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Welcome

Welcome to the second edition of the iMPS-HLS Program Newsletter. We received a number of positive comments regarding our first edition. So, thank you for your feedback. Please keep it coming.

As you will see in Dr. Siedschlag’s column below, the iMPS-HLS Program continues at a robust pace during the summer; faculty, staff, and students all remain fully engaged. There is nearly a full complement of courses being offered, new courses are being developed, special events are being planned, the Academic Steering Committee continues to meet to ensure the Program remains vibrant, and the staff continues to process new applications and helps all of us prepare for the inevitable “next semester.”

If you have the opportunity, please take the time to thank a member of the Admin Support, Admissions, or World Campus Staff. They do a terrific job managing hundreds of students from the initial inquiry, through the application process, and all the way through to graduation.

Speaking of graduation, spring semester 2014 saw the largest iMPS-HLS graduating cohort to date with 54 graduates. Congratulations! You should be proud of your achievements.

I will continue to solicit input for the Newsletter. I am especially interested in hearing from our graduates. Please let me know if you want to contribute. Thanks.

Tom Arminio
Program Coordinator

Important Dates:

- Short Course HLS—An Update in Research and Trends, Aug. 4-7, 2014
- HLS Short Course at American Political Science Association Meeting, Aug. 27, 2014
- Cybersecurity Tabletop Exercise (TTX), Sept. 18, 2014
- Fall Career Days, Bryce Jordan Center, University Park, Sept. 16-18, 2014

See Upcoming Events

https://www.facebook.com/PSU.HLS
Message from the iMPS-HLS Program Chair

I hope you are having a great summer! The Inter-college Master of Professional Studies in Homeland Security (iMPS-HLS) Program, as it is known today, has recently celebrated its 5th anniversary and graduated 233 students so far. Since this means both satisfaction and incentive to us, we took advantage of the summer to launch a few initiatives to enhance our curriculum. It remains our goal to provide select graduate students with an integrated, cross-disciplinary curriculum that is focused on a set of unified educational goals to help them understand and manage the complexities of an evolving, dynamic, and global homeland security environment.

We are updating our core courses on homeland security administration, policies and programs; on ethical aspects of homeland security; and on violence and terrorism to reflect recent developments in the field. We increased coverage of critical infrastructure protection in our curriculum, as well as visited several conferences to present our program. We obtained the latest news and views from end-users and stakeholders in the homeland security enterprise about trends in the mission space, as well as information regarding mission-critical jobs of the future. This included the 6th Annual National Homeland Security Conference in Philadelphia, PA and the 16th Annual Emergency Management Higher Education Conference at the Emergency Management Institute in Emmitsburg, MD. We also have new permanent courses under development, which will be covering aspects such as homeland security law, defense support of civil authorities, and comparative homeland security (see p. 9).

For the first time, we will also offer an optional residential course at Penn State Harrisburg this summer (August 4-8), on updates in research and trends in homeland security (see p. 14 for details). This will be a Continuing Education offering to our alumni and others interested in professional development. However, the course also includes a credit-earning track for interested iMPS-HLS and other students. Based on an all-hazards approach, this course will provide a cross-disciplinary overview of current trends in homeland security and its evolving mission space - including in comparison to other countries, as well as in the overarching perspective of civil security. The course has a modular structure with lectures and micro-seminars given by Penn State faculty and external experts, including from the U.S. Homeland Security Enterprise and Penn State Harrisburg’s Homeland Security Academic Advisory Council. The course also comprises interactive syndicate group work, networking receptions, and an internship information and placement service session.

This brings me to my next point: we take particular pride in the launch of our new program-wide internship initiative that will be accompanied by a credit-earning 500-level course that will be offered starting this fall (see p. 9 for details)! This optional program will provide a unique opportunity to apply results from classroom learning in a real-world setting. It will focus on experiential learning accompanied by workplace supervision, as well as academic mentoring. The internship experience will add to students’ employability, as well as to the close connection of the program with real-world end-users in homeland security.

You probably already know our Facebook page https://www.facebook.com/PSU.HLS; but did you know that we also started a student blog in a Facebook group which current students, as well as alumni are invited to join to share information? Go to https://www.facebook.com/groups/imps.hls to request access.

Let us know if you are interested in learning more about our initiatives. We are proud to serve you.

I wish you all the best for your academic endeavors in the rest of the summer session and in fall 2014!

Alexander Siedschlag, Ph.D.
Updates from the Field:  
Emerging Issues and Current Trends
Critical Infrastructure Symposium 2014
The Infrastructure Security Partnership
Colorado Springs, Colorado

By K. Denise Rucker Krepp

In April, Penn State Adjunct Professor K. Denise Rucker Krepp presented a paper at the Critical Infrastructure Symposium 2014 on the crumbling nature of the maritime industry and its impacts on homeland security.

Ms. Krepp reminded attendees that the U.S. government’s maritime strategy for the past 13 years has focused on preventing and responding to foreign terrorist attacks on the nation’s ports and waterway systems. Congress mandated new requirements and funding was appropriated to implement these measures. The same attention was not given to the underlying maritime infrastructure and domestic workforce. Ms. Krepp argued that the lack of attention has left the country vulnerable and if left unchanged, will expose Americans to more significant threats.

After September 11, 2001, Congress mandated new security measures to protect the nation’s maritime industry from a terrorist attack. These measures, found in the Maritime Transportation Security Act of 2002 included vulnerability assessments, security plans, and transportation worker identification credentials. Congress mandated these requirements because it was concerned that existing security measures were not sufficient to prevent September 11th type attacks on the nation’s ports and waterway systems.

Sadly, the same attention was not given to the underlying maritime infrastructure. According to the Economist (2013), 70 percent of the nation’s imports and 75 percent of our exports go through seaports. The ports, however, have not been modernized in many years. Similarly, the port harbors and river channels have not been dredged. The lack of dredging and modernization has created the opportunity for Canadian, Mexican, and Caribbean ports to gain market share from U.S. ports and U.S. maritime-related jobs to disappear.

Maritime land-side infrastructure got a boost when the White House announced in 2012 that the Administration was expediting seven infrastructure projects to modernize and expand five ports—Jacksonville, Miami, Savannah, Charleston, and New York, and New Jersey. That same year, Congress also directed the Department of Transportation to create a national freight policy in the Moving Ahead for Progress in the 21st Century Act (MAP 21).

Little attention has been paid to the men and women who crew U.S. ocean-going vessels and the U.S. owned and operated vessels themselves. These men and women support military deployments. They are the ones who transport the military’s ammunition and armor. They are also the ones who bring the military assets home after the war is over. This fleet is dying and the Obama Administration, instead of supporting it, is helping to speed up its demise.

In fall 2008, then Senator Obama told the Seafarers International Union that “America needs a strong and vibrant U.S.-flag merchant marine.” Senator Obama also stated that “American Merchant Mariners always have answered the nation’s call from the first days of the Revolutionary War to today. In peace and in war, our Mariners have stood with us and my Administration will stand with them.”

Instead of advocating for the U.S. merchant fleet, the Obama Administration has advocated against it. In the summer of 2011, the Administration released 30 million barrels of oil from the Strategic Petroleum Reserve (SPR). The Department of Energy developed the SPR release plan that did not utilize U.S. vessels. Only 150,000 barrels moved on a U.S. ship, the remainder was transported via foreign flagged vessels.

More recently, there has been a push to use U.S. vessels and crews to export the growing amount U.S. liquefied natural gas (LNG). Representative John Garamendi introduced an amendment to the Coast Guard and Maritime Transportation Act of 2014 that would require this usage. After his fellow members opposed the amendment, Representative Garamendi’s withdrew it from consideration stating that timidity is leading to the decline of the maritime industry.

The United States isn’t the only country that is cutting its blue water fleet. In the 1990s, the Canadian government scaled back its sealift capacity so significantly that it could no longer transport its military assets on Canadian flagged vessels. Instead, it was forced to move its assets on non-Canadian ships that it couldn’t control. The problems associated with lack of control were highlighted when the Canadian government was forced to land marines on a merchant vessel that was transporting Canadian soldiers and one-tenth of Canada’s armored assets. The owner of the ship had refused to offload the shipment because of nonpayment of a shipping bill.

The U.S. is heading towards a Canada-like situation. The vessels that support military deployment are the same vessels that support U.S. food aid programs and other government financed initiatives. The programs can’t be decoupled without significant ramifications. Specifically, the government can’t cut ships and then expect to transport military goods on U.S. flagged vessels. They won’t be there and the government will be forced to use vessels it doesn’t control.

To prevent further erosion of the U.S. merchant marine industry, Ms. Krepp recommended that agency budgets and political appointee salaries should be linked to the completion of funding, policies, and strategies. MAP 21 included a provision that requires accelerated decision making and agencies who do not meet deadlines are penalized. Similar requirements should be mandated for the national freight policy and cargo preference rulemaking. (cont’d)
Updates from the Field: 
Emerging Issues and Current Trends

Critical Infrastructure Symposium 2014
The Infrastructure Security Partnership
(cont’d)

In addition, Ms. Krepp recommended that President Obama using current authority should direct the Department of Energy and the Maritime Administration to link approval of on-shore and off-shore LNG export facility applications to the use of U.S. crews and vessels. Thousands of Americans are employed extracting the valuable substance and many more should be used transporting it and building more ships to move it. Mandating their employment creates jobs and ensures that an important part of our nation’s maritime heritage is preserved.

K. Denise Rucker Krepp is a homeland security and transportation expert who began her career as an active duty Coast Guard officer in 1998. After September 11, 2001, Ms. Krepp was a member of the team that was instrumental in the creation of TSA as well as DHS. Ms. Krepp joined the House of Representatives’ Homeland Security Committee in 2005. In her role as Senior Counsel, Ms. Krepp advised members on homeland defense and maritime security issues. Ms. Krepp served as Chief Counsel at the U.S. Maritime Administration during the first Obama administration. She is currently a private consultant and contract faculty member at Penn State. Ms. Krepp also serves on the Board of Directors for The Infrastructure Security Partnership.

K. Denise Rucker Krepp

Rail Infrastructure and the Bulk Transport of Crude Oil*

Richard R. Young, Ph.D., FCILT
Jeremy F. Plant, Ph.D.

A dramatic increase in the transport of any commodity might appear in the business news, but with several major disasters within a few months, especially when there is a major loss of life as well as environmental impact, makes for major headlines and lead stories. This research sought to gain understanding of the causes of the mishaps, provide insights into the solutions that are already being applied, and to consider the greater issue of longer-term threats to critical rail infrastructure.

Within the past decade the petroleum industry has seen major advances in extractive technologies that has enabled the use major known reserves that were heretofore uneconomical. Moving crude oil from wellhead to refinery is a critical link in the petroleum supply chain, but with the federal government’s reluctance to approve building the requisite pipelines, the next best alternative was the railroads. During the five years between 2008 and 2013 carloads of crude oil grew from 9,500 to over 400,000, or by a factor of 42 times.

Crude oil is classified “flammable” and must be transported in cars placarded as UN 1267 per applicable federal regulations, specifically 49 CFR. In summer 2013, there was a derailment at Lac-Mégantic, Quebec where the ensuing disaster killed 47 persons and devastated much of the town. Aside from the operational matters of a single person crew for the train and the failure to set the brakes on the railcars in addition to the locomotives, investigators began to better understand that crude oil can have a wide range of characteristics that may cause some to be more hazardous than others. While some crude oils can be highly viscous and do not flow easily during some seasons unless heated, there are others that may be more characteristic of refined fuels and emit highly flammable vapors.

The second key factor is that demand has exceeded the supply of appropriate railcars. The standard at the time was known as the DOT111, which typically has a capacity of 20,000 to 30,000 gallons and among safety related features has non-overriding couplers to minimize the probability that one car will pierce the vessel of an adjacent one in the event of a derailment. From an operational perspective, decades ago, in seeking to improve their asset utilization, the railroads would not any longer invest in owning tank cars, instead relied on the oil and chemical industries to do so. Of the nearly 92,000 car fleet capable of transporting flammable materials, of which crude oil is just one category, virtually all are non-railroad owned.

The third key issue again relates to the volume of crude oil. Whereas many flammables may move as either a single car or even a group of perhaps five to ten cars, crude now moves as entire unit trains of 100 cars or more. The disaster in Quebec was such an occurrence with a 100 car train representing more than three million gallons.

Various regulatory actions taken in the past year, both by industry and government, include new tank car standards that upgrade DOT 111 tank cars to have full-height head shields to further protect the ends of the cars, double wall vessels, and relocated valves and fittings whereby valves are better protected from being sheared off. Of the 92,000 tank cars, the industry estimates that nearly 85,000 are substandard and in need of upgrades. While upgrades appear to be a solution, their cost is estimated to exceed the cost of a new car.

Moreover, the demand for new cars is now backlogged several years, which means that many of the facilities needed to do upgrade work are out of available capacity. Finally, the railroads have placed surcharges on the move of the older, substandard cars; the Federal Railroad Administration has imposed a 50 mph speed limit on what it calls “key trains” or those with 20 or more crude carrying cars or even just one crude carrying substandard DOT 111 car. (cont’d)
Updates from the Field:

Rail Infrastructure and the Bulk Transport of Crude Oil* (cont’d)

Insofar as protecting rail infrastructure is concerned, the movements of crude oil will continue, but also continue as unit trains. Eventually, these will be far safer than they are today. From a terrorism perspective, these unit trains, no matter what the tank car standard, will be viewed as large targets. Keeping them out of HTUAs (high threat urban areas) will prove difficult because many refineries are to be found there.

The accident problem is the result of dual capacity constraints, the first being transportation mode; the second being the quantity of tank cars built to acceptable standards. The target problem is one that will require additional resources to address, but also additional research into available options.

* This research was presented at the 2014 Symposium of The Infrastructure Security Partnership held in Colorado Springs. Dr. Young is Professor of Supply Chain Management, School of Business Administration, Penn State Harrisburg; Dr. Plant is Professor of Public Policy and Administration, School of Public Affairs, Penn State Harrisburg. Their long-time collaborative research on railroad infrastructure has resulted in research grants, presentations, book chapters, and their own book contract.

Mass Evacuation Conference

By Robert Kabata, Pennsylvania Department of Health and iMPS-HLS student (PHP Option)

On April 29, 2014, Pennsylvania’s South Central Task Force (SCTF) hosted its second annual Mass Evacuation Planning Workshop in Lancaster County, Pennsylvania. The purpose of the workshop was to foster an interdisciplinary exchange of ideas surrounding the complexity of evacuation issues, specifically those that concern a mass evacuation in the geographic region of South Central Pennsylvania. The workshop brought together experts in the fields of transportation and emergency management to discuss focused planning that is necessary to accommodate the needs of the whole community of stakeholders in the region.

The SCTF is one of nine Regional Task Forces/Emergency Response Groups in Pennsylvania. The SCTF includes eight counties in south central Pennsylvania – Adams, Cumberland, Dauphin, Franklin, Lancaster, Lebanon, Perry and York, with an estimated population of 1.8 million people.

Mass Evacuation Subcommittee Chair Arthur Kaplan spoke on the focus of the conference, “The South Central Task Force prides itself on bringing individuals and agencies together for training and education through classes, exercises, and workshops. Our subcommittee on mass evacuation attempts to provide our stakeholders with current information on best practices and lessons learned at an annual workshop. We bring subject matter experts from across the region, the state and the country to develop a robust schedule to allow us to be better prepared for a large scale evacuation, from within the SCTF boundaries or to our region, from bordering communities.”

The Workshop’s Keynote Speaker was Chester G. Wilmot, Ph.D., Professor of Civil and Environmental Engineering, Louisiana State University. Dr. Wilmot spoke on past transportation route experiences during hurricane evacuations, ways normal and planned traffic patterns are altered, and various methods that can be used to anticipate and mitigate transportation disruptions during evacuations.

Plenary sessions included a variety of in-state and out-of-state evacuations topics. The Pennsylvania Department of Transportation briefed attendees on the department’s Regional Response and Traffic Incident Management initiatives. The Pennsylvania Department of Community & Economic Development provided recovery resource planning information that would be needed upon conclusion of the evacuation and people return to their homes. The University of Maryland’s Center for Advanced Transportation Technology Laboratory demonstrated real world emergency management usage of their Regional Integrated Transportation Information System that allows transportation managers real-time updates of traffic patterns, road closures and delays. This information allows traffic system managers the ability to direct and divert traffic immediately to reduce backlog.

Several breakout sessions provided specific updates on key initiatives. The SCTF Agriculture Subcommittee gave participants information on special considerations for animal evacuations during disasters. Representatives from Maryland discussed methods bordering states can use to allow for a smooth transition of evacuees across state lines. There was a joint presentation between the Pennsylvania Department of Health and Department of Public Welfare, which provided an update on the newly formed State Managed Shelter Program that would provide support to counties and the American Red Cross during large sheltering operations for displaced populations that may result following a mass evacuation. The Hospital and Healthsystem Association of Pennsylvania provided an overview of the Department of Health’s web-based Knowledge Center-Health Incident Management System on how that program could be used to track evacuees. (cont’d)
Updates from the Field:

Mass Evacuation Conference (cont’d)

An integrated and carefully constructed Mass Evacuation program is a key concern in south central Pennsylvania. The 1979 accident at the Three Mile Island Nuclear Facility is a constant reminder to emergency planners of the necessity to have well exercised and updated evacuation plans. The SCTF is home to another nuclear facility at Peach Bottom, and is within 50 miles of several more nuclear-powered facilities located in Maryland and Pennsylvania. In the past several years the region has been severely impacted by natural disasters such as hurricanes, tropical storms, and ice storms that caused disruptions to both the transportation and electrical grids.

Additionally, the SCTF is located between three large Metropolitan Statistical Areas – Pittsburgh to the west, Philadelphia to the east and Baltimore/Washington on its southern border. A major natural disaster or significant terrorist attack in any of those regions could potentially lead to hundreds of thousands of evacuees into or through the region.

Photo: Ready.gov

Update on the Environmental Security and Climate Change Roundtable

by Kent Butts, Ph.D.

On 18 and 19 February 2014, Dr. Kent Butts, faculty member in the iMPS-HLS Base Program, in partnership with Dr. Jim Ramsay of Embry-Riddle Aeronautical University, gathered a number of environmental security and climate change experts at Penn State Harrisburg to discuss these pressing issues. The purpose of the roundtable was to allow experts to examine the role of climate change in national security, as well as examine the specific variables of homeland security and recommend priority policy and research areas.

The era of outspoken climate change denial has passed in Washington, DC. The extreme weather events of the last three years has led to a majority of United States citizens accepting the reality of global warming. However, courses of action to address climate change are still being debated along with the allocation of resources. There are several areas of concern that affect the homeland security enterprise and these will likely require Interagency cooperation to address: the Arctic; domestic disaster preparedness and response; and climate related instability in the “abroad.”

President Obama’s Executive Order (EO) 13514, Federal Leadership in Environmental, Energy and Economic Performance (October 2009), requires federal departments and agencies to develop a climate change roadmap that details how climate change would affect their organization and how the organization should respond. The Department of Homeland Security (DHS) developed a Climate Change Adaptation Roadmap in 2012 that clearly identifies climate change challenges for DHS equities and identifies other agencies, states, and local entities that should be involved in a cooperative effort to meet those challenges.

The DHS Roadmap paid particular attention to the climate change threat in the Arctic and was written in a way that supports the United States National Strategy for the Arctic Region (2013). The high rate of melt for Arctic ice has resulted in the establishment of northern transport corridors that are active in warmer months and offer significantly shorter transit times for resource shipments to strategically important countries such as China. The United States Geological Survey (USGS) estimates that between 25 and 30% of world petroleum and natural gas resources may be found in the Arctic. Russia, even before its geopolitical maneuvering in the Ukraine on the Crimea, declared the Arctic to be Russian. It is partnering with EXXON Mobil to begin drilling the Kara Sea in the Russian Arctic this summer, and is establishing military bases there. The U.S. Navy has no icebreakers and depends on the Coast Guard for that and other basing support. A complicating factor in U.S. management of the Arctic threat is that the United States has never ratified the United Nations Law of the Sea Convention (UNCLOS) that will be the basis for future negotiations on territorial control and the projection of power in this new theater. The Department of Defense (DOD) and the Coast Guard (USCG) both have Arctic Strategies that help to clarify how the agencies will achieve their Arctic missions. See http://www.defense.gov/pubs/2013_Arctic_Strategy.pdf and http://www.uscg.mil/seniorleadership/DOCS/CG_Arctic_Strategy.pdf for additional information.

Perhaps the most recognized climate related mission for DHS is disaster preparedness and response. Chronic drought, extreme weather, and super storms, have become expected occurrences in the United States and measures of effectiveness for the Federal Emergency Management Agency (FEMA). Terms such as sustainability and resilience are regularly addressed in emerging policy and not just at the federal level; state and local governments, nongovernmental organizations and the private sector struggle to protect critical infrastructure and prepare to respond to once rare natural disasters, as well as defending against terrorist attacks.

Often overlooked is the impact of climate change in the “abroad” and its implications for homeland security. Waterborne and vector born diseases are affected by increased temperature and rainfall, making biosurveillance by the Centers for Disease Control and Prevention (CDC) and the Defense Threat Reduction Agency (DTRA) important to DHS equities. (cont’d)
Updates from the Field:

Update on the Environmental Security and Climate Change Roundtable (cont’d)

In addition to the spread of disease, the impact of climate change on poverty, food security, and environmental degradation heighten existing tensions and erode the legitimacy of fragile or failing states. The spread of extremist groups across drought-plagued North Africa and the growth of ungoverned spaces suitable for terrorist training bases are exacerbated by this phenomenon. While climate change contributes to the underlying conditions of terrorism it also adds to migratory pressures, sending easily infiltrated masses toward the borders of Western industrialized countries and overburdened, regional urban areas.

As the effects of climate change increase, so does the need for interagency and inter-organizational cooperation with DHS and further inter-disciplinary research on the impact of climate change on homeland security. The complexity of the climate change phenomenon creates the opportunity for a significant number of research disciplines to contribute to what may well be the most pressing national security issue of the century.

Dr. Butts is a Senior Lecturer in Homeland Security at Penn State Harrisburg and also a Senior Fellow at the Center for Naval Analysis.

Update on TMI @ 35 Symposium

The Three Mile Island Nuclear Crisis in Perspective: Analyses, Stories, Policies
Penn State Harrisburg Library, Morrison Gallery,
March 27-28, 2014

Heard on Campus: A look at TMI, lessons learned

On March 28, 1979, the worst accident in commercial nuclear power history in the United States started unfolding at the Three Mile Island (TMI) nuclear power plant outside Middletown, PA. The events of the ensuing week would capture the attention of the world and focus it directly on the Harrisburg area.

The accident would profoundly impact the future course of the nuclear industry, and forever change the lives of thousands of people - from a folksy but previously anonymous federal official from North Carolina, to a sitting governor, to scores of residents near the plant whose unforgettable experiences would lead to lives transformed by activism.

All these voices, and then some, converged during TMI@35: The Three Mile Island Nuclear Crisis in Perspective: Analyses, Stories, Policies, a two-day conference held at Penn State Harrisburg, March 27 and 28, to commemorate the 35th anniversary of the Three Mile Island accident and look at the incident from the perspective of the current era of homeland security, which includes emergency management and follows an all-hazards approach.

The symposium brought to campus a diverse cadre of expertise and opinion to critically assess the lessons learned, and not learned, from Three Mile Island.

The event also featured the opening of “Nuclear Expressions – The Three Mile Island Crisis of 1979 Mirrored in Popular Culture,” an exhibition of TMI memorabilia that will be on public display through May 30 in Penn State Harrisburg’s Library Archives and Special Collections reading room.

In the opening address, former Gov. Dick Thornburgh recalled how after just two months in office his agenda was taken hostage by a crisis no other state government in the nation, or world, had ever faced:

“March 28, 1979, there’s only one thing on my mind at that morning,” he recalled. “And it was not how to deal with a nuclear accident. I was vitally interested in securing passage of my first state budget. But at 7:50 a.m., a phone call from the state director of emergency management interrupted our meeting. He told me that there had been an accident at the Three Mile Island nuclear power plant. I knew immediately that our ambitious agenda for developing bipartisan support for the budget was out the window and that our schedule for the balance of the week, at least, was likely to be overtaken by these events.”

With the region on the brink of breakdown, Thornburgh reached out to President Jimmy Carter, who sent Harold Denton as his representative to the accident scene. Denton was director of the Office of Nuclear Reactor Regulation at the United States Nuclear Regulatory Commission (USNRC) and became President Carter’s personal advisor during the crisis, to begin managing the communication of timely and accurate information on what was, and was not, happening at TMI. Thornburgh called Denton’s arrival “a turning point” and described the North Carolina native as “the true hero” of the Three Mile Island event.

Denton offered his own take on TMI’s legacy during the conference, noting how the accident led to Carter establishing the Federal Emergency Management Agency (FEMA), and that “nuclear plants are much safer today because of all the lessons that we learned at TMI.”

That assertion would not go unchallenged by other speakers during the conference, especially in light of the disasters at Chernobyl in 1986 and Fukushima in 2011.

“Whatever lessons we thought we learned at Three Mile Island, we didn’t,” said Arnie Gunderson, a nuclear power engineer turned leading industry critic.

The conference was also a platform for the gut-wrenching stories told by those who lived near the plant and whose lives were inexorably altered by the developments of 35 years ago. Catherine McCormick told how the accident set her on a path that, starting with activism, led to her enrolling in college for the first time. Today, McCormick is an instructor of communications and humanities with Penn State Harrisburg’s School of Humanities. (cont’d)
Updates from the Field:

Update on *TMI @ 35 The Three Mile Island Nuclear Crisis in Perspective: Analyses, Stories, Policies* (cont’d)

“I went from being a neighbor to a victim, to an activist to a scholar and I’m back to being a neighbor,” McCormick said. “The frank discussion among those at the conference is the kind of dialogue needed as the nation grapples with the role of nuclear power going forward,” said Marci Culley, an assistant professor of psychology from the College of Coastal Georgia, who spoke on her research of women who became long-term activists because of TMI.

“Having all of the voices at the table is really important. That’s what this conference and other opportunities like this do, they allow for this to happen. Not having a diversity of opinion at the table is not a good thing. It results in groupthink,” she added.

Penn State Harrisburg professor and chair of Homeland Security, Dr. Alexander Siedschlag, who presided over the event, said: “The conference showed how important emergency management and crisis communication such as in the TMI accident 35 years ago continue to be in the era of homeland security. We need to be aware that homeland security is based on an all-hazards approach, and that it needs to be geared towards meeting the demands of the citizens, beyond abstract analyses of risk. The citizens are the ultimate end users of both homeland security policies and research output.”

Event sponsors included: Penn State Harrisburg Schools of Public Affairs, Behavioral Sciences and Education, and Business Administration; Penn State College of Medicine; Penn State World Campus; and the inter-college Master of Professional Studies program in Homeland Security for which Penn State Harrisburg is the administrative and academic home.

(Reprinted with permission, Penn State Harrisburg Marketing Research and Communications)

[View photos from TMI@35 conference]

[TMI@35 symposium proceedings are available on: http://sites.psu.edu/tmi35]

And the event is also covered in *Penn State Harrisburg Currents*, vol. 26, No. 1 (Spring/Summer) 2014:

[http://harrisburg.psu.edu/currents]
In The News

New Internship Program Launched: The Homeland Security Experience

The Intercollege Master of Professional Studies in Homeland Security (iMPS-HLS) Program has developed a common internship course. It will initially be offered as an experimental internship course (P ADM 597D) and is open for enrollment for fall 2014. This internship course combines an actual internship with an accompanying credit-earning educational experience. It is designed to provide real-world experience in the homeland security enterprise. The course is an elective for students in the iMPS-HLS program. Other students may be admitted upon request and credential evaluation. Internships can be part-time or full-time, paid or unpaid, and will be credit-earning (3-6 credits). The number of credits earned will be based on the number of hours worked. Interns must complete at least 300 hours to fulfill the internship requirement. The internship course provides a workplace setting to enhance the educational experience and employability of both knowledge and competencies acquired in the iMPS-HLS program. It will help our students to differentiate themselves on the job market and provide an opportunity to combine their professional studies with first-hand mission space experience.

The internships are an optional component of the online iMPS-HLS Program and provide a unique opportunity to apply results from classroom learning in a real-world setting. The internship program focuses on experiential learning accompanied by workplace supervision, as well as academic mentoring. The internship is a one-semester credit-earning course designed to combine experiences working in the homeland security enterprise with application of knowledge and competencies acquired in the iMPS-HLS curriculum. The internship experience will add to students' employability, as well as to the close connection of the program with real-world end-users in homeland security.

The course is an elective for the iMPS-HLS Program. Prerequisites for this course include completion of the program's core curriculum, which consists of: HLS 801 - Homeland Security Administration: Policies and Programs; HLS 803 - Homeland Security: Social and Ethical Issues; HLS 805 - Violence, Threats, Terror, and Insurgency; and one of the iMPS-HLS Base Program or Option required courses, as well as a 3.0 GPA. The student's competencies of the course material will be demonstrated via a variety of activities/assignments. The purpose of these assignments is to encourage in-depth reflection of the internship experience. The student's grade in this course will be determined by the assessment of the following: site-specific professional research project; weekly logs with key learning experience reflections; bi-weekly online discussion forums; Internship project report; and the site supervisor's evaluation.

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Other New Course Offerings in Fall 2014

The iMPS-HLS faculty strives to keep the curriculum vibrant, robust, and current. With this in mind, the following new courses are offered:

HLS 597B, Comparative Homeland Security

Since U.S. Homeland Security has evolved from the attacks of 9/11 that were not rooted nationally, but internationally, and its mission space includes addressing of transnational threats as well as working with international partners. Thus, a focus on comparative aspects is essential. The course will address select topics of civil security across different countries – such as critical infrastructure protection, cybersecurity, use of armies in homeland security, public-private partnerships, security governance, etc. It will further look into the creation of “security” as a public good and its “delivery” to the citizens in different countries, and in U.S. collaboration with other nations.

HLS 575, U.S. Homeland Security Law

This course enhances the level of awareness concerning the essential role that law plays in every aspect of security, from protection and prevention, to response and recovery. Beyond providing a working knowledge of the many elements of homeland security law, the course is designed to improve leadership attributes, communication skills, creative thinking, and integrity. The syllabus readings on principles, values, constitutional intent, subsequent statutes, directives, and decisions, that improvement. By developing those capabilities, students will become more accomplished practitioners, critical in achieving greater security for the nation, while reaffirming their commitment to preserve the fundamental rights and freedoms of their fellow citizens.
In The News
The Penn State University Libraries Support Research in Homeland Security
by Glenn S. McGuigan, M.L.S.

The programs in homeland security at Penn State University are supported by its research library system. The Penn State University Libraries, one of the great university libraries of the world, provides access to a wealth of resources to support research and learning in Homeland Security studies. Based on a report from the Association of Research Library Investment Index Rankings, Penn State University Libraries rank eighth among North American research libraries. Collections of the University Libraries include more than 7.3 million books, 105,000 serials, 662 databases, and 386,000 E-books available to all Penn State students. The Penn State user ID and password allows students to access the wealth of materials available through the Libraries’ systems. The gateway to the Libraries’ collections, available 24/7, may be found at www.libraries.psu.edu. There is a library page for World Campus students available at http://www.libraries.psu.edu/psul/wc.html and a subject page for Homeland Security studies at http://www.libraries.psu.edu/psul/researchguides.html.

Below are listed some of the major databases to find journal articles, reports, and other useful information. All are available from the database link at www.libraries.psu.edu

Worldwide Political Science Abstracts: The best place to start. Some full text is available in the database. It also includes links out to E-Journal content through Get It!

CIAO (Columbia International Affairs Online): Includes journal content covering international affairs. The best source for think tank papers with an international bent.

ProQuest Multiple Databases: Includes popular magazines such as U.S. News & World Report & Newsweek; magazines for professionals of all types and many scholarly journals.

Academic Search Complete: A comprehensive scholarly, multi-disciplinary full-text database, with more than 5,300 full-text periodicals, including 4,400 peer-reviewed journals. In addition to full text, this database offers indexing and abstracts for more than 9,300 journals and a total of 10,900 publications including monographs, reports.

Criminal Justice Abstracts: Provides abstracts of articles from the major journals in criminology and related disciplines, as well as books and reports from governmental and nongovernmental agencies.

JSTOR: Does not have the last 3 to 5 years of most journals, but does contain long archives of key journals.

Librarians and staff are able to assist students by providing reference assistance, online guides, course reserves, and more. Librarians are available to assist with research questions by chat, email, phone, or in person. Contact information is available at the pages listed above, or for more information, contact Debora Cheney, Head, Library Services to World Campus/PSU Online and the Foster Communications Librarian at dlc@psu.edu / 814-863-1345; or Glenn McGuigan, Business and Public Administration Reference Librarian, Penn State Harrisburg, at gxm22@psu.edu / 717-948-6078.

For additional information on library support see:

Glenn McGuigan is the Homeland Security, Business, and Public Administration Reference Librarian. He is also a Ph.D. student in Public Administration.
In The News

VIRTUAL CLASSROOMS EXPAND THE REACH OF GEOSPATIAL STUDIES

Penn State offers a variety of online geospatial courses

By Lindsay Tilton

With a growing demand for geospatial professionals and the consistent advancement of technology, online programs are emerging as a popular option for geospatial students. Pennsylvania State University is one of the first and few universities in the country to provide a variety of certificates and graduate degrees in geospatial studies virtually.

“We started offering these online programs because we were responding to the growing need for geospatial professionals,” said Dr. Anthony Robinson, Penn State’s lead faculty for online geospatial education. “These online programs are a way of broadening our audience and creating options for people located beyond our campus.”

Penn State offers four online geospatial programs: a post-baccalaureate certificate in GEOINT applications, a graduate certificate in GEOINT analytics, a post-baccalaureate certificate in GIS, and a master of GIS degree. These programs are offered by the Department of Geography through the university’s John A. Dutton e-Education Institute within its College of Earth and Mineral Sciences.

Both the post-baccalaureate certificate in GEOINT applications and the graduate certificate in GEOINT analytics offer a USGIF Geospatial Intelligence Certificate upon completion. These programs became USGIF-accredited in 2007, and Penn State is among the eight universities that have achieved USGIF academic accreditation. Penn State was recently joined by George Mason University as the only other USGIF-accredited school to offer an online GEOINT course.

The other six USGIF-accredited programs are University of Missouri, University of Texas at Dallas, University of Redlands, University of Utah, U.S. Air Force Academy, and U.S. Military Academy.

The online post-baccalaureate certificate in GEOINT applications consists of 11 academic credits for students with little to no prior knowledge of GEOINT, preparing them for a career as a geospatial intelligence or imagery analyst. The online graduate certificate in GEOINT analytics is a 13-credit program for advanced GEOINT professionals looking to expand their knowledge in topics such as national security, disaster response, environmental resource preservation, and business. Dr. Todd Bacastow, professor of practice for geospatial intelligence, leads these programs.

“This year we have seen many more students enrolling in the post-baccalaureate certificate in geospatial intelligence applica-

tions, which shows more students around the world are expressing interest in GEOINT,” Bacastow said. “Offering these certificates online is a great way for us to deliver GEOINT education to our students.”

In total, more than 5,000 students have participated in all four of Penn State’s online geospatial science programs, and around 2,500 of those students have already completed the programs.

Vanessa Damato, an analyst with DigitalGlobe, received a graduate certificate in GEOINT analytics in 2009 and a master of GIS in 2012. “I had a very positive experience in both programs,” Damato said. “This curriculum gives you the latest and greatest options. It really builds the foundation and enhanced my technical skills, and helped conceptually strengthen my knowledge.”

Nick Wiley, founder and president of VisiTime, adds that completing the online post-baccalaureate certificate in GIS in 2012 increased his geospatial skill set and benefited his business, an augmented reality touring service. “I’m definitely proud of my experience with the certificate program,” Wiley said. “The more you learn about mapping, the more you learn about its applicability and use in the real world.”

Penn State has continued to enhance its geospatial science offerings with the launch of its first massive online open course (MOOC), called Maps and the Geospatial Revolution. The five-week MOOC began in July 2013 and taught participants how to make maps and analyze geographic patterns. “The MOOC was a way of expanding awareness of what we do and getting people to participate without being required to come to campus or pay tuition,” Robinson said. “We had all walks of life enroll in the MOOC, such as people with an interest in geography, retired individuals, and those who lived outside the United States.”

Approximately 48,000 people from more than 150 countries enrolled in the MOOC. Because the course had such a high number of participants and received positive feedback, it will be offered again starting in April 30, 2014. (cont’d)
VIRTUAL CLASSROOMS EXPAND THE REACH OF GEOSPATIAL STUDIES

Penn State offers a variety of online geospatial courses (cont’d)

“We’re using MOOCs to create gateway experiences in this discipline, and targeting a baseline understanding of what we do,” Robinson said. “MOOCs offer a huge outreach strategy for us.”

Penn State’s geospatial sciences faculty expects the number of students participating in the online certificate programs to continue to increase, further contributing to a robust GEOINT workforce.

Reprinted with permission. This article initially appeared in Trajectory, the official magazine of the United States Geospatial Intelligence Foundation, 2014, Issue 1


Center for Homeland Security Policy and Leadership Studies

The tragic events of September 11, 2001 established terrorism as a major threat to domestic and world peace, and gave rise to improvement efforts by governments at all levels. With the federal government providing significant guidance and resources, stakeholders in both the public and private sectors are working to develop added capacity to protect against acts of terrorism, and to learn more about the root causes of terrorist activities, including radicalization. The creation of the U.S. Department of Homeland Security, and similar organizations at the state and local levels, underscores the need for additional research on the causes and manifestations of terrorism, and prevention of terrorist acts, as well as ways of responding to violent acts that do occur. The devastating effects of Hurricane Katrina in August 2005 and Hurricane Sandy in 2012, as well as tornadoes in Joplin, MO, and Tuscaloosa, AL, and the earthquake and resultant tsunami in Japan in 2011, are vivid reminders that natural disasters will frequently occur, some with unimaginable ferocity. These events, in turn, have stimulated interest in centers within universities dedicated to education, research, outreach, and collaboration with the homeland security enterprise.

President Obama released Presidential Policy Directive 8 (PPD-8) on March 30, 2011. The directive notes the importance of “…strengthening the security and resilience of the United States through systematic preparation for the threats that pose the greatest risk to the security of the Nation, including acts of terrorism, cyber attacks, pandemics, and catastrophic natural disasters. Our national preparedness is the shared responsibility of all levels of government, the private and nonprofit sectors, and individual citizens.” With this direction in mind, Penn State is working towards the goal of establishing a Center for Homeland Security Policy and Leadership Studies. The Center would be housed in the School of Public Affairs at Penn State Harrisburg and have three central missions of research, outreach and education, as well as enhanced public awareness of all aspects of homeland security.

With a strong, adaptive, relevant curriculum, and world-class faculty, the Center would provide nationally recognized education, research, and outreach in all areas of homeland security with a specialization in senior policy-making. It would primarily prepare future practitioners and leaders for a highly successful career in the administration of homeland security.

Since the early 2000s, Penn State University has been delivering robust, cutting edge academic programming in homeland security and homeland defense. As part of a multidisciplinary, collaborative, intercampus initiative for the University, Penn State Harrisburg has drawn from renowned faculty members, agency experts, and community leaders to develop a program whose academic subjects, and rigor effectively prepare students for today’s homeland security environment. The School of Public Affairs at Penn State Harrisburg serves as the academic and administrative home for the University’s iMPS-HLS Program.

The rationale for establishing a Center for Homeland Security Policy and Leadership Studies is compelling due to the tremendous growth in and the relevance of homeland security throughout the nation during the last 12 years. Today, over 260 academic institutions now teach courses in this area, with several dozen granting master’s degrees. The demand by young professionals to receive a Penn State degree in this field is overwhelming. The career opportunities are extensive due to the realization that homeland security is a field of practice for professionals from strategists and executives to first responders, from information and cyber security specialists to agriculture biosecurity and food defense experts, from public health officials to transportation and supply chain managers. There is a great demand for broader based research and publication in an extremely dynamic field that continues to expand rapidly.

Professor Paul Thompson, J.D. is leading the effort to make the Center a reality.

Paul Thompson is a Senior Lecturer in Homeland Security at Penn State Harrisburg, Coordinator of Outreach and External Relations for Homeland Security, and the Program Coordinator for the Minor in Homeland Security
Upcoming Events

Intelligence Community Center of Academic Excellence Cyber Security Tabletop Exercise

BACKGROUND: In September 2009, Penn State was named an Intelligence Community Center of Academic Excellence (IC CAE) by the Office of the Director of National Intelligence (ODNI), joining 27 other colleges and universities in a mandate to prepare students for careers with government agencies. One of the grant’s components has provided for an intelligence community symposium. The first of these was held in 2010, focusing on strategy and policy implications of intelligence and information exchange in the domestic environment. The 2011 conference built on the success of that event by expanding the scope beyond immediate domestic concerns to a shared international perspective of common threats. The 2013 event, a tabletop exercise (TTX), addressed one of the most complicated, compelling, and potentially damaging threats the United States faces today - that of cyber attacks. The 2014 symposium will be another TTX.

The overall objectives of the forum are to promote a continued positive and constructive dialogue between the academic and government intelligence communities, and allowing and encouraging students to examine the needs, challenges, and benefits of serving in the intelligence field. Students will also be provided numerous opportunities to discuss key issues and examine federal, state, and private sector relationships during a major cyber incident.

Concept: The Pennsylvania State University, in collaboration with the Defense Intelligence Agency (DIA) and other members of the Intelligence Community (IC), and with the generous support and assistance of the Department of Homeland Security (DHS) and the U.S. Army War College’s Center for Strategic Leadership, will conduct its fourth IC CAE Symposium. This year’s TTX will bring together a combination of students from various Penn State programs, to include: Strategic and Global Security (SGS) Studies; Intercollege Master of Professional Studies in Homeland Security (iMPS-HLS); Master of Public Administration; Master of Business Administration; Dickinson School of Law; Information Science and Technology; Security and Risk Analysis, etc. Homeland security and cybersecurity professionals, Interagency representatives, Pennsylvania state government officials, academic subject matter experts, and private sector stakeholders are also invited. All will explore the policy and legal implications a cyber security scenario will have on U.S. national security, as well as the importance of interorganizational cooperation and collaboration.

Students will play an active role in one of six exercise cells: Department of State, Department of Defense, Department of Justice, Department of Homeland Security, Pennsylvania state government, or the private sector. Exercise participants will be challenged by various exercise scenario variables and will be required to develop and justify positions based on exercise organizational equities. Students will also have an opportunity to brief other participants and have an exchange of ideas in a plenary session.

DATE: Thursday, September 18, 2014 (registration from 8:00 – 8:30 AM; the remainder of the agenda is TBD, but participants should expect to spend the entire day).
**Homeland Security - An Update in Research and Trends**

LOCATION: Penn State Harrisburg, Middletown, PA  
DATE: Monday-Friday, August 4-8, 2014

COURSE OVERVIEW: Based on an all-hazards approach, this intensive continuing education and professional development course provides a cross-disciplinary overview of current trends in homeland security and its evolving mission space - including in comparison to other countries, as well as in the overarching perspective of civil security. The course has a modular structure with lectures and micro-seminars given by Penn State faculty and external experts, including from the U.S. Homeland Security Enterprise.

ADDITIONAL FEATURES: The course also comprises interactive syndicate group work, networking receptions, and an internship information and placement service session.

SHORT EXCURSION: The course further includes a short excursion to the Three Mile Island Nuclear Power Plant Training Center and its simulation control room for a briefing by TMI experts on current trends in communication in emergency management.

LECTURERS INCLUDE:
- Course director: Alexander Siedschlag, Ph.D, Penn State, Chair of Homeland Security Programs
- Admiral James Loy, former Deputy Secretary of Homeland Security, former TSA Administrator, former Coast Guard Commandant
- Michel F. Bosco, Ph. D, Deputy Head of Unit, Policy and Research in Security, European Commission, European Union
- Allen Miller, Ph.D, Homeland Defense and Security Issues Group, Center for Strategic Leadership and Development, United States Army War College
- Thomas F. Minton III, Director, Governor’s Office of Homeland Security, Harrisburg, PA
- Todd Bacastow, Ph.D, Penn State, Professor of Practice for Geospatial Intelligence
- Dane Egli, Ph.D, Johns Hopkins Applied Physics Laboratory and et al.

COURSE TOPICS INCLUDE:
- Update on basic trends in the Homeland Security Enterprise
- Scenario-based analysis of key uncertainties
- Capturing situational awareness and trends within DHS – the example of emergency management training
- Evolving cyber threats
- Geospatial intelligence and homeland security
- Big data and visualization for decision support
- Dealing with analytic biases
- Ethics, Legal, and Social Issues (ELSI)
- Systemic resilience and security postures
- Etc.

**Half-day on-site short course at the American Political Science Association (APSA) Annual Meeting**

Political Science Contributions to the Homeland Security Enterprise – And Where Mission-Critical Jobs of the Future Are

LOCATION: Washington, D.C.  
DATE: Wednesday, August 27, 2014, 1:30 PM – 5:30 PM

SHORT COURSE OVERVIEW: The IMPS-HLS program is organizing a half-day on-site short course at this year’s political science national convention in Washington, DC. This is a great opportunity for our students and alumni to meet and get an update on recent program initiatives and expertise the homeland security enterprise is looking for. The short course will feature IMPS-HLS program faculty, experts from the program’s advisor council, as well as experts from the mission space. Homeland Security aiming at delivering security to the citizens in a comprehensive way, this includes aspects of security governance, and giving the all-hazards approach to homeland security, this relates to various sub-disciplines of political science. In particular students from our base program who are located in the national capital area may find this an opportunity worth taking. While there is a (reduced) registration fee for students to attend the APSA meeting, the short course is free of charge. The APSA meeting includes a wealth of panels, presentations, side events, receptions, and exhibitions.

INFORMATION AND REGISTRATION:

For more information on the short course, please visit: [http://www.apsanet.org/mtsgs/program_2014/program.cfm?event=1524131](http://www.apsanet.org/mtsgs/program_2014/program.cfm?event=1524131), or contact Betsy Hancock at bah36@psu.edu.

For more information on the APSA annual meeting and how to register, please visit [http://www.apsanet.org/content_77049.cfm?navID=1063](http://www.apsanet.org/content_77049.cfm?navID=1063).
Spotlight

Student in the Spotlight

Geospatial Intelligence Graduate Recognized

NGA ANALYST HONORED WITH LT. MICHAEL P. MURPHY AWARD

The 2013 Lt. Michael P. Murphy Award in Geospatial Intelligence was presented to Bryan Goltry, an analyst at the National Geospatial-Intelligence Agency (NGA), immediately following NGA Director Letitia Long’s keynote address. Long and USGIF CEO Keith Masback presented the award. Goltry is a geospatial analyst with NGA’s Analysis Directorate, and recently completed Penn State’s master’s degree program in homeland security with a GEOINT focus. Goltry began his GEOINT career with Earth Satellite Corp., where he assisted with NGA’s Geo-Cover project. He then served as an imagery analyst at NGA from 2002 to 2006. In 2006, he worked in the private sector with 3001 Inc. as a program manager providing imagery and geospatial analysis services to customers in the Intelligence and Defense Communities. Goltry received his bachelor’s degree in geographic sciences with concentrations in GIS, global studies, and environmental studies from James Madison University. “The Murphy award committee felt that Bryan’s independent studies made an exceptional contribution to understanding the principle dimensions of the geospatial intelligence profession,” said Dr. Todd Bacastow, professor of practice for geospatial intelligence at Penn State. The Murphy Award is named for Navy SEAL LT. Michael P. Murphy, a distinguished Penn State alumnus. Murphy was killed June 28, 2005 by enemy forces during a reconnaissance mission in Afghanistan. Murphy was posthumously awarded the Congressional Medal of Honor, and he and his comrades were recently featured in the “Lone Survivor” film. The generosity of USGIF, the DigitalGlobe Foundation, and faculty, staff, and friends of Penn State fund the Murphy Award. “Goltry’s contributions to NGA and his tradecraft continue the high standards established by the Murphy Award,” said Mark Brender, executive director of the DigitalGlobe Foundation. “We congratulate him for his excellent work and passion for his industry.”

(Reprinted with permission from the USGIF. This article originally appeared in the GEOINT 2013 Symposium program guide, “Show Daily” which was sponsored by the USGIF’s Trajectory magazine.)

Photo courtesy of the USGIF

The Penn State Veterans Plaza, a gift of the class of 2011, on the University Park campus. The plaza honors all Penn Staters who have served in the United States Military. The wall is named for Lt. Michael Patrick Murphy, a 1998 Penn State graduate, who was awarded the Medal of Honor posthumously for heroic actions during the war in Afghanistan.
Faculty in the Spotlight

Todd S. Bacastow

Todd S. Bacastow, Ph.D. is a Professor of Practice for Geospatial Intelligence in Penn State's College of Earth and Mineral Sciences and the founder and lead faculty of Penn State's Geospatial Intelligence program. Penn State's Geospatial Intelligence program is accredited by the United State Geospatial Intelligence Foundation and part of Penn State's award-winning portfolio of Online Geospatial Education programs that has served over 5000 students since 1999.

Todd’s current research focuses on determining the optimal training and educational means to improve the sensemaking of the geospatial analyst working as part of an intelligence team. Sensemaking refers to the process by which humans are able to generate explanations for data that are otherwise sparse, noisy, and uncertain.

Before joining Penn State in 1994, Dr. Bacastow retired from the United States Army where he served in a variety of infantry, engineer, and geospatial intelligence assignments. He was previously an Assistant Professor in the Department of Geography and Computer Science and an Associate Professor in the Department of Geography and Environmental Engineering at the U.S. Military Academy. He holds a BS in Engineering from the United States Military Academy, and a MS and Ph.D. in Geography from Penn State University.

Todd is developing a Massive Open Online Course (MOOC) titled Geospatial Intelligence & the Geospatial Revolution. This course explores how the revolution in geospatial technology combined with the tradecraft of Geospatial Intelligence (GEOINT) have changed how we develop insights about how humans use geography and discover the power of GEOINT. The URL is [https://www.coursera.org/course/geoint](https://www.coursera.org/course/geoint).

Join Todd for the exciting journey to learn about GEOINT’s application in business, law enforcement, and defense. Advances in satellites, GPS, unmanned aerial systems, wireless communications, handheld computing, and the ability to automate laborious map analysis processes has transformed what used to be called geographic intelligence, or GEOINT, and the nature of the insights provided to managers and leaders. GEOINT is more than just analysts working with GIS in a secure intelligence facility. We have gone from mountains of hardcopy maps to amazing automated systems that provide previously unavailable understanding. GEOINT helps us daily with real-time apps to guide decision making. GEOINT combines geographic information science and technologies with an analytic tradecraft. In this MOOC you will experience the value of GEOINT. You will learn how to design and execute a geospatial analysis project using GEOINT tools and tradecraft. The course is designed for the individual who wants to learn the basics of GEOINT and it is not designed for the geospatial intelligence professional.

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