PATHFINDERS QUARTERLY
Newsletter of the Office of Grants & Program Review

APRIL 2008

It is never too early to start planning and writing a THEC Improving Teacher Quality grant!

The deadline is anticipated for early October 2008, and the new Request for Proposals (RFP) should be released in July.

View last year's RFP at:

http://www.state.tn.us/thec/2004web/division_pages/academic_pages/grants/grants.html

UPCOMING DEADLINES:

- NSF Course, Curriculum & Laboratory Improvement: ***May 21*** www.nsf.gov/funding/pgm_summ.jsp?pims_id=5741

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THE UNIVERSITY of TENNESSEE CHATTANOOGA

Dr. Margaret Kovach Engages Students in Cutting-Edge Cancer Research

"The more that we learn about the human genome, the more there is to explore." This conclusion, recently published by a continuum of Human Genome Project scientists, illustrates how little is actually known about human genetics. DNA underlies almost every aspect of human heath, and recent research suggests that mutations in human genes may be responsible for complex conditions such as breast, ovarian, and colon cancers. The potential benefits of identifying and evaluating disease-causing gene mutations are enormous and have lead observers to predict that biology will be the foremost science of the 21st Century.

Faculty and students of UTC are proud to be contributing to this exciting and cutting-edge field of research.

Dr. Margaret Kovach, Assistant Professor of Biological & Environmental Sciences, has received $201,154 from the National Institutes of Health to conduct a three-year study of the effects of genomic instability on the progression of colorectal cancer. The results of this study will contribute to the current scientific understanding of cancer, identify molecular markers of cancer progression, and shed light on variations in genomic expression. These results will be useful in developing detection, prevention, and treatment strategies for specific types of colorectal cancer, and will potentially pertain to other cancers and diseases as well. Throughout the course of the project, Dr. Kovach will engage several undergraduate students to assist her on specific aspects of the research. Under Dr. Kovach's supervision, these students will complete their own smaller projects and engage in experimental design, sample collection and processing, data analysis, and interpretation. This applied laboratory research experience will culminate in a literature review and a formal presentation of results, preparing the students for possible co-authorship in a scientific publication.

"By incorporating them into the project, students gain not only hands-on experience in the newest research techniques, but have the opportunity to be a part of one of the most important areas of medical research of the century – finding a cure for cancer."
Dr. Margaret Kovach

Dr. Kovach sees this as an excellent opportunity for her students. "It is not often that undergraduate students get exposed to cutting-edge research," she says. "By incorporating them into the project, students gain not only hands-on experience in the newest research techniques, but have the opportunity to be a part of one of the most important areas of medical research of the century – finding a cure for cancer."

UTC Faculty to Support Teacher Development in Literacy and Mathematics

It is often easy for those of us on a university campus to take for granted how we got here. Take a moment to remember your school days. Was there a special teacher who inspired you? Can you recall a particular class that opened your eyes to a new way of thinking? Now try to imagine where you would be if that teacher or class had never been a part of your life. Has the scene changed?

Unfortunately, current environments in our schools provide too few positive academic experiences. Tennessee students, especially those who are economically challenged, are struggling to meet state benchmarks. At the same time, teachers struggle to obtain the training needed to meet increased expectations associated with rising state standards. To address these challenges, UTC is partnering with local school systems to enhance instruction and improve student learning.

This year, UTC faculty secured five grants from the Tennessee Higher Education Commission to support teacher workshops in literacy and mathematics. In total, the awards value more than $325,000. Dr. Philip B. Oldham, Provost and Vice Chancellor for Academic Affairs, is supportive of the commitment that UTC is showing to local teacher development. "We've been very fortunate this year to be awarded major grants so that UTC can encourage teacher development in our area," Dr. Oldham says. "By helping to strengthen local middle and high school education, we ultimately strengthen the undergraduate foundation of our university."

Focus on Literacy

Standardized test scores of Tennessee middle school students suggest that many students are having a hard time making the transition from "learning to read" to "reading to learn." While high-profile literacy improvement campaigns focus on reading instruction for very young students, specific literacy instruction in middle and high schools is rare. Specifically, older students need direct instruction in reading and understanding nonfiction and other informational texts.

To address this need, Dr. Lauren Ingraham, Associate Professor of English and Director of Composition, has secured $64,000 to conduct a workshop for 24 middle and high school teachers. The workshop will equip the teachers to help their future students develop the more sophisticated reading skills they need to be discerning readers as adults. Participating teachers will learn strategies to encourage critical reading skills, including how to incorporate reflective writing and hands-on projects, and how to effectively assess their students' progress.

Not surprisingly, recent educational research indicates that knowledge of vocabulary is a critical factor in a reader's ability to comprehend text.

Although the federal No Child Left Behind Act and its ancillary program

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UPCOMING DEADLINES:

- NIH Academic Research Enhancement Award: ***June 25*** http://grants.nih.gov/grants/funding/area.htm
- American Chemical Society Petroleum Research Fund: ***August 1*** www.acs.org/prf
- Mathematics and Science Partnership Grant: ***August 1*** www.state.tn.us/education/mgrants.shtml
- NEA Access to Artistic Excellence: ***August 11*** www.nea.gov/grants/apply/index.html

UPCOMING WORKSHOPS:

** Limited funding may be available for partial attendance support*

- CUR Undergraduate Research Workshop: ***June***
- CUR Proposal Writing Institute: ***July***

Faculty Support Teacher Development, Continued

Reading First address vocabulary needs in grades K-3, few middle school teachers receive the training they need to teach reading well. Unfortunately, low socioeconomic status students are the hardest hit by increased vocabulary expectations in middle school. Without intensive, focused reading instruction, a disproportionate number of these students ultimately drop out of school.

"By helping to strengthen local middle and high school education, we ultimately strengthen the undergraduate foundation of our university."
Dr. Philip Oldham

Dr. Kay Cowan, Assistant Professor in the Teacher Preparation Academy, has been awarded $65,000 to address these literacy deficiencies. Dr. Cowan will implement a workshop for 30 middle school teachers focusing on vocabulary development. Specifically, Dr. Cowan will show participants strategies that position the learner to build vocabulary skills through multi-subject integration, repetition, and meaningful use.

Building Mathematics Skills

Standardized test scores, college preparedness assessment tests, and college math placement scores indicate a need to improve the math skills of entering college students in Tennessee. Recent studies show that poor performance in mathematics often begins in middle school even though problems may not be identified until high school students take the ACT exam in their junior or senior year. The ACT organization has developed two tests, the EXPLORE test taken in eighth grade and the PLAN test taken in tenth grade, that provide critical information about a student's college math readiness level based on proven benchmarks.

Ms. Meg Kiessling, Instructor of Mathematics, has secured $61,500 to implement a workshop for 20 middle school mathematics teachers on utilizing the EXPLORE test. Participating teachers will learn to use the EXPLORE test to spot problem areas, adjust their instruction accordingly, and monitor student progress. Likewise, Ms. Tracy Hughes, Mathematics Lecturer, has received $60,000 to offer a workshop for 20 high school math teachers on the content and implications of the PLAN test. The workshop will focus on increasing content knowledge, test taking strategies, and error analysis. Teachers who participate in these workshops will also receive significant classroom resources including a document camera, LCD projector, and supplemental texts.

Continuing their tradition of successful workshops, Dr. Francesco Barioli, Visiting Professor of Mathematics, and Dr. Ron Smith, Professor of Mathematics, have received $74,993 to conduct a workshop on algebra and statistics for 24 high school teachers. 2008 marks the seventh consecutive year of this well- received project. The goal of the workshop is to ease the transition of students from high school to college and reduce the need for remedial math classes. Participating teachers will learn new strategies to enhance the teaching of algebra and statistics with a discovery-oriented approach and real world applications in topics ranging from science to business. Teachers will also receive a TI-84+ calculator and a Calculator-Based Laboratory to engage students through experimentation. A website for the workshop is at http://www.utc.edu/Faculty/Francesco-Barioli/thec.html

FUNDED GRANTS AND RESEARCH

FEBRUARY 1, 2008 – MARCH 31, 2008

COLLEGE OF ARTS & SCIENCES

Dr. Stylianos Chatzimanolis

National Geographic	Exploring the Beetle Biodiversity of the California Channel Islands	$19,043

Dr. Nick Honerkamp

City of Chattanooga	Brainerd Cemetery Study	$1,465

Dr. Peggy Kovach

National Institutes of Health	Microsatellite Variability within Transcribed Regions of Genes Involved in Cancer	$201,154

COLLEGE OF ENGINEERING & COMPUTER SCIENCE

Sim Center

Office of Naval Research	5kW Planar Solid Oxide Fuel Cell Demonstration and Simulations Research for Analysis and Design of SOFC's	$1,527,996

Dr. Cecelia Wigal & Dr. Ed McMahon

Tennessee Department of Education	Technology Designed to Benefit 2008-2009	$35,000

COLLEGE OF HEALTH, EDUCATION & PROFESSIONAL STUDIES

Dr. Linda Johnston

Tennessee Department of Education	Assistive Technology at UTC 2008-2009	$4,352