from fifteen institutions of higher education. \$5,194,699 of this amount will be expended in FY 2009-10. The performance of these projects will continue to be carefully monitored and evaluated by the Board.

### 5.5.8 SUMMARY OF FY 2009-10 ENHANCEMENT EXPENDITURES

Prior Commitments	- Traditional and Undergraduate Federal Matching Grants LaSIP Renewal Post-Katrina Initiative	\$ 300,000 \$ 1,100,000 \$ 500,000 \$ 5,194,699
New Awards -  ENHANCEMENT	Federal Matching Grants Undergraduate Endowed Professorships Two-Year Institutions Endowed Undergraduate First Generation Traditional PROGRAM TOTAL	\$ 2,625,000 \$ 1,620,000 \$ 2,680,000 \$ 1,080,000 \$ 1,000,000 \$ 2,190,045 \$18,289,744

### 5.6 ADMINISTRATIVE EXPENSES - \$1,040,044

Act 675 of 1989 established the following restrictions with respect to the amount of Support Funds money that may be used to administer the Board of Regents Support Fund Programs:

No more than 3% of the annual total amount appropriated to each board or <u>eight hundred thousand dollars</u>, whichever is smaller, shall be appropriated for such purposes to each board, subject to a thorough review with the goal of limiting such costs to those necessary and proper. . . .

This legislation was modified by Act 698 of 2001, which specifies that:

Costs attributable to the Board of Regents for use of external peerreview consultants for purposes of review, evaluation, and assessment of program proposals are recognized as costs appropriately borne by the respective Support Fund programs and shall be paid from the category of expenditure related to the program for which the review, evaluation, and assessment applies.

Legislation passed during the 2006 Session allows an actual amount of \$1,040,044 to be expended in this category during FY 2009-10.

Each program component whose expenditures are itemized in sections 5.3 through 5.5 of this Plan and Budget will incur expenditures for the professional services of out-of-state consultants estimated as follows:

Recruitment of Superior Graduate Students	\$ 25,000
Research and Development	\$150,000
Enhancement	\$ 95,000

These amounts estimated above will be <u>deducted from</u> the total amounts available for expenditure in the respective program components. Estimated consultant costs for the Endowed Chairs for Eminent Scholars Program are <u>added to</u> the regular allocation in order to preserve the \$400,000 units necessary for the endowments.

### 6. OVERVIEW OF FY 2009-2010 BUDGETARY ALLOCATIONS BY PROGRAM COMPONENT

The following chart provides an overview of FY 2009-2010 Board of Regents Support Fund budgetary allocations for new projects and previous commitments.

### **CHART V**

	TOTAL SUPPORT FUND ALLOCATION	ALLOCATION FOR NEW PROJECTS	ALLOCATION FOR PREVIOUS COMMITMENTS
ENDOWED CHAIRS	\$ 3,220,000	\$ 3,220,000	\$ 0
GRADUATE FELLOWS	\$ 4,082,000	\$ 900,000*	\$ 4,082,000
RESEARCH	\$ 5,485,000	\$ 2,385,000	\$ 3,100,000
ENHANCEMENT**	\$ 18,289,744	\$ 11,195,045	\$ 7,094,699
SUBTOTALS	\$ 31,076,744		N
ADMIN. COSTS	\$ 1,040,044		
GRAND TOTAL	\$ 32,116,788		

<sup>\*</sup>Because allocations for the Graduate Fellows Program must be determined two years in advance of when students first arrive on campus, the FY 2009-2010 allocation for new graduate fellowships was determined in FY 2007-08 and set forth for the first time in the FY 2008-09 Plan and Budget. Thus, this allocation for new projects must come from the FY 2010-11 budget and has not been included in the subtotal and grand total figures in this chart. See Section 5.3 for a detailed explanation of the timing of the allocation process for this Board of Regents Support Fund Program component.

(09ver.2 (Vfolder)

<sup>\*\*</sup>Enhancement figures include funds used for Federal Matching Grants opportunities and for the Post-Katrina Support Fund Initiative.

### ATTACHMENT I



Title	Fiscal Years	Federal Award Number	Federai ser Agency Dur	Duration	Federai Award Amt.	Support Fund Match
NSF/LaSER: The Louisiana EPSCoR Program	FY1989-90 -	STI-8820219	NSF	3 years	\$1,945,312	\$3,374,355

Participating Institutions: A significant number statewide; grant funds awarded on a competitive basis.

Description/Purpose: 1) To increase the competitiveness of Louisiana scientists and engineers in the Federal R & D marketplace, 2) to effect permanent improvements in the quality of science and engineering in Louisiana, 3) to develop human resources in Louisiana in the sciences and in engineering, and 4) to ensure that improvements achieved continue with State and/or private support beyond the end of the grant period.

\$4,800,000	
NSF 3 years \$3,700,000	
3 years	
NSF	
FY1991-92 - EHR-9108765	
<u>.</u> –	CB-4-881
NSF LaSER Advanced Development Proposal (ADP)	

Participating institutions: A significant number statewide, organized into research clusters; grant funds awarded on a competitive basis.

Description/Purpose: 1) To increase the competitiveness of Louisiana scientists and engineers in the Federal R & D marketplace, 2) to effect permanent improvements in the quality of science and engineering in Louisiana, 3) to develop human resources in Louisiana in the sciences and in engineering, and 4) to ensure that improvements achieved continue with State and/or private support beyond the end of the grant period.

ı	\$10,000,000	<b>E</b>	Regents and BESE)
	\$10,000,000	•	
	5 years		3
	TPE-9150043 NSF		
	2-	FY1995-96	
	Louisiana Systemic initiatives Program (LaSiP) in Math	and Science Education	

Participating institutions: A significant number statewide; grant funds awarded on a competitive basis.

Description/Purpose: To reform statewide – from kindergarts:n through college – methods of instruction and learning in mathematics, science, and engineering education.

\$500,000	NASA and BOR portions
\$600,000	(NAS)
4 years	
NASA	
NGT-40039	
FY1991-92 -	FY1995-96
4	-
<b>nSPACE</b> )	
NASA Training Grant (L.	

awarded directly to LSU)

Participating institutions: A consortium of sixteen campuses: grant funds awarded on a competitive basis.

Description/Purpose: To develop the infrastructure for aeros pace research to competitive levels, while improving the quality of aerospace research and education.

Description/Purpose: To improve the quality of undergraduate teacher preparation programs in mathematics and science and to increase substantially the number of Participating institutions: Centenary, Grambling, LSU-BR, LSU-S, LA Tech, Loyola, McNeese, Nicholis, ULM, NSU, SLU, SUBR, SUNO, ULL, UNO, Xavier mathematics and science educators.

\$1,039,590	22
\$1,039,590	-38
2 years	
DOE	
DE-FC02-	91ER75669
FY1993-94 - DE-FC02-	FY1994-95
U.S. Department of Energy/EPSCoR Program	

Participating institutions: Grambling LA Tech, LSU-BR, Loyola, McNeese, SUBR, Tulane, ULL, ULM, UNO, Xavier

Description/Purpose: To develop the infrastructure for energy and energy-related research in Louisiana, while improving the quality of energy research and education in the State and encouraging human resource development in this area. This proposal was the result of a one-year \$99,454 planning grant awarded to the Board by DOE.



Title	Fiscal Years	Federal Award Number	Federal Agency	()uration	Federai Award Amt.	Support Fund Match
Defense Experimental Program to Stimulate Competitive Research (DEPSCoR) Planning Program	FY1993-94	DAAH04-93-G- 0466	000	1 vear	\$50,000	\$25,000

Participating Institutions: A significant number statewide

Description/Purpose: To prepare a statewide plan for increasing the State's capacity to perform defense-related research and technology transfer.

Participating institutions: Dillard, Grambling, LSU-BR, LSUHSC-NO, SUBR, SUNO, Tulane, ULM, UNO, Xavier

Description/Purpose: To conduct research and educate scientists and engineers in Louisiana in areas important to national defense.

\$1,500,000	
\$1,500,000	
3 years	
NASA	
NCCW-0059	
FY1994-95 FY1996-97	
NASA EPSCoR Program	

Participating institutions: Dillard, LA Tech, LSU-BR, LSU Ag, LUMCON, McNeese, SUBR, Tulane, UNO, Xavier

Description/Purpose: 1) To improve the infrastructure for aerospace-related research and education in Louisiana, and increase the State's capability to perform federallyfunded aerospace research; and 2) to support three multi-institutional research cluster projects.

	\$250,000	999
	\$500,000	
	5 years	1
	NSF NSF	
	DUE-9255761	(Supplement)
	FY1994-95 -	FY1998-99
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Man reaching ocnomis Program	

Participating institutions: Centenary, LA Tech, Loyola, Nichalis, SLU, SUBR, SUNO, ULL, ULM, UNO, Xavier

Description/Purpose: To increase the number of minority teachers by providing a financial supplement to the Teaching Scholars program for Historically Black Colleges and Universities (HBCUs).

\$3,000,000	
NSF 3 years \$4,400,000 \$3,000,000	
3 years	
NSF	
ram (SI) +71995-96 - OSR-9550481	
FY1995-96 -	FY1997-98
OR LaSER Systemic Improvement Program (St)	

Participating Institutions: Grambling LA Tech, LSUHSC-S, I.SU-BR, Loyola, SUBR, SUNO, Tulane, ULL, UNO, Xavier

Description/Purpose: 1) To stimulate systemic and sustainated improvements in the science and technology enterprise by creating centers of research excellence in the research linkages between the State's Historically Black and hinjority White Campuses and Universities through Joint Faculty Appointments. This proposal continued the State, Improving the Infrastructure for scientific and engineering research and education in Louisiana, and enhancing human resources development in the sciences and engineering, thereby increasing the State's capability to perform federally-funded research of economic importance to Louislana; and 2) to create real and meaningful efforts begun under the EPSCoR ADP award described above.





# FUNDED PROPOSALS: JOINT FEDERAL/STATE PROGRAMS WITH STATEWIDE IMPACT Page 3 of 9

Title	Fiscal Years	Federal Award Number	Federai Agency Duration		Federal Award Amt.	Support Fund Match	
Building Research Partnerships with Audio/Video Conferencing Facilities	FY1996-97 FY1998-99	EPS-9632665	NSF	2 years	\$494,198	0\$	25

Participating institutions: LA Tech, LSU-BR, LSU Ag, LSUHSC-NO, NSU, SLU, SUBR, Tulane, ULL, ULM, UNO

Description/Purpose: To promote research partnerships by establishing an inter-institutional audio/video (A/V) research communications network across Louisiana. The AV network will enhance collaborative exchanges within and among the State's EPSCoR and EPSCoR associated schools and to promote new research partnerships by eliminating geographical ¿distance/separation) barriers.

	0\$
	\$552,893
	2 years
ļ	
	EPS-9720147 NSF
	FY1997-98 - FY1999-00
	LaSERnet II Backbone for institutions of Higher Education in Louisiana

Participating institutions: LA Tech, LSU-BR, LSUHSC-S, LSUHSC-NO, SLU, SUBR, Tulane, ULL, ULM, UNO

Description/Purpose: To provide researchers in the State with a high-speed intra-state backbone for sharing resources and access to broad-band (Internet II) service and direct vBNS (very Broadband Network Service) connectivity.

years \$3,473,402 \$3,200,000	
\$3,473,402	
4 years	
DOE 4 y	
DE-FC02-	91ER75669
FY1995-96 -	FY1998-99
U.S. Department of Energy/EPSCoR Program Renewal	

Participating Institutions: (3rambling LA Tech, LSU-BR, Loyo/a, McNeese, SUBR, Tulane, ULL, ULM, UNO, Xavier

Department of Energy: 2) to educate and recruit individuals, esceptally minorities and women, to work in these areas in Louisiana; 3) to provide new technologies that lead to economic development in the State; and 4) to support three milti-institutional research cluster projects. Description/Purpose: 1) To increase research competitiveness and capabilities of Louisiana scientists and engineers in areas of importance to the State and the U.S.

96 - HRD-9550765 NSF 5 Jaars \$5,944,914 \$2,249,280	0076	
Louis Stokes Louisiana Alijance for Minority Participation FY1995-96	(LV-LAMP) Program FY1999-00	

Participating institutions: Dillard, Grambling, LUMCON, LSU-₹R, McNeese, Nunez, SUBR, SUNO, SUSBO, Tulane ULL, UNO Description/Purpose: To increase the number of undemepresented minorities receiving B.S. degrees in science, englinearing, and mathematics in Louisiana from the baseline rate of 610 annually to an annual rate of 1,110.

NASA 4: years \$600,000 \$400,000	(NASA and BOR portions
NGT-40039	
FY1996-97 -	FY1999-00
NASA LaSPACE Renewal Program	

awarded directly to LSU)

Participating institutions: A consortium of sixteen campuses; grant funds awarded on a competitive basis

Description/Purpose: To continue the development of the Infrastructure for aerospace research to competitive levek, while improving the quality of aerospace research and education





# FUNDED PROPOSALS: JOINT FEDERAL/STATE PROGRAMS WITH STATEWIDE IMPACT

Title	Fiscal Years	Federal Award Number	Federai Agency	Duration	Federal Award Amt.	Support Fund Match
Louisiana Systemic Initiatives Program (LaSIP) Renewai In Math and Science Hducation	FY1996-97 – FY2000-01	ESR-9634088	NSF	5 years	\$7,000,000	\$10,000,000 (\$5 million each from

Description/Purpose: To continue the education reform efforts begun under the original LaSIP program. Participating Institutions: A significant number statewide; grant funds awarded on a competitive basis.

1995 DEPSCoR Implementation Program	FY1996-97 -	FY1996-97 — Grant Numbers DOD 3 years \$2,350,303	gog	3 years	\$2,350,303	\$1,500,00
	CY1998-99	vary		•		

8

Participating institutions: LSU-BR, LSUHSC-NO, SLU, Tuiane

Description/Purpose: To continue previous efforts to conduct research and educate scientists and engineers in Louisiana in areas important to national defense, thus improving the State's research infrastructure.

NASA EPSCoR Program Renewal	FY1997-98 - NCC5-167 NASA	NCC5-167	NASA	2 years \$1,000,000 \$	\$1,000,000	3
	200000					
2 years	55-555LL					

Participating Institutions: Dillard, LA Tech, LSU-BR, LSU A;;, LUMCON, McNeese, SUBR, Tulane, UNO, Xavier

Description/Purpose: A renewal program to 1) continue to improve the infrastructure for aerospace-related research and education in Louisiana, and increase the State's capability to perform federally-funded aerospace research; and 2) to continue the support of three multi-institutional research cluster projects.

Participating institutions: A significant number; all campuses are eligible to compete.

Description/Purpose: 🗥 complement and supplement current statewide math and science education reform initiatives such as LaSiP and LaCEPT. A tri-state effort involving Louisiana, Mississippi, and Arkansas, it concentrates on professional development programs for teachers, pre-service enhancement programs for educators, leadership institutes for administrators, and acquisition of supportive hardware and software in an effort to impact 64 counties and/or parishes (22 school districts in 21 parishes within Louisiana) that are rural and have major economic problems.

Louisiana Collaborative for Excellence in the Preparation FY1998-99 -	FY1998-99	DUE-9816194	NSN F	3 years	9800,000	00,000
of Teachers (LaCEPT) Frogram Supplemental Award	10-00-71					

Description/Purpose: To improve the quality of undergraduate teacher preparation programs in mathematics and science and to increase substantially the number of Participating institution⋅κ: Grambiling, LSU-BR, LSU-S, LA Tech, Loyola, Nicholis, NSU, SLCC, SLU, SUBR, SUNO, ULL ULM, UNO, Xavier mathematics and science educators; to evaluate the effectiveness of the initial five-year award (FYs 1993-98)



Title	Fiscal Years	Federal Award Number	Federal Agency	Federal Agency Duration	Federai Award Amt.	Support Fund Match
1997 DEPSCoR Implementation Program	FY1997-98 – FY1999-00	Grant numbers vary	DOD Syears	ં years	\$1,770,504	\$750,000

Participating institutions: LSU-BR, Tulane, ULL

Description/Purpose: To continue previous efforts to conduct research and educate scientists and engineers in Louisiana in areas important to national defense, thus improving the State's research infrastructure.

\$3 000 000

NSF/EPSCoR New Cooperative Agreement (NCA)s	FY1998-99 FY2000-01	EPS-9720652 NSF 3 years	NS L S	3 years	\$3,000,000	\$3,000,000	
Participating institutions: A significant number statewide; or Description Districts of To enhance the competitiveness of	le; grant funds awarded on a competitive basis. ss of :cience and engineering (S&E) faculty of the State's higher education institutions by making them more	on a competitive bas	is. of the State's	s higher educa	tion institutions by n	/ making them more	

competitive in gaining national research and development support, engaging them in science and technology transfer activities with business and industry, and helping them educate effectively large numbers of S&E students at both graduate and undergraduate levels; 2) to create real and meaningful linkages between the State's HBCUs and MWCUs through the Joint Faculty Appointments Program; and 3) to foster economic development in the state by facilitating, through various initiatives, interaction between business & industry, universities, and state government. This proposal continued the efforts begun under the EPSCoR ADP and SI awards previously described. Description/Purpose: 1) To enhance

1999 DEPSCoR implementation Program	FY1999-00 -	Grant numbers DOD	8	3 years	\$1,459,473	\$188'\88
	20004	7007				
3 years	F12001-02	Val y				

Participating Institutions: LSU-BR, LA Tech, UNO

Description/Purpose: &s in past DEPSCoR awards, the individual research projects funded through this award enhance the statewide research infrastructure improvement

\$300,000
ars \$250,000
2 years
Dept. of Commer ce
FY1999-00 60NANB9D0005 Dept. of 2 years FY2000-01 Commer ce
FY1999-00 FY2000-01
Experimental Program to Stimulate Competitive Technology (EPSCoT)

Participating institutions: A significant number statewide

Description/Purpose: To develop and implement regional and statewide strategies to accelerate commercialization of university-based technologies, thus contributing to the economic development of the State.

20	
-	
5	
NCC9-16/	
FY1999-00	
NASA EPSCoR Program Continuation Funding	

Description/Purpose: A renewal program to 1) continue to improve the infrastructure for aerospace-related research and education in Louisiana, and increase the State's capability to perform federally-funded aerospace research; and 2) to continue the support of three multi-institutional research cluster projects. This award is the sixth-year continuation of the NASA EPSCoR Program and NASA EPSCoR Program Renewal previously described. Participating institutions⊹Dillard, LA Tech∯LSU-BR, LSU Ag. ì.UMCON, McNeese, SUBR, Tulane, UNO, Xavier



	Fiscai Years	Federal Award Number	Federal Agency Duration	1	Federal Award Amt.	Support Fund Match
NASA EPSCoR Preparation Grant Program	FY1999-00	NCC5-393	NASA 1 year	1 year	\$225,000	\$100,000

Participating Institutions: A significant number statewide. F⊎nds are competitively awarded.

Description/Purpose: To allow Louisiana researchers to initiate contacts and promote collaborative research programs with NASA Centers and Enterprises, and begin research activities in areas of strategic importance to NASA in preparation for submission of a statewide proposal to NASA EPSCoR in 2001.

000 000 74	000,000,14	
010,00	062,182,1\$	
	5 years	
	NASA	
	NGT5-40115	
	FY2000-01 NGT5-40115 NASA 5 years \$1,281,250 91	FY2004-05
	NASA LaSPACE Continuation	

Description/Purpose: This award continues the efforts begun under the original LaSPACE program and the LaSPACE renewal described previously. Participating Institutions: A consortium composed of sixteen campuses; grant funds are awarded on a competitive basis.

\$500,000	
\$483,939	
EPA 2 years	
EPA	
R-82778501-0	
FY1999-00 - R-82778501-0	FY2000-01
FPA FPSCoR 2000 Program -Coastal Monitoring	

Description/Purpose: To establish and maintain a series of instrument platforms by which university scientists can monitor environmental variables in coastal Louislana for research and educational needs, thus increasing the State's capability to compete for and perform federally-funded environmental research. Participating institutions: LUMCON, Tulane (ali data obtained wili be made avaliable to scientists and students throughout the state.)

Louis Stokes Louislana Alliance for Minority Participation		HRD-000272	NSF F	5 years	\$5,000,000	\$2,500,000
(LS-LAMP)	> 12005-00					

Phase II

Description/Purpose: To continue to increase the number of underrepresented minorities in Louisiana receiving B.S. degrees in science, engineering, and mathematics. Participating institutions: Dillard, Grambling, LUMCON, LSU-BR, McNeese, Nunez, SUBR, SUNO, SUSBO, Tulane, ULL, UNO

955,523	
NASA I YEBI	
NACA	
NCC5-393	
FY2000-01	
rant Program Renewal	
ration Grant Progra	
NASA EPSCoR Preparation Grant Pro	

Description/Purpose: To continue the efforts described abov∌ for the NASA EPSCoR Preparation Grant. Participating institutions: A significant number statewide. Funds are competitively awarded.

20

\$400,000

S

seven)

1 year

Description/Purpose: This award is the seventh-year continuation of the NASA EPSCoR Program previously described. Participating Institutions: Diliard, LA Tech∤LSU-BR, LSU Ag. LUMCON, McNeese, SUBR, Tulane, UNO, Xavier





# FUNDED PROPOSALS: JOINT FEDERAL/STATE PROGRAMS WITH STATEWIDE IMPACT Page 7 of 9

Title	Fiscal Years	Federai Award Number	Federal Agency	Federal Agency Duration	Federai Award Amt.	Support Fund Match
Video to the Desktop: A Louislana Model	FY2000-01 - FY2001-02	EPS-0083089	NSF		\$494,450	0\$

Participating Institutions: LA Tech, LSU-BR, LSU Ag, LSUHSC-NO, LSUHSC-S, NSU, SLU, SUBR, Tulane, ULL, ULM, UNO

Description/Purpose: To promote research partnerships by establishing an inter-institutional H.323 research communications (videoconferencing) network, which will operate over existing internet lines instead of over telephone lines, and allow desktop-to-desktop multimedia communications.

\$3.000.000	
\$9,000,000	
NSF 3 vears	
NSF	ш
EPS-0092001	
ment FY2001-02 -	FY2003-04
slana EPSCoR Research Infrastructure Improvement	
Louis	

Participating Institutions: A significant number statewide, including LA Tech, LSUHSC-NO, UNO, Grambling, LSU-FIR, SUBR, Tulane, Xavier, NSU, ULM. A portion of the grant funds will be awarded on a continuing, competitive basis

variety of initiatives to enhance the competitiveness of science and engineering (S&E) faculty of the State's higher education institutions. This proposal continues the efforts Description/Purpose: This award funds the "Micro/Nano Technologies for Advanced Physical, Chemical, and Biological Sensors" research consortium in addition to a begun under the EPSCoR ADP, SI, and NCA awards previously described.

	\$2,100,000	
	NASA 3 years \$2,100,000 \$2,10	
	3 vears	
	NASA	
ı	NCC5-573	
	FY2001-02 -	FY2003-04
	*	
	<b>NASA EPSCoR 2000</b>	

Description/Purpose: 1) To develop and strengthen long-term academic research enterprises that will make significa. t contributions to the strategic research and technology priorities of NASA and, in turn, to contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic Participating Institutions: LSU-BR, LUMCON, Tulane, Dillard, ULL, UNO, Xavier. A portion of the grant funds will by awarded on a continuing, competitive basis. development of the State; and 2) to support three multi-institutional research projects.

ge FY2002-03 - R-82642001-0 EPA 2 years \$494,195 \$494,542	FY2003-04
EPA EPSCoR 2001 Program - Climate Change	

Participating Institutions: LUMCON, UL-Lafayette, LSUBR

Description/Purpose: To enhance Louisiana's capability for understanding and predicting the effects of climate change on the state's coastal ecosystems, thus increasing the State's capability to compete for and perform federally-funded environmental research.

\$3,000,000	
\$9,000,000	
3 years	
NSF	
(LSII) FY2003-04- EPS-0346411	FY2005-06
dic Infrastructure improvement (LSII)	

Participating Institutions: A significant number statewide, incituding LSU-BR, LSUHSC-NO, SUBR, Tulane, ULL, ULM, UNO, Xavier. A portion of the grant funds will be

Description/Purpose: This award funds the "Center for Bio-Modular Multi-Scale Systems" in addition to a variety of initiatives to enhance the competitiveness of science and engineering (S&E) faculty of the State's higher education institutions. This proposal continues the efforts begun under the EPSCoR ADP, SI, NCA, and RII awards previously awarded on a continuing, competitive basis; described



Title	Fiscal Years	Federal Award Number	Federal Agency	Duration	Federal Award Amt.	Support Fund Match
NASA EPSCoR 2000 Renewal	FY2004-05 FY2005-06	NCC5-573	NASA 2 years	2 years	\$986,236	\$986,560

significant contributions to the strategic research and technology priorities of NASA and, in turn, to contribute to the overall research infrastructure, science and technology Description/Purpose: A two-year renewal of the NASA EPSCoR 2000 Program to 1) To develop and strengthen long-term academic research enterprises that will make Participating Institutions: LSU-BR, LUMCON, Tuiane, Dillard, ULL, UNO, Xavier. A portion of the grant funds will be awarded on a continuing, competitive basis. capabilities, higher education, and economic development of the State; and 2) to support multi-institutional research projects.

DOE EPSCoR Implementation 2004	FY2004-05 -	DE-FG02-	DOE	: years	\$1,200,000	\$1,200,000
•	FY2006-07	04ER46136				

Participating institutions: ULL, LSU-BR, SUBR

Description/Purpose: To develop the infrastructure for energy and energy-related research in Louisiana, while improving the quality of energy research and education in the State and encouraging human resource development in this area. This award funds the multi-institutional, multidisciplinary research project entitled "Ubiquitous Computing and Monitoring System (UCoMS) for Discovery and Management of Energy Resources."

\$2,500,000	
5 years \$2,500,000	
5 years	
NSF	
FY2005-06 - HRD-0503362 NSF	
FY2005-06-	FY2009-10
AMP Phase III	

Participating institution ⊌: Diliard, Grambling, LUMCON, LSU BR, McNeese, Nunez, SUBR, SUNO, SUSBO, Tulan ∾, ULL, UNO

Description/Purpose: To continue to increase the number of underrepresented minorities in Louisiana receiving B.S. degrees in science, engineering, and mathematics, and to transition at least 30% of these graduates to graduate school by 2010.

\$1,000,000	
At least	\$1,280,000
5 years	
NASA 5 years	
NNG05GH22H	
FY2005-06 -	FY2009-10
NASA LasPACE Continuation II	

Participating institutions: A consortium composed of sixteen campuses; grant funds are awarded on a competitive basis. Presentation Distributions: This award composed of sixteen campuses; grant funds are awarded on a competitive basis.

	\$1,875,000
IOUS DEGUIL UNDER THE ORIGINAL LAST MOLE PROGRAM AND LAST AND THE PROGRAM COSMISSING PROGRAM.	5Y2006-07 NNX07AL03A, NASA 3 ears \$1,625,000 \$1,875,000
	3 years
	NASA
astract program	NNX07AL03A,
under trie onginali L	-Y2006-07 -
continues the efforts begun	.37
Description/Purpose: This award c	NASA EPSCoR Phase 3

NASA EPSCoR Phase 3	FY2008-09	NNXO/ALU3A, NNXO/AT62A, NNXO/AT67A	ACAN I	8 E E E E E E E E E E E E E E E E E E E	91,625,000	000,678,14	
Participating institutions: L.SU-BR, SUBR, A portion of the grant funds will be awarded to these and other institutions on a continuing, competitive basis.  Description/Purpose: 1) To develop and strengthen long-term academic research enterprises that will make significant contributions to the strategic research and technology priorities of NA3A and, in turn, to contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development of the State; and 2) to support two research projects of particular interest to NASA, one studying adhesivaly bonded joints in composite structures and one	grant funds will be a sm. academic resear te overall research in ojects of particular in	awarded to these and ch enterprises that w ifrastructure, science iterest to NASA, one	other Institu III make sign and technol studying adh	tions on a co ifficant contril ogy capabiliti iesivaly bond	of the grant funds will be awarded to these and other institution: on a continuing, competitive basis. ing-term academic research enterprises that will make significant contributions to the strategic research and to the σverall research infrastructure, science and technology capabilities, higher education, and economic ch projects of particular interest to NASA, one studying adhesively bonded joints in composite structures and	basts. cresearch and and economic structures and on	Φ.

focusing on high-energy astrophysics

# FUNDED PROPOSALS: JOINT FEDERAL/STATE PROGRAMS WITH STATEWIDE IMPACT Page 9 of 9

Title	Fiscal Years	Federal Award Number	Federal Agency	Federal r Agency Duration	Federal Award Amt.	Support Fund Match
Louisiana EPSCoR Resuarch Infrastructure improvement (CyberRii)	FY2006-07 FY2008-09	EPS-0701491	RSR	3 -7ears	000'000'6\$	\$3,000,000

modern science and engineering. In addition, a variety of initiatives to enhance the competitiveness of science and engineering (S&E) faculty of the State's higher education institutions are also supported. This project continues the effo is begun under the EPSCoR ADP, SI, NCA, RII, and LSII awards previously described. Participating institutions: A significant number statewide, including LSU-BR, LSUHSC-NO, LA Tech, SUBR, Tulane, Tulane Health Sciences Center, Xavier, ULL, UNO. A Description/Purpose: The focus of this project is the development of multi-functional cyberinfrastructure (CyberTools) that will broadly enable significant advances in portion of the grant fund; will be awarded to these and other institutions on a continuing, competitive basis

\$1,200,000	
\$900,000	
3 years	
DOE	
FY2007-08 - DE-FG02- DOE 3 years	041140
FY2007-08 -	FTZ003-10
DOE EPSCoR Implementation Renewal	

Participating Institutions: ULL, LSU-BR, SUBR

Louisiana, while improving the quality of energy research and oducation in the State and encouraging human resource development in this area. This award funds the multi-institutional, multidisciplinary research project entitled "Ubiquitious Computing and Monitoring System (UCoMS) for Discovery and Management of Energy Resources." Description/Purpose: This is a three-year renewal of the DOE EPSCoR program, which seeks to develop the infrastructure for energy and energy-related research in

## **ATTACHMENT II**

# 2008 Report to the Louisiana Legislature Results from Selected Recent BoRSF Projects

#### RESEARCH

1. The traffic load on bridges, continuous wind loads or wind gusts in ports, and the corrosive environment in chemical and petrochemical industry sites combine to limit the use of traditional steel reinforced concrete and columns.

An LSU research team funded through the ITRS is developing two types of advanced composite columns to address the need for new and innovative columns and poles. One is a fiber-reinforced plastic (FRP) tube-encased; the other, a fiber tube-encased sandwich concrete column. Their advantages over traditional steel reinforced concrete columns include: 1) they are form-work free - the FRP tube serves as formwork during casting and compacting of concrete; 2) they are steel free and cost effective – they can work in harsh environments without maintenance for over 20 years; and 3) they can protect concrete from chemical attacks and carbonization.

The potential economic impact on Louisiana is immense. Infrastructure and homeland security applications are a huge potential market for the project's industrial partner, EDO Specialty Plastics. Louisiana's chemical and petrochemical industry would be heavily involved in the production of the resulting demands for resins and fibers. And, by disseminating the technology to Louisiana's construction industry, it will be uniquely positioned to construct the composite columns. Team members have presented 40 papers at technical conferences, delivered two invited talks, had 35 articles published in refereed journals and two book chapters accepted. External funding for the project totaled nearly \$6.8 million. {LEQSF (2004-07)-RD-B-05; PI, Guoqiang Li}

2. A profitable use for thousands of inactive wells in Louisiana that would otherwise be terminated may result from the research of a team of LSU investigators awarded an ITRS grant. Louisiana has numerous "shut-in" wells, those that can be operated but at a price that makes them an unviable investments.



8

Wells deemed unprofitable due to excessive water production are the most important factor controlling the economics of the State's small operators. They are also the focus of the LSU researchers, who have developed a new technology – Downhole Water Sink – which employs modified well completion with downhole water pump installation to reverse and control water invasion into the oil pay zone. It has been successfully tested in the field and could lead to worldwide modernization of the petroleum industry. Three workshops were held to provide Louisiana operators of marginal oilfields with information about the project. A User's Manual and an example using the software have been completed. {LEQSF (2003-06)-RD-B-04; Andrew Wojtanowicz, PI}

3. The Formosan subterranean termite is an invasive wood-destroying pest species that causes billions of dollars in ecological damage in the Southeastern U.S., especially Louisiana.

Termites are dependent on their gut flora, which supplement nutrition and energy requirements for the termite colony, for survival. By investigating the ecology of such an unexplored ecosystem as the termite gut, a team of **LSU AgCenter** researchers funded through the RCS has discovered several novel bacteria species, including bacteria that are able to survive only in the termite host. The team has also received a \$100,000 Army Research Office grant to genetically engineer two bacteria strains that it has identified and cultured. Described as "Trojan Horses," they will deliver and express foreign genes in termite gut that could serve as self-perpetuating, self-replicating biological agents to specifically eliminate termite colonies. The team, which has applied for a patent, has been invited to give three international and four national presentations. {LEQSF (2004-07-RD-A-01; Claudia Husseneder, PI}

4. As computational capabilities and resources continue to develop in Louisiana and beyond, the use of computer science by the biomedical and clinical community is increasing. Biology and medicine are moving from bench-based to computer-based sciences as *in silico* models replace some experiments and complete others, in turn



producing high-throughput data useful for knowledge discovery. Data mining has emerged as a powerful set of tools and methodologies that can handle data-intensive knowledge discovery applications such as gene expression and data analysis, by practicable, accurate, and fast means. These techniques promise to allow for the detection of networks of correlated genes that are characteristics for phenomena such as cancer and Alzheimer's disease.

The main objective of a RCS grant to **Louisiana Tech** was to assist the Principal Investigator in reaching a level of national competitiveness by supporting the development of novel multi-disciplinary data mining and bioinformatics technologies that will ultimately contribute to the scientific and economic development of both Louisiana and the nation.

The project sought to develop a hypothesis from the gene expression data by not limiting analysis to individual genes already familiar in molecular physiology and virology. The team has been awarded \$1.85 million in grants from the National Institutes of Health, the Air Force Laboratory and the National Science Foundation's EPSCoR program. A patent, "For a Method to Stabilize a Moving Image," has also been issued. {LEQSF (2005-07)-RD-A-21; Sumeet Dua, PI}

5. A Louisiana Tech team funded through an RCS grant has had 10 applications for patents approved for its investigations into what MicroElectroMechanical Systems (MEMS) and nanotechnology can do for radiation detectors and sources. Neutron scintillators have been developed to the point where they have been patented by the university, and two licensing deals were negotiated. One potential licensee, Radiance Technologies, has moved into the university's business incubator. A micro-Geiger has been prototyped, found operational, and tested at the Nuclear Center in Louisiana, Oak Ridge Laboratories, and Mississippi State University.

Among many other developments is a complete wireless integrated radiation detector system with the ability to differentiate between radiation emissions of medical isotopes and nuclear devices, as opposed to such traditional detectors as Geiger counters, which can



only measure the presence of radiation. The plan is to propose a smart, networked system to funding agencies. The team, which has already received over \$500,000 in grants from NSF, the Defense Department, and the LA Space Consortium, recruited 14 doctoral students (all U.S. citizens) to work on the project. {LEQSF (2005-08)-RD-A-25; Chester Wilson, PI}

6. Louisiana is a titan in the global polymer industry, but astonishingly underactive in polymer research and development. The primary goal of an ITRS-funded project at **Tulane University** was to boost the Principal Investigator's current momentum in developing and bringing new polymer research tools to industrial and academic polymer scientists and engineers. First funded in 1996, and subsequently funded in 2006, the PI has developed, patented and put into practice several instruments and methods that strongly impact polymer research and industry. One invention, the Automatic Continuous Monitoring Polymerization (ACOMP), is an analytical tool for optimizing reactions and ultimately controlling industrial scale polymerization reactions.

The most recent grant focused ACOMP on monitoring copolymer and polyelectrolyte synthesis, both increasingly important in innovative 21<sup>st</sup> century materials. The research yielded rapid advances and applications, with several companies fulfilling significant pledges totaling \$395,000 in instrumentation and cash. This project was arguably the most highly leveraged of that year's ITRS grants, measured in terms of private enterprise dollars contributed per BoRSF dollar invested. In 2007, the PI'S research group founded the Tulane Center for Polymer Reaction Monitoring and Characterization (PolyRMC). Its mission statement: "To be the world's premier center for R&D in polymerization reaction monitoring." {LEQSF (2006-07)-RD-B-07; Wayne Reed, PI}

7. A **Tulane University** research team funded through the RCS was able to target and destroy bladder tumor cells through a minimally invasive technique involving catheterization and gene therapy that is equivalent to a topical drug administration. Early



results indicate that the investigators have a viable cancer treatment with the potential for human application without the effects sometimes seen with systemic drug administration.

In addition, by targeting certain cells, they have come up with a way to inhibit angiogenesis, a hallmark of tumor growth. The inhibition of angiogenesis has been identified as one component of some promising treatment regimens. An application for a patent in medical sciences has been accepted.

According to the PI, the data from this project have made a marked impact on the number of students who are entering the bioscience and bioengineering fields at Tulane. {LEQSF (2004-07)-RD-A-28); W. Godbey, PI}

8. An oil and gas-drilling problem that a team of University of Louisiana at Lafayette researchers has been addressing since 1992 at length came to fruition under an ITRS grant in 2007.

Oil and gas wells have grown successively deeper, frequently in hard formations, to reach untapped deposits, which leads to high cutting forces on the drill bit and drillstrings. The result of increasing flexibility and rock hardness is excessive bit vibrations, which in turn damage the bit and drillstring and down-hole equipment. Replacement of a bit or a damaged tool requires the removal of the entire drillstring, a time consuming and costly process.

Polycrystalline Diamond Compact (PDC) bits, which actually have a higher penetration rate than those typically employed in hard formations, are relegated to soft-to-medium formations because the inherent brittleness of the diamond layer on the PDC cutters make them prone to failure when high levels of vibrations and impact loading are present.

The investigators determined the proper level of damping required to minimize bit vibration and developed a new generation shock sub to minimize PDC bit failure in drilling that was set up and modeled at the Sandia National Laboratories. A patent was jointly issued to ULL and Sandia and the technology licensed to APS Technologies, a

Connecticut company already working on a similar shock sub that was well along in its manufacture. Under the licensing agreement, portions of its proceeds are allocated to UL Lafayette. (LEQSF (2004-07)-RD-B-10; M. Elsayed, PI)

9. Calcination, increasing the hardness of an absorptive material by using prolonged heat to remove the water, is an important part of downstream industry under the umbrella of gas/oil refining and petrochemical industries. Efficiently managing the significant amount of waste heat in calcining is a significant factor in a plant's profit margin and survivability.

An ITRS-funded University of New Orleans Energy Conversion and Conservation Center (ECCC) research team closely collaborated with CII Carbon, LLC, in a project aimed at increasing a calcining plant's energy efficiency by \$3.2 million (0.4 million MMBtu annually). Among the world's largest producers of calcined petroleum coke, CII Carbon generates about one million tons per year. The UNO investigators completed a 3-D computational model to simulate the thermal-flow and combustion inside the kiln and performed an infrared thermography inspection and analysis of the company's Chalmette and Norco plants.

The use of low-emissivity paint on the kiln surface resulted in an annual savings of \$224,000 for the company. A feasibility study of preheating tertiary air with waste energy released from the kiln resulted in an estimated annual savings of \$1.4 million. As a result, another company (BASF) contacted UNO's ECCC to conduct similar energy saving research on its kilns. {LEQSF (2005-08)-'rd-B-11; Ting Wang, PI}

10. An ITRS grant that funded the development of electron lithography nanofabrication for device and sensor fabrication at UNO's Advanced Materials Research Institute (AMRI) was a collaboration between UNO and NVE Corporation, which develops and sells devices using "spintronics," a nanotechnology that utilizes electron spin rather than electron charge to acquire, store and transmit information. The project combined nanopatterning and nano-writing, nano-materials synthesis and materials growth expertise at

UNO with the device design, applications and marketing expertise at NVE to form a complete cycle of novel materials (patterning, characterization, magnetic field sensors, tunneling strain sensors, and nonvolatile magnetorestive random access memory, chemical sensors, and more). These applications are of interest to many microelectronics and information technology industries. In the long term, this research will most directly impact two economic target areas identified by Louisiana's Department of Economic Development: data and telecommunications technology, and applications of novel materials. The project was awarded a \$1.6 million grant from DARPA and \$900,000 from NSF. {LEQSF (RD-B-13; Weilie Zhou, PI}

#### **ENHANCEMENT**

1. The film industry is having a huge economic impact on the State. The 51 films produced in Louisiana from January to June 2007 were more than double the total number in all of 2006. Every dollar invested in the local film industry generates \$1.85, a figure that does not include spending on hotels and food and at local retailers. A 2007 report by the Office of Entertainment Independent Development in Baton Rouge reported that between 2003, when the film industry supported 5,437 jobs, and 2006, 13,445 more jobs were created. Although the 2005 hurricane season was devastating to South Louisiana, it opened up new opportunities for the film industry.

A critical part of Louisiana's strategy to attract the film industry to Louisiana is a 10 percent tax credit for hiring residents as crew or cast members or in other capacities. An Enhancement grant to **Dillard University** was focused on an Interdisciplinary Curriculum Center incorporating classes in business, film scholarship and all facets of production. The Center's ultimate goal is to provide professional and industry standard training to create a competitive indigenous, self-sustaining film industry in Louisiana. {LEQSF(2007-08)-ENH-UG-04; Cortheal Clark, PI}

2. With the implementation of an LEQSF Enhancement grant, Louisiana State
University in Shreveport's Fine Art Department has assembled a printmaking studio lab
that most likely cannot be rivaled for sophistication of equipment and technology
anywhere in the region. Printmaking is essentially broken down into block printing,

intaglio (etching), lithography and serigraphy (silk screening). While very little equipment is required for block printing, the other three processes require presses to pull the prints. This is where the studio production of printmaking begins; without the presses, printmaking cannot be realized.

The curriculum allows students to take printmaking at the 200 and 300 levels with an independent study available at the 400 level. Access to the new equipment will greatly enhance their chances for design school or graduate work at other institutions. {LEQSF} (2007-08)-ENH-UG-14; Robert Graham, PI}

3. An Enhancement grant enabled **Delgado Community College** to establish a new laboratory for the Civil Engineering and Construction Management Department in order to gain full accreditation. It provided students with up-to-date equipment and hands-on experience in a realistic representation of the modern workforce environment as well as more special courses with laboratories for students and industry. A facility for the civil engineering and construction management programs was designated for a computer laboratory with 17 computer stations loaded with the most up-date-software used in industry. Another space was designated to house the soil mechanics and material testing laboratory.

That was before Katrina, which flooded the building in which the laboratories were flooded with at least 6 to 7 feet of water. FEMA committed to replace all damaged equipment and in April 2008, a team from the National Association of Industrial Technology visited and reviewed the department for re-accreditation, which, based on the equipment, software and computer lab, was granted for the next five years.

The Principal Investigator reports that: "Our students' rate of employment since this funding is nearly 95 percent. All of our current students and graduates are fully employed by local construction companies. The department constantly receives emails and phone alls inquiring about potential students for employment. The success and the outcome of our graduates and current students are solely due to this generous funding by the Louisiana Board of Regents.

"Due to this grant our students are currently working with major local civil and construction companies. Their assignments vary from project superintendents, project managers, estimator, civil drafters, project schedulers and other related construction companies. (They) are currently working with Boh Brothers Construction Co, Gibbs Construction Company, J.C. Patin Construction Co., R. Joy Construction Co., Barrier Construction Co., MWH Construction Co., the Army Corp of Engineers and many other local companies."

The grant also afforded the department the opportunity to prepare students to take the Louisiana General Contractor and Law Exams, which two students had successfully passed as of June 2008. "This would not have been possible if this grant was not funded." {LEQSF (2004-05)-ENH-UG-091 Khalid Saleh, PI}

- 4. Thanks to an Enhancement grant that provided funds for the acquisition of a tabletop Scanning Electron Microscope (SEM) for an existing Louisiana Tech teaching laboratory, students can have a hands-on experience with the equipment as opposed to simply watching a demonstration by a highly trained technician. The equipment has been incorporated into the undergraduate levels of both the microsystems and nanosystems engineering curricula and has also been used for outreach opportunities such as the April 2008 Engineering and Science Day, when some 600 high schools students watched demonstrations by each of the university's engineering and science programs. The project has notably enhanced the quality of training with the micro and nanosystems engineering programs at Louisiana Tech, which in 2006 was ranked third in the nation in nanotechnology education by Small Times Magazine. {LEQSF (2007-08)-eNH-TR-43; Hisham Hegab, PI}
- 5. The funds committed by an Enhancement grant provided for the establishment of the University of Louisiana at Lafayette's Information Technology Transfer Laboratory (ITTL) and development of the ITTL Technical Platform. The laboratory has the basic equipment and infrastructure to provide a state-of-the-art research test bed for the



development and rigorous evaluation of new high technology companies that are currently being made available to academic users at UL Lafayette and early stage university IT entrepreneurs.

The National Science Foundation provided \$235,720 as a match for the Lab's two summer laddered mentoring programs in which any person further along in the process of professional development assists those on a "lower rung." High school students and teachers from five different high schools worked with university undergraduate and graduate students, faculty and staff to create laddered mentoring teams, each of which worked on ongoing or specially designed projects by the university's Center for Business and Informational Technology industry partners, creating an academe-entrepreneur ecosystem that also provides students at all levels with an understanding of the application of science, technology, engineering and mathematics education to corporate America.

NSF also provided \$45,000 as match to fund a mini-grants program developed to foster an entrepreneurial spirit by giving faculty, students, ladder mentoring teams, or combinations thereof an opportunity to compete for \$5,000 mini-grants. A total of 15 teams applied for the competition and nine grants were awarded. Outreach was also a major of ITTL, and many training and development activities were undertaken. One example is a partnership with the Gulf Coast Association of Geological Scientists which offered a continuing education course on 3-D visualization within the Louisiana Immersive Technologies Enterprise in which over 75 geologists learned how visualization technologies can be applied to the oil and gas industry. {LEQSF (2006-08)-ENH-TR-82; Kamesh Kolluru, PI}

6. The objective of an Enhancement grant was to develop a regional and nationally eminent studio and video recording facility with professional industrial standard equipment at **Loyola University's** Nunemaker Hall. This was accomplished by expanding Music Industry Studies' video and audio equipment to augment the control room and installing industry-standard equipment, including a projection system for the 360-seat hall. The number of course offerings in video have been expanded and a master's degree program in music video is being initiated in the 2009-10 academic year.

Music classes and weekly music forums have attracted national musicians and

music industrial leaders to the campus, with students from several universities and the general public attending these events. These presentations are being recorded by students for broadcast on the World Wide Web and educational television and will continued to be produced by Loyola's new Center for the Music Industry for future broadcast and distribution to education units in both K-12 and higher education.

The Music Industry Studies Program is the only one at Loyola that actually expanded after Hurricane Katrina. With the help of the Enhancement grant the program has been greatly exposed through the Web and will continue to expand with the production of music educational DVDs and TV exposure. {{LEQSF (2007-08)-ENH-TR-54; Sanford Hinderlie, PI}

7. The construction of a storm-ready portable weather tower designed to be rolled into the path of a hurricane to provide meteorologists and emergency management personnel with real time information about a storm is the result of an Enhancement grant to LSU BR. A cooperative venture of faculty in the LSU Hurricane Center and the LSU AgCenter, along with LSU mechanical engineering students, the station is one of less than a dozen weather stations of its caliber and structural integrity and the only one in Louisiana.

Its structural design ensures the system is capable of withstanding winds during the height of a hurricane's fury and, although it will be placed in an area expected to be free from storm surge, it is also designed to save its data and make recovery possible even if its power system fails because of storm surge or another problem. {LEQSF (2007-08)-ENH-TR-89; J.R. Howard, PI}

8. More than 390 collections of French language manuscripts, comprising thousands of individual documents, are preserved in the Special Collections' Louisiana and Lower Mississippi Valley Colleges housed in LSU's Hill Memorial Library. Many are composed of private correspondence reflecting a spoken rather than formal written language and therefore offer rare insight into Louisiana's linguistic heritage. In the past, access to these unique resources has been limited to researchers who either visit the library or gain access to the small number of documents reproduced on microfilm.

The goal of an Enhancement project was to create a digital collection of 100 letters carefully selected both for their research interest and to represent a diverse cross-section of 19<sup>th</sup> century French-speaking Louisianans. The collection is now freely available to anyone with an Internet connection, worldwide, via the Louisiana Digital Library. For each document there is a scan of the original and a transcription of the text that is keyword searchable, providing primary source materials for scholars in linguistics, history, sociology, economy, and geography.

The project has already received additional funding from the French Embassy to support a complementary project titled "Lettres de Louisiane," which focuses on providing digital access to French language letters concerning the Louisiana perspective of the French Revolution. {LEQSF (2007-07)-ENH-TR-10; Elaine Smyth, PI}

#### Post-Katrina Initiatives

1. The LONI Institute was created to build a statewide collaborative computational science environment of faculty, staff and students who take advantage of the hardware investments made in the Louisiana Optical Network Institute to advance research, education and economic development in Louisiana. The first year of the project was primarily aimed at recruiting faculty, staff and students for the project, during which five LONI Fellows were hired, most of them with a start date in Year 2. Six computational scientists, experts in the use of LONI hardware and cyber infrastructure, are being hired to help State research groups take advantage of the advanced cyber infrastructure deployed across LONI and the nation. Each is being assigned four to five projects, based on applications from State campuses, with a duration of one to two years each, so that significant progress can be made. Twenty-four projects are underway.

At least 50 percent of the projects will be in computational biology and materials science applications; however, projects from other disciplines will also be undertaken, ranging from astrophysics, coastal science, medicine, engineering, digital arts and humanities, and business. The LONI Institute also supports seven LI Graduate Student Research Assistantships with a \$20,000 stipend and a tuition waiver. Some project highlights include:

- Lafayette Center for Business and Information Technologies and home of the LONI Institute, is working on a geo-physical visualization in partnership with Funston Technologies;
- There is a license agreement between a new start-up company, Ultras can, that includes LA Tech, and that university;
- Biofluidica Microtechnologies, a company run by LSU staff and faculty, is a developer of unique compact/portable instruments capable of automated fast, lowcost, point-of-use DNA tests;
- The pre-existing LI faculty and staff received external funding for numerous projects
  during the first year. The most important of these from the point of view of
  infrastructure for the State is the NSF-EPSCoR \$12 million CyberTools projects,
  which will provide advanced cyber infrastructure for the entire state, not only the
  LI members;
- The \$2.2 million NSF High-Performance Computing for Science and Engineering
  Research project brings the LONI infrastructure to the TeraGrid, NSF's national
  backbone for advanced cyber infrastructure. {LEQSF (2007-12)-ENH-PKSFI-PRS01; E. Seidel, PI} NOTE: LONI INSTITUTE MEMBERS ARE LSU, LA TECH,
  SUBR, TU, ULL AND UNO.
- 2. "Xavier Biothrust 21: Rebounding from Katrina and Producing a Larger, Better Prepared 21<sup>st</sup> Century Biosciences Workforce for Louisiana" is the title of an Enhancement grant in which two biology courses are at the center. In May 2007, Xavier faculty analyzed two general biology lecture courses, discussed the changing face of science education and developed a consensus for the best sequence for revising class content and execution of the two-semester course. An Instructors' Guide and Students' Summary Notes were developed to facilitate teaching and student learning. Final passing rate percentages and mean grade percentages and mean grade point averages for all sections increased from Fall 2007 to Spring 2008 for both courses.

The Microbiology Research Lab exercises were also reviewed and revised. An analysis of test questions regarding the implemented changes in two sections disclosed a 14 percent average item score increase for fact-based memorization questions and a six





percent average item score increase for more difficult questions requiring application and synthesis of learning fact.

Federal, state research and bio-industry labs housing cutting-edge, biotechnology-based projects are being targeted for student internships and a comprehensive program to help all freshmen make a smoother transition from high school to college was launched. During 2007, a Biology Tutoring Center with peer tutors and volunteering faculty was opened. Academic Advising workshops for faculty were also organized and each biology major was assigned a faculty member as an advisor. In addition to the formal academic advising of students, faculty also volunteer to serve as advisors to a number of discipline-oriented clubs. {KEQSF \*(2007-12)-ENH-PKSFI-PES-07; Shubba Ireland, PI}



## ATTACHMENT III

#### TAXONOMY OF DISCIPLINES USED IN THE BOARD OF REGENTS SUPPORT FUND PROGRAMS

## NATURAL SCIENCES - BIOLOGICAL

## NATURAL SCIENCES -BIOLOGICAL (CONTINUED)

MITO-SELECTION OF THE PROPERTY
Agriculture
0101 Agricultural Economics
0102 Agricultural Production
0103 Agricultural Sciences
0104 Agronomy
0105 Animal Sciences
0106 Fishery Sciences
0107 Food Sciences
0108 Forestry and Related Sciences
0109 Horticulture
0110 Resource Management
0111 Parks and Recreation Management
0112 Plant Sciences
(Fycent Agronomy, see 0104)
0113 Renewable Natural Resources
0114 Soil Sciences
0115 Wildlife Management
0199 Agriculture - Other
<del>y</del> 1
Biological Sciences
0201 Anatomy
0202 Biochemistry/Biophysics
0203 Biology
0204 Biometry
0205 Botany
0206 Cell and Molecular Biology
0207 Ecology
0208 Embryology
0209 Entomology and Parasitology

0210 Genetics 0211 Marine Biology 0212 Microbiology 0213 Neurosciences 0214 Nutrition

0215 Pathology

0216 Pharmacology

0218 Radiobiology

0299 Biological Sciences - Other

0219 Toxicology

0220 Zoology

0217 Physiology

	061 061 061 061 061 061 061
	<u>NA</u>
	Che 03 03 03 03 03 03 03 03 03 03 03 03 03
	Ph 0 0 0 0

Health and Medical Sciences
0601 Allied Health
0602 Audiology and Speech Pathology
0603 Chiropractic
0604 Dental Sciences
0605 Environmental Health
0606 Epidemiology
0607 Health Science Administration
0608 Immunology
0609 Medical Sciences
0610 Nursing
0611 Optometry
0612 Osteopathic Medicine
0613 Pharmaceutical Sciences
0614 Podiatry
0615 Pre-Medicine
0616 Public Health
0617 Veterinary Science
0699 Health and Medical Sciences - Other

#### <u>AL</u>

NATURAL SCIENCES - PHYSICA
Chemistry
0301 Chemistry, General
0302 Analytical Chemistry
0303 Inorganic Chemistry
0304 Organic Chemistry
0305 Pharmaceutical Chemistry
0306 Physical Chemistry
0399 Chemistry - Other
Physics and Astronomy
0801 Astronomy
anna a a barrion

802 Astrophysics 0803 Atomic/Molecular Physics 0804 Nuclear Physics 0805 Optics 0806 Planetary Science 0807 Solid State Physics 0899 Physics and Astronomy - Other



## NATURAL SCIENCES - COMPUTATIONAL

## Computer and Information Sciences

0401 Computer Programming

0402 Computer Sciences

0403 Data Processing

0404 Information Sciences

0405 Microcomputer Applications

0406 Systems Analysis

0499 Computer Sciences - Other

#### **Mathematical Sciences**

0701 Actuarial Sciences

0702 Applied Mathematics

0703 Mathematics

0704 Probability and Statistics

0799 Mathematical Sciences - Other

## NATURAL SCIENCES - EARTH/ENVIRONMENTAL

Earth, Atmospheric, and Marine Sciences

0501 Atmospheric Sciences

0502 Environmental Sciences

0503 Geochemistry

0504 Geology

0505 Geophysics and Seismology

0506 Paleontology

0507 Meteorology

0508 Oceanography

0599 Earth, Atmospheric, and

Marine Sciences - Other

4403 Environmental Design

4405 Landscape Architecture

#### **ENGINEERING - A**

Engineering - Chemical

1001 Chemical Engineering

1002 Pulp and Paper Production

1003 Wood Science

1099 Chemical Engineering - Other

#### **Engineering - Civil**

1101 Architectural Engineering

1102 Civil Engineering

1103 Environmental/Sanitary Engr.

1199 Civil Engineering - Other

#### **ENGINEERING - A (CONTINUED)**

### **Engineering - Electrical and Electronics**

1201 Computer Engineering

1202 Communications Engineering

1203 Electrical Engineering

1204 Electronics Engineering

1299 Electrical and Electronics

Engineering - Other

#### **ENGINEERING - B**

#### Engineering - Industrial

1301 Industrial Engineering

1302 Operations Research

1399 Industrial Engineering - Other

#### Engineering - Materials

1401 Ceramic Engineering

1402 Materials Engineering

1403 Materials Science

1404 Metallurgical Engineering

1499 Materials Engineering - Other

#### Engineering - Mechanical

1501 Engineering Mechanics

1502 Mechanical Engineering

1599 Mechanical Engineering - Other

#### Engineering - Other

1601 Aerospace Engineering

1602 Agricultural Engineering

1603 Biomedical Engineering

1604 Engineering Physics

1605 Engineering Science

1606 Geological Engineering

1607 Mining Engineering

1608 Naval Architecture and

Marine Engineering 1609 Nuclear Engineering

1610 Ocean Engineering

1611 Petroleum Engineering

1612 Systems Engineering

1613 Textile Engineering

1699 Engineering - Other

## SOCIAL SCIENCES

Anthropology and Archaeology

1701 Anthropology

1702 Archaeology

**Economics** 

1801 Economics

1802 Econometrics

Law (5102)

Political Science

1901 International Relations

1902 Political Science and Government

1903 Public Policy Studies

1999 Political Science - Other

**Psychology** 

2001 Clinical Psychology

2002 Cognitive Psychology

2003 Community Psychology

2004 Comparative Psychology

2005 Counseling Psychology

2006 Developmental Psychology

2007 Experimental Psychology

2008 Industrial and Organizational

Psychology 2009 Personality Psychology

2010 Physiological Psychology

2011 Psycholinguistics

2011 Psychometrics

2013 Psychopharmacology

2014 Quantitative Psychology

2015 Social Psychology

2099 Psychology - Other

#### Sociology and Social Work

2101 Demography

2102 Sociology

5001 Social Work

#### Social Sciences - Other

2201 Area Studies

2202 Criminal Justice/Criminology

2203 Geography

2204 Public Affairs and 4801 Public Administration

2205 Urban Studies and 4406 Urban Design

2299 Social Sciences - Other

4401 Architecture

4402 City and Regional Planning

4404 Interior Design

5101 Interdisciplinary Programs

#### SOCIAL SCIENCES (CONTINUED)

#### Communications

4501 Advertising

4502 Communications Research

4503 Journalism and Mass Communication

4504 Public Relations

4505 Radio, TV and Film

4506 Speech Communication

4599 Communications - Other

#### **Home Economics**

4601 Consumer Economics

4602 Family Relations

4699 Home Economics - Other

#### Library and Archival Sciences

4701 Library Science

4702 Archival Science

#### **ARTS**

Arts - History, Theory, and Criticism

2301 Art History and Criticism

2302 Music History, Musicology,

and Theory

2399 Arts - History, Theory, and

Criticism - Other

#### Arts - Performance and Studio

2401 Art

2402 Dance

2403 Drama/Theater Arts

2404 Music

2405 Design

2406 Fine Arts

2499 Arts - Performance and

Studio - Other

#### Arts - Other

2999A Arts - Other

5101A Interdisciplinary Programs

#### **HUMANITIES**

English Language and Literature

2501 English Language and Literature

2502 American Language and Literature

2503 Creative Writing

2599 English Language and

Literature - Other



#### **HUMANITIES (CONTINUED)**

Foreign Language and Literature

2601 Asiatic Languages

2602 Foreign Literature

2603 French

2604 Germanic Languages

2605 Italian

2606 Russian

2607 Semitic Languages

2608 Spanish

2699 Foreign Languages - Other

#### History

2701 American History

2702 European History

2703 History of Science

2799 History - Other

#### Philosophy

2801 All Philosophy Fields

#### Humanities - Other

2901 Classics

2902 Comparative Language and Literature

2903 Linguistics

2904 Religious Studies; 4901 Religion; and 4902 Theology

2999H Humanities - Other

5101H Interdisciplinary Programs

#### **EDUCATION**

**Education - Administration** 

3001 Educational Administration

3002 Educational Supervision

Education - Curriculum and Instruction

3101 Curriculum and Instruction

**Education - Early Childhood** 

3201 Early Childhood Education

Education - Elementary

3301 Elementary Education

3302 Elementary-level Teaching

#### **EDUCATION (CONTINUED)**

Education - Evaluation and Research

3401 Educational Statistics and

Research

3402 Educational Testing Evaluation

and Measurement

3403 Educational Psychology

3404 Elementary and Secondary

Research

3405 Higher Education Research

Education - Higher

3501 Educational Policy

3502 Higher Education

Education - Secondary

3601 Secondary Education

3602 Secondary Level Teaching

Fields

**Education - Special** 

3701 Education of the Gifted

3702 Education of the Handicapped

3703 Education of Special Learning

**Disabilities** 

3704 Remedial Education

3799 Other Special Education

**Fields** 

Education - Student Counseling and

Personnel Services

3801 Personnel Services

3802 Student Counseling

Education - Other

3901 Adult and Continuing Education

3902 Bilingual/Crosscultural Education

3903 Educational Media

3904 Junior High/Middle School

Education

3905 Pre-Elementary Education

3906 Social Foundations

3907 Teaching English as a Second

Language/Foreign Language

3999 Other Education Fields



#### **BUSINESS**

#### Accounting

4001 Accounting

4002 Taxation

#### **Banking and Finance**

4101 Commercial Banking

4102 Finance

4103 Investments and Securities

## Business, Administration and Management

4201 Business Administration and

Management

4202 Human Resource Development

4203 Institutional Management

4204 Labor/Industrial Relations

4205 Management Science

4206 Organizational Behavior

4207 Personnel Management

4299 Business Management - Other

#### Business - Other

4301 Business Economics

4302 International Business Management

4303 Management Information Systems

4304 Marketing and Distribution

4305 Marketing Management and Research

4399 Business Fields - Other

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