NO CHILD LEFT BEHIND GRANT ABSTRACTS 2005-2006

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 2006.

Arkansas State University **$27,753**
Craighead County
Project Title: Macroinvertebrate Biology

This course will be offered as a three-hour graduate/undergraduate course during the summer of 2006 at Arkansas State University. This intensive course (three day-long sessions each week for two weeks) 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 and terrestrial macroinvertebrates, teachers will have hands-on exercises that will emphasize biodiversity on three levels. Participants will study the differences in biodiversity: (1) among various ecosystems, (2) among species, and (3) among individuals of the same species to illustrate genetic variability. We will investigate how organisms within an ecosystem are dependent on one another and on nonliving components of the environment. The direct and indirect impacts of human activity on 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 **$73,140**
Craighead County
Project Title: Spanish for Educators and K-8 Science Education

Spanish For Educators (SFE) will offer educators two 3 hr. graduate courses. SFE I course introduces Hispanic culture and basic Spanish vocabulary needed in the educational setting. The professor teaches the Foreign Language Methods courses for teachers at ASU, supervises foreign language interns/student teachers, and is very knowledgeable in the Spanish language needs of school personnel for our growing Hispanic population. SFE I participants should be able to:

1. Greet students and parents in Spanish and make expressions of courtesy;
2. Use and understand practical vocabulary and phrases related to the school setting;
3. Praise students and give basic commands in Spanish;
4. Ask students questions regarding their needs and feelings;
5. Speak to Spanish-speaking parents on a very basic level;
6. Write some comments regarding student performance and behavior in Spanish.

The SFE II course reviews and expands the SFE I objectives, with more focus on vocabulary, and written Spanish specific to each participant's discipline. There will be Spanish language interaction between participants and Hispanic students/families during class sessions, and during cultural field trips. Hopefully, educators' ability to

communicate with Hispanic students/families, and knowledge of Hispanic culture will improve student achievement, attitude about school, and community relations.

Arkansas State University **$51,565**
Craighead County
Project Title: Geometry, Algebra, and Art Project

The purpose of this project is to provide high-level learning opportunities in algebra, geometry, and art for current mathematics teachers in grades 5-12 in Northeast Arkansas. The Geometry, Art, and Algebra Project (GAAP) will provide graduate learning opportunities for teachers of secondary mathematics, middle school mathematics and art teachers of all levels. There are two components of this project. The first component of this project is "Improving Algebra and Geometry Benchmark Scores Through the Use of Technology." This component will provide instruction to current teachers in an effort to increase mathematics content knowledge through the use of technology and cutting-edge pedagogical methods. The second component of GAAP, "The Marriage of Art and Geometry" will address the needs of middle school mathematics and art teachers by offering a workshop that integrates the concepts of learning geometry and art. GAAP will provide instruction to current teachers in an effort to increase mathematics content knowledge through the use of technology and cutting-edge pedagogical methods in algebra, geometry and art instruction. Content of the course is based on research indicating that teachers need to continually increase content knowledge of the material being taught.

Arkansas Tech University **$68,025**
Pope County
Project Title: Environmental Science and Chemistry Awareness Project

The "Environmental Science and Chemistry Awareness Project" has been developed to supplement science teachers' background knowledge while also modeling inquiry teaching techniques through two graduate level science courses. Program #1, "Watersheds to Wildlife in the Natural State," is designed for life science or environment science instructors in grades 5-12 to learn about the diversity of life in each of the five geographic regions of Arkansas. Participants will learn proper sampling techniques and documentation methods as well as investigative techniques to examine the complex interactions between the environment and the type of life present in those particular conditions. Program #2, "Teaching Chemistry by Inquiry, has a two-fold purpose. (1) The course will provide needed background information for middle level science teachers that did not take a chemistry course in their undergraduate preparation and lack the confidence to teach chemistry concepts due to that lack of content and (2) the course will demonstrate to middle and secondary level science teachers how a course that is traditionally taught as a "cookbook" course can present it as an inquiry course.

Harding University **$75,446**
White County
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 Elaine and Newport School Districts, this project provides rigorous, high quality graduate work and professional development in specific content teaching areas towards National Board Certification. The methods to be employed include: A 3-hour graduate course (EDFD 644) offered May 30-June 2, June 5-8, and September 23, 2006 and twelve 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. A study conducted with participants in the No Child Left Behind Grant FY05 found that Harding University is providing statistically significant research-based instruction for participants to be effective in providing the knowledge teachers need to become National Board Certified Teachers.

Harding University **$41,292**
White County
Project Title: Improving Teacher and Principal Quality: P-16 Education Partnerships in Math and Science

The courses will be offered for three semester hours of graduate credit to a maximum of 20-25 participants. The course will stress the learning of mathematics and science as an active integrated, constructive process involving experimentation, investigation, communication, reasoning and problem solving. The course builds foundations in content to show connections and relevant applications of areas of mathematics and science. The goals of the 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, technology, science kits, inquiry-based labs and various learning strategies, and to provide access to appropriate materials, equipment and technology for each strand of the Arkansas mathematics and science frameworks.

Henderson State University **$34,101**
Clark County
Project Title: Enhancing Algebra and Science Instruction with Technology

Increasing expectations for student learning in algebra require that teachers continue to increase their knowledge of mathematics as well as their expertise in using technology as a tool for teaching and learning. The "Enhancing Algebra Instruction with Technology"

institute will provide teachers with these opportunities over nine days of hands-on instruction and classroom coaching. Teachers will engage in significant problem solving situations and in the use of technology as a tool to enhance their classroom learning environment. They will experience how mathematics can be taught in an exciting, exploratory, and investigative manner. This thorough training will enable teachers to make effective mathematical instruction decisions to improve student achievement.

University of Arkansas at Little Rock **$42,314**
Pulaski County
Project Title: Continuing the Development of Second Language Standards

This proposal provides professional development for second language teachers in seven day-long sessions designed to assist them in acquiring strategies and knowledge to implement National Standards in Foreign Languages and in English as a Second Language in the classroom. These national student standards, 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 three of the five standards will be the focus for professional development since the remaining two standards were the focus of a similar initiative in the previous funding cycle. Specifically, this project will have two goals: 1) to enable each participant to implement and demonstrate course specific activities for each mode of the connections and the communities standards, (these require specific and differing activities and assessment rubrics), and 2) to enable each participant to implement and demonstrate course specific activities for and application of the comparisons standard, designed to develop insight into the nature of language and culture. The outcome of the development sessions will be course specific activities for the language and level of instruction of each participant for each of the three standards.

University of Arkansas at Little Rock **$54,165**
Pulaski County
Project Title: Arkansas STRIVE, Teachers Experiencing Inquiry and Problem-Solving

Arkansas STRIVE places science, math, and computer teachers from middle, junior high, and senior high schools (6-12th 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. We support about 33 teachers per summer in our program with a variety of private and pubic funding sources. We request matching monies from the No Child Left Behind (NCLB) Program for seventeen teachers to work on research projects in the ADHE-supported Centers for Math and Science Education at Arkansas universities and at other nonprofit organizations. We also present workshops to the teachers on inquiry and problem-based teaching, and on using computers for data analysis. In addition, we help the teachers develop inquiry-based or problem-based lessons using the new skills and experiences that the teachers acquired during the summer. The main expected outcomes are that teachers will

experience real-world research and problem solving, learn methods of inquiry and problem-based teaching, and develop two inquiry-based and problem-based lessons that they will use in their own classrooms. We place the STRIVE teachers' lessons on computer CDs and give a CD to each teacher so that they have a library of good inquiry and problem-based lessons.

University of Arkansas at Little Rock **$41,752**
Pulaski County
Project Title: Teaching Mathematics with Manipulatives, Technology, Differentiated Instruction and Problem-Based Learning

The project will consist of three graduate-level courses in mathematics education for 75 inservice teachers; each course for three hours of graduate credit. The courses are designed for inservice teachers of middle school and secondary school mathematics. The courses are: 1) Teaching Mathematics with Manipulatives, 2) Teaching Mathematics with Technology, and 3) Teaching Mathematics with Differentiated Instruction. The project is geared to the strategy that improving student achievement through improved quality of teaching requires improved teacher professional development opportunities. Each course will emphasize both mathematics content and mathematics teaching methods to improve teacher quality and student achievement. Teacher-participants will be involved in research, reading, writing, oral communication, participation, and reflection. The project involves the Department of Mathematics at the University of Arkansas at Little Rock, North Little Rock School District, Little Rock School District, and Pulaski County Special School District.

University of Arkansas at Monticello **$33,835**
Drew County
Project Title: Dealing with Data in Mathematics and Science Using the TI-84 Plus

This project intends to provide a Teacher Leadership Cadre (TLC) for the southeast area of Arkansas. The project will be a systemic professional development program based on research and best practice. It offers 9 days of professional development with ongoing training that can keep educators on top of the teaching innovations as well as meeting the mandated professional development requirements. Educators will participate in a 9-day, hands-on institute led by a world class certified T3 instructor who will facilitate the training in mathematics and science content and technology. Materials are presented through modules and leadership training is incorporated throughout the sessions. In addition, TLC participants will mentor other teachers and support ongoing professional development plans by building a learning community and by teaching adults. Non-degree graduate credit is available. The institute targets high school math and science teachers and is correlated with the Arkansas State Mathematics and Science frameworks.

University of Arkansas at Monticello **$28,987**
Drew County
Project Title: ESL Teaching Methods

This program will be a summer intense ESL Teaching Methods workshop that incorporates Fall and Spring semester follow ups. The curriculum for this training will be organized around the Teachers of English to Speakers of Other Languages (TESOL) domains. The domains are language, culture, instruction, assessment and professionalism. Each domain will be addressed in reference to the knowledge, skills and dispositions needed to effectively meet the academic needs of ESL students. The teachers will be introduced to the SIOP and CALLA models for achievement of cognitive academic learning with their ESL students. These models are research based and are proven to be effective especially with middle level and secondary learners.

University of Arkansas at Pine Bluff **$40,903**
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 which 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 Arkansas Board of Trustees, Fayetteville $69,646
Washington County
Project Title: Space Class 101 for Teachers: How to Add More Space to Your Classroom

Space Class for Teachers 101 consists of 2 major parts:
Part I: Session 1 will focus on Space Science through a week-long K-8 Space Class for teachers 101: How to Add More Space to Your Classroom institute. Session 2 will focus on Active Learning with Technology: How to Add More Technology in Your Classroom following the SEDL Active Learning with Technology series. During fall 2006 and Spring 2007, Session 3 will reinforce the summer institute's efforts as teachers return to their classrooms and implement the science and technology strategies covered during the summer institutes. Mentoring will occur through email, on-campus professional development offerings, classroom site visits to assist participants in implementation, evaluation, and modification of lessons to insure classroom implementation of best practice science and technology.
Part II: Seven monthly evening workshops will focus on math, science and technology content for pre-service mathematics and science educators (PMASE) from fall 2006 through Spring 2007. This will be an extension of the PMASE group established in 2001 with mathematics and science classroom methodology and implementation as its continued focus. This proposal will have a major impact on teacher comfort and skill levels in the use of inquiry-based content and technology in 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 classrooms-ultimately, resulting in an increase in student achievement.

University of Central Arkansas $107,248
Faulkner County
Project Title: UCA Partnership School District P-16 Education Partnership-Improving Teacher and Principal Quality: Part III

The Partnership between the University of Central Arkansas and Seven Selected Partnership School District is an expansion of a current graduate credit-bearing staff development programs for 135 elementary, middle and high school teacher in the areas of science, mathematics, reading and writing literacy and computer information technology. The objectives for Part III are: 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 contents at a rate of 80% on mathematics, science, reading and writing literacy and computer technology as measured by pre-and post tests assessments, 3) to increase the number of elementary and high school teachers who seek National Board for Professional Teaching Standards (NBPTS) Certification at a rate of 20 %; and, 4) to increase the %age of students who score at or above grade level on mathematics, science, reading and writing literacy on CRT, NRT 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. Scientifically based research indicates that teacher quality has a powerful effect on student achievement and teachers who have achieved National Board Certification significantly outperform teachers without certification on 11 of 13 key dimensions of teaching expertise. It is projected that the quality of mathematics and science teaching and student achievement will improve significantly.

University of Central Arkansas **$70,191**
Faulkner County
Project Title: Teaching Mathematics and Natural Science in the Secondary Classroom with Geographic Information Systems, Remote Sensing, and Scanning Electron Microscope Technologies

This project is designed to improve student proficiency in mathematics and natural sciences by training secondary teachers during weeklong summer workshops to use GIS, remote sensing, and SEM technologies to convey core concepts. Research has shown that active learning with these technologies greatly increases student motivation and achievement. Teachers from high-need LEAs in the Delta will be served by a workshop held in West Memphis while teachers from LEAs in central Arkansas will be served by a workshop in Conway. Participants will be provided with appropriate digital data as well as with copies of major remote sensing and GIS software for use in their classrooms. Throughout the following school year, project team members will provide individualized assistance to the secondary teachers to help them infuse these teaching tools into their curricula and will visit each teacher's classroom. Monthly online chat sessions during the school year will allow participants to share their experiences and to address common problems implementing these teaching tools. Teachers can readily adapt the training in these technologies to support lessons in at least the following subjects: atmospheric sciences, ecology, forestry, geometry, habitat loss and urban sprawl, land cover change dynamics, optics, physics, plant sciences, soil conservation, and water resources management.