



# PROFILE

OCTOBER TO DECEMBER 2005

## RESEARCH HIGHLIGHTS—PART 2

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Dr. Suellen Alfred and Dr. Deborah Setliff (Curriculum and Instruction) were awarded funding (\$65,418) to conduct the Reading Institute “Teaching Across the Curriculum in Middle School.” The funding was part of the Improving Teacher Quality (ITQ) Grant from the Tennessee Higher Education Commission.

Dr. Holly Anthony (Curriculum and Instruction) is also the recipient of ITQ funding from the Tennessee Higher Education Commission (\$72,692) for a 2006 summer institute entitled “Developing Conceptual Understanding of K-4 Mathematics Core Content.”

Dr. Dennis George and Dr. Martha Wells (Water Center)/ Dr. Glenn Cunningham (Mechanical Engineering) received funding from the Franke Company (\$99,992) to characterize the chemical composition of food processing exhaust emissions treated by UVC systems and potential corrosivity.

Dr. Marilyn Musacchio (Nursing)/Mr. Glenn Binkley (Facilities and Business Services) received fourth year funding (\$491,032) for the new School of Nursing and Student Health Services Building from the Department of Health and

Human Services. Construction of the new building is expected to begin during the summer of 2006.

Dr. Joseph Ojo (Electrical and Computer Engineering) received Year 2 funding (\$153,481) from the Office of Naval Research for his project entitled “Mixed-Winding, High Phase Order Induction Machines with Multi-Phase, Multi-Level Converters for High Power Drive and Generator Applications.”

Ms. Gay Shepherd (University Police) received funding (\$493,322) from the U. S. Department of Justice to conduct a collaborative project entitled “SMART-Stop Meth Abuse in Rural Tennessee” with the Middle Tennessee Methamphetamine Task Force. With the funding of this project, the Drug Task Force will refine its attack on the methamphetamine problem in middle Tennessee and expand the successes of the project across the 15 counties of the 6th Congressional District.

Dr. Jiahong Zhu (Mechanical Engineering) received Year 4 funding (\$81,709) for his National Science Foundation CAREER project entitled “Novel Conductive Oxide Coatings on Metallic Interconnect for Inter-

mediate-Temperature SOFC.”

Research Funding by University Unit-October 1 to December 31, 2005

- Agriculture—\$30,800
- Biology—\$129,527\*
- Business Administration—\$61,283\*
- Chemical Engineering—\$50,000\*
- Civil and Environmental Engineering—\$1,841\*
- Curriculum and Instruction—\$143,076\*
- Electrical and Computer Engineering—\$181,081\*
- Energy Systems Research—\$60,100
- Human Ecology—\$52,000
- Manufacturing Center—\$57,900
- Mechanical Engineering—\$147,639\*
- Nursing—\$491,032
- University Police—\$493,322
- Water Center—\$126,692

\*Includes proposals funded through the Centers of Excellence.

Research is to see what everyone else has seen, and to think what nobody else has thought.

Albert Szent-Györgi

**STUDIES REPORT BEHAVIORS THAT ADVERSELY IMPACT RESEARCH<sup>1</sup>**

It is generally agreed that three major forms of dishonest behavior—fabrication, falsification, and plagiarism (FFP), violate the fundamental values of research and should be regulated by government. Other questionable practices are thought to be of lesser consequence and therefore left to the oversight of the research community. Two studies published earlier this year raise questions about the relative importance of improper behaviors that adversely impact research.

Brian Martinson of the HealthPartners Research Foundation in Minneapolis, MN, and colleagues are studying factors that can adversely impact research behavior. To assure their work looks at improper behaviors researchers themselves consider important, they interviewed 51 researchers during six focus-group sessions at several top-tier research universities and received additional input from six research compliance officers. The final “top-ten” list of improper behaviors is made up primarily of so-called questionable practices, suggesting that researchers regard these practices as important and potentially harmful to research as FFP (Table 1). Martinson’s study also found that researchers self-report engaging in these practices at alarmingly high rates.

Saana Al-Marzouki of the Department of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, England, and colleagues are interested not so much in the causes of improper behaviors as their impact. Using a Delphi survey rather than focus groups, they asked 32 clinical researchers to suggest ways “scientific misconduct. . .can arise in the design, conduct, analysis and reporting of a clinical trial.” They then asked the same group to rate the potential impact and likely

occurrence of the identified behaviors. Their final listing therefore contains improper behaviors that researchers believe will adversely impact the research process and are likely to occur (Table 2).

Studies such as these are helpful in two ways. First, they suggest areas for future investigation. The perception that questionable practices may impact research more than FFP needs to be confirmed with empirical evidence. Methods are also needed to quantify the impact of different improper

behaviors. Second, these and other similar studies suggest targets for responsible conduct of research (RCR) education. When no clear intent to deceive is evident, potential problems could be due to a lack of proper training. Martinson’s and Al-Marzouki’s lists might therefore provide useful outlines for designing RCR education programs.

<sup>1</sup>Used with permission—Office of Research Integrity Newsletter, Volume 14, Number 1, December 2005, published by the Office of Research Integrity, Office of the Secretary of Health and Human Services.

**Table 1. Partial List of Martinson’s Ten Top Misbehaviors**

- Ignoring major aspects of human-subject requirements
- Using another’s ideas without obtaining permission or giving due credit
- Unauthorized use of confidential information in connection with one’s own research
- Failing to present data that contradict one’s own previous research
- Overlooking others’ use of flawed data or questionable interpretation of data
- Falsifying or ‘cooking’ research data

**Table 2. Partial List of Behaviors That Have an Adverse Impact and Are Likely to Occur According to Al-Marzouki’s Study**

- Over-interpretation of “significant” findings in small trials
- Selective reporting of outcomes in the abstract
- Negative or detrimental studies not published
- Inappropriate subgroup analyses
- Selective reporting of positive results or omission of adverse events data
- Failure to report results or long delay in reporting
- Post-hoc analysis not admitted

## HOUSE LOOKS AT NSF GRANTS MANAGEMENT CHALLENGES<sup>2</sup>

Congressional interest continues to percolate with regard to the way the National Science Foundation (NSF) oversees research grant compliance. The House Committee on Science, Subcommittee on Research called Christine Boesz, Inspector General at NSF, to testify in March about compliance issues.

“Since 2002, four consecutive independent audits of NSF’s financial statements have cited weaknesses in the agency’s post-award monitor-

ing of grantee institutions as a significant deficiency,” Boesz stated in her testimony.

She also pointed out that a recent audit disclosed that over the last five years, roughly half of all annual and final reports due to NSF from grantees were submitted late or not at all.

“An effective post-award monitoring program should ensure that awardees are complying with award terms

and conditions and federal regulations, adequate progress is being made toward achieving the objectives and milestones of the funded research project, and awardee expenditures listed on NSF’s financial statements represent costs that are accurate and allowable.

“While NSF has taken some steps over the past three years toward establishing a risk-based program for post-award monitoring of its grants, more needs to be

done. NSF must broaden its approach to award monitoring to go beyond the relatively few high-risk awardees, develop more effective award oversight guidance, and increase the coordination between program and financial officers. We have recently received and are currently reviewing an action plan from NSF that proposes to address these additional award-monitoring activities.

<sup>2</sup>Used with permission—**Report on Research Compliance**, Volume 2, Number 3, March 2005.

## UNIVERSITIES PROTEST RUSH TO E-GRANTS, CITE FAILURE TO TEST<sup>3</sup>

In a sharply critical letter, representatives of major research universities urged federal officials to put the brakes on administration plans to vastly increase electronic grants submission this year via the central Grants.gov web site.

The Council on Government Relations, which speaks for 165 research-intensive institutions, appealed to National Institutes of Health Director Elias Zerhouni to slow NIH’s transition to new e-application procedures and forms until the process is adequately tested and grantees have had a chance to learn the new drill.

Current plans to convert all NIH grants to the electronic format in less than a year “will have serious conse-

quences for the research community,” said COGR President Anthony DeCrappeo. “At the very least, the potential for system failures and missed deadlines will erode investigator support for these changes.” In the November 30 letter, also sent to White House Office of Management and Budget officials in charge of Grants.gov, DeCrappeo noted that the university community has long backed streamlining initiatives aimed at bringing about electronic processes. But he said the short notice given institutions of NIH’s accelerated schedule and the failure to rigorously test the e-grants system has raised major concerns among research grantees.

The planned October 1, 2006, submission of elec-

tronic applications for NIH’s major research project grant (R01) mechanism could generate as many as 16,000 applications in less than a week, the total of all proposals routed through Grants.gov in 2005—and not without problems.

Grants.gov may accommodate less complex applications of other grantee communities “when an organization is submitting one or two applications in response to an agency request,” said DeCrappeo, but “scaling this process up to handle hundreds of applications from a single institution, thousands from across the country in a day” is another matter.

Grantees estimate needed technical fixes to comply with

the schedule will be costly, he said. One university figured it will cost \$2 million and 18 months to get ready for October 1.

To remedy the situation, COGR said:

- NIH should establish a phased-in timetable for R01 applications with a clear strategy for delayed deadlines or paper submission if the Grants.gov or NIH systems fail to handle the volume of applications.
- NIH and Grants.gov should provide a demonstration or test opportunity that allows for submission of a real application “in all its complexity, through all its steps so investigators can practice and understand

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## IMPORTANT DATES—GRADUATE SCHOOL

### For students graduating May 6, 2006:

#### April 13, 2006

\*Deadline for completed Comprehensive Exam/Defense forms to be submitted to Graduate School

\*Deadline for graduate students to submit preliminary copies of thesis/dissertations to Graduate School (permission from student's advisor must be given to the Graduate School before thesis/dissertations can be reviewed)

#### April 28, 2006

\*Deadline to remove incomplete grades from SIS

\*Deadline to submit final copies of thesis/dissertations to Graduate School

#### May 5, 2006, 10:00 a.m.

\*Grades due for graduating students

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Students not meeting the above deadlines will be removed from the Candidates' List for May 2006. Please contact Denise Anderson in the Graduate School at ext. 3809 for more information.

## UNIVERSITIES PROTEST RUSH TO E-GRANTS, CITE FAILURE TO TEST<sup>3</sup>

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the processes of submission.”

- And NIH should give grantee institutions time to develop internal systems to support applications through Grants.gov, as well as review NIH materials on the new processes and train investigators to prepare and submit applications.

A downloadable training session from NIH is available at <http://era.nih.gov/training/electronicsubmission/>. This training session is geared toward the application community, will provide an overview of NIH's transition plans, the submission process, and the new form set.

<sup>3</sup>Used with permission-Federal Grants & Contracts Weekly, Volume 1, Number 33, December 9, 2005.

## RESEARCH OFFICE

The mission of the Office of Research is to promote, support, and facilitate research, scholarly, and creative activities of faculty and graduate students. The Office of Research is a focal point for matters relating to research, sponsored programs, and similar scholarly activities.

Services to the faculty include:

- Disseminating information on sources of support
- Providing background information for use in proposals
- Assisting faculty in the development of proposals
- Reviewing and approving proposals for submission to funding agencies
- Preparing and negotiating grants/contracts
- Administering Tennessee's Public Records Act (T.C.A. 49-7-120) relative to sponsored research and services
- Executing awarded contracts and processing activation forms to establish accounts
- Assisting in administration grants/contracts in such areas as budget revisions and contract closures
- Conducting seminars and workshops on proposal writing and funding sources
- Providing assistance to faculty members in carrying out non-sponsored research projects



## GRADUATE SCHOOL

The mission of the Graduate School is to promote, coordinate, enhance the quality of, and serve as an advocate for graduate education programs at Tennessee Technological University.

**Core Value:** Academic excellence through critical thinking skills, life-long learning, and promotion of diversity.

- Enhance the intellectual community of scholars among graduate students and faculty
- Provide quality control for all graduate education programs
- Promote the academic excellence of all graduate programs
- Support and facilitate research, including scholarly and creative activities