

**NKU, OFFICE OF RESEARCH, GRANTS, AND CONTRACTS**  
**PROPOSALS SUBMITTED**  
**FISCAL YEAR 2005 (APRIL 2005)**

Department	Principal Investigator	Project Title	Funding Agency	Submission Date	Project Duration	Amount Requested
Biological Sciences	Richard Durtsche	Thermoregulation in Sympatric Tropical Lizards: Does Chaos Explain Coexistence	Kentucky NSF EPSCoR Research Enhancement Grant	04/18/2005	5/1/05 - 7/31/06	\$18,297

This undergraduate-based research project will investigate if chaotic patterns are present in the thermoregulation of two tropical lizards. The occurrence of dynamic chaotic patterns may explain the coexistence of these lizards in the same ecological niche. Field work to measure these thermoregulatory patterns will take place at the NKU Center for Undergraduate Research and Tropical Studies field station in the Punta Rio Claro Biological Research Center in Costa Rica.

Biological Sciences	Rebecca Evans	Assessment of the Impact of Urbanization on Water Quality in Northern Kentucky Streams	Kentucky NSF EPSCoR Summer Research Grant	04/18/2005	5/1/05 - 9/30/05	\$15,000
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This project is to conduct a study of water quality parameters in three northern Kentucky streams over the low flow season of 2005. A student will collect weekly samples over a five month period and analyze them for nutrients and primary indicators of eutrophication. This data will help to quantify the impact of urbanization on local streams and address issues of protection and restoration as the population and urbanization of Boone County increases.

Biological Sciences	Kristi Martines	Investigating Custom Dendrimer Interactions with Blood Brain Barrier Models	Kentucky NSF EPSCoR Research Enhancement Grant	04/18/2005	5/1/05 - 4/30/06	\$24,622
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Dendrimers are highly customizable polymers that act as basic building blocks allowing specific nanostructures to be built. Dendrimers appeal to biologists and chemists because of their precise architecture, size and shape control, high uniformity and purity, high loading capacity, high shear resistance, low toxicity and low immunogenicity. The purpose of this project is to test the use of newly-synthesized dendrimers in crossing an in-vitro model of the blood brain barrier.

Biological Sciences	Nicole Minor	Screens and Mapping to Identify Genes Involved in Germline Stem Cell Differentiation	Kentucky NSF EPSCoR Research Enhancement Grant	04/13/2005	8/1/05 - 1/31/06	\$21,824
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This project will screen an ovarian cDNA library to look for proteins that interact with Stwl. Stwl has been identified as a protein that is necessary for germline stem cell maintenance and differentiation. This project will begin to map a female sterile mutation on the third chromosome. These activities will identify new proteins that are involved in germline stem cell differentiation. The proteins that interact with Stwl are likely to be key players in stem cell differentiation.

Department	Principal Investigator	Project Title	Funding Agency	Submission Date	Project Duration	Amount Requested
Biological Sciences	Thomas Rambo	Center for Undergraduate Research and Tropical Studies: Preparing and Equipping Undergraduate to Conduct Research in Tropical Ecosystems in Costa Rica	National Science Foundation FSML	04/26/2005	1/1/06 - 12/31/07	\$163,512

This project, submitted to the Improvements in Facilities, Communications, and Equipment at Biological Field Stations and Marine Laboratories (FSML) program, will build a laboratory building for the Center for Undergraduate Research and Tropical Studies at the Punta Rio Claro Refuge in Costa Rica. It includes the laboratory building, solar energy, emergency generators, furniture and travel to inspect the progress.

Biological Sciences	Mary Kathryn Whitson	Hyperspectral Analysis of Exotic Infestation in the Forests of Eastern Kentucky	Kentucky NSF EPSCoR Research Enhancement Grant	04/18/2005	6/1/05 - 5/31/07	\$23,204
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This project will use Hyperspectral Imagery and Geospatial tools to assess the distribution of the invasive species *Ailanthus altissima* in Greenup County, Kentucky. Invasive species drastically impact commercial harvesting by excluding native, high value species. *Ailanthus* has only recently been noted in Greenup County so a prompt evaluation of the extent of infestation will be a valuable tool for state forestry managers.

Chase College of Law	Lowell Schechter	Building Educational Success for Foster Care Youth	Kentucky Bar Foundation	04/28/2005	7/1/05 - 6/30/06	\$10,000
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This project will reproduce and distribute training materials initially prepared for foster parents in northern Kentucky to foster parents across the Commonwealth of Kentucky. It will also provide additional student fellowships to assist in training and advocacy for classes of caregivers.

Chemistry	Stefan Paula	Molecular Modeling of the Interactions between Sodium/Potassium-ATPase and its Cardiac Glycosides Inhibitors	Kentucky NSF EPSCoR Research Enhancement Grant	04/13/2005	5/1/05 - 4/30/06	\$24,929
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The goal of this project is to establish a research and training program in the use of modern computational approaches for the study of ligand/receptor interactions. As a model system, the interactions between the enzyme sodium/potassium ATPase and cardiac glycoside inhibitors will be investigated.

Educational Specialties	Mary Rozier	Future Educators of America Summer Camp	Kentucky Department of Education Minority Recruitment and Retention	04/26/2005	6/1/05 - 6/30/05	\$25,000
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This project will provide high school seniors the opportunity to explore teaching as a career option. The camp will be for one week and will help participants gain a realistic understanding of the nature of education and the role of a teacher. It will also provide information about teaching as a profession, employment opportunities and financial assistance options.

Department	Principal Investigator	Project Title	Funding Agency	Submission Date	Project Duration	Amount Requested
Elementary, Middle, and Secondary Programs	Lynne Smith	Reading First Coach	Kentucky Department of Education	04/06/2005	7/1/05 - 6/30/06	\$137,542

Under the leadership of the University reading instructors and KDE Reading First staff, the Reading First Coach will provide consultative services, professional development, and technical assistance to Reading First districts, schools, primary teachers, and K-12 special education teachers throughout the Commonwealth.

History & Geography	John Metz	Exploring Changing Patterns of Afro-American Residence in Northern Kentucky and Greater Cincinnati	Kentucky NSF EPSCoR Research Enhancement Grant	04/18/2005	6/1/05 - 5/31/06	\$25,000
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This project will collect information about Afro-American residence patterns for 1940, 1970, 2000 and display them in GIS software on a website. The website will also incorporate narratives explaining the forces that interacted to create the patterns.

Physics and Geology	Janet Bertog	Undergraduate Research Experiences in Cretaceous Stratigraphic Interpretations	Kentucky NSF EPSCoR Research Enhancement Grant	04/13/2005	7/1/05 - 6/30/06	\$19,827
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The goal of this project is to use geochemical techniques to establish a regional stratigraphic framework in order to evaluate the cause of an extinction event that occurred approximately 73 million years ago in the western interior of the United States. The project will involve three undergraduate students in aspects of the research to train them on research techniques.

Physics and Geology	Wayne Bresser	Search for the Intermediate Phase in the Lithium Oxide and Aluminum Oxide Silicate Glass Systems Prepared by the Containerless and Container Method Using MDSC	Kentucky NSF EPSCoR Research Enhancement Grant	04/18/2005	6/1/05 - 5/31/06	\$24,994
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The goal of this project is to determine the existence of the rigidity transition in glasses in two compositional systems.

Soc., Anthro., & Phil.	Boni Li	Middle Aged Population's Attitudes and Behavior toward their Future Health Care Issues: An International Study on American and Chinese Societies	Kentucky NSF EPSCoR Research Enhancement Grant	04/13/2005	7/1/05 - 6/30/06	\$24,222
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This study will examine the attitudes and behaviors of middle-aged American and Chinese populations toward their future medical care systems. The information and data collected in both countries will be very important for American society when making health care policies, because the future policy will directly influence not only the individual's life but also the stability of the society.

Department	Principal Investigator	Project Title	Funding Agency	Submission Date	Project Duration	Amount Requested
Social Work & Hum Serv.	Holly Riffe	Health Foundation of Greater Cincinnati Regional Resource Assessment and Mapping Profile	Health Foundation of Greater Cincinnati	04/25/2005	5/25/05 - 9/24/05	\$26,557

This project includes primary and secondary data analysis and GIS mapping of health care resources in the greater Cincinnati and northern Kentucky area.

Social Work & Hum Serv.	Holly Riffe	2005 Hispanic Health Survey	Health Foundation of Greater Cincinnati	04/25/2005	4/1/05 - 5/31/05	\$5,700
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The researchers will investigate general health status, health care access, occupational health and safety, as well as demographic information of the new Latino immigrant community.

Social Work & Hum Serv.	Holly Riffe	Conference on Health Disparities and Treatment Issues in the Latino and New Immigrant Communities	U.S. Department of Health and Human Services Center for Disease Control and Prevention	04/25/2005	6/1/05 - 3/31/06	\$19,600
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This project will fund a health disparities conference on the NKU campus in February 2006. Main conference objectives are the dissemination of research findings on the general health indicators on the region's immigrant community and building and enhancing partnerships with health practitioners and researchers to decrease health disparities in the Latino community.

**Total Number of Proposals: 17**

**Total Funds Requested: \$609,830**