University of Maryland University College
Office of the Provost

Written Testimony
US Senate Committee on
Small Business and Entrepreneurship
July 25, 2011

Good morning Chairman Cardin and members of the Small Business and Entrepreneurship Committee. I am grateful for the opportunity to speak with you about the University of Maryland University College (UMUC) and its commitment to educate cybersecurity professionals with advanced skills, a significant number of whom will use their knowledge to further small business expansion, both here in Maryland and throughout the United States.

I am Dr. Greg von Lehmen, and as Provost of UMUC, I led the university's successful efforts to launch three cybersecurity degree programs, in collaboration with a team of public and private sector industry leaders. Thanks to their tremendous input, these programs are specifically mapped to professional standards and expectations in this high demand field, an important distinction when it comes to effectively meeting critical state and national workforce needs.

As the largest public university in the United States, and one of 11 degree-granting institutions within the University System of Maryland, UMUC was created 64 years ago to meet the unique academic needs of working adults. Today, it serves 94,000 students in 28 countries and all 50 states, about 40,000 of whom are active duty military service members, veterans, and their families. These remarkable men and women take classes onsite in more than 150 locations – including military bases in Iraq and Afghanistan – and online through our award-winning virtual campus, one of oldest, largest, and fastest growing in the world.

For the most part, UMUC students are in their thirties and forties. Four out of five of them work fulltime; nearly half are married with children; more than half are women; and well more than one-third are self-identified minority group members. Unlike their traditional, college-aged counterparts, the vast majority of them are seeking academic opportunities that support professional advancement in their chosen fields. And in tough job markets such as this one, many of these students want to change careers altogether.

Consequently, in providing them with highly marketable credentials, UMUC has developed an academic model that enables it to rapidly respond to critical

3501 University Boulevard East, Adelphi, MD 20783-8001 USA
301-985-7174 ▪ Fax 301-985-6432 ▪ www.umuc.edu

workforce development needs, *as* and *where* they emerge, with career-ready degree and certificate programs. With that in mind, the university uses two proven strategies to ensure that these programs are up to speed. In identifying appropriate learning outcomes and designing suitable curriculum, UMUC's academic leadership works closely with its vast network of public and private sector industry learning partners, which include many of the area's largest government agencies and corporations. Moreover, UMUC relies heavily on adjunct instructors, who as "scholar-practitioners," are experienced knowledge leaders in their fields. These distinguished faculty members boast academic credentials from some of the world's leading universities, and many of them have attained regional, national, or international recognition for their professional accomplishments. In addition, sixty-nine percent of our faculty members hold doctoral or other terminal degrees.

Over the years, UMUC has helped thousands of its students spread their entrepreneurial wings by investing in academic programs and resources, designed to furnish them with both the relevant knowledge and the practical skills they need to effectively run their own businesses. The university is especially proud of its Entrepreneur Development Center at Dorsey Station, a joint project with three of the Washington Metropolitan area's most successful independent businesspeople.

This center provides continuing education and professional networking opportunities for small business owners interested in broadening their entrepreneurial horizons. UMUC also administers a special Minority Business Enterprise scholarship fund, and co-sponsors Maryland's Top 100 Minority Business Enterprise Award, in conjunction with the Governor's Office of Minority Affairs and the Maryland Chamber of Commerce.

UMUC began offering leading-edge computer science and information technology degree programs as the demand for qualified IT professionals began to escalate, a trend that spawned an abundance of small businesses in Maryland. Moreover, given UMUC's proximity to and ongoing relationships with such federal agencies as the National Security Agency, the Department of Defense, and the Department of Homeland Security, the university has become a leader in information assurance education.

In fact, UMUC is one of only 147 institutions out of more than 4,300 U.S. colleges and universities to be designated as a National Security Agency/Department of Homeland Security Center of Academic Excellence in Information Assurance Education. As such, the university provides academic coursework that is designed to meet federal agency standards in this specialized discipline.

Not surprisingly then, cybersecurity was the natural next step in expanding UMUC's already solid portfolio of IT-related degree and certificate programs, especially given the projected need for highly skilled cybersecurity professionals to fill tens of thousands of jobs, many of which will be located in Maryland. This burgeoning field also offers tremendous growth potential for small business owners interested in providing contractual cybersecurity services to public agencies, private corporations, and non-profit organizations.

Upon scanning the higher education landscape, UMUC's academic leadership found that there were certainly other respected universities conducting research and/or furnishing coursework in information security. None of them, however, offered undergraduate or graduate degree programs specifically in cybersecurity, despite strong recommendations for such workforce development options from the CSIS Commission on Cyber Security for the 44th Presidency and the Maryland Department of Business and Economic Development.

Consequently, in meeting the challenge, UMUC worked closely with a group of nationally recognized, public and private sector industry leaders, to map its curriculum against professional standards and expectations in the field. This effort produced two master of science degree programs in Cybersecurity and Cybersecurity Policy, as well as a bachelor of science degree program in Cybersecurity, all of which are furnished predominantly online to maximize student outreach and enrollment capacity.

Designed to prepare *complete* professionals, armed with advanced skills in secure system design, strategic cyber defense, and public policy development, these programs offer both a market-driven curriculum and an interactive learning environment. UMUC has also built a remote access Cyber Virtual Lab, which affords students a unique opportunity to experiment *from a distance,* using real world scenarios and hands-on applications to detect and combat simulated cyber attacks. And like the university's acclaimed Systems Security Lab, it was developed by Dr. Jim Chen, UMUC's information assurance program director and a University System of Maryland Faculty Member of the Year Award winner.

Likewise, UMUC has recruited an exceptional group of scholar-practitioners for its cybersecurity faculty. This faculty comprises such recognized experts as Dr. Joon Sun, who came from the Johns Hopkins University Applied Physics Lab, where she worked as an information security research engineer, and Dr. Christopher Feudo, who is developing a secure enterprise architecture for the National Nuclear Security Administration. UMUC has also signed "two plus two" articulation agreements with several community colleges that now offer associate's degree programs in

cybersecurity, including Anne Arundel Community College and Howard Community College in Maryland, and Bossier Parish Community College in Louisiana.

UMUC plays a key role in supporting Governor Martin O'Malley's plan to position Maryland as the nation's epicenter for cybersecurity. In conjunction with the Anne Arundel Workforce Development Corporation, the university provides academic support to individuals interested in pursuing professional certifications in the cybersecurity field.

Additionally, it is an active member of the Pathways to Cybersecurity Careers Consortium, which includes a significant number of regional IT firms, several local community colleges, and such state agencies as the Maryland Department of Business and Economic Development and the Maryland Governor's Workforce Investment Board. UMUC also serves on the advisory board for the homeland security program at Meade High School (on post at Fort Meade), which is mapped directly to the cybersecurity program at Anne Arundel Community College.

Now less than a year after launching its cyber education initiative, UMUC has received widespread recognition for its efforts, including a prominent mention in the November 2010 report from the CSIS Commission on Cybersecurity for the 44th Presidency. It has built a dedicated cybersecurity scholarship fund in the amount of $1.2 million; and was selected by the Armed Forces Communications and Electronics Association, or AFCEA, to serve as its exclusive provider for online cybersecurity programs.

Even more impressive, since unveiling its new programs, UMUC has already received more than 3,500 applications, and enrolled close to 2,200 students, nearly half of whom are completing one of the two graduate degree programs in cybersecurity. According to a recent survey, around sixty percent of these graduate students have five years or more professional experience in IT, while twenty-nine percent report spending at least five years working in information assurance, computer security, or cybersecurity.

Well over half of these students, or fifty eight percent, are currently employed by the military, the Federal government, or one of its many independent contractors; and another twenty percent of them work in the non-governmental private sector. In addition, half of those surveyed had earned an industry or professional certification in their field, and sixty-one percent held a security clearance.

Of course, given past experience, UMUC knows that at least some segment of these enterprising men and women are interested in using what they learn to launch their own businesses.

For instance, one of our graduate students is pursuing his master of science degree in cybersecurity as a prelude to starting his own Maryland-based consulting firm down the road, after spending more than 27 years as a civilian employee with the U.S. Navy, where he worked in intelligence security. And while he has gained solid experience on the cybersecurity public policy side, he wants to acquire the technical skills he will need to provide private corporations with a full spectrum of cybersecurity consulting services. In the meantime, he continues to hone his business management expertise as an executive with one of the Washington area's large government contracting firms.

Yet another one of UMUC's graduate students plans to enter the small business arena, once he finishes his master's program in cybersecurity. A 20-year military veteran, he now works on the civilian side, as a federal contractor in the communications security area. After completing his degree, he hopes to explore his entrepreneurial side, as an independent business owner in Hagerstown, Maryland, building secure information systems.

And as always, UMUC will continue to support their professional goals in the years to come, by providing these outstanding students with other academic programs and resources they may need to operate their businesses successfully.