

OFFICE OF THE
DEAN, USMA

UPCOMING EVENTS

- Last Day of Classes (12 Dec)
- Army-Navy Game (13 Dec)
- TEE Period (15-20 Dec)
- Dec Grad (19 Aug)
- Reorganization Day (5 Jan)
- First day of classes (6 Jan)

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To the Point:

Academic Excellence at USMA

VOLUME 1, ISSUE 3

FALL, 2014

SUMMER STEM & SLE 2014

There is a Chinese proverb about educators: "Teachers open the door, but you must enter by yourself." At the beginning of the summer, 120 7th and 8th graders participated in the 2014 Summer STEM Workshop. This outreach was followed by the Summer Leader's Experience during which 360 11th graders visited West Point for their 6 day experience. Cadets, staff, and faculty made a difference in their lives – and thus in America's future.

President Obama has said that our "nation's success depends on strengthening America's role as the world's engine of discovery and innovation...STEM education is important to our security, our environment, and our economy." Summer STEM Workshop is a USMA program. The Center for STEM Education and the USMA Admissions teamed up to bring over 100 students to West Point where they were given opportunities in workshops hosted by the Departments of PANE, Math,

G&EnE, EECS, and Systems, and the Center for Enhanced Performance. Other organizations and individuals also assisted. One of the culminating moments of the STEM Workshop was the STEM Challenge in which the students, divided into teams, had to design and build a device capable of transporting an egg from the ground to a three foot high platform -- all done at a distance of at least 4 feet from the egg. Their ingenuity surprised the judges; the students clearly thought outside the box! Admissions provided the logistical support – transportation, quarters, and supervision. We are thankful to all the volunteers who participated, but special thanks are given to BG (RET) Steve Ressler who came to West Point to conduct the STEM Challenge and Ms Cathy Bale of the Center for STEM Education who coordinated most of the academic and cadet activities. BG Ressler and Ms Bale started the summer STEM

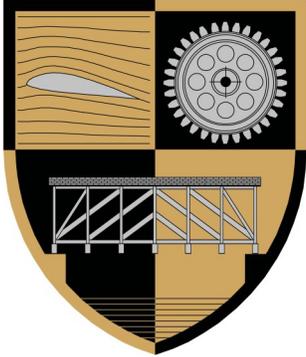
program some years ago – and we are most grateful for their vision and leadership. We think that it will become a USMA summer program.

Summer Leader's Experience gives high school students a chance to not only assess their future academic plans, but also to finalize their decisions concerning a commitment to the profession of arms. It is a team effort. Every academic department and the Simon Center conducted workshops. Admissions processes over 500 cadets during each of the two weeks – transportation, quarters, supplies, and supervision. Cadets train, monitor, and live with these great Americans for the entire time that they are at USMA. Do we make a difference? The fact that 30% – 45% of those attending SLE choose to come to West Point is a strong indicator that we are clearly helping them in their decision making process. The closing ceremony is awesome to observe. The parents are sitting comfortably in Robinson Auditorium. The Hellcats begin and when they conclude in march the 500 students displaying an enthusiasm for West Point and academics that radiates to their parents. Parents realize that their sons and daughters have changed. For many, the realization that they are looking at tomorrow's leaders has suddenly come home. We have made a difference.



Prof. Lainis wows the crowd with a variety of physics demos.

Faculty Spotlight: Dr. Led Klosky, D/Civil and Mechanical Engineering



It's been a banner year for Dr. J. Ledlie Klosky, Professor of Civil Engineering, as he continues to pursue the DCME vision of inspiring cadets and delivering the best undergraduate engineering education in the nation. Dr. Klosky has served in many roles at West Point since his start as an Assistant Professor in 2000, including serving as a Group Director as well as two years as the Acting Deputy Head, so his time on the trail to full professor has given him a zeal for timely actions that encompass the broader academy mission. He currently serves on a number of strategic-level committees, and is the Dean's executive agent for the design and construction of a new multi-purpose academic and engineering building at the site of the old Central Apartments.

In Academic Year 2014, Dr. Klosky has been very active on the Civil Engineering scene at West Point and beyond. Building on ongoing work on infrastructure models developed with colleagues in D/CME, Dr. Klosky delivered four invited lectures, including a live 90-minute lecture at the American Society of Civil Engineers' (ASCE) Annual Conference; an archived webinar for ASCE with LTC(R) Steve Hart; a lecture for the Engineering Mechanics Institute; and one at his alma mater, the University of Colorado. These lectures drew on work that focuses on creating models for understanding, visualizing, and describing large infrastructure systems along with assessing, protecting, and developing the resulting assets.

The line of inquiry leading to the infrastructure modeling was inspired by a change in the Civil Engineering major that brought about the standup of CE350, Infrastructure Engineering, a course which serves both engineering and non-engineering majors. The need for strong models for learning about infrastructure was great, and since the development of these models here at West Point, other universities and organizations have taken a keen interest in including this content. That keeps Dr. Klosky on the move, teaching and learning about infrastructure so that the cadets receive the very latest and best education on this important topic.

The infrastructure work is leading to publication as well, including a journal article through ASCE (2014) and a Technical Report entitled "Infrastructure and the Operational Art – A Handbook for Understanding, Visualizing, and Describing Infrastructure Systems." The report, co-authored by others in CME including LTC (R) Hart, MAJ Scott Katalenich, MAJ Berndt Spittka, and MAJ Erik Wright, is in final edit and due out in late 2014 or early 2015 through the US Army Corps of Engineers Engineer Research and Development Center (ERDC).

Other publications keeping Dr. Klosky busy this year include "Waste Heat Recovery from Generators in the Deployed Army"; co-authored with Dr. Gunnar Tamm and four cadets for the American Society of Mechanical Engineering's conference on energy sustainability, this paper was the result of a very successful cadet design project focused on using waste energy to provide hot water to soldiers in austere environments. Also published in summer 2014 were an educational paper for the American Society for Engineering Education (ASEE) describing and assessing a classroom technique called "Two-Minute Follies," wherein cadets are challenged to present a two-minute summary of a topic at the start of each lesson, as well as the final publication of some work with Dr. Elizabeth Bristow and LTC Jake Bruhl (currently in graduate school for return to the West Point faculty) related to use and assessment of supplemental videos for teaching engineering mechanics.

In a more leisurely highlight from the year, Dr. Klosky presented an enjoyable evening lecture to cadets and engineering practitioners at the ASCE Regional Meeting. Entitled "Men of Action: French Influence and the Founding of American Civil and Military Engineering," the lecture was based on Dr. Klosky's work published in the *Journal of Construction* in 2013. This talk was supported brilliantly by a diverting display assembled by the librarians from the USMA Library Special Collections, and attendees were given a rare opportunity to take a close look at important historic books and documents from West Point's earliest days.

Dr. Klosky enjoys several other opportunities for involvement with the cadets outside the classroom, including soccer with the DFL cadets and taking CE cadets to see major construction projects in NYC, but particularly enjoyed this satisfying mission during Spirit Week:



Dr. Klosky helps with the final assembly of the USS Conflagration that he built alongside CME cadets and faculty for the Army-Navy bonfire in 2013. The boat pictured burned beautifully.

Department Spotlight:

DEPARTMENT OF ENGLISH AND PHILOSOPHY

Investment in cadet development is the core of all we do, and the department's activities last term yielded great returns. It all begins with inspirational teaching in our classrooms, of course: EN101 (Composition), EN102 (Literature), PY201 (Philosophy), and EN302 (Advanced Composition through Culture)—along with a challenging array of electives in literature and philosophy. Yet the department's influence can be seen in a variety of contexts outside of the classroom, too. Increasingly, the range of that influence is truly extraordinary. Cadets and faculty presented papers at the First Annual Ethics of War Conference, a joint venture with Villanova University, the host institution. The conference allowed our participants to engage with some of academia's leading thinkers in the area of ethics and armed conflict. Next spring we aim to reciprocate by hosting the 2nd



Cadets on the "Writing Today" AIAD meet with Congressman Tom Cotton

Annual Ethics of War Conference right here at West Point. Our Creative Arts Project hosted two premier events: a weeklong display in the Haig Room of the Graffiti of War art exhibition and a series of film screenings, inspirational on all levels, presented by the G.I. Film Festival and its Director, Laura Law-Millett, USMA Class of '94. Our Annual Night of the Arts celebration and awards ceremony witnessed once again the incredible wealth of artistic talent in the Corps of Cadets. The standing-room-only crowd enjoyed a program that showcased cadet

talent in singing, piano playing, filmmaking, photography, poetry, painting, and drawing. Moreover, for the first time ever the CFAF Jazz Forum, accompanied by SFC Mark Tonelli of the USMA Band's Jazz Knights ensemble, performed a mini-concert that was one of the evening's memorable highlights. This year's Projects Day witnessed greater participation from our cadets than ever before: Academy Idol, Senior Thesis presentations, and elective course special projects made for a robust display of intellectual and creative energy from DEP. Finally, our leadership of the USMA-Vassar Initiative saw campus exchanges; a film screening and talk by Dr. Maria Hoehn during African-American Heritage Month; and the first-ever visit by the Superintendent to the Vassar campus for a day of activities in early May.

This summer, the Department sponsored an exciting range of AIAD summer enrichment activities; provided outstanding support of the Dean's Summer Leaders Experience; conducted validation testing for the class of 2018; welcomed, trained, and integrated new faculty members; and conducted superb Advanced Land Navigation training in support of CFT for the fifth consecutive year. The eight AIADs ranged in focus from writing to robots. Building on the success of the recently established West Point Writing Center and the Writing Fellows Program, Dr. Jason Hoppe and MAJ Paul de León led six cadets to the DC area on an eleven-day intensive residential study of the vital roles that writing and its teaching play on campuses, within the professional workplace, in public policy, and in the lives of veterans. The purpose of the trip was to equip future Army leaders with essential communications skills that prepare them to lead, coach, mentor, and inspire subordinates as well as represent Army values to diverse civilian populations. The cadets met



with leaders in business, government, academia, and the military to discuss writing and its role across multiple professions.

The Department of English and Philosophy consistently and visibly champions the virtues of a liberal education through its deep commitment to study within the humanities. Our goal is not only to shape the next generation of leaders for our Army but also to set a standard worthy of emulation in higher education. With that aim in mind, the department remains a strongly collegial and inviting place to work, which is a testament to the character of those who serve in our ranks. With unbounded good humor and unwavering mutual respect, our staff and faculty are committed to developing cadets, serving the larger USMA community, conducting outreach, and bridg-



Assistant Professor of Philosophy, LTC Jesse Zuck, conducts a safety briefing for cadets that are about to head out on the Land Navigation Course.

Center Spotlight: Operations Research Center (ORCEN)

Optimize resources – improve decision making – understand complex problems – expose truth. These objectives epitomize the role of military operations research. The Department of Systems Engineering (DSE) teaches the knowledge, skills, and attributes that cadets need to realize these objectives. The Operations Research Center (ORCEN), a center within DSE, pursues these objectives across a wide domain of current problems facing our nation. The ORCEN enriches cadet education by engaging problems of national significance and exposing cadets and faculty to relevant problem solving methods. This experiential learning process is one of the ways that DSE ensures cadets and faculty grow the abilities necessary to solve complex national problems of today and tomorrow.

Founded in 1989, the ORCEN is one of the oldest research centers at West Point. During this time, the ORCEN has provided analysis that directly supported decisions by the Secretary and Chief of Staff of the Army, leaders of West Point, and numerous other general officers and senior executives. This analysis has affected personnel management policies, weapons acquisitions, deployment tempo, installation alignment and closures, and several topics related to current operations in Iraq and Afghanistan. In addition to underpinning significant decisions, the ORCEN also specializes in the development of systems, models, and simulations.

The ORCEN consists of one Department of the Army (DA) civilian operations re-

search / systems analyst (ORSA) and five military ORSAs. Many of the officers serving in DSE and the Department of Mathematics (D/Math) have been designated as ORSAs based upon their operational and academic backgrounds, however only a small percentage ultimately serve in the ORCEN. Each year, one faculty member from D/Math and three faculty members from DSE rotate into the ORCEN for a one year tour. The ORCEN completes approximately ten projects per year, two of which are highlighted below.

Residential Energy Analysis: Led by MAJ Patrick Sullivan from D/Math, this project will focus on energy use across West Point residences and use this analysis to make energy savings recommendations to the Department of the Army. West Point will serve as a case study to develop a systematic process for determining the most economical energy retrofits for different housing styles. Ideally, the systematic process prototyped in this case study will be used by installations around the military, resulting in a significant amount of savings and improved environmental footprint. Based on a proposal submitted over the summer, the Army Study Program selected this project for funding. The project will be an ORCEN led collaborative effort involving instructor and student support from four different USMA Departments: DSE, D/Math, D/C&ME, and D/G&EnE.

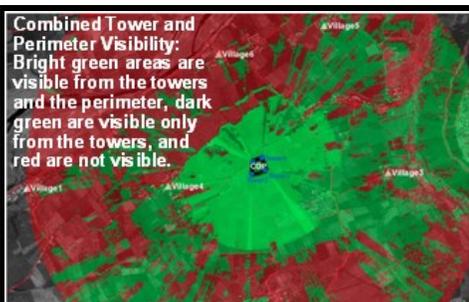
SAGE: Currently led by CPT Allen Trujillo, SAGE represents “Situation Awareness – Geospatially Enabled”. SAGE is a great example of a system of models devised to improve combat decision making. Sponsored by the Army Geospatial Center (AGC), SAGE started in the ORCEN in 2007 as a research initiative aimed at using ArcMap, the central component of ESRI’s ArcGIS geospatial processing software, to help Soldiers leverage readily available geospatial information and make better operational decisions in less time. At its core, SAGE is a collection of tools that use ArcMap to help

analysts, planners, and commanders conduct detailed map reconnaissance, terrain analysis, and portions of a modified combined obstacle overlay (MCOO) in a fraction of the time that it currently takes. SAGE uses the most updated terrain data available (imagery, elevation data, road networks, etc.) to help users make informed decisions that consider many factors about their environment. In short, SAGE brings normal maps and imagery to life and helps users make fast, high-quality decisions.

Additional ORCEN projects (project leads are in parentheses) include “Engineering Resilient Systems” (LTC Alex MacCalman), “Corrosion Prediction Modeling” (MAJ Patrick Sullivan), “Small Basecamp Requirements Analysis” (CPT Allen Trujillo), “CLDT 2015 Technology Experiment” (MAJ Greg Bew), “Measuring the Value of Information in Dismounted Tactical Networks” (MAJ Greg Bew), “PEO Ammo Depot Analysis” (Mr. Gene Lesinski), and “Soldier Power Analysis” (LTC Paul Evangelista). In addition to faculty led projects, the ORCEN also advises several cadet capstone projects every year. These projects stem from faculty led work, bringing cadets to the forefront of experiential learning and research. Additionally, the ORCEN manages approximately fifty unique cadet intern experiences every summer, many of which relate to previous, existing, and future ORCEN projects.



MAJ Sullivan demonstrates the blower door test used to measure a home's airtight-

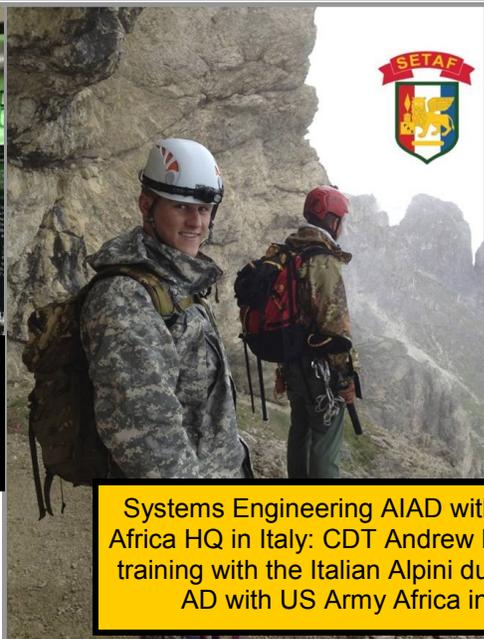


SAGE terrain analysis illustrating line of sight from multiple positions on a small basecamp.

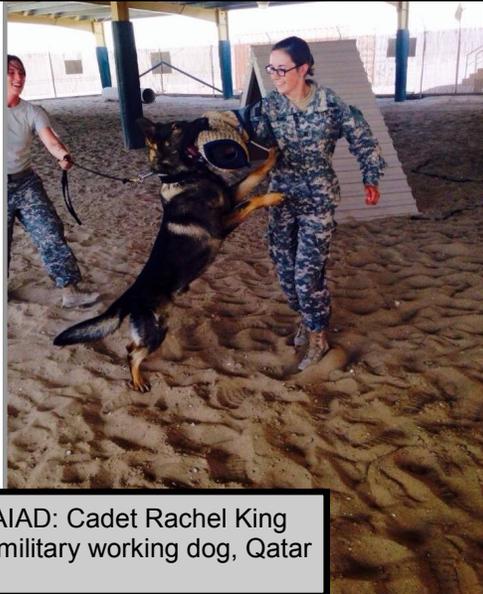
Academic Individual Advanced Development (AIADs)



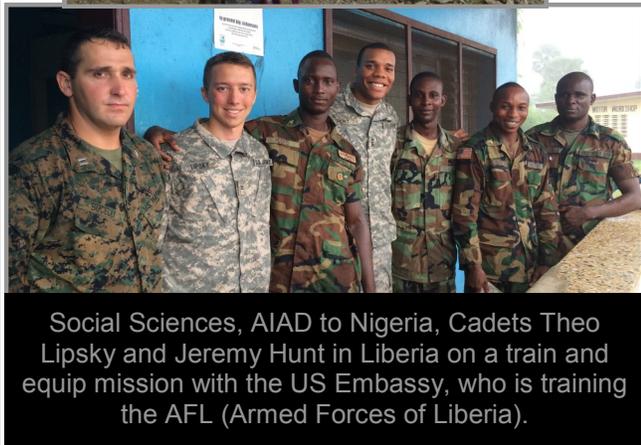
Systems Engineering AIAD: CDT Caulin Shannon conducting research and analysis on full motion video of UAV footage to conduct targeting at MITRE in McLean, VA.



Systems Engineering AIAD with US Army Africa HQ in Italy: CDT Andrew Michalowski training with the Italian Alpini during his AIAD with US Army Africa in Italy.



GEnE AIAD: Cadet Rachel King training a military working dog, Qatar



Social Sciences, AIAD to Nigeria, Cadets Theo Lipsky and Jeremy Hunt in Liberia on a train and equip mission with the US Embassy, who is training the AFL (Armed Forces of Liberia).

Advanced Individual Academic Development opportunities, or AIADs, offer cadets experiential learning opportunities during which cadets use, reflect on, and synthesis classroom learning, typically in an environment that cannot be replicated at West Point. Although each AIAD is different – with respect to length, location and subject matter – they are all designed with a goal of broadening or deepening the cadets’ knowledge in some area of academic endeavor. The most prominent focus areas are research, depth in their major, supporting the Army or other government agency, and cultural or language immersion. AIADs fulfill one of the cadets’ graduation requirements, and about ten percent of the AIADs also offer academic credit.

All academic departments offer AIADs. This past summer 925 cadets completed AIADs across 35 U.S. States and in 46 countries. Included in these great opportunities were training with foreign military units, studying language across the globe, conducting research at several National Laboratories and working with the Defense Intelligence Agency. These opportunities allowed cadets to examine a particular area of their academic major in great depth or to develop new interests for future studies. Frequently these activities led to Senior Projects for Capstone Courses and will be presented by Firsties on Projects Day.

The importance of AIADs in cadet academic development is recognized at West Point, throughout the Army, with other federal and state agencies, and in corporate America. This is readily apparent in the multiple funding sources that fund these events. Over the past five years, approximately forty percent of the AIAD budget came from gracious donations through the West Point Association of Graduates.



Office of the Dean, USMA
Building 600, Taylor Hall
West Point, NY 10996
845 938-2000

The purpose of the Academic Program is to provide our students the intellectual foundation for service as a well-educated commissioned officer who possesses the knowledge and skills necessary for continued growth as a U.S. Army officer. In coordination with the Military and Physical Programs, the Academic Program develops in cadets a professional self-concept as an officer and nurtures their competence, character, and confidence to act decisively on matters of concern to the nation. The structure, content, and process of education and development enables cadets to understand the interrelated roles of a commissioned officer: soldier, servant of the Nation, military professional and leader of character. The leader development process compels cadets to incorporate these roles into their own emerging professional identities.

Duty, Honor, Country

From the Dean: BG Tim Trainor

Greetings again from West Point! Our Cadets had a wonderful summer of training and enrichment, and I want to share a few thoughts about their experiences and also the direction our academic program is headed. Summer is the time of year during the 47-month experience that cadets focus on two critical aspects of their development into leaders of character: Military training and Summer Internships. Military training at West Point and abroad remains the best training the Army's future lieutenants can receive. Competitive-selection military training courses (Military Individual Advanced Development) enrich that training. Our Summer Internships (Academic Indi-

vidual Advanced Development) do the same for our Cadets' creative and critical thinking skills and inspire them to be life-long learners. This summer, we sent over 900 Cadets on internships throughout the United States and internationally. We have also placed 60 Cadets in semester exchange or study abroad programs this semester. Cadets routinely rate these experiences as among the most developmental they undergo during their time at the Academy. Secondly, for three great reasons, we are undergoing a curriculum revision study: the Army has learned from 13 years of war and leader development doctrine is changing; best practices in higher education have changed; and the way our youth

learn has changed. For these reasons the curriculum needs to continue to evolve to best prepare our graduates to meet the demands of a changing, complex and uncertain operating environment. We developed potential courses of action for change and vetted them in several forums, and could be developing an implementation strategy in early 2015 for a revised curriculum. These remain exciting and successful times. Thank you for your continued support of the academic program and our Cadets. Go Army!