Dean’s Weekly Significant Activities Report

26 April 2017

The Dean’s Weekly Significant Activities Report is an internal report on all activities conducted within the Departments, Centers & Staff. The Report is provided to the Dean for situation awareness, throughout the organization for shared situation awareness, and to select external organizations for outreach and communication. Portions of the Dean’s Weekly Significant Activities Report are further staffed in a report to the Superintendent. POC for the report is MS Lesley Beckstrom at 938-5105.

Follow WP_Scientist on Twitter

Picture of the Week

Department of English and Philosophy: After performing Shakespearean monologues on the river front in Cold Spring, NY for WillFest, cadets pose for a picture along the Hudson
Department of English and Philosophy

Bard Prison Initiative

DEP continues to develop the relationship between West Point and the Bard Prison Initiative (BPI). Two department faculty recently gave guest lectures in area prisons through BPI. On Thursday night at Fishkill Correctional Facility, Maria Seger gave a presentation and led a lively discussion on two short stories by the American author Charles Chesnutt, "The Wife of His Youth" and "The Passing of Grandison." Dr. Seger and the eleven students in attendance discussed issues such as racial and social passing, individuals and collectivity, storytelling technique, and the trickster tradition in African-American literature. On Friday morning, Aaron Mann led a session for students at Green Haven Correctional Facility on two short stories by American author Herman Melville, "Bartleby, the Scrivener" and "The Lightning-Rod Man." CPT Mann and twelve students explored the tension between friendship and work, the place of refusal in a capitalist economy, changing convictions about religion and science, and more. POC is Patrick Query (Patrick.Query@usma.edu).

This week, Dr. Maria Seger and CPT(P) Aaron Mann presented and discussed literature at Fishkill Correctional Facility and Green Haven Correctional Facility, respectively.
CFAF Clubs Team Up for Art Appreciation Trip to New York City

On 22 April, cadets in the Elsie Sannes-Pinnell Art Appreciation Forum and the Studio Arts Forum traveled to New York City to tour the Metropolitan Museum of Art (the Met) and the Guggenheim Museum. With over two million works, the Met is one of the world’s largest art galleries and the largest art museum in the United States. Cadets were able to study sculptures from Ancient Egypt and Mesopotamia; Islamic art; medieval illuminated manuscripts; modern and contemporary works; musical instruments; and an entire wing devoted to arms and armor from around the world. At the Guggenheim, cadets expanded their understanding of Impressionist, Post-Impressionist, Modern and Contemporary art, all in a unique building designed by Frank Lloyd Wright. POC is Dr. Brianne Bilsky, Assistant Professor, DEP (Brianne.Bilsky@usma.edu).

Cadets in the Elsie Sannes-Pinnell Art Appreciation Forum and the Studio Arts Forum gather for a tour of the Met in New York City.

CDT Madison Hovren (G-1, 2019) prepares to do some sketching at the Guggenheim.
Cadets Perform Shakespeare at WillFest

On Saturday, April 22nd, cadets participated in WillFest—a day-long, regional celebration of all things theater & art, with a special focus on the work of William Shakespeare, in Cold Spring, NY. After learning and performing Shakespearean monologues for their EN102 Literature course, six cadets were selected by a panel of judges to compete in West Point’s Academy Idol. In preparation for Academy Idol, and in celebration of our partnership with the Hudson Valley Shakespeare Festival, these cadets showed off their acting skills in front of a large crowd of Shakespeare aficionados. POC is CPT Becky McGilley (Rebecca.McGilley@usma.edu).

A crowd gathers to lend their eyes and ears to CDT Dov Landau’s performance Marc Antony’s famous speech beginning “Friends, Romans, countrymen” from Julius Caesar on 22 April, 2017 in Cold Spring, NY.

After performing Shakespearean monologues on the river front in Cold Spring, NY for WillFest, cadets pose for a picture along the Hudson. From left to right: CDT Roman Simpson, CDT Michael Peoples, CDT Jared Cochrane, CDT Dov Landau, CDT Will Bingemann, CDT Serica Hallstead, and CPT Becky McGilley

COL Dave Harper and Professor Elizabeth Samet Feature in Audience Talkback Session at Brooklyn Academy of Music

On 22 April, 2017, COL Dave Harper, Head of the Department of English and Philosophy at USMA, and PROF Elizabeth Samet anchored a panel on leadership and the arts at Brooklyn Academy of Music (BAM). The DEP faculty members, joined by several DEP majors, attended Aquila Theater’s production of “Our Trojan War: Our Warrior Chorus” in Brooklyn. The play, currently on a U.S. national tour, puts select moments from ancient Greek and Roman narratives in conversation with scenes of
modern war. The creative team responsible for writing, designing, and performing the play includes several U.S. combat veterans. COL Harper and PROF Samet joined members of the production team after the performance for an hour-long talkback session on the topic of leadership. POC is PROF Colleen Eils, DEP (Colleen.Eils@usma.edu).

Faculty Publication: Dr. Colleen Eils

Dr. Colleen Eils’s article, “Narrative Privacy: Evading Ethnographic Surveillance in Fiction by Sherman Alexie, Rigoberto Gonzalez, and Nam Le,” was published in the journal *Multi-Ethnic Literatures of the United States (MELUS)* on 01 APR 2017. In it, Dr. Eils considers how three contemporary writers – Sherman Alexie, Nam Le, and Rigoberto González – use literary form to theorize issues of access and visibility in contemporary ethnic and indigenous literatures. Using metafictional techniques to formally highlight the limits of readers’ access to their fictional characters, Alexie, Le, and González create spaces of narrative privacy, or spaces in their narratives explicitly protected from readers’ gazes, to consider critically their potentially fraught positions as an indigenous fiction writer or fiction writers of color in a nation still deeply influenced by ethnographic legacies of visibility and difference. They do so by drawing on contemporary discourses of privacy and access, terms with increasing relevance in a century marked by the dramatic expansion of the Internet and by post-9/11 surveillance.
politics. By considering ethnographic curiosity in recently politicized terms of privacy, access, and surveillance, Alexie, González, and Le illuminate the invasive and unequal nature of ethnographic imperatives in literature while re-contextualizing contemporary discourses of visibility and privacy in much longer colonial histories. POC for this event is Dr. Colleen Eils, DEP (Colleen.Eils@usma.edu).

Upcoming Events:

4 May: Project’s Day, Academy Idol, Major’s Picnic, Shakespeare Performance

Department of Physics and Nuclear Engineering

Completed Events

Publications: D/PNE Assistant Professor, Dr. Dave Kashinski announced that he and his colleagues, including several current and former students, recently submitted two papers for publication:

Title: "Harmonic Vibrational Frequencies: Approximate Global Scaling Factors for TPSS, M06, and M11 Functional Families Using Several Common Basis Sets"
Authors: D. O. Kashinski, G. M. Chase (USMA ’15), R. G. Nelson (USMA ’16), O. E. Di Nallo (USMA ’16), A. N. Scales (USMA ’14), D. L. VanderLey (USMA ’14), and E. F. C. Byrd
Journal: Journal of Physical Chemistry A
Volume: 121 Issue 11
Pages: 2265-2273
Year: 2017
Title: "Effects of Rotation and Inert Thermal Sinks on Laser Heating of Cold, Rolled-Steel Cylinders: Preliminary Experimental Results"
Authors: D. Mauldin (USMA '17), L. O'Neill (USMA '17), I. De Mallie (USMA '15), F. Arnold (USMA '14), L. A. Florence, J. Hartke, D. O. Kashinski, J. E. Johnson (USMA '11), J. Lamb (USMA '16), R. Huffman (USMA '16), D. E. Riegner, N.F. Fell, T. Kreidler (USMA '18), G. Tamm, and N. F. Fell
Journal: Journal of Directed Energy
Volume/Pages/Year: "Journal of Directed Energy, forthcoming"

Triathlon: The Army West Point Triathlon team traveled to Tuscaloosa, AL to compete in the USA Triathlon Collegiate National Championships on 21 and 22 April. USAT Nationals is the largest collegiate triathlon event in the world with approximately 3000 competitors from over 150 schools represented. The Army team had outstanding results with the men's team placing 9th, the women's team placing 10th and the combined team placing 8th. The top 10 finish was a significant improvement from last year's 13th place. On the individual side, CDT Jake Slife ('18) and Teresa Groton ('18) were both in the top 3 amateur finishers in the draft-legal race. Jake was 9th overall and Teresa 2nd overall in the draft-legal event with several professional athletes in the field. Because of their finishes, they both earned their professional licenses and can compete as professionals in ITU-sanctioned races in the future. Teresa also earned 2nd place in the woman’s combined category which scored the draft-legal and Olympic races together. The team was the 2nd place military team, beating Air Force and Coast Guard, but were edged out by Navy.
Some snapshots from the Triathlon Team’s trip to the USAT Nationals in Tuscaloosa, AL
Astronomy Club MOAB (Mother of All Balloons): On 22 April, the Cadet Astronomy Club launched its largest weather balloon ever! This was the tenth balloon satellite launch by the club in nine years. The launch site was slightly northeast of Scranton, PA, and the “launch vehicle” was a 4-kilogram latex balloon, the largest one available on the market to amateur balloon enthusiasts. The reason behind launching such a large balloon was not to break the altitude record of 115,000 feet, set by the club on 26 April 2014, but to lift a hefty payload weighing in at around 3 kilograms total and consisting of two cube satellites. One double cube nanosatellite enclosure (2U = 10 cm × 10 cm × 20 cm size), dubbed “STEEVE” for Student Tested Equipment of Exploration and Experimentation, was 3D printed by Physics major Jacob Thompson (‘20) and carried a Geiger counter, two 360 degree webcams, and an Arduino GPS shield. The second satellite was a mock-up of the Black Knight 2 satellite, designed by an interdisciplinary team of five Firsties, with Eoghan Matthews representing the team at launch. After the balloon envelope burst at around 21,499 meters (70,500 feet), a portion of the payload was found near Alligerville, NY, somewhat northwest of New Paltz, near the Mohonk Mountain Preserve. Unfortunately the Black Knight 2 satellite portion of the payload was not found. It is suspected that the sharp edges of its aluminum casing cut away the rope connecting it to the rest of the payload at some point during the flight. The team launching the satellite included Dr. Paula Fekete and Dr. Eric Myers of D/PaNE, and LTC Stephen Hamilton, soon to return to EECS after completing PhD at Johns Hopkins University. Participating Cadets included Matt Yuan, Cullen Johnson, Daniel Messenger, Tim Donnellon, Noah Parker, and Nicholas Wise. The latter brought along, and very skillfully flew, a drone equipped with a camera which took excellent photos of the balloon launch, as seen below.
Current Events
HEART Conference: Cadets Phillip Grant and Jacob Podpaly are in Denver, CO presenting their nuclear engineering research to members of the DoD technical and research community at the Hardened Electronics and Radiation Technology (HEART) Conference, 26-28 April. Their research has real-world applications for the US Army and its sister services, and formal presentation of academic work in the field of nuclear engineering is an essential component of life-long learning. The Cadets’ research was selected for presentation from a sea of applicants, both in the areas of radiation detection and Radiation Protection Factors for US Army vehicles.

Future Events
JTO Annual Review: COL John Hartke will be in Albuquerque, NM, 1-4 May, to attend the HEL-JTO annual review. During the visit, he will represent the Advanced Concepts Technical Area Working Group and present work to support continued funding.

NE450 Tabletop Exercise: On 3 May, NE450 students will participate in a tabletop exercise as part of their class requirement. This exercise is facilitated by WMD and regional experts from the National Defense University, and enables cadets to synthesize their technical knowledge with their knowledge of the politics, history, and strategy surrounding nuclear weapons. Cadets will gain an understanding of the complexity that nuclear weapons have added to international relations and ways in which nations formulate strategy.

SMDC Colloquium: On 3 May, the USMA Space and Missile Defense Program is hosting a colloquium featuring Mr. Thomas Webber, Director for SMDC-TC, and Dr. Steve Pierce, Chief Technology Officer for SMDC. Topics include the Space and Missile Defense Role in Multi-Domain Battle, and thoughts on Third Offset Strategy. All interested personnel are welcome.

Retirement: On 5 May, D/PNE will retire Dr. Brian Moretti, LTC(R), USMA Class of 1976, Associate Professor, Nuclear Engineering Program Director, and Senior Civilian Faculty Member, after more than 40 years of combined military and civilian service.

Girl Scout STEM Event: On 9 May, the D/PNE will be hosting a STEM night for local Girl Scouts. About 50 scouts are expected to attend.
Department of Behavioral Sciences and Leadership

Cadets from PL371: Introduction to Sociology visited Palisades Mall. Cadets sought to apply sociological theories and concepts learned in classroom during an ethnographic visit to a local mall.
POC: CPT Jacob Absalon, Jacob.Absalon@usma.edu

Dr Morten Ender had an article published in Armed Forces & Society. Title: "Authorship and Affiliation in Armed Forces & Society: Developmental Trends Across Volumes 1-41" Authors: Anders McD Sookermann, Trond Svela Sand, and Morten G. Ender

Abstract: Armed Forces & Society (AF&S) was founded in 1974 with the overall intention of creating an international arena for interdisciplinary approaches to the study of the military institution and the intersection of armed forces and their society. The present study is both a follow-up and an update of Morten Enders’s article “Authorship and Affiliation in Armed Forces & Society” covering 1,139 articles in the 41 volumes published from 1974 until 2015. The scope has been to look for the evolving trends on Authorship and Affiliation (A&A) within AF&S so as to say something about what AF&S has become over these years, as a consequence of whom the authors are and where they come from. Our findings suggest a developmental narrative of A&A in AF&S of a continuously higher author–article ratio, an increased female authorship ratio, and a wider range of disciplines from more continents, countries, and institutions, plus a trend of increased cross-national coauthorship. The article available online at:
POC: LTC Remi Hajjar; Remi.Hajjar@usma.edu
CH102 Water Quality Analysis

During Lesson 29, cadets taking General Chemistry II toured the Lusk water treatment facility to better understand the chemistry behind what is (and is not) in their public water supply. They also collected water samples to analyze in the lab. Under the supervision of their instructors, Dr. Eileen Kowalski, Dr. Russ Lachance, Dr. Dawn Riegner, Dr. Enoch Nagelli, and Dr. Beth Mentis, 50 lab groups collected samples from a range of sources including the Hudson River, Lusk Reservoir, and the barracks. Cadets are now investigating parameters such as hardness, alkalinity, and iron and will report their findings as poster presentations during Lesson 40.

(Left Photo) CDTs Pfohman and Panchookian collecting their sample from the Hudson River
(Right Photo) CDTs Panchookian and Alford collecting their sample from the Hudson River
Cadet trip to Bethesda, MD, for Cadaver Surgery Training

On 27-31 March, cadets and faculty traveled to Bethesda, MD to conduct Cadaver Anatomy and Surgery training at the Walter Reed National Military Medical Center (WRNMMC) and the Uniformed Services University of Health Sciences (USUHS). COL(ret) Edward Falta, MD, KACH General Surgeon (USMA ’89), COL F. John Burpo, ScD (USMA ’92), LTC Luis Alvarez, PhD (USMA ’97), and J. Kenneth Wickiser, PhD (USMA ’92) accompanied the cadets in CH460, Human Anatomy, down to Bethesda where Dr. Falta and a team of surgeons including Chair and Deputy Chair of Surgery at WRNMMC and USUHS, CAPT Eric Elster, MD, and COL Fred Lough, MD (USMA ’70) introduce the cadets to basic surgical techniques on both life-like simulators and teaching cadavers. The lessons learned in the classroom at West Point were reinforced by performing surgical techniques on many different organ systems using a variety of tools and techniques. During the surgical training, COL Burpo and Dr. Wickiser met with the university leadership to facilitate a stronger relationship between West Point and USUHS. The team discussed a path for incoming West Point faculty to earn their graduate degrees at USUHS and also agreed upon the creation of a Nerve Regeneration laboratory at USUHS being set up by LTC Alvarez and Dr. Wickiser. This West Point lab at USUHS will catalyze collaborations between West Point faculty and colleagues in Bethesda across many disciplines. We look forward to the research projects and joint academic appointments while providing cadets more training opportunities in the many interdisciplinary fields of science and engineering supporting the Nerve Regeneration and Repair mission. The transformative West Point AOG gift funds made this trip a reality and the investment encouraged the USUHS leadership to waive fees for the use of the teaching cadavers, equipment, supplies,
and the training team of physicians and technicians. The cadets and faculty of the Department of Chemistry and Life Science are grateful for the opportunity afforded our best and brightest cadets as they develop into leaders of character and dedicated physicians. And lastly, this trip improves the relationship between the Nation’s Medical School with the Nation’s Leadership Academy; we hope our cadets use the experience as they decide which medical school to attend and become the next generation of physician-leaders in the Army.

(CADETS PRACTICE ANGIOPLASTY TECHNIQUES ON AN ADVANCED SIMULATOR)

(LEFT) 2LT Sam Stevens, USMA ’13 and 4th year medical student at USUHS, demonstrates surgical techniques on a cadaver for the cadets. (TOP RIGHT) Dr. Rocco Armonda, USMA ’86 and Neurosurgeon, trains cadets on using microcatheter and guide wire to conduct vascular repairs. (BOTTOM RIGHT) CAPT Eric Elster, MD and Chief of Surgery at USUHS and WRNMMC, discusses strategies to succeed in medical school while the cadets learn some finer points of head and neck anatomy before going to work with the teaching cadavers.
On 18-19 April 2017 COL Barry Shoop, Professor and Head of the Department of Electrical Engineering and Computer Science and Cadets Robert W. Cobb (EE, ’17), Noah R. Ogrydziak (CS Honors, ’17), and Anna M. Rapp (CS, ’17), who are all enrolled in his XE492 Disruptive Innovations course traveled to Boston, MA to engage with forward thinking technologists and business leaders. The visit was facilitated by Kurt Keville, MIT Institute for Soldier Nanotechnology (ISN) Research Specialist and USMA Class of 1983 graduate. The XE492 visit began with an overview of the ISN describing the role of MIT, Army and industry partners working together to discover and field technologies that advance Soldier protection and survivability capabilities. The ISN provides funding, office space and laboratory space to support faculty and student research at MIT. Next the team got a glimpse of advanced functional fabrics – clothing infused with specialized optical fiber that provides functionality like identification friend or foe (IFF), communications, sensing and color changing capabilities. For the future soldier, this provides the capability for increased functionality with reduced weight and power requirements. The team had the opportunity to understand quantum chemistry through discussions with a researcher from the Aspuru-Guzik Research Group, a theoretical physical chemistry group in the Department of Chemistry and Chemical Biology at Harvard University. This research focuses on the connections between quantum computation, quantum information, and chemistry and the theoretical studies of energy and charge transfer in photosynthetic complexes and renewable energy materials.
To better understand the how successful innovation relies on an ecosystem, the group visited The Engine. The Engine is a new initiative that aims to fill the gaps between scientific and technological entrepreneurial activity, commercialization efforts, and regional economic development. Blending an incubator, an accelerator and long-term funding, The Engine creates an ecosystem that provides comprehensive support to innovators to start and grow successful companies. The incubator provides thousands of square feet of physical space, advanced laboratory facilities, and state-of-the-art equipment required for “hard-tech” businesses. The accelerator provides access to legal advice, management and streamlined business services. The long-term funding, unlike traditional venture capital (VC) funding that has a maximum of a 10-year horizon, instead is focused on an 18-year horizon, referred to as “patient capital.” To complete the ecosystem, all of the startups are physically collocated to provide collaboration, idea sharing and the intellectual stimulation that are all necessary for an innovation ecosystem.

Finally, the XE492 class spent ½-day at MIT Lincoln Laboratory where they received an overview of Lincoln Laboratory, were introduced to advances in wide area persistent surveillance techniques and state-of-the-art systems, three-dimensional laser imaging and its use in foliage penetration applications, toured the microelectronics fabrication facility and the new rapid prototyping facility. One of the most interesting projects coming from the rapid prototyping facility supported a micro-drone swarm demonstration conducted in October 2016 with 103 Perdix drones launched from three F/A-18 Super Hornet aircraft. The micro-drones demonstrated advanced swarm behaviors such as collective decision-making, adaptive formation flying, and self-healing. The Perdix drone was designed and built in the Lincoln Laboratory rapid prototyping facility and is 6.5 inches in length, has an 11.8 inch wingspan, weighs 290 grams, has a maximum speed of 70 mph and endurance of roughly 20 minutes.

This XE492 trip was made possible through generous donation of the Harry and Diane Van Trees Electrical Engineering and Computer Science Enrichment Endowment.
EECS Faculty Member Visits United Nations with Corbin Forum Cadets

Prof. Susan Schwartz was the Officer in Charge during a trip section to the United Nations with Cadets from the Corbin Forum, an organization that exists at West Point as a forum to discuss gender issues and develop professionally through networking and mentoring. Prof. Schwartz and the Cadets’ tour included the General Assembly, in which they received special permission to stand on the podium, and the Security Council chamber. After the tour, they attended a briefing from the UN Office for the Coordination of Humanitarian Affairs (OCHA) followed by Q&A on how the UN assists countries and world leaders in providing humanitarian support during times of war, famine, and natural disaster.

POC: Prof. Susan Schwartz (x5579)
NSA Indoctrination Administered at USMA

On April 6th, an NSA agent administered a classified indoctrination to 20 USMAs cadets and 7 Coast Guard cadets. The indoctrination was the first large-scale use of the USMA Sensitive Compartmented Information Facility (SCIF) which is jointed operated by the Dean's NSA Fellow and the Army Cyber Institute (ACI).

The indoctrination supports cadets headed down to NSA this summer for TOP SECRET AIADs. Traditionally, cadets had to take a one and a half day round-trip to Maryland for indoctrination. Instead, they attended a four-hour local trip section. The NSA agent's travel was funded through EECS gift funds.

Cadets will have another opportunity to use the SCIF to virtually meet their sponsors and discuss their upcoming projects. The SCIF now sees regular use by ACI personnel and there are plans to support cadet activities and faculty research this summer and next academic year.

EECS Cadet and Faculty attend 2017 ACMSE Conference

EECS major CDT Leo Kosta and Dr. Suzanne J. Matthews attended the 2017 ACM Southeast conference, held on April 14-15 in Kennesaw GA. CDT Kosta was a co-author on a paper which was accepted through the peer-review process. The paper was:


CDT Kosta presented the paper at the conference. It is his first peer-reviewed publication. The work discusses a project he worked on in collaboration with engineers at U.S. Army Engineer Research & Development Center (ERDC) Information Technology Laboratories during Summer 2016. Dr. Matthews was the lead faculty author and coordinator for the paper. The other three authors are researchers at ERDC.

ACMSE is the oldest, continuously running conference in the Association of Machinery, and is considered a great venue for students to present their research in the computing
disciplines. Students have an opportunity to network with faculty and students from other universities. POC/Trip OIC: Dr. Suzanne J. Matthews.

Department of Geography and Environmental Engineering

GIS Cadets present their research projects at the National Geospatial Intelligence Agency (NGA) and Dr. John Brockhaus is recognized for his contributions to USMA and NGA.

On April 24th, 17 Cadets and 5 Faculty members traveled to NGA. In January, Cadets received research questions from NGA. Cadets briefed Mr. Robert Cardillo, the Director of NGA, and Mr. Ed Mornston, NGA Chief of Staff (USMA 80) on their research. They also provided a more in-depth briefing to regional experts and senior analysts. Their questions related to two key areas:

1) Economic impacts of Chinese Investments in Pakistan on Internal Stability over the next 10 years
2) How is South Korea postured to Support the 2018 Olympics?

Following the briefings, Mr. Robert Cardillo spoke with the Cadets and personally thanked them for their contributions to the NGA Mission. He presented each Cadet with a NGA Certificate of Achievement.

Cadets also met with USMA graduates who are currently working at NGA during lunch for an informal discussion of NGA’s mission and the role of the graduates at NGA and in the Intelligence Community.

Finally, Dr. John Brockhaus was presented a Director’s Medallion by Mr. Cardillo for his 23 years of contributions to USMA, NGA, and the geospatial community. POC for this event is LTC Chris Oxendine, 938-4354 or christopher.oxendine@usma.edu.
The Director of NGA, Robert Cardillo and NGA Chief of Staff, Ed Mornston (USMA 80) welcomed Cadets and Faculty at the National Geospatial Intelligence Agency.

**West Point Orienteering Team**

The Army West Point Orienteering Team held its 38th Annual West Point National Meet at Camp Buckner on Saturday, 22 April, and Harriman State Park on Sunday, 23 April. After months of planning and preparation, meet director CDT Trey Grindley ('18) and assistant meet director, CDT Dan O’Conor ('17), successfully coordinated the meet for over 250 orienteers from across the country.

Each day began at 0600 to set-up registration, start, finish, and E-Punch sites. The Orienteering Team was ready to begin the courses by 0900. The excellent courses were produced and managed by course designers CDT Brigitte Bordelon ('20) and CDT Michael Bruce ('18). Several cadets were vital to the smooth execution and overall competitor satisfaction during the meet, including CDT John McCormick at Registration ('17), CDT David Weinmann ('18) at Start; CDT Jessica Johnson ('18) at Finish; and CDT Samuel Evans ('18) at E-Punch.

The Orienteering Team hosted 40 competitors for dinner and an interactive Course AAR on Saturday with complementary music by a guitarist from the West Point band. CDT
Brigitte Bordelon ('20) led the conversation, allowing competitors to discuss their courses and providing insight to cadets on competitor approaches to the courses and how to improve for next year.

This meet allowed team members to practice their planning skills and perform under pressure. We are very proud of the team for their combined efforts to run the best A-Meet yet. The team looks forward to the highly anticipated 39th Annual West Point Orienteering Meet next year!

Cadet Justin Augustine ('19) motivates a youth competitor as he finishes his course at Camp Buckner on 22APR17.

**EV301 Trip Section to the Wheelabrator Westchester L.P. Facility, Sprout Brook Landfill, and the USMA Recycling Facility.** On 25 April, 17 Cadets from USMA’s Environmental Science class (EV301) travelled to Peekskill, NY, to view the generation of energy from combusting municipal solid waste. Wheelabrator Westchester L.P. generates approximately 60,000 kW of electricity, enough to supply 67,000 New York homes, by burning household and commercial trash from throughout Westchester County. Cadets saw firsthand how 2,250 tons of waste per day is incinerated and then converted to mechanical energy before being distributed onto the electrical grid. Cadets also learned about air pollution control devices that are used to ensure that the exhaust gases meet federal emission standards.

After visiting the Wheelabrator facility, Cadets visited the capped Sprout Brook ash monofill in Cortlandt Manor to see where the ash from Wheelabrator used to be
stored. The final stop on the field trip was to the USMA Recycling facility where Cadets saw firsthand where the items they place in the recycling bins in the Cadet area are processed. The POC is MAJ Lauren Koban at lauren.koban@usma.edu.

Jose Seco the Wheelabrator Operations Supervisor, standing next to the housing for one of the turbines, explained the process to spin turbines from the steam created through incineration.
Cadets in EV301 watch as a crane picks up waste from the storage bunker and drops into the combustion chamber for incineration.

Cadets receive a brief on the Sprout Brook ash monofill design by Gary Ritchie, the Superintendent of landfills for Westchester County.
Cadets pose at the top of the monofill with the Superintendent of landfills for Westchester County, Gary Ritchie, and his colleague Greg Stey.

**Academic Club – Society of American Military Engineers**

**USMA Engineer Dinner:**

On 12 April, months of effort by the Student Chapter of the Society of American Military Engineers (SAME), the Engineer Branch Representative and leadership from the SAME Young Members – New York City Post and the Army Engineer Association (AEA) culminated in the execution of the West Point Engineer Dinner. The dinner which was sponsored by AEA and SAME honored Engineer branched First Class Cadets. The event was attended by 192 individuals representing senior leadership from New York City construction firms, SAME – New York City Post, the Executive Directors of AEA and SAME, the U.S. Army Corps of Engineers, staff and faculty, and 116 Cadets. The afternoon began with a tour of Davis Barracks for senior leadership in attendance. The events at Ike Hall began with a social hour in Crest Hall. The formal portion of the evening occurred in the Ike Hall ballroom and included an Engineer Punch ceremony, toasts, dinner and guest speaker comments provided by MG William Rapp, the 50th Commandant of the U.S. Army War College. CDT Zachary Cohen received the SAME David M. Fraser Award for engineering excellence and leadership. CDT Saverio Macrina received the AEA Sapper Spirit Award for demonstrated mastery of all tasks during the course of instruction over the 47 month West Point experience. The Cadet Color Guard and West Point Band provided excellent support and the A/CIC of the
SAME Club, CDT John Rogers, served as MC for the event. The event served as a venue in which industry, military and Cadet leaders across multidisciplinary backgrounds joined together in celebration and fellowship. Participation in this event enabled enrichment of West Point’s interaction with the New York City Post as well as demonstrates the close relationship between the NYC SAME Post and the USMA SAME Student Chapter. POC is LTC Benjamin Wallen at benjamin.wallen@usma.edu.

Above: Leadership from the U.S. Army Corps of Engineers, Society of American Military Engineers – NYC Post, and a variety of engineering firms from NYC and across the country joined the Commandant of the U.S. Army War College, MG William Rapp for a tour of Davis Barracks.

Above: Leadership from the USMA SAME Student Chapter support registration/check-in for the Engineer Dinner. Shown in the photo (L-R): A/OIC CPT Erick Martinez, OIC LTC Benjamin Wallen, A/CIC CDT Nicholas McNerney
Above: USMA SAME Student Chapter Assistant Cadet-in-Charge, CDT John Rogers, serving as the MC and initiating the formal portion of the Engineer Dinner.

Above - Left: Cadets and Industry Leaders enjoying fellowship at the Engineer Dinner. Right – BG(Ret.) Joseph Schroedel presents the SAME David M. Fraser award to CDT Zazhary Cohen.

Above: COL(Ret) David Theisen talks about the significance of the AEA Sapper Spirit Award prior to presentation to CDT Saverio Macrina.
Below: MG William Rapp, the 50th Commandant of the U.S. Army War College shares thoughts on leadership and lessons learned for consideration by this next generation of Engineer Platoon Leaders.

Department of Civil and Mechanical Engineering

1. ME496 Capstone – Body Armor Buttstock Interface (BABI): Cadets Troy Amnott, Aaron Anderson, and Brian Crigler are working to improve soldier marksmanship, which is degraded by wearing body armor. They are working on both an interface device to help soldiers seat their weapon on their body armor, and modifications to body-armor systems that would reduce the interference to easily seating weapon buttstocks in soldiers’ natural shoulder pocket that current body-armor designs present. The Army support for this project has been tremendous. The images below show the live-fire testing opportunities that have been provided by ARL/HRED at Aberdeen Proving Ground, the Maneuver Battle Lab at Ft. Benning, and ARDEC. The ARDEC mentors for this work are Frank Battersby, Adam Foltz and William Gerboth. POC: Chris Conley at christopher.conley@usma.edu

Cadet Troy Amnott firing with his BABI prototype at ARL/APG. Mr. Frank Morelli of ARL/HRED is directing the testing program that he choreographed for team. The testing was completed during a day trip on 21 February 2017.
Cadets overseeing the testing and collection of data as soldiers from the MBL EXFOR serve as subject-matter experts in use of the M4. Mr. Frank Battersby from ARDEC, shown in the photograph, was serving as one of the data collectors during the testing at Ft. Benning on 06 March 2017.

ARDEC engineers (L to R) Frank Battersby, Will Gerboth and Adam Foltz work with Cadet Aaron Anderson on acquiring recoil data for the BABI prototype on USMA's Tronsrue Range on 12 April 2017.

2. ME388 Lakota Flight Labs: Cadets enrolled in ME388: Helicopter Aeronautics took part in flight labs in the UH-72 Lakota helicopter on 14 April. The labs were supported by the 2nd Aviation Detachment. During the lab, cadets were able to observe concepts they learned about in the course to include effective translational lift (ETL), transverse flow, control power, and control coupling. In addition, they took data in flight to compare theoretical predictions with actual performance at various airspeeds in a climb, in level flight, and at a hover. They will use the data to prepare and deliver a technical lab presentation in class. POC: LTC(P) Rich Melnyk at richard.melnyk@usma.edu.
3. ME388 Sikorsky Trip Section: Cadets enrolled in ME388: Helicopter Aeronautics, took a trip to Sikorsky Helicopters in Stratford, CT on 19 April. The trip is an annual one that has been taking place in ME388 for over two decades and exposes cadets to the state of the art in rotorcraft manufacturing, design, and simulation. The group saw the UH-60M assembly line, advanced 3D printing and manufacturing facilities, a fly by wire UH-60M simulator, and received briefings on helicopter design from an engineer with 30 years of experience at Sikorsky. A highlight of the trip was a visit to Igor Sikorsky’s office; which is maintained as it was the day Mr. Sikorsky left it in 1972, just before he passed away. Mr. Dan Libertino, who has worked for or volunteered with the company for over 60 years, spoke about Igor Sikorsky’s legacy as a pioneer in vertical flight. COL(R) Mike Mudd (USMA ‘80) and Andy Erickson (USMA ‘03) hosted the tour and spoke to cadets during the visit. POC is LTC(P) Rich Melnyk at richard.melnyk@usma.edu.
4. ME496 Capstone Team ‘Mechanical Mules’ places 2nd at the Service Academy Design Challenge: The ‘Mechanical Mules,’ a senior-design capstone team comprised of CDTs Alex Applegate, Ariyana Boulden, and Ryan Grimm, travelled to Arnold Air Force Base, TN from 12-13 April to compete in the 2017 Service Academy Design Challenge (SADC). SADC is an annual engineering design competition between the United States Military Academy (USMA), United States Naval Academy (USNA), United States Air Force Academy (USAFA), and civilian colleges sponsored by Air Force Research Labs (AFRL). Each year, AFRL challenges participants to develop prototype solutions to fill Air Force Special Operations Command (AFSOC) capability gaps. This year, AFRL asked teams to “develop a resupply device, manually or autonomously operated to haul items on rough and unimproved surfaces”. Team Mechanical Mule purchased a commercial off the shelf (COTS) powered wagon and modified it to autonomously follow a Soldier or Airman around the battlefield. Using a 360 degree array of Infrared (IR) sensors, the vehicle detects IR signals from and IR transmitter worn or carried by the operator. The IR signals are processed through an Arduino controller which drives and steers the vehicle. The competition day began with each team presenting their: design problem, prototype engineering analysis, and testing results. The competition ended with each team demonstrating their prototype during a mock downed-aircrew rescue mission. The mission proved to be a torture test for each team’s prototype. Of the 13 teams competing, the Mechanical Mules were only one of three to fully complete the course. Using its IR user-follow capability, USMA’s was the sole prototype to complete the course ‘hands-free’. The judging team announced they had a difficult decision to make - USNA’s team of seven midshipmen developed a prototype which impressed the judges as much as the mechanical mule. The final vote
went to USNA. The judges agreed a prototype which blended USMA and USNA’s design features would fill their capability needs. In addition to placing 2nd, the Mechanical Mules took pride knowing their prototype lapped USNA’s prototype on the course after USNA was forced to take an extended pit stop to repair a mechanical breakdown. USNA’s team was undoubtedly shored-up by Midshipman Justin Yu, a service academy exchange program participant who received a full treatment of mechanical engineering courses from USMA’s Department of Civil & Mechanical Engineering during the 16-1 term. POC is MAJ Dan Fox at Daniel.fox@usma.edu

Cadets and Midshipmen pose with their prototype vehicles at the 2017 Service Academy Design Challenge
CDT Grimm guides USMA’s ‘Mechanical Mule’ through the SADC obstacle course. The ‘Mule’ is carrying a 350lb load.

5. ME403 Manufacturing and Machine Component Design visits Picatinny Arsenal: Cadets in ME403 visited Picatinny Arsenal, NY to tour the Prototype Integration Facility (PIF) on 18 and 19 April. Mr. Stephen Leong coordinated to brief cadets on the capabilities of the PIF and demonstrate how the PIF uses modern technology to create finished products for the Department of Defense. Cadets toured the Quality Control & Inspection room where Computer Measurement Machines are used to verify contractor-provided products meet dimensional specifications. During prior lessons in ME403, cadets manually manufacture an aluminum bottle opener – a project requiring 9-11 hours of work. The machinists, using modern Computer Numerically Controlled (CNC) machines and Computer Aided Manufacturing (CAM) software, produced the same bottle opener in about four minutes. The tour concluded with a show case and question and answer session about small and large caliber munitions, vehicle protective equipment, and other recent prototypes produced by the PIF. POC for this event is MAJ Dan Fox at Daniel.fox@usma.edu
Mr. Jim Granitzki provides an in-brief to ME403 cadets on the capabilities of Picatinny’s Prototype Integration Facility.

Mr. Granitzki discusses the challenges in producing a prototype component.
6. CME Cadets Represent USMA at NY International Auto Show. On Wednesday, 19 April 2017, 30 cadets from the Mechanical Engineering Club traveled to the Jacob Javits Convention Center to tour the New York International Auto Show. During the show, cadets witnessed the cutting edge in automotive technology and interfaced with marketing and engineering representatives from industry leaders in both the foreign and domestic auto markets. The show satisfied gearheads, enthusiasts, and educators alike through a multitude of new and classic vehicle displays as well as educational demonstrations and vendor booths. POC is MAJ Dan Fox at Daniel.fox@usma.edu

Cadets from the Mechanical Engineering Club at the NY International Auto Show
CDTs Jared Kobylski (2017) and Griffin Gerchman (2017) carefully assess the merits of the new Honda Civic
CDTs DJ Serrano (2017), Griffin Gerchman (2017), and Josh Chand (2017) perform analysis for DCA to determine how many cadets can fit inside Ford’s new large capacity van.

Department of Social Sciences

Senior Conference 53

From April 23-25, the Department of Social Sciences hosted the 53rd iteration of the Superintendent’s Senior Conference. Senior Conference is an annual event run by the Department of Social Sciences on behalf of the Superintendent and provides a forum for distinguished representatives from the private sector, government, academia, think tanks, media, and the joint military services to discuss topics of national security importance. This year’s conference was the second in a two-part series examining the 70th anniversary of the National Security Act of 1947. Last year, participants discussed how the international security environment has evolved since the passage of the National Security Act and identified three possible areas of reform: the role of the legislative branch in national security policymaking, the importance of strategic foresight in long-range planning, and the development of surge capacity within national security institutions to respond to emerging threats. Over the course of three days, participants discussed these topics during a series of workshop sessions to help produce a forthcoming report that will include a series of discrete, actionable recommendations for policymakers.
The Honorable Frances F. Townsend, former Homeland Security Advisor for President George W. Bush, provides a keynote address on the dynamics of national security reform on the evening of April 24th.
OSC-I Panel Discussions

On April 25th, two former Chiefs of the Office of Security Cooperation Iraq (OSC-I) – LTG(R) Mick Bednarek and MG Paul LaCamera—participated in panel discussions for students in XH467: Winning the Peace and approximately 250 cadets and faculty across multiple academic disciplines. The panelists discussed the challenges of leading this Office under very fluid circumstances to include changes in the Iraqi government, ISIS advancements, and increasing involvement by regional powers’ that have continued to make the situation increasingly volatile, complex, and uncertain. Additionally, the panelists discussed the necessity of working with our interagency partners and the challenges therein and spoke candidly about the need to align means with ends in order to achieve stability in post-conflict environments.
Department of Foreign Languages

Current Week HIGHLIGHTS:

DFL: Phi Sigma Iota induction ceremony (West Point, NY)

On 18 APR, the Department of Foreign Languages hosted its annual Phi Sigma Iota Foreign Language Honor Society induction ceremony. More than 88 new members (faculty and cadets) were inducted through the West Point Beta Nu Chapter. The formal ceremony took place in the Black Gold & Gray Room at the Mess Hall. The guest of honor and speaker was Colonel Vincent de Kytspotter, the Military Advisor to the French permanent mission at the United Nations.

Chinese

On 25 APR, CDTs Seyfried and Kincaid visited the Great Wall at Badaling, north of Beijing. In addition to rigorous language classes at Peking University, the cadets are also exploring the culture and history in and around Beijing.
Arabic: Model Arab League (New York City)

Eight cadets from the Model Arab League visited the Swedish Mission to the United Nations in New York City to discuss the problems, priorities, and viewpoint of small-country and non-NATO security. The cadets received briefings from the Swedish Military Advisor, Swedish Political Advisor, and Danish Military Advisor. The Swedish Mission also held a working lunch with Military Advisors from the Swedish, Danish, Finnish, American Military Advisors and Swedish Second Secretary where a wide-ranging discussion of military, political, strategic, and foreign policy topics were discussed. The cadets also visited the United Nations Headquarters building a few blocks away, cementing the importance and influence of the organization on world conflict and peace operations. The cadets left New York City with a renewed appreciation for the concerns of states that do not have the capabilities, ambitions, and security concerns that the United States has in a turbulent global environment.
Arabic: Semester Abroad (Amman, Jordan)

As the semester draws to a close, CDTs Koontz, Montgomery and Willis are taking advantage of the final few weeks of the program. Easter found CDTs Montgomery and Willis enjoying some quiet time in Amman while CDT Koontz travelled with AMIDEAST classmates to Jerusalem. This truly has been a remarkable cultural experience and the Biblical Excursion the cadets participated in this past week was another highlight. The cadets began the trip by visiting Madaba, an ancient town renowned for its mosaic artwork. They then travelled to nearby Mt. Nebo, the final resting place of the Prophet Moses. Finally, they capped their trip off with a visit to the Dead Sea. They intend to spend their final two and a half weeks reflecting on their overseas experience and preparing for their return to West Point and their summer military assignments.

CDT Austin Montgomery '18, Co. E-1 and CDT Eric Willis '18, Co. A-2 enjoying a traditional Jordanian lunch at the Dead Sea with some AMIDEAST students and faculty
Arabic: Lecture at Columbia University (New York City)

On Saturday, 22 APR, Dr. Rajaa Chouairi, Arabic Program Director in the Department of Foreign Languages, traveled to Columbia University where he lectured and conducted a day-long seminar and workshop titled: “The World in the Classroom, the Teaching of Culture.” The topic focused on eliminating barriers and bringing the world to the classroom and the classroom to the world. The day-long event was attended by Arabic teachers from New York City and the Tri-State area.

Dr. Rajaa Chouairi, center standing, amongst foreign language teachers in attendance to his lecture at Columbia University on 22 April 2017

German

On 22 APR, COL Mark Gagnon, German Program Director, presented as part of panel on German Film at the Languages, Literatures, and Cultures Conference at the University of Kentucky, Lexington, Kentucky. COL Gagnon discussed the 1959 West German anti-war film, The Bridge. Critically-acclaimed as one of the finest war movies ever made, COL Gagnon focused on the film’s attention to the plight of German youth following the WWII.

Center for Language, Culture, and Regional Studies (CLCRS):

LTC Gregory was a speaker on the 12 April 2017 World-Wide Human Geography Data (WWHGD) Working Group webinar, "Understanding Global Data and Mapping of Languages." He discussed the relationship between Language, Culture, and Regional Expertise at West Point. 134 attendees from U.S. Government, Civil Departments
and Agencies, International Groups, Non-Governmental Organizations, Academic Institutions and Private Industry personnel participated in the webinar.

Upcoming HIGHLIGHTS Next two weeks:

**CLCRS**

On 27 APR, the Chinese LN490 group that is working with UVA on a Digital Simulator to assess and train Cross-Cultural Competence will present their work at the 2017 Systems and Engineering Design Symposium at the University of Virginia in Charlottesville, Virginia. At UVA, the group will present their work in English, before presenting at USMA’s 4 MAY Projects’ Day in Chinese. This project is part of an ongoing joint collaboration between UVA students and USMA cadets, involving field research in China and integration of systems approaches with intense socio-cultural research. The project is supported by the Army Research Lab.

Distinguished Visitors from Defense Language and National Security Education Office (DLNSEO) (Dr. Michael Nugent, Director); the Defense Language Institute (DLI) (Dr. Betty Leaver, Provost), and the Washington Office of the American Institute in Taiwan (AIT) (Dr. John Norris, Managing Director) will attend the Department of Foreign Language’s Projects’ Day on 04MAY. DFL and CLCRS will host these visitors as they meet with faculty and observe cadet presentations.

**Department of Mathematical Sciences**

The Department of Mathematical Sciences’ Math and Operations Research majors attended the Service Academy Student Math Conference on 13-14 April at Annapolis. The other participants in the conference included Navy, Air Force, and the Coast Guard Academy. The 26 USMA cadets attending the conference gave talks and answered questions on either their year or semester long research projects to a group of their peers and service academy faculty members. West Point cadets represented the largest contingent at the conference giving 26 of the 51 total presentations. Accompanying the student at the conference were LTC Randy Boucher, LTC Joe Lindquist, and COL Jake LaPorte.
USMA Cadets Present Capstone Research at USTARS

On 1 April 2017, CDTs Nicolette Jimenez and Cameron Voigt attended the Underrepresented Students in Topology and Algebra Research Symposium (USTARS) held at Amherst College in Amherst, MA. This symposium provides an opportunity for undergraduate math majors to showcase their research, expand their networks and introduce them to graduate and post doctorate level research.

As capstone cadets, CDTs Jimenez and Voigt were able to present on the research they have worked on throughout the academic year; their research topics lied within Representation Theory, Algebraic Geometry, Group Theory and Matrix Theory.

CDT Jimenez presented on “Constructing Symplectic Varieties Using Geometric Invariant Theory”

“USTARS was very positive experience and added to my academic development as a mathematical sciences major.”—CDT Jimenez
CDT Cameron Voigt presented on “Generalizing Zeckendorf's Theorem Via Bin Sequences”

“USTARS was an excellent experience for me…I would highly encourage all interested math cadets to attend…”—CDT Voigt

Center for Leadership and Diversity in STEM

CLD STEM Motivates DC Middle School Students to STEM possibilities
On 7 April 2017, West Point’s Center for Leadership and Diversity in STEM (CLD-STEM) led a VEX Robotics and Wind Energy workshop for approximately 80 students at Columbia Heights Educational Campus in Washington, DC. These workshops were a collaboration between CLD STEM and Leadership Ethics and Diversity in STEM (LEADS). In the robotics workshop, middle school students designed and programmed “portable unmanned ground vehicles”. In the wind energy workshop, middle school students designed and constructed wind turbines. CDTs Jacob Murdock, Natalie Herbert, Clair Wang, Marissa Karp and Derek Nunn assisted students in both workshops. For the afternoon, students competed their robots and wind turbines against other groups: looking for the robot(s) that traversed the course with the most precision and accuracy; students tested their wind turbines to see which turbine was the most efficient and inexpensive to build. Small prizes were awarded to the most exceptional teams.
Faculty members involved were Dr. Samuel Ivy and Mrs. Lori Sheetz from the Dept. of Mathematical Sciences along with MAJ Jacqueline Harris from ODIA.

VEX Robotics

Wind Energy
Inaugural Sonia Kovalevsky Day Promotes Women in Mathematics

On 22 April 2017, West Point faculty and the Center for Leadership and Diversity in STEM (CLD-STEM) hosted a group of female students in grades 6-9 and educators to promote women in Mathematics. The purpose of the day was to give students an opportunity to learn about mathematics and related fields, give cadets a chance to interact with middle school students and encourage gender climate change in Mathematics, and give middle school students a chance to visit West Point.
The students worked through lessons and activities including Mobius strips, hexaflexagons, modelling, diagram algebra, and traveling salesman problems. The teams were led by cadets from the Society of Women Engineers (SWE) along with faculty from D/MATH and D/SYS.