Grants Awarded Report

From: 3/1/08 to 3/31/08

Project Title: Developing a Large Enrollment Physics (LEP) Curriculum

Activation Amount: $21,506.00

Agency: San Diego State University Foundation (via U. S. Dept. of Education)

Personnel:

PI - Stephen Robinson, Physics

Abstract:

The goal of this project is to develop an inquiry-based, physical science curriculum for use in large enrollment, general education courses. The proposed curriculum will start from curricula developed by the same group for small enrollment classes in which hands-on investigation is possible, and use elements of the same pedagogical structure to incorporate interactive tools and techniques to augment the usual lecture environment to make it more student-centered and collaborative. In this way, it is the intention to structure the large enrollment class environment to include features characteristic of a small group environment. The curriculum will also include aspects designed to help students appreciate the nature of science and to reflect on the nature of their own learning. The developing curriculum will be field tested at several colleges and universities across the country and learning gains will be compared to those of more traditional large-enrollment classes covering the same content. If successful in enhancing learning, the general curriculum structure would be something that could be adaptable to many different disciplines and settings.

Grants Awarded Report

From: 3/1/08 to 3/31/08

Project Title: Upper Cumberland Child Care Resource and Referral 2007-08

Activation Amount: $63,250.00

Agency: Signal Centers of Chattanooga (via Department of Health and Human Services)

Personnel:

Co-PI - Betty Vaudt, Human Ecology

PI - Sue Bailey, Human Ecology

Abstract:

The mission of the Upper Cumberland Child Care Resource and Referral (UC-CCR&R) is to provide resources for parents/caregivers, child care professionals, employers, and the community that support quality care and development of children in 15 Upper Cumberland Tennessee counties. The services UC-CCR&R offers to child care providers in its 15-county region include the following: two-hour TN-CCPT workshops, on-site consultations, and lending library resources. Parent services include child care referrals tailored to individual circumstances and educational seminars. UC-CCR&R community outreach projects include participation in county fairs/festivals providing information on early brain development and the importance of quality early care. Speaking engagements at community meetings and events provide the business community information on the impact of quality child care on economic and community development.

Grants Awarded Report

From: 3/1/08 to 3/31/08

Project Title: Real-Time Performance Monitoring of Four Coal-Fired Units in Huntly Station

Activation Amount: $35,000.00

Agency: Genesis Power Ltd.

Personnel:

Co-PI - Mohamed Abdelrahman, Electrical and Computer Engineering

Co-PI - Robert Craven, Energy Center

PI - Sastry Munukutla, Energy Center

Abstract:

The purpose of this project is to train a neural network to recognize transient operation of the Huntly Station coal fired units. Based on t his information, corrections will be made to the output data so that accurate performance information is supplied to the operators.

Grants Awarded Report

From: 3/1/08 to 3/31/08

Project Title: Determination of Predictors and Barriers to Minority Enrollment in Undergraduate Exercise Science and Allied Health Majors

Activation Amount: $41,799.00

Agency: Tennessee Board of Regents

Personnel:

Co-PI - Rhonda Folio, Curriculum and Instruction

PI - J. P. Barfield, Exercise Science and Physical Education

Abstract:

The purpose of this project is to identify factors that contribute to and detract from minority enrollment in exercise science and allied health (ESAH) programs of study. Minority populations typically demonstrate higher rates of obesity and associated health problems than white Americans. Unfortunately, mnority students are currently underrepresented in ESAH majors (e.g., health, nursing, wellness). These programs result in the education of professionals regarding sound health practices as well as the training of professionals to improve health behaviors among community members. It is essential for Tennessee institutions to recruit minority students into ESAH fields in efforts to combat rising morbidity and premature mortality rates within this population. Better recruitment efforts will also enhance health promotion services in communities which are served by these future professionals. Therefore, focus groups will be used to identify common facilitators and barriers to post-secondary enrollment in ESAH programs. Survey instruments, developed from focus group data, will be developed and assessed for reliability and validity. Surveys will then be distributed to students at two-year and four-year TBR institutions to identify variables that contribute to or detract from enrollment in ESAH degree programs.

Grants Awarded Report

From: 3/1/08 to 3/31/08

Project Title: Studies of Fluctuation Processes in Nuclear Collisions

Activation Amount: $37,000.00

Agency: U. S. Department of Energy

Personnel:

PI - Sakir Ayik, Physics

Abstract:

This project continues the investigations of spinodal instabilities in charge asymmetric nuclear systems in the framework of the stochastic one-body transport theory, which was previously proposed by the PI and has emerged as a promising microscopic approach for describing dynamics of density fluctuations in heavy-ion collisions.

Grants Awarded Report

From: 3/1/08 to 3/31/08

Project Title: NSF ATE Eastern Corridor Teacher Education Project

Activation Amount: $25,805.00

Agency: Pellissippi State Technical Community College (via NSF)

Personnel:

PI - Margaret Phelps, Education Administration

Support Personnel - Barry Elliott, Mathematics

Support Personnel - Dewey Thurman, Mathematics

Support Personnel - Holly Anthony, Curriculum and Instruction

Support Personnel - Jeremy Wendt, Curriculum and Instruction

Support Personnel - Kathryn Rust, Chemistry

Support Personnel - Ray Jordan, Biology

Support Personnel - Stephen Robinson, Physics

Support Personnel - Wayne Leimer, Earth Sciences

Abstract:

The purposes of the TBR Teacher Preparation Partnership are to:

1. Improve the mathematics, science, and technology preparation of future teachers through a statewide collaboration and systemic change.
2. Improve articulation and advising in the field of teacher education among all institutions involved in this project by offering and requiring the same mathematics, science, and educational technology courses at each institution.
3. Develop student support systems for education majors.
4. Improve the capacity and training of a diverse teaching pool in Tennessee.
5. Provide opportunities for both in-service and pre-service teachers to gain content credit hours to meet NCLB requirements.

At TTU, the project will involve the faculty who regulary teach BIOL 1310, CHEM 1310, GEOL 1310, PHYS 1310, MATH 1410 and 1420, and FOED 2010. These faculty will participate in professional development with faculty with similar teaching responsibilities at the other partner institutions, be provided matching funds for support travel to professional meetings, have access to funds for instructional materials, and receive a summer stipend for course revisions. A campus coordinator will be responsible for articulating the efforts at TTU with the project lead institution.

Grants Awarded Report

From: 3/1/08 to 3/31/08

Project Title: CCLI: Micro Total Analysis System in Undergraduate Biochemistry and Analytical Chemistry

Activation Amount: $41,829.00

Agency: National Science Foundation

Personnel:

Co-PI - Jeffrey Boles, Chemistry

Co-PI - Thurston Banks, Chemistry

PI - John Harwood, Chemistry

Abstract:

Grants Awarded Report

From: 3/1/08 to 3/31/08

Project Title: Testing a Model to Increase Vegetable Intake and Reduce Obesity Indices in Rural Families through Hydroponic Gardening

Activation Amount: $56,690.00

Agency: U. S. Department of Agriculture

Personnel:

Co-PI - Janice Branson, Agriculture

PI - Melinda Anderson, Human Ecology

Support Personnel - Ellen Wolfe, Office of Research and Graduate Studies

Support Personnel - Melinda Swafford, Human Ecology

Support Personnel - Michael Allen, Mathematics

Abstract:

Obesity is a serious medical crisis in the United States. Prevention of obesity in children and adults is a national priority of several federal initiatives including Healthy People 2010, and the Dietary Guidelines for Americans. Tennessee Technological University, in partnership with a rural Tennessee high school, proposes to test a strategy for increasing vegetable intake and reducing obesity measures in rural adolescents and their families through the use of hydroponic gardening in a vocational classroom. Specifically, the cost effectiveness of hydroponic gardening to produce enough vegetables to significantly increase vegetable intake will be studied. The impact of consuming hydroponically-grown vegetables on two obesity measures (Body Mass Index and blood pressure) will be determined. High school vocational students and their parents who participate in this study will complete food records and food surveys at regular intervals during the two year study, and be measured for Body Mass Index and blood pressure. High school vocational students will learn to maintain the hydroponic gardening systems at their school, and be involved in the harvesting and consumption of a variety of fresh vegetables.