

# READING... 'RITING... RITHMATIC...

# Research The Other Tw

By Janet Wolfe

**Driven by the government's desire to expand the field of homeland security experts and by their own desire to produce those professionals, schools across the country have enriched and expanded their course and program offerings to meet the needs of an evolving workforce.**

**LIKE SURGEONS WHO DISCOVERED AN UNEXPECTED TUMOR ON AN X-RAY**, universities across the country looked at the events of September 11 and scratched their heads with confusion.

Where did this come from? How did this happen?

The events set them in motion. Get rid of the cancer. Get rid of the fear. Get rid of the uncertainty.

Some scrubbed up and worked alone: Ohio State University established the Program for International Homeland Security; Purdue began its Homeland Security Institute. Others waited for an authority to guide them, waited for other specialists to confer with, waited for the right opportunity to make the first cut.

They waited two years.

On Oct. 1, 2003, President Bush signed the first Department of Homeland Security (DHS) Appropriations Bill, giving its Science and Technology Division's Office of University Programs \$70 million to build an alliance with the academic community in fiscal year 2004. The Science and Technology Division, the research and development arm of the DHS, engaged in two segments of the country — the national labs and the universities — but the Office of University Programs had but two goals: Support homeland-security-related research activities at universities and educate a new generation of scientists in terrorism prevention.

## THE SEARCH

In early 2003, the Association of American Universities and the National Association of State Universities and Land Grant Colleges surveyed campuses across the country on behalf of the DHS, looking for existing homeland security research efforts. The two organizations discovered what the federal government already suspected: Educational institutions nationwide had made individual, independent promises to support the government in its efforts to prevent terrorism. Eighty-eight campus facilities responded to the survey, identifying already-established homeland security-related research efforts in prevention, detection, identification and response to potential terrorist attacks; first responders; protection of critical infrastructure; cyber and internet security; forensic science; biometric measures and identification; and understanding terrorism and organizational structures.

To reach these universities and others, and to take full advantage of the research developed within them, the Office of University Programs established the Homeland Security Centers of Excellence (HS-Centers) program. Mandated in the Homeland Security Act of 2002, the HS-Centers program was established to create multi-disciplinary research centers, made up of the nation's "best and brightest aca-

# hiring & Recruiting

## Two Rs of Homeland Security

democratic scholars," to supplement the DHS's knowledge of terrorism. Based in universities across the country, the centers would research areas where government intelligence lacked: behavioral research on terrorism and countermeasures, public safety technology transfer, research and development of needed response technologies and operations.

The DHS released its first Broad Agency Announcement (BAA) in July 2003. The BAA a help-wanted ad invited universities across the country to compete for the honor of becoming the DHS's first Homeland Security Center of Excellence.

More than 70 universities responded. Through a series of evaluations letters of intent, full proposals and site visits based on the proposed research, proposed partnerships, and the amount of related personnel and infrastructure the university already had in place, the Office of University Programs made its selection. Four months after the search began, the DHS selected the University of Southern California (USC) and its partners, the University of Wisconsin at Madison, New York University and the University of California at Berkeley.

### THE WINNERS

This new network of academic intelligence, this coalition of universities, would, according to Dr. Charles McQueary, undersecretary for the Science and Technology Division, "minimize duplication of research and development, enhance communications between programs and leverage financial support."

It also gave the government greater control over the potential outcome of another terrorist attack. Called the Homeland Security Center for Risk and Economic Analysis of Terrorism Events,



the new center was granted \$12 million over three years to develop a computer model and other tools that the government could use to identify a hypothetical terrorist attack on a single city block or address; analyze the risk of an attack by location and type; study how to protect critical infrastructure, including power, transportation and telecommunications; and develop new tools for planning responses to threats, such as explosives and chemical, biological, nuclear, radiological and cyber attacks.

The center will also look at ways to minimize economic damage and save lives in case of an attack.

"It's exciting to be first," said Dr. Detlof von Winterfeldt, co-director of the USC center. "We can define the way to conduct research with DHS. We are able to set standards and get involved with future centers, and we can help future centers get started."

According to Mel Bernstein, director of University Programs, the DHS could establish a total of eight topically based HS-Centers, and Michelle Petrovich, DHS spokesperson, said there could be as many as four centers selected in 2004. So far, however, only two have been chosen.

In April, the DHS selected Texas A&M University and the University of Minnesota as its HS-Centers for agro-security. The National Center for Foreign Animal and Zoonotic Disease Defense — located at Texas A&M — and its industry, government and university partners, including the University of Texas Medical Branch, the University of California at Davis, the University of Southern California and the University of Maryland, will receive \$18 million during the next three years to study "high consequence" foreign animal and zoonotic diseases, diseases that animals can pass to humans, and the threats they pose to animal agriculture. Under the leadership of Dr. Neville Clarke, the center expects to complete 30 projects in the first three years, focusing on the top three diseases that threaten the country: foot and mouth disease, Rift Valley Fever and avian influenza. The center's work will include evaluating biological research and outcomes and developing databases and models that can help predict needs, treatment and testing.

The University Center for Post-Harvest Food Protection and Defense, established at the University of Minnesota, will work with major food companies and other universities — Michigan State University, University of Wisconsin at Madison, North Dakota State University, Georgia Institute of Technology, Rutgers University, Harvard University, University of Tennessee, Cornell University, Purdue University and North Carolina University — to spend its \$15 million (over three years) protecting the nation's food supply — on farms, in plants, and in stores — from intentional contamination. Dr. Francis Busta of the University of Minnesota's Department of Food Science and Nutrition will head the center.

HS-Center number four, when selected, will receive \$12 million over three years to study the behavior and social aspects of terrorists and the behavioral and social impact that threats and attacks have on populations. The DHS released the BAA for this new HS-Center in July and expects interested universities to submit letters of intent identifying their strengths and current activities by the end of July and full proposals by September 30. A selection will most likely be made within six months.

## THE OTHERS

Not all interested universities are chosen to directly partner with the DHS, of course, and individuals eager to participate must find other ways to get involved.

Seven professors from seven different universities found such an opportunity in the Homeland Security Science and Technology Advisory Committee (HSSTAC). Mandated by the Homeland Security Act of 2002, the HSSTAC was established by the Science and Technology Division in February 2004 and populated with 20 experts with emergency response, research, engineering and business backgrounds.

Dr. William Happer, HSSTAC member and physics professor at Princeton University, said the goal of the committee is simple: "Provide independent, expert advice from outside the beltway to the DHS leadership."

That means at least four times a year this committee of professors, business executives, scientists, engineers and law enforcement officers — all appointed because of their fields of study and records of service — will evaluate the Science and Technology Division's goals, programs, and activities to ensure that they support the DHS mission.

What that entails, member Dr. Baruch Fischhoff, professor of social and decision sciences at Howard Heinz University and professor of engineering and public policy at Carnegie Mellon University, won't say. Unlike the Environmental Protection Agency committee he serves, the HSSTAC requires a security clearance. "I don't know what's been made public yet," he said.

What he does know is how fortunate he is to have received his appointment.

"In the academic community, there are a lot of people saying, 'What do I do, How do I get involved?'" Fischhoff said. "The academic community is ready to serve but struggling to figure out how it works."

## THE STUDENTS

Last year, the Office of University Programs began pursuing its other goal, to turn the nation's top students into a generation of homeland security savvy scientists. To encourage students to pursue degrees in science ... or at least make the prospect more appealing ... the Office of University Programs and the Oak Ridge Institute for Science and Education developed a scholarship and fellowship program they hoped would generate interest. The program offered paid tuition for science-related studies, monthly stipends, and an opportunity to complete a 10-week, full-time internship with a homeland security agency. It worked.

"I heard about the DHS fellowship program from two sources," said George Washington University student and 2003 Fellow recipient Sina Lehmkuhler. "First, I received an e-mail from my university announcing that there was a fellowship opportunity for students interested in homeland security. Second, I was working for ANSER Institute for Homeland Security at the time and they had the information posted in their



Dr. Detlof von Winterfeldt,  
Co-director of USC center

Credit: Kelly Gribben, USC

newsletter.”

More than 2,500 students applied. Only 101 students were selected, however, and in September 2003, the DHS released the names of 51 undergraduates from 24 states awarded Homeland Security scholarships and 50 graduates from 27 states awarded Homeland Security fellowships. That fall, the students took their interests and their government support to 68 different universities, studying everything from chemistry at Oakland University and mechanical engineering at Polytechnic University, to environmental studies at the University of Maryland and data mining at Boston University.

As is required by the program, all of the selected students enrolled in accredited colleges and universities in the United States. They all met the U.S. citizenship requirement, the class requirement (scholars must be entering juniors; fellows must be freshmen or sophomores), the full-time student requirement, and the minimum grade point average: 3.3 or better on a scale of 4.0. None of the students may be or are active members of the military, and all students

are encouraged to accept employment with a DHS agency or DHS-related agency or facility after graduation.

The only difference between the scholars and the fellows is money. Scholars receive a \$1,000 a month stipend for nine months; fellows receive \$2,300 a month for 12.

## THE SCHOOLS

Where the as-yet-unannounced class of 2004 scholars and fellows and other homeland security-minded students will study — and what they will study — in the upcoming academic year will likely vary substantially from 2003. Driven by the government’s desire to expand the field of homeland security experts and by their own desire to produce those professionals, schools across the country have enriched and expanded their course and program offerings to meet the needs of an evolving workforce.

Some new homeland security programs grow as natural extensions to existing offerings. Kaplan College, for example, provides several online degrees and certificates in law enforcement and security: Bachelor of

Science in Criminal Justice, Associate of Applied Science in Criminal Justice, and Crime Scene Technician Certificate. The school’s Terrorism and National Security Management Certificate, a 36-credit program featuring such courses as criminology and world conflict, easily builds on Kaplan’s criminal justice foundation.

Other education programs enlist help from experts to build their new homeland security programs. Myers University, an online institution based out of Cleveland, Ohio, for example, instructs students on security issues and terrorism for its Certificate of Homeland Security through its own courses, but Myers requires students to complete three modules (nine courses) from the Federal Emergency Management Agency’s Emergency Management Institute.

Onondaga Community College in Syracuse, N.Y., hired Tom Creamer, an “international expert in domestic preparedness, weapons of mass destruction, and hazardous materials response,” to head its Counter-Terrorism Program, a move that the American Association for Community Colleges (AACC) no doubt applauds. The AACC,



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which says that approximately 85 percent of all first responders receive their education at a community college, created a 21-member task force this January to determine the number and extent of existing homeland security efforts at community colleges and the need to develop new homeland security-related programs.

Other academic institutions rely on existing on-campus expertise for their homeland security programs. The University of Southern California announced its new Master's Degree in System Safety and Security this summer. Offered for the first time this fall, the program feeds off USC's own experts and curriculum strengths and aligns with the mission of the school's Homeland Security Center of Excellence. The system safety and security degree requires completion of five core courses in risk management, economic analysis, decision analysis, program management, and policy; three courses in system safety or security; and one elective. USC is also offering a certificate version of the program to aerospace and defense engineers through the School of Engineering's e-learning program.

Proven experience and success in traditional coursework, however, does not guarantee success in the new homeland security arena. Last summer, the Johns Hopkins University part-time engineering program announced the creation of a new homeland-security-focused program. The six course Homeland Security Graduate Certificate integrated new courses from established departments: applied physics, applied biomedical engineering, applied and computational mathematics, environmental engineering and science, and systems engineering. Expectations were high. Interest was low. In fact, the program, which was supposed to debut this fall, has been pulled from the university's public offerings.

"I believe the general issue is that the term 'homeland security' is still not well defined from an education perspective," said Sarah Steinberg, executive director of the Johns Hopkins Whiting School of Engineering. "Different people are expecting different topics to be covered, and I think we need better guidance from the potential students and employers as to what they

would expect from a degree/certificate that would have a focus on homeland security from the perspective of systems engineering."



Dr. Randolph Hall, Co-director of USC center

As part of their re-evaluation, the administrators of the engineering program are working with local companies to restructure the certificate and the required courses. Steinberg said JHU will likely offer the revised certificate through company partnerships before opening it to the public.

The true impact of education and government efforts on that cancer called terrorism will not be fully revealed for at least another three years — after the HS-Centers have spent their millions ... after homeland security certificate and degree programs have changed, disappeared, emerged and produced graduates ... after Homeland Security scholars and fellows have entered the workforce and found their niches. Only then can the academic community assess its procedures, analyze their outcomes and determine its prognosis for the future. HDJ

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