Dear Friends, Family and G&EnE Nation,

Greetings from Washington Hall! As we reinvigorate our efforts to tell the G&EnE story, we have decided to resume our annual department newsletter. We want to share highlights from the Department—what’s going on among our faculty, staff, and cadets—with you, our graduates, parents of our current cadets, former faculty, and friends of the department.

While our mission endures, we continue to update our curriculum and facilities to keep pace with best practices in higher education and across our four disciplines. The graduation of the Class of ’19 last May marked the full implementation and execution of West Point’s new academic curriculum, which allowed us to update and improve to each of our four majors over the last few years, and add a Geography minor. The Environmental Engineering 3-course sequence (for non-engineering majors) remains the most-subscribed-to of all of the engineering sequences at West Point. And EV203 (aka ‘Dirt’), now taken during either plebe or yearling year, has been updated and adjusted to 30 lessons (at 75 minutes each) taking advantage of the newly implemented academic schedule. Dirtman and DIRTwoman are alive and continue to defy aging, and the Dirt Skit remains a fixture of Army-Navy week. We continue to expand our social media presence, so please follow us on Instagram or Twitter (usma_gene), or Facebook (@wpgene). We’d love to hear from you—please don’t hesitate to send me a note at mark.read@westpoint.edu. Go Army!

Regards,
Mark Read

Cadets in Aquatic Science conduct a biodiversity assessment on an estuary along the Hudson River
The Green Team had an exciting year filled with academic, research and service activities. We kicked off the year with our annual ESSW picnic in Clinton field, which was a great opportunity for reconnecting and sharing stories about our summers.

In 2019, we sponsored 6 AIADs, which provided superb educational growth and learning opportunities for 29 Cadets. Eight Cadets participated in the Geology Field Course for the first time since 2006, where one week is spent at West Point & 2 weeks in Colorado. The Tank Automotive Research Development & Engineering Center (TARDEC) enabled a third consecutive year of partnership over the summer by sponsoring a Cadet to participate in reverse osmosis membrane research. The Cadet will continue their research in the coming semester as a Capstone project. The US Army Construction Engineering Research Laboratory hosted one Cadet and the US Army Environmental Command hosted 4 Cadets. The US Forest Service enabled 12 Cadets to learn about the Forest Service as well as the interagency coordination that sustains our national parks in 9 states. In addition, one Cadet participated in the Society of American Military Engineer STEM Camp as a camp counselor for high school students at the US Air Force Academy. Finally, two students participated in on-going research at West Point using ground penetrating radar to conduct geophysical 3D mapping of Revolutionary War subterranean foundations and analysis of soil lead levels across the West Point installation.

A strength of the West Point faculty model is the arrival of new faculty members from world-class universities each year. With that comes the departure of our rotating military colleagues - our loss is the Army’s gain! We had the following departures this year. MAJ Peter Bier transferred to Ft. Leavenworth for ILE. MAJ Luke Plante transferred to Fort Drum to become the 10th Mountain Division Deputy CEMA (Cyber Electromagnetic-Activities) Officer. MAJ Erick Martinez and CPT Charles Ouellette moved to Department of Chemistry & Life Science to teach chemistry. Arrivals this year are as follows. LTC Andrew Pfluger joined us as an Academy Professor from the Department of Chemistry & Life Science. LTC Pfluger has a PhD in Environmental Engineering from Colorado School of Mines. MAJ John Boyle joined us with an MS in Geoscience from Colorado State University. CPT Caleb McCollum joined us with an MS in Conservation Ecology from the University of Michigan. CPT Andrew Ng joined us with an MS in Environmental Engineering from University of California, Berkeley. Finally, CPT Joshua Wiley joined us with an MS in Environmental Engineering from Stanford University.
ENVIRONMENTAL PROGRAM RESEARCH AND RECOGNITION

The Green Team participated in 6 conferences this year ranging from engineering education to soil science. Our scholarship endeavors resulted in 11 papers in journals and conference proceedings. Examples of faculty research efforts include a project headed by Dr. Patrick Baker, a physiological ecologist who studies animal-environment interactions, on investigation of the use of algae to treat ammunition waste streams. This project is funded by PD-JS Ammunition through the Center for Innovation & Engineering (CIE).

Another outreach project was focused on removal of nitrogen from waste streams of ammunition plants using Anammox bacteria. This project was coordinated by LTC Matt Baideme, Dr. Michael Butkus and MAJ Luke Plante. Two cadets assisted in this research in the fall and spring semesters. This project is also funded by PD-JS Ammunition through the CIE.

Dr. Baker is collaborating with the New York State Department of Environmental Conservation (DEC), studying eel migration in the Hudson River, and with the DEC and Columbia University’s Lamont-Doherty Earth Observatory on a Day in the Life of the Hudson.

LTC Wallen, MAJ Peter Bier & LTC Will Wright (GIS Program) developed a new research technique to assess lead in residential properties across West Point.

At the Society of American Military Engineers’ Joint Engineer Training Conference, LTC Wallen received the Bliss Medal, which is awarded to one person each year, “in recognition of superior efforts in mentoring students in engineering and related disciplines.”

GREEN TEAM PROMOTES SUSTAINABILITY IN LOCAL COMMUNITIES

In March, Cadets Adrian Baraza, Robert Simons and Andres Rodriguez from the West Point Student Chapter of the Society of American Military Engineers joined MAJ Ruth Mower from the Environmental Program at the Lower Hudson Valley Engineering Expo to share information about the engineering programs offered at the United States Military Academy. Cadets interacted with a diverse group of over 100 high school and middle school students.

Cadets and faculty from the Environmental Program hosted ‘Day in the Life of the Hudson River Estuary’ in October. “Day in the Life” students, from first grade to college, partner with environmental education centers to collect scientific data using hands-on field techniques at more than 80 sites from New York City to Albany.
After 23 years as a Professor & GIS Program Director, Dr John Brockhaus has retired and is living in Sparks, Nevada.

The Geospatial Information Science major is continuing to inspire cadets and is alive and well. The USMA Class of 2019 had 9 GIS majors. Currently the major has 28 Firsties, 38 Cows, and a record breaking 50 Yearlings enrolled in the major. The current Firstie class of GIS majors includes several exceptional scholars and is an outstanding group of young women and men. The combination of these traits has made the classroom challenging and extremely rewarding.

Our GIS Faculty has had significant turnover since the last newsletter. LTC William Wright took over the program from Dr. John Brockhaus who retired in 2017. COL Christopher Oxendine (COL OX) was both promoted to COL and selected as an Academy Professor. COL Ox now heads up the Center for Environmental and Geographic Studies while also teaching courses in the GIS discipline. The department hired Dr. Matt O’Banion to serve as the Civilian faculty member in the GIS program. Dr. O’Banion came to us after earning his PhD from Oregon State University and also after working as a licensed Geologist in California. Using his expertise in Geo-visualization, Dr. Matt setup an independent Geo-visualization Lab within the Geoscience Lab where cadets view data in 3D, augmented reality, and virtual reality. The program’s rotating officers that teach within the Program include Major Nick “Space Ranger” Lewis, CPT Nicki Harrel, and CPT Anees Merzi. MAJ Lewis is a Space Operations officer with an expertise in Remote Sensing. CPT Merzi is in his final year with us where his expertise in Information Technology serves GENE well both in the GSL and across the department. CPT Harrell returns to the program after earning her Masters degree from Portland State University. After a year of teaching cadets Dirt, Nicki will assume the work horse role of teaching Cartography and Geographic Information Systems.

Over the summer, the GIS Program was fully engaged. The program hosted AIADs at the National Geospatial-Intelligence Agency (NGA), Advanced Training Simulation Center, Army Geospatial Center, & the Institute of Creative Technology. Additionally, LTC Wright deployed with NGA to Djibouti and COL Oxendine and Dr. O’Banion led two different AIAD trips to Alaska on a collaborative research project with the Coast Guard and Naval Academies.

Finally, I would like to extend an invitation to our “old grads” to apply for an instructor position in the GIS program. This is a wonderful opportunity to “give back” to the Corps. If you are going to be in the mid-Hudson region please take the time to drop by and visit as we always welcome the opportunity to see former students.
During the past year, several efforts have focused on assessing the use of small Unmanned Aircraft Systems (sUAS) and Augmented Reality / Virtual Reality (AR/VR) to enhance our student’s understanding in the classroom.

Dr. Matt O’Banion, COL Chris Oxendine, Cadet Riley Eck, and Cadet Seamus McGettigan traveled to the North Slope of Alaska with Faculty & Midshipmen from the Naval Academy and Coast Guard Academy. Acquired data included sUAS aerial imagery, survey grade GPS, and 3D laser scan data (Lidar). This 3-year study is investigating seasonal landscape change associated with localized permafrost melting.

Cadet John Rusnak worked with the Army Research Lab’s Simulation & Training Technology Center (STTC) in Orlando, FL exploring DoD Applications of AR/VR.

Cadet Arelena Shala and Deborah Majkowicz worked with the University of Southern California’s Institute for Creative Technologies (ICT) collecting sUAS data and importing it into AR/VR headsets supporting DoD research efforts.

These efforts all contribute to our Faculty & Cadet research in our Geo-Visualization Lab.
I’d like to thank all of our departing Faculty for the Cadets they have educated, trained, and inspired.”

LTC Chris Fuhriman, GEO Program Director

During the past academic year, 23 cadets from the Class of 2022 declared geography as their major: 13 human geography, five physical geography, and five human-environment geographers. Additionally, five cadets of the Class of 2022 enrolled as geography minors. On May 25, 2019, 16 cadets graduated with the following degrees from the program: ten human geography, three human geography with honors, and three environmental geography. Cadet Nicholas Palmer won the Congressional Medal of Honor Society Award for Excellence in Geography, which was presented to him at the Awards Convocation for achieving the highest overall average in the Geography major. Cadet Palmer also earned the highest course average in EV482: Military Geography and was awarded the Harold “Duke” Winters Memorial Award for Excellence in Military Geography. Cadet Noah Carlen was awarded the Excellence in Research Award for his Honors Thesis research which focused on the symbology of flags in post-colonial countries around the world. Cadet Andrew Belanger was recognized as the Top Human Geographer and Cadet Nicholas Ryan was recognized as the Top Environmental Geographer in the Class of 2019.

This summer, the GEO faculty bid farewell to a legend, Colonel Andy Lohman, who spent the last ten years of his distinguished career here in the department. COL Lohman taught, coached, and mentored thousands of cadets during his two tours at USMA. He also pioneered the Center for the Study of Civil-Military Operations and served as the Geography Program Director for seven years. We wish COL Lohman and his family the very best in the next chapter of their lives. We also said goodbye to Major Chris Nixon (USAF), Majors John and Elizabeth Dzwonczyk, and Major Dave Leydet, who are all moving on to their next assignments. We wish them all the best in the future. Joining the faculty in 2019 were Captain Tim Flagg, Captain Natalie Mallue, Captain Chris Gaulin, Major Jim Hughes (USAF), and Lieutenant Colonel Liz Weaver, who returns to the department for her second tour. Welcome to the department!

Cadets Listermann, Turner, Pengelly, & Barrett stand near a supercell shortly after witnessing a multi-vortex tornado near Paoli, CO while on the Severe Weather Preparedness & Training AIAD. Read about their experience at: https://usmasevereweatheraiad.blogspot.com

G & E N E  U P D A T E
OPERATIONAL EXPERIENCE SUPPORTING AFRICOM

LTC Jason Ridgeway spent the summer working with the Civil Affairs Planning section of USAFRICOM in Stuttgart, Germany. While there he planned and conducted a trip to Gabon with MAJ Josh Borrell in equatorial West Africa to inspect humanitarian assistance projects sponsored by the Department of Defense. MAJ Josh Borrell, a Civil Affairs officer working at USAFRICOM, is a former GEnE instructor. After landing in the capital city of Libreville, LTC Ridgeway and MAJ Borrell spent several days preparing for a journey into the interior of Gabon, then drove 10 hours north to inspect school renovations near the border of Cameroon.

Most settlements exist along major roads in Gabon. Inland of the coastal plain, the country becomes quite mountainous, and the roads are rarely flat or straight. Despite this, they’re filled with all kinds of traffic, including pedestrians, motorcyclists, buses, and old-growth logging trucks. Traffic moves quickly but stops are common. They stopped along the route for catfish, cassava, avocado sandwiches, dress pants, grass baskets, a rest stop on the equator, and to help clear fallen trees from the road.

Once in the north, the team inspected several rural schools renovated with money provided by the DoD before returning to the capital to evaluate medical training provided to the Libreville military hospital.

As a result of this trip, which was arranged with the help of the Department’s Center for the Study of Civil-Military Operations (CSCMO), GEnE is working with USAFRICOM to assess the feasibility of conducting similar trips with Cadets and Faculty in several African countries in the summer of 2020.

ISRAEL ACADEMIC INDIVIDUAL ADVANCED DEVELOPMENT (AIAD):
AN INTERDISCIPLINARY STUDY ON LAW, POLICY, AND CULTURE

Major Zach Landis and Major Nick Lewis led a group of 18 cadets from multiple disciplines on a 16 day law, policy, and culture tour of Israel. They were accompanied on the trip by 11 members of the United States Air Force Academy, and 5 members of the Virginia Military Institute. The trip kicked off with a furious two days in Poland, visiting parts of the Warsaw Ghetto and the Camps around Auschwitz before arriving into Tel Aviv. The first night in Israel put the group in on the Mediterranean Coast, close to Israel’s border with Lebanon. The group spent several days in the Golan Heights and surrounding area before spending four days in Jerusalem. While in the Golan, the attendees were presented with the unique role geography has played in shaping Israeli conflicts with their northern neighbors. While in Jerusalem, the Cadets received briefings from members of parliament, former ambassadors, prominent journalists, legal scholars, and numerous retired and current members of the IDF and National Police. Upon departing Jerusalem the Cadets trekked into the Dead Sea region enjoying a sunrise assault on Masada. With a short over night in Ashkelon, the trip ended with several days in Tel Aviv. Cadets expressed their gratitude for the hosting organization, Our Soldiers Speak, on a final farewell dinner in Tel Aviv.

In the Golan, Cadets learned about the unique role geography plays in shaping conflicts in the region.
2019 Department Graduation Ceremony and Reception

On 26 May 2019, the Geography, Environmental, and Geospatial Information Science Programs held their annual receptions and award ceremonies. The Geography program recognized two cadets for excellence in Geography. Nicholas Palmer received the “Duke” Winters Memorial Award for Excellence in Military Geography and also earned the Congressional Medal of Honor Society Award for Excellence in Geography. Noah Carlen received the Excellence in Geographic Research Award. The Environmental Program recognized Cadet Peter Zhu (posthumous) & Cadet Megan Gagnon with the National Association of the Ladies Auxiliary of the VFW of the United States Award for Excellence in the Environmental Engineering Sequence. The Geospatial Information Science Program also recognized two cadets for excellence within the major: Andrew Morgan was recognized as the top GIS graduate and presented the ESRI Award for Excellence in Geospatial Information Science and Riley Eck was presented the BAE Award for Excellence in Photogrammetry.

Best wishes to all G&EnE Class of 2019 Lieutenants!
CENTER HIGHLIGHT: CENTER FOR LANGUAGES, CULTURES, AND REGIONAL STUDIES (CLCRS)

The Center for Languages, Cultures and Regional Studies (CLCRS), a joint research center for the Department of Geography and Environmental Engineering and the Department of Foreign Languages, has been very productive over the past several years, pursing research on Language acquisition and assessment, cross cultural competence and topics related to regional geography. The Center continues to grow in terms of both funding and personnel, partnering with Army Research Lab (ARL), Army Futures Command, US Army Intelligence Center of Excellence, US Pacific Command, the University of Virginia, Arizona State University and the Defense Language National Security Education Office.

The Center sent cadets to a variety of counties, including China, India and Taiwan. We also sent cadets to participate in the US-China Disaster Management Exchange, where they worked side by side with members of the People’s Liberation Army (PLA). This project inspired the development of a virtual reality cross cultural simulation, in partnership with Army Research Lab and the University of Virginia, that focused on a joint disaster relief operation with the PLA.

We sent cadets to India in support of the Dense Urban Initiative for the US Army. As the Army looks forward, they view dense urban areas as important environments for the future. CLCRS has supported this research, in partnership with ARL, US Army Futures Command, US Army Intelligence Center of Excellence, and Arizona State University. Our research has focused on Language diversity in dense urban environments and slum leadership dynamics.

CLCRS is also developing a regional knowledge portfolio in partnership with the Defense Language National Security Office. The portfolio will act as a potential talent management tool, acting as a repository for artifacts that demonstrate an individual’s regional proficiency.

CLCRS looks forward to the upcoming year and continuing our research with our partners and cadets.
Want to Teach in G&EnE?

Have you considered coming to teach in the G&EnE Department? Each year we look for young Captains with five to six years of Army experience to be selected as future rotating junior faculty to teach in our programs. We send selected officers to receive a Masters degree in the required discipline prior to their 3 year teaching assignment in the department. While the number of positions available varies each year, we are always looking for interested candidates to become members of the D/G&En family.

The Process:

1.) Visit our Prospective Faculty webpage: (https://westpoint.edu/academics/academic-departments/geography-and-environmental-engineering/faculty/prospective-faculty)

2.) Fill out a WEST file application and keep your information up-to-date

3.) Take the GRE

Don’t let this opportunity pass you by. This year we are focusing on Year Groups 13, 14, & 15. If you have ever thought about coming to USMA, do not hesitate to apply. If you have any questions, contact LTC Landon Raby at: landon.raby@westpoint.edu or 845-938-2679