

## NO CHILD LEFT BEHIND GRANT ABSTRACTS 2004-2005

Following is a list of sub-grants funded by the Arkansas Department of Higher Education through the federally funded No Child Left Behind grant program. The purpose of the grant funds is to improve the quality of teaching in Arkansas. The grant notifications were distributed in March 2005.

**Arkansas State University** **\$32,681**  
**Craighead County**  
**Project Title: Northeast Arkansas Geometry Project**

The purpose of this course is to provide high-level learning opportunities in geometry for current mathematics teachers in grades 5-12 in Northeast Arkansas. Advanced Geometry will provide instruction to current teachers (specifically intended for teachers with less than 10 years experience) in an effort to increase mathematics content knowledge through the use of technology and cutting-edge pedagogical methods in geometry instruction. Content of the course is based on research indicating that teachers need to continually increase content knowledge of the material being taught. In conjunction with the NEA Partnership for Mathematics and Science ACCESS Center, the students enrolled in the class will aide in the creation of an on-line Mathematics Cooperative that will serve as an instructional tool for educators in math and science throughout the state of Arkansas. The on-line Mathematics Cooperative will consist of all lesson plans and activities developed during the course and the subsequent follow-ups throughout the school year, as well as all lesson plans and activities that are placed into the cooperative by science educators throughout the region. In addition to exposing educators to higher-level mathematics, the course is also intended to serve as a training tool for in-depth use of instructional technology in the classroom.

**Arkansas State University** **\$33,700**  
**Craighead County**  
**Project Title: Understanding Biodiversity Using Aquatic Macroinvertebrates**

This course, entitled Understanding Biodiversity using Aquatic Macroinvertebrates, will be offered as a three-hour graduate/undergraduate course during the summer of 2005 at Arkansas State University. This one week, intensive course will have a follow-up session in the following academic year. This course is designed to provide educators the opportunity to improve their knowledge of biodiversity. Using aquatic macroinvertebrates, teachers will have hands-on exercises that will emphasize biodiversity on three levels. Participants will study the differences in biodiversity: (1) among various aquatic ecosystems, (2) among species, and (3) among individuals of the same species to illustrate genetic variability. We will investigate how organisms within an aquatic ecosystem are dependent on one another and on nonliving components of the environment. The direct and indirect impacts of human activity on aquatic life will also be discussed. Activities will include lectures, field trips and laboratory sessions that will have a research and technology component.

**Arkansas State University  
Craighead County**

**\$33,674**

**Project Title: Integrating Math, Science, and Literacy in the Elementary Grades K-6**

Integrating Math, Science and Literacy in the Elementary Grades K-6 is a three hour special topics graduate course targeted toward teachers in the primary grades or teachers teaching out of field in the upper elementary grades. The course will seek to impart content knowledge in elementary math and science related to the Arkansas Curriculum Frameworks and will assist the teacher in preparing students for problem solving activities. Strategies will include hands-on activities using math manipulatives and investigations, reporting data, and the integrated aspects of learning. Classes will be held on site in the partnering LEA (Blytheville School District) as well as at Arkansas State University. Underrepresented populations will be given priority in registration.

**Arkansas State University  
Craighead County**

**\$36,842**

**Project Title: Higher Order Thinking in Science**

This is a three credit hour (45 Clock hour) laboratory-based workshop for teachers in grades 5 – 16 that stresses the learning of science as an active, integrated, constructive process involving experimentation, investigation, communication, reasoning, and problem solving. It will include updated materials from the Arkansas Science Crusade. The course builds foundations in content to show connections and relevant applications in the areas of life systems, earth systems, and physical systems. The goals of this course are to help teachers extend content learning; to help teachers create successful learning environments for every student by teaching them to use manipulatives, calculators, science equipment, and various learning strategies; and to provide access to appropriate materials, equipment, and technology. Target groups will include teachers seeking 4-8 certification and teachers teaching in grades 5 or 6 with pk-4 certification. Emphasis will be placed on preparing for the 5<sup>th</sup> and 7<sup>th</sup> grade science Benchmarks tests and the biology end of course exam. One section will be taught on the ASU Jonesboro campus and the second section will be taught at the Highland School District.

**Arkansas Tech University  
Pope County**

**\$63,782**

**Project Title: Small Isolated Rural Schools (SIRS) Inquiry Teaching Project**

This project addresses the need for accessible professional development for teachers in isolated school districts. The program will enhance teaching methods and introduce standards based materials with integration of technology. The program will be available to K-12 teachers and will focus on inquiry math and science. The timeframe consists of two intensive summer institutes, six days follow-up and support from math and science specialists at Arkansas Tech University Math Science Institute. The instructors will model the lessons and classroom management strategies necessary in the inquiry classroom. All the content will be based on the Arkansas Frameworks, using grade level appropriate technology. Teachers will acquire knowledge of development of inquiry math and science lessons. Participants will earn six hours of graduate credit.

**Harding University**  
**White County**

**\$61,710**

**Project Title: Strengthening Content Knowledge, Improving Pedagogy, and Reflecting on Assessment of Student Achievement in Core Subject areas through the National Board for Professional Teaching Standards**

The National Board candidate process is a high-stakes endeavor for teachers. The goal of the certification process is **greater content knowledge and pedagogy** resulting in **improved student achievement**. In partnership with the College of Education, the College of Arts and Humanities, and Augusta/Cotton Plant School District, this project provides rigorous, high quality professional development in specific content teaching areas for National Board certification.

The methods to be employed include: Step one includes a 3-hour graduate course (EDFD 644) offered May 31-June 3, June 7-9, and September 24, 2005. Step two includes eleven follow-up sessions during the candidacy period.

The state of Arkansas currently has 239 Nationally Board Certified teachers (NBCTs) and nationally 40,203 NBCTs. This project calls teachers to meet established high standards through a highly rigorous and respected voluntary system and provides an opportunity for professional growth unlike any other now available to teachers. National Board Certification is a symbol of teaching excellence.

**Southern Arkansas University**  
**Columbia County**

**\$56,290**

**Project Title: Problem Solving in Grades 6-12**

Thirty teachers from southwest Arkansas, interested in improving student achievement in mathematics, grades 6-12, will be immersed in a two-semester sequence of graduate courses, focusing on problem solving in all five content strands. These courses will be new and innovative, rich in content needed to deliver in-depth instruction in each strand at the middle and high school levels. They will be team-taught using faculty from both the College of Education and the College of Science and Technology. An administrator of represented schools will attend at least one three-hour class meeting and the culminating event. Participants will take pre-and post-tests on content knowledge deemed to be needed by teachers in grades 6-12 in the area of problem solving. Faculty from the college of Science and Technology and the College of Education will make classroom visits throughout the two semesters of coursework to provide support for high quality instruction. Particular attention will be given to the level of content mastery that is expected by participating teachers and their students.

**University of Arkansas**  
**Washington County**

**\$50,768**

**Project Title: Improving Ideas for Education in Arkansas**

*Improving IDEAS for Education in Arkansas* represents an innovative approach to the preparation and continued professional development of educators. The project targets the improvement of student achievement through *Institutes for Developing Excellence in Arkansas Schools*, or *IDEAS*. *IDEAS* will consist of four professional institutes offered to school principals

and key school/district personnel served by the Ozarks Unlimited Resources Cooperative (OURC). The focus of this project is on the development of the school principal as the leader of educational improvements and primary agent of successful change in schools, as well as development and engagement of key school/district personnel, including teacher leaders, in the improvement process.

*IDEAS* will focus on professional development institutes in four substantive areas of education: school leadership, educational assessment and statistics, education policy, and counselor education. Each of the four *IDEAS* will consist of 60 hours of professional development based on the identified needs of the individual participants and grounded in the recognized standards and research best practices of the program areas. The proposed model for distance education, based on the NSF-CRCD research, integrates instruction and supervision from faculty at the University of Arkansas with local liaison support, growing the professional infrastructure for future educator development.

**University of Arkansas  
Washington County**

**\$47,954**

**Project Title: Earth Systems Science 2005: Utilizing Science, Math and Technology**

*Earth Systems Science 2005: Utilizing Science, Math and Technology (ESS2005)* consists of 2 major parts.

PART I: Summer 2005 Session 1 will focus on Earth Systems Science through a weeklong GLOBE (Global Learning and Observation to Benefit the Environment) program workshop. Session 2 will focus on general K-12 classroom technology following the SEDL *Active Learning With Technology* module series. During the Fall 2005 and Spring 2006 semesters, Session 3 will reinforce the summer institutes' efforts as teachers return to their classrooms and implement the mathematics, science and technology strategies covered during the summer institutes. This mentoring will occur through email, on campus content extensions, classroom site visits, and teacher/school administration/UA faculty interaction to assist teachers in strategy implementation, evaluation, and modification of lessons in order to insure classroom implementation of best practice mathematics, science and technology use.

PART II: Seven monthly evening workshops will focus on math, science and technology content for pre-service mathematics and science educators (PMASE) from the Spring 2005 through Spring 2006 semesters. This will be an extension of the PMASE group established in 2001 with technology being introduced for mathematics and science classroom implementation.

This proposal seeks to have a major impact on teacher comfort and skill levels in the use of inquiry based content and technology in mathematics and science classrooms. Arkansas students will benefit from this, as an increase in teacher content knowledge and technology experience translates into broader classroom experiences that add relevance to science and math classrooms – ultimately, resulting in an increase in student achievement.

**University of Arkansas at Fort Smith**  
**Sebastian County**

**\$57,024**

**Project Title: Training Elementary and Middle School Teachers to use Inquiry-Based Instruction: An Initial Model for Embedding National Science Education Standards into the K-12 System**

Many teachers are being required by the new standards to teach scientific principles/content using methods to which they have never been formally exposed. An overwhelming response from constituents (administration through teachers) in the Fort Smith area agreed that teachers are not being provided the tools and skills needed to prepare and support teachers in inquiry-based learning, which is a type of pedagogy encouraged by NSES. This proposal is designed to involve elementary teachers in summer workshops on implementing the use of inquiry learning in their science classrooms. Eventually, this pilot project will serve as a model to launch a systemic effort to engage an entire range of professionals who are involved in the teaching of science and mathematics and will potentially close the gap between National Science Education Standards and the reality of classroom practice. If teachers are to use newer teaching modalities such as inquiry-based learning, they need quantitatively more and sustained assistance as proposed in this grant to implement the actual practice in the classroom. By better preparing and supporting pre- and in-service teachers through sustained faculty development, the project will influence the quality of science education in a needy area for potentially thousands of future K-16 students.

**University of Arkansas at Little Rock**  
**Pulaski County**

**\$39,690**

**Project Title: Arkansas STRIVE, Inquiry and Problem-Based Experiences for Teachers**

Arkansas STRIVE places science, math, and computer teachers from middle, junior high, and senior high schools (6-12<sup>th</sup> grades) into summer research positions or on projects in industry, government agencies, universities, research facilities, and nonprofit organizations. Teachers work with professionals in the field for eight-weeks and learn how professionals solve problems facing their organizations. UALR requests matching monies from the No Child Left Behind (NCLB) Program for ten teachers to work on research projects in the ADHE-supported Centers for Math and Science Education at Arkansas universities and at other nonprofit organizations. Workshops are presented to the teachers on inquiry and problem-based teaching, and on using computers for data analysis. In addition, teachers develop inquiry-based or problem-based lessons using the new skills and experiences that they acquired during the summer.

**University of Arkansas at Little Rock**  
**Pulaski County**

**\$5,525**

**Project Title: Applications in Earth Science**

This course will give 25 teachers an opportunity to learn important principles in atmospheric science using hands-on, inquiry-based lessons from Project STORM, Project DataStreme Atmosphere, and Investigating Earth Systems. The standards-based materials are supported or endorsed by NSF and NOAA. Class activities will give teachers an opportunity to use real time data from the National Weather Service and experience exactly the same visuals that

meteorologists see in real time. Teachers will learn how to read weather instruments, understand the phenomena related to cloud formation, humidity levels, wind currents and advection cycles. The class will be held during Severe weather week in Arkansas and emphasis will be placed on the teachers' ability to identify emergency plans for their schools and instructing other teachers about severe weather.

**University of Arkansas at Little Rock** **\$41,645**  
**Pulaski County**  
**Project Title: Developing Second Language Standards**

This project will provide professional development opportunities for second language teachers through a series of seven day-long sessions designed to assist them in maintaining and enhancing both their knowledge and application of National Standards in Foreign languages and in English as a Second language in the classroom. These national student standards, which are replicated in the Arkansas frameworks for second languages, have been established to provide clear expectations for student language acquisition and nationally-recognized measures to document student achievement. For this project, two of the five standards will be the focus for professional development since these two (culture and communication) have the greatest impact on student outcomes and require the most intentional pedagogical strategies on the part of the classroom teacher. This project has two goals: 1) to enable each participant to implement and demonstrate course specific activities for each mode of the communication standard and 2) to enable each participant to implement and demonstrate course specific activities for and application of the culture standard.

**University of Arkansas at Little Rock** **\$15,525**  
**Pulaski County**  
**Project Title: Applications in Physical Science-Course 2**

This course will engage 25 teachers in explorations that will help further their understanding of science in the area of motion and force. By developing working definitions in this area, teachers will be better able to teach these concepts to their students. This course will help build a clearer understanding of physical science concepts.

**University of Arkansas at Pine Bluff** **\$75,744**  
**Jefferson County**  
**Project Title: Southeast Arkansas P-16 Education Partnership**

Education in Arkansas schools is dependent upon a teaching population that is trained and retrained to address student needs through the use of educational standards and by incorporating technology as a management tool or as a method to enhance instruction. With the current movement towards higher standards for student performance, improved curricula, and assessment strategies, Arkansas schools need high quality professional development programs that will address the expressed needs of their teachers and administrators. This program will facilitate activities that are aligned with the Arkansas Curriculum Frameworks and national standards. The activities proposed will be teacher preparation for pre-service teachers

(undergraduate) and professional development for career teachers (graduate). Teachers will receive training in regard to recognized teaching techniques and best practices in working effectively with low-income, minority, and academically challenged middle to high school students. Professional development and training is significant to the learning of new teaching/learning methods to accommodate underserved and underrepresented students toward academic progression. Professional development activities will include, but not be limited to, a three-hour curriculum-based course where participants will receive graduate or undergraduate credit; weekend or evening training sessions; summer workshops to reinforce or introduce new and innovative technology-based teaching materials; and follow-ups on classes/sessions/workshops to evaluate material usage. Altheimer-Sherrill, Dollarway, and Pine Bluff are the targeted districts for recruiting teachers into the program.

**University of Central Arkansas**

**\$115,586**

**Faulkner County**

**Project Title: UCA/NLRSD P-16 Education Partnership-Improving Teacher and Principal Quality**

The Partnership between the University of Central Arkansas and the North Little Rock School District is an expansion of a current graduate credit-bearing staff development program for 135 elementary, middle, and high school teachers in the areas of science, mathematics, reading, and writing literacy and computer information technology. The objectives (1) to increase the mathematics content knowledge for elementary and middle grade teachers, (2) to engage the teachers in hands-on instructional techniques that integrate reading and writing literacy and computer information technology with science and mathematics, (3) to increase the number of elementary and high school who seek the National Board for Professional Teaching Standards Certification at a rate of 25%, and (4) to increase the percentage of students who score at or above grade level on mathematics, science, reading, and writing literacy on criterion referenced, norm referenced measures at a rate equal to or higher than the District's annual instructional improvement plan. A team teaching approach will be used to encompass 45 contact hours during the academic year, culminating in a two-week summer program.