South Carolina
Commission on Higher Education

CHE
2/5/2015
Agenda Item 8.02.E

February 5, 2015

MEMORANDUM

To: Chairman John L. Finan and Members, S.C. Commission on Higher Education

From: Dr. Bettie Rose Horne, Chair, and Members, Committee on Academic Affairs and Licensing

New Federal *Improving Teacher Quality* Competitive Grants Awards, FY 2015-16

Background

Since 1984, the Commission on Higher Education has been responsible for administering federal funds under a Title II program of *The Elementary and Secondary Education Act (ESEA)*. In 2001, the federal legislation was re-authorized under the *No Child Left Behind Act (NCLB)*. Title II, Part A of NCLB, entitled *Preparing, Training, and Recruiting High-Quality Teachers and Principals,* authorizes the Commission to conduct a competitive awards program to provide support to increase student academic achievement through strategies such as improving teacher and principal quality and increasing the number of highly qualified teachers in the classroom and highly qualified principals and assistant principals in schools.

The No Child Left Behind Act of 2001 (PL107-110) authorizes the South Carolina Commission on Higher Education to conduct a competitive awards program under Title II Part A *Preparing, Training, and Recruiting High-Quality Teachers and Principals.* The purpose of this part of the federal legislation is to provide support to increase student academic achievement through strategies such as improving teacher and principal quality and increasing the number of highly qualified teachers in the classroom and highly qualified principals and assistant principals in schools.

The Commission is authorized to provide a competitive grants program to federally required partnerships comprised, at a minimum, of schools of education and divisions of arts and sciences from higher education institutions along with one or more high-need local education agency (LEA). Funds to the state are allocated based on the FY 2001 amount received under the former Eisenhower Professional Development and Class-Size Reduction programs. Any remaining funds from the federal appropriation are distributed through a formula based on the

State's school-age population and percent of these children in families with incomes below the poverty level.

The Improving Teacher Quality (ITQ) Program provides the Commission with the ability to expand its professional development offerings to the P-12 community to nine content areas and other school personnel. The program seeks to bring together higher education faculty and P-12 school personnel to foster mutually beneficial partnerships based on sustained professional development. The purpose of the ITQ project is to improve teacher content knowledge in the subject areas they teach. The ultimate goal of the partnership is improved student performance.

Under federal regulations, 2.5 percent of the *Improving Teacher Quality Higher Education Grants* (ITQ) funds for the state is allocated to the Commission to be used for the competitive grants program. The Commission is expected to receive $698,415 with which to make Federal FY 2014-2015 awards. Projects could request up to $150,000 to conduct professional development projects in mathematics and science content for FY 2015-16. Staff sought proposals that would have maximum impact on improving teacher content knowledge and improving student achievement. The number of grants awarded was determined primarily by the quality of the proposals submitted No proposal was considered unless it met the minimum federal definition of a partnership (as stated in the *ITQ Guidelines* and in the *Federal Title II Non-Regulatory Guidance*).

Review Panel Recommendations

A review panel consisting of higher education representatives, a state department of education associate, and the regional coordinator of the S2TEM Centers, (**Attachment 1**) met on November 7, 2014, to review and rate the ten proposals submitted for consideration for funding. Six fundable projects were identified by the FY 2015-16 review panel (**Attachment 2**) because of their success in meeting the stated goals and objectives in their original proposals, for appropriate activities as identified by the federal guidelines, and the geographic representation. The funding amount for the recommended awards for FY 2015-16 is $699,595 contingent upon availability of funds from the federal government. The six proposals recommended for funding will allow teachers in eight school districts to receive professional development in mathematics or science content. The abstract for each of the six projects recommended for funding is included in **Attachment 3**. A map (**Attachment 4**) is attached which shows the high-needs LEAs that are eligible to participate in the Improving Teacher Quality Grant programs based on federal guidelines. The school districts shaded in green are part of the proposals recommended for funding. Proposals were selected based on a review of the written proposal and a 30-minute oral presentation. Each review panel member submitted their scores from the written review and the oral presentation. These scores were combined for a total score and proposals were ranked from highest to lowest.

The Committee on Academic Affairs and Licensing approved the recommendation of the external review panel at its meeting on January 8, 2015.

Attachment 1

ITQ Review Panel 2014-2015
November 7, 2014
8:30 am – 6:00 pm

Dr. Linda Payne *Physics* Regional Coordinator S2TEM Centers SC 3250 Saint Matthews Road Orangeburg, SC 29118 803-928-6225 lpayne@scsu.edu ***K-12 STEM***	**Ms. Lindsay Boozer** *Secondary Mathematics* *Education* Associate Division of School Effectiveness S.C. Department of Education 1429 Senate Street Columbia, SC 29201 803-737-4702 lboozer@ed.sc.gov ***SCDE***	**Dr. Mike Svec** *Science Education* Associate Professor Department of Education Furman University 3300 Poinsett Highway Greenville, SC 29613 michael.svec@furman.edu ***Private Higher Education***
Dr. Cynthia Gardner *Science Education* Assistant Professor School of Education Lander University 320 Stanley Avenue Greenwood, SC 29649 864-388-8025 cgardner@lander.edu ***Public Higher Education***	**Dr. Sharon O'Kelley** *Mathematics* Assistant Professor Department of Mathematics Francis Marion University P.O. Box 100547 Florence, SC 29502-0547 843-661-1579 sokelley@fmarion.edu ***Public Higher Education***	**Ms. Renee Stubbs** *Mathematics* Associate Professor Department of Mathematics Newberry College 2100 College Street Newberry, SC 29108 renee.stubbs@newberry.edu ***Private Higher Education***
Mrs. Theresa Davis *Mathematics* Assistant Professor Department of Mathematics Claflin University 400 Magnolia Avenue Orangeburg, SC 29115 tdavis@claflin.edu **Private Higher Education**	**Dr. Tom Reid** *Mathematics* Associate Professor Department of Mathematics 471 University Parkway Aiken, SC 29801 803-641-3536 W 803-648-2350 H 803-257-6434 C thomasr@usca.edu ***Public Higher Education***	*Staff Support* **Dr. Paula A. Gregg** **Dr. Rachel Harvey** Academic Affairs SC Commission on ***Higher Education*** 1122 Lady Street, Suite 300 Columbia, SC 29201 ***CHE***

Attachment 2

Improving Teacher Quality Higher Education Proposals Submitted
FY 2015-16

Name	Institution	Project Name	School Districts	Funding Requested	Funding Awarded	Recommended for Funding
Dr. Christine Lotter/Dr. Nathan Carnes	USC Columbia	*Life Science Connections*	Sumter, Lexington 2, Richland 2	$ 149,994.00	$ 123,099.00	Yes
Dr. Stephen Thompson	USC Columbia	*Nature-Based Inquiry Utilizing a STEAM Approach (NBI)*	Richland 1	$ 148,173.00	$ 121,606.00	Yes
Dr. Joanna Stegall/Dr. Gilbert Eyabi	Anderson University	*Elementary Teacher Training in Algebra (ETTA)*	Anderson 5	$ 117,208.36	$ 117,312.00	Yes
Dr. Ryan Visser/Dr. Matthew Boyer	Clemson University	*Project HOMS: Hands-On, Making Science*	Fairfield	$ 135,349.00	$ 111,090.00	Yes
Dr. Jerry Mitchell/Dr. George Roy	USC Columbia	*Geospatial Technology for Geography, Mathematics, and Science*	Saluda	$ 103,279.00	$ 103,384.00	Yes
Dr. Cynthia Deaton	Clemson University	*iScience: Inquiry Science with Mobile Learning*	Spartanburg 7	$ 150,000.00	$ 123,104.00	Yes
Dr. Patty Hambrick	Charleston Southern	*BRIMS: Beginning Robotics by Integrating Mathematics an Science*	Dorchester 4	$ 150,000.00	-	No
Dr. Calvin Williams/Dr. Nicole Bannister	Clemson University	*Understanding Math by Design*	Abbeville, Greenwood 51	$ 150,000.00	-	No
Dr. mutindi ndunda/Dr. Quinn Burke	College of Charleston	*Algorithmic Literacies: The Intersection of Math & Literacy through Students' Programming Interactive Stories*	Charleston	$ 150,000.00	-	No
Dr. Cassie Quigley/Dr. Danielle Herro	Clemson University	*Mapping Our Future: Improving Middle/High School Instructors Science Content Knowledge*	Charleston	$ 149,914.00	-	No
				$1,403,917.36	**$699,595.00**	

Attachment 3

Anderson University: Joanna Stegall & Gilbert Eyabi
Elementary Teacher Training in Algebra (ETTA)

Abstract

Mathematics PASS scores (2013-14) indicate that almost half of all the Anderson County School District Five elementary students scored below proficient. At the secondary level, student pass rate on the Algebra I End-of-Course exam is among the lowest in the state. A needs assessment conducted at the partnering district's Title One elementary schools illustrates the necessity for professional development in algebra skills. The teachers averaged 38% on a measure of algebra skills and; the majority of the teachers (N=72) volunteered for algebra training.

Dr. Stegall (College of Education) and Dr. Eyabi (College of Arts and Sciences) at Anderson University are partnering with the high needs school district to submit the ITQ Grant Proposal, *Elementary Teacher Training in Algebra* (ETTA). Activities that promote conceptual understanding within algebra, including faction number sense and proportional reasoning will be taught to district public and private elementary school teachers. *ETTA* will focus on improving the mathematical content knowledge of the teachers through a focus on building their conceptual understanding.

Assessments will include formative measures (pre/posttest and Algebra Content Analysis measures) for increased algebra knowledge. Videos of teaching with self-assessments, teacher reflections, and mathematics teacher efficacy survey will be used to identify changes in pedagogy and efficacy. Also, student math performance on PASS will be compared in the treatment and controlled classrooms.

Clemson University: Cynthia Deaton

iScience: Inquiry Science with Mobile Learning

Abstract

In order to succeed in a 21st century society, science education should focus on providing and supporting the scientific and technological knowledge of our teachers and students. iScience aims to address this need through a deliberate and focused partnership with Spartanburg School District 7 where targeted science content needs are addressed through a series of professional development interactions. Following needs assessments, conducted in collaboration with Spartanburg 7 district officials and teachers, iScience is designed to address the science content needs of teachers and to promote effective technological integration of iPads and iPad applications. This professional development will involve 24 teachers from elementary schools in Spartanburg 7, who will meet monthly in both face-to-face and online contexts over an eighteen-month period. iScience is a two phases professional development that will target Earth System Science (ESS): Phase I will address content and pedagogical content knowledge regarding Earth's lithosphere and hydrosphere, as it supports mobile learning integration; Phase II will build on the technological and integrative skills that were the focus of Phase I and explore content topics on Earth's hydrosphere, biosphere, and interactions among these systems. Throughout both phases, teachers will be guided toward critical reflection on their science teaching, science content knowledge, and technology integration as they build an outcomes-based approach to teaching based on evidence of practice.

Clemson University: Ryan Visser & Matthew Boyer

Project HOMS: Hands-on, Making Science

Abstract

This project proposal focuses on using the affordances of the *Maker Movement* to address learning goals and South Carolina standards for science in the upper elementary grades. The proposal is the result of a collaborative planning effort among Education and Science faculty at Clemson University, educators at Fairfield school district, and an external evaluation group. Together, we developed a project that focuses on improving teacher's science content knowledge through the integration of hands-on learning with a range of virtual and physical tools to support content related to STEM fields. In particular, the project will focus on Scientific Inquiry and Physical and Earth Sciences, which were selected as a result of the data collected via our online survey designed to assess the science-related needs of Fairfield educators. Learning activities will employ a Maker approach, which is built on participation, construction, iterative prototyping, design, and technology integration. We believe that bringing Maker culture into STEM education provides important opportunities for improving student engagement, interest, and learning.

We are proposing a two-year project, working with teachers through a combination of virtual collaboration, academic year site visits, and summer professional development (PD). The PD will be guided by the research-backed TPACK model, in which we will focus on the area in which content, pedagogical and technological knowledge overlap. By situating teachers' use of technology in their learning about subject area pedagogical methods, we believe that we are building toward an effective and successful implementation of STEM learning practices and technology integration.

University of South Carolina Columbia: Christine Lotter & Nathan Carnes

Life Science Connections

Abstract

The University of South Carolina College of Education, College of Arts and Science and School of Medicine have collaborated with two local high need school districts (Lexington 2 and Sumter) and Richland School District 2 to develop the *Life Science Connections* professional development project that will improve the life science content knowledge and instructional practices of South Carolina middle and high school science teachers. The professional development begins with an intensive one-week workshop at the USC Ultrasound Institute that will strengthen the 25 teachers' science content knowledge through participation in project-based inquiry lessons and content instruction aligned with the 2014 South Carolina life science standards. Teachers will learn both content and instructional skills through their participation in the inquiry lessons and their interaction with USC science and education faculty. Interactive science investigations that utilize ultrasound technology, hands-on investigations, and science practices (modeling, argumentation) will serve as models of inquiry techniques that the teachers can incorporate into their own classrooms to improve their students' science achievement. The professional development continues with the teachers enacting their workshop-developed unit with their students during the academic year. Four follow-up workshops, classroom observations, and in-classroom instructional coaching will continue during the academic year to help teachers in the implementation of these instructional strategies and further strengthen their content knowledge. Teachers will participate in a second one-week summer workshop the following summer in which they will gain additional life science content and work in cooperative groups to design a second problem-based unit for their students.

University of South Carolina Columbia: Stephen Thompson

Nature-Based Inquiry Utilizing a STEAM Approach (NBI)

Abstract

The NBI program is a collaborative between the University of South Carolina, Richland County School District One, and local community partners. The new science standards emphasize the need to engage students in problem solving activities that mimic the work of scientists and engineers. Scientific inquiry and engineering design involve the integration of technologies and the arts, and work in these fields is multi-disciplinary in nature. Thus, the NBI program utilizes a Problem-Based Learning (PBL) approach that emphasizes the integration of science, technology, engineering, arts, and mathematics (STEAM). Project activities show teachers 1) how to mimic science and engineering work "in the field" by utilizing PBL strategies in outdoor spaces during science instruction, and 2) how to integrate technology in ways that engage *all* students in science and engineering practices through the use of electronic notebooks. Thirty elementary science teachers will take part in weeklong summer workshops (over two summers) consisting of sessions that (a) immerse teachers in model PBL activities; (b) demonstrate PBL strategies and techniques; (c) provide grade level science content; and (d) show how PBL lessons/content are connected to the work of local community groups (i.e., City Roots Urban Farm, Congaree National Park, USC Herbarium). Each summer participants will develop PBL units to implement during the academic year. NBI staff/community-based partners will support PBL unit implementation during the academic year. Participants will also take part in academic-year Saturday workshops that extend the summer work and provide additional support for PBL unit implementation.

University of South Carolina Columbia: Jerry Mitchell

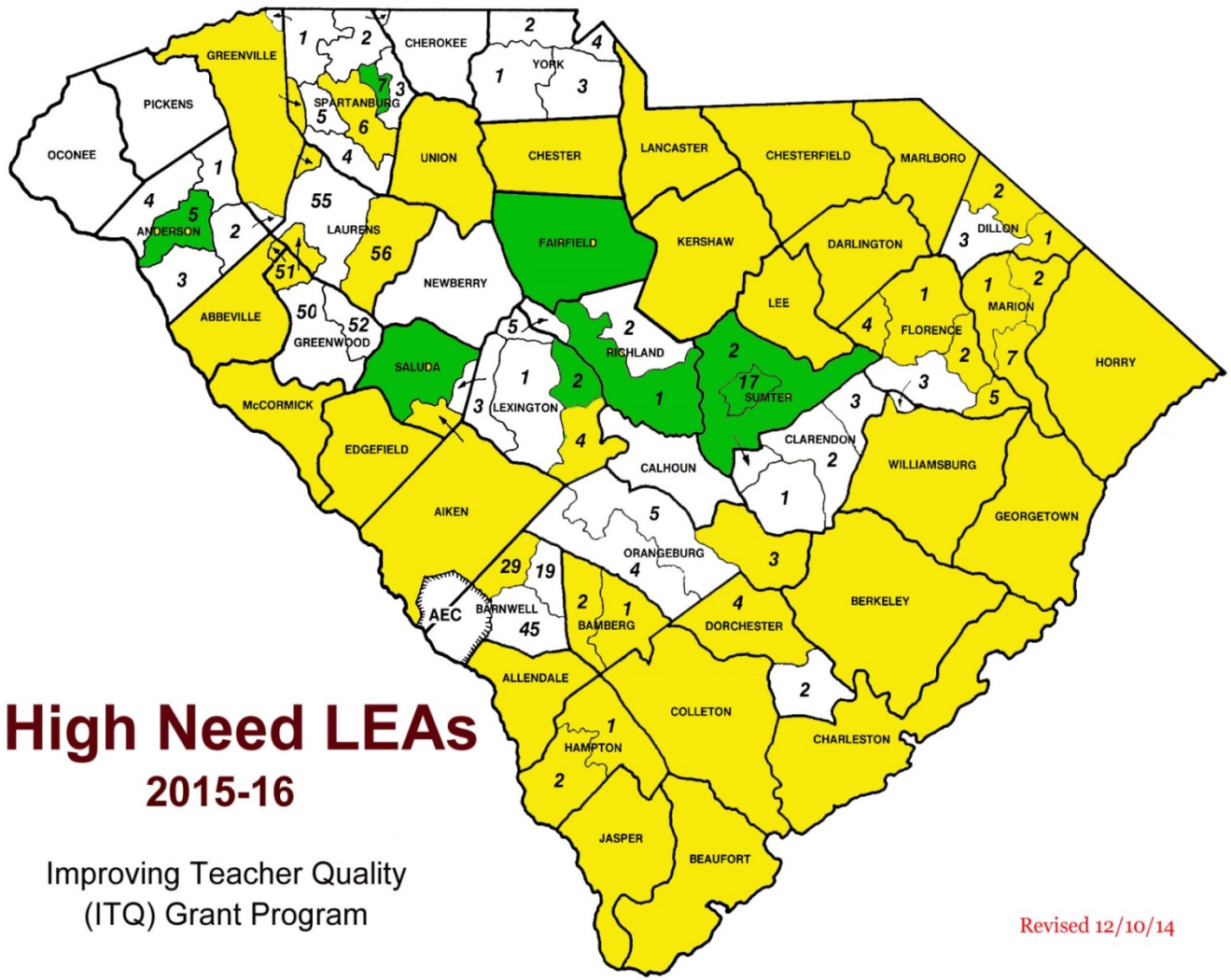
Geospatial Technology for Geography, Mathematics, and Science

Abstract

Technology integration in the K-12 classroom still focuses mainly on technology knowledge and skills, overlooking the critical connections between technology, pedagogy, and content. As a consequence, teachers may learn about "flashy" technology tools without knowing how to appropriately incorporate technology as well as how the technology can be used in their unique settings/disciplinary areas. Through this project, partners from the University of South Carolina Department of Geography and Department of Instruction and Teacher Education, along with Saluda County Schools, will deepen content knowledge of science, mathematics, and geography by integrating web-based GIS technologies, such as Esri's ArcGIS Explore Online, to the existing 6-12 grades curriculum. The project team will develop technology-enhanced, inquiry-based lessons, in which participants and their students use GIS technologies to analyze, visualize, and present their data.

During the project period, project participants will be trained in geospatial technologies aligned to state academic standards and their curriculum. Project partners will work together to design optimal learning experiences for these professional development opportunities, which will include segments on geographic information systems, cartographic visualization, STEM, and integrated lesson development.

The project will increase the number of well-prepared teachers in the participating LEA by focusing on two important areas of need for school teachers in Saluda County Schools: 1) increasing content knowledge, and 2) improving competency with technology.



High Need LEAs
2015-16

Improving Teacher Quality
(ITQ) Grant Program

Revised 12/10/14

	2015-16 Awards
	Eligible Districts