

1 January 2012

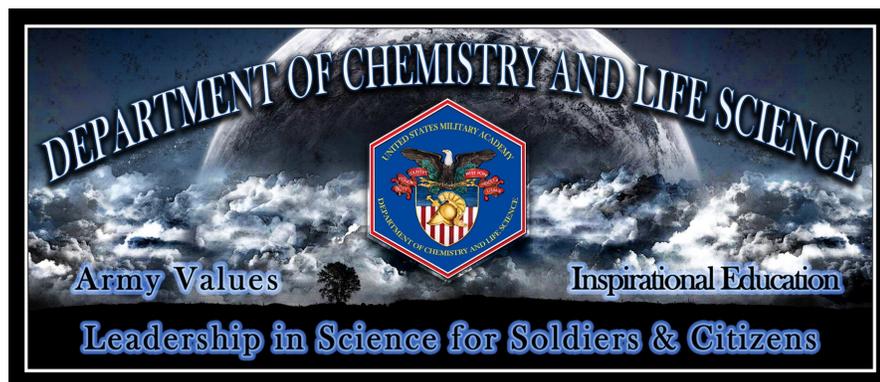
Volume 1, Issue 2

### Special points of interest:

- COL Robert welcome
- New West Point Science Center
- Cadet Advanced Science and Technology Learning Environment (CASTLE)
- Departure of Dr. Mentis
- Cadet IAD(A)
- Cadets win recognition at AICHE national conference

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## Message From the Department Head

All of us at the Department of Chemistry and Life Science here at West Point sincerely hope that you had a wonderful holiday. As the new Department Head, I am reminded daily of the wonderful privilege we have to serve here at West Point. Our cadets continue to impress me with their exceptional intellect and untiring interest in science. It is my sincere pleasure to lead such a talented group of faculty, staff, and students.

These are exciting times here in the Department. We are currently moving into the first completed phase of the new Science Center. This new facility increases our capability to teach and conduct research. It is truly a welcome addition as the old Bartlett Hall has not only fallen into disrepair, but

lacks in lab space and technology upgrades.

As you read through the second edition of the newsletter, I ask you to pay particular attention to the phenomenal success of our cadets both here and when competing against other schools nationwide. We have highlighted not only their successes, but the unmatched opportunities that West Point affords them. Most of these opportunities would not be possible without a vast network of graduates who contribute in various ways. We thank you for all of your support in the past, present, and future.

We wish you a safe and prosperous new year.

COL Leon Robert

Professor and Head



**COL Leon Robert**  
Head of the Department

## New USMA Science Center Becoming a Reality

We are very happy to announce that classes are now being taught in the completed portion of the new Science Center (Phase I)! Where the old library once stood, the new Science Center is taking shape. All laboratory research and practical exercises are being conducted in the new wing for the Spring semester. February will see the beginning of renovation in the East and South wings of Bartlett Hall. If you are at West Point for a visit, please contact us and we will be happy to give you a tour.





COL Robert presenting an award to Dr. Beth Mentis, a departing researcher in the Life Science program.

**COL Robert assumed duties as the head of the department on 1 June 2011.**



Cadet Jaewon Lee spent part of last summer at an Army Research Lab working on Microbial Fuel Cell (MFC) research.



Cadets Mike Swayze and Aaron Demro receiving first place recognition in the Chemistry division at Project's Day 2011.



Cadets Koffman, Moore, Heckmann, and Robinson, and LTC Bozic pose next to Cadet Moore and Held's 1st place Environmental Division winning poster at the American Institute of Chemical Engineers (AIChE) National Student Conference.

### COL Leon Robert takes over as Head of the Department

COL Robert assumed duties as Professor and Head of the Department on 1 June 2011. As a young Army researcher, COL Robert spent time in Kenya and Honduras conducting vital life science research. He then spent tours in Korea and Germany before coming to West Point to teach. For the past three years, COL Robert served as the Deputy Department Head. COL Robert teaches General Chemistry and a host of life science courses where he is able to draw on his vast experience and relate to topics in the classroom.

COL Robert was instrumental in developing the IADs that now

send a number of our cadets to Kenya and Korea each summer to conduct research and learn different cultures. He is an officer representative for the Skeet and Trap team and is an avid field sportsman.

COL Robert's leadership is already making a positive impact on the department and we are excited for the years to come. He is focused on creating strategic partnerships and reaching out to our partners and alumni alike. Although he has been a part of the department for some time, we ask that you join us in giving a warm congratulations and welcome to COL Robert.



COL Robert speaks at MAJ Wilson's promotion

### Chemistry Program Update

The Chemistry Program remains connected to the Army and its bottom line.

Current research includes:

- explosives (IED, HME) detection in collaboration with Edgewood Chemical Biological Center (a U.S. Army RDECOM Laboratory)
- studying the biological breakdown of explosives such as RDX
- increasing detection limits through modeling and simulation

- pyrotechnics research at the Pyrotechnics Technology and Prototyping Division, RDECOM, Picatinny Arsenal

The Program's American Chemical Society certification application resulted in a face-to-face meeting with the committee in March 2011, and we are now waiting for an official visit from ACS and their final decision on our application going into AY 2012.

Our 2011 chemistry majors graduated and branched with

50% as combat arms and 33% as combat support...chemistry leading the way!

We are committed to improving the fight through research and teaching, and our product continues to be leaders of character committed to selfless service to the nation.

### West Point ChemE 2011- "A Little Slice of ChemE Heaven"

The calendar year of 2011 was truly made up of little slices of Chemical Engineering heaven that made the year extra special. The Chemical Engineering Program experienced another "Army Strong!" year of growth and development! The ChemE program is on the go! We will be moved to Bartlett Hall North starting AY12-2 and be there through AY14-2. We completed our 6th Annual Chemical Engineering Advisory Board Meeting

in Nov 2011 and we are on the ramp up to the ABET Accreditation Review in the fall semester of 2014. As we closed out AY2011, we graduated our largest class of chemical engineers yet with 16 graduates. The class of 2011 had some individual that received awards as well. Specifically, Cadet Michael D. Theising won the American Institute of Chemists Foundation Award for the Outstanding Senior Majoring in

Chemical Engineering and the Merck Index Award for the graduating cadet with the highest academic performance in Organic Chemistry while cadet Warren Beck won the Brigadier General James H. Ramsden Award for the Graduating Cadet with the Superior Academic Performance in the Department of Chemistry and Life Science.

## Life Science Program Update

The Life Science Program continues to educate and inspire cadets in the biological sciences, especially in the areas of molecular biology, genetics and infectious diseases. Advances in biotechnology and medicine are rapidly unraveling the complexity of biological systems. To stay abreast of recent developments, cadets participated in several scientific symposiums sponsored by the New York Academy of Science and engaged in discussions with invited speakers at the USMA Microbiology Symposium. Cadets presented their research data to the biological research community at the annual Blue Mountain Lake microbiology meeting and the ARL-USMA

Symposium. The Life Science faculty maintains scientific excellence as exemplified by the election of Dr. Wickiser into the Phi Kappa Phi Honor Society. Dr. Wickiser continues to direct research projects funded through DARPA, DTRA and DMRP programs. His research was recently published in the top-tier journal, *Proceedings of the National Academy of Science*. After 18 years of service to the LS program, Dr. Labare has taken a one year sabbatical to pursue his microbiology research interests at Cornell University. His sabbatical experi-

ence will allow cutting-edge technologies to be introduced into the Life Science program and support collaborative research. In fact, this year has marked a concerted effort to establish collaborative research initiatives with academic institutions as well as the US Army Medical Research and Materiel Command. As we transition into the New Science Center, these collaborations will seed the new facility with high-tech equipment to maintain our faculty's excellence in the dynamic field of biological science.



**Cadets Dylan Russell (2013 from VA) and Shawn Jimenez (2014 from TX) performing in vitro selection techniques in the laboratory of Dr. Ronald Breaker at Yale University's Department of Molecular, Cellular, and Developmental Biology.**

## CASTLE (Cadet Advanced Science and Technology Learning Environment)

CASTLE is continuing to gain momentum within the department and is currently moving into a new facility in the science center. We are constantly seeking to learn novel ways to express scientific principles to the cadets. Many of these methods use technology to help cadets better visualize an abstract

concept, but sometimes they simply need experience with the concept in a hands-on environment. CASTLE is providing that and will continue to seek resources allowing the further development of this exciting program.



## Chemical Engineers Win National Recognition

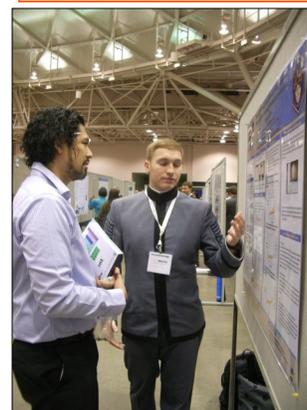
The club has been rocking the halls of West Point with chemical engineering enthusiasm and research posters. Cadets Ethan Heckmann, Branko Kovacevic, Laura Ruiz, Zachary Robinson, and Cody Koffman presented research posters at the AIChE Regional Conference at Penn State in April 2011. Cadet Gerit Van Ommering won the soldier design competition at MIT and was also recognized during Project's Day at West Point, taking first place among Chemical Engineering projects. The West Point AIChE Club Cadets Koffman, Heckmann, Kovacevic, and Letarte, participated in the American Institute of Chemical Engineers (AIChE)

National Student Conference. Cadets Koffman, Heckmann, Kovacevic, competed in the national poster competition with a submission on polymer composites for blast mitigation, microbial fuel cells, and electrochemical explosive detection in salt water research respectively. Cadet Koffman (fellow contributors-Cadets Kratz, Singley, and Ruiz, Advisor, MAJ James), won first place for the materials division and Cadet Kovacevic (advisor LTC Bozic) won third place for catalysis. There were many more events that made it a special year. The club achieved the AIChE National Level recognition with the Platinum Award for 100%

chemical engineering major registration and the Spring Senior Sign up Award during AY11-2. This is the third year in a row that the club has achieved the Platinum Award status for registration. With such a great track record, the club was nominated for the National AIChE Outstanding Student Chapter Award at the end of AY2011, the second such nomination in club history.



**CASTLE is moving forward to find new and innovative ways to engage cadets through the use of technology and novel teaching methods.**



**CDT Cody Koffman, '12, AIChE President, presenting research at the AIChE National Conference.**

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If you would like to continue to receive this newsletter by email and continue to communicate with us, please send a brief email to MAJ Jaffett at [victor.jaffett@usma.edu](mailto:victor.jaffett@usma.edu).

The USMA Department of Chemistry and Life Science is looking forward to connecting with our alumni. Wherever you are and whatever you are doing, we would like to remain connected. Now more than ever, it is easy to stay in touch and we ask that you start by finding us on our website, facebook, and send us an email to continue to receive the newsletter. Happy New Year to all of you, from all of us!

## Find us on the internet!

<http://www.dean.usma.edu/departments/chem/>



[West Point Department of Chemistry and Life Science](#)

## Cadet Individual Advanced Development (IAD) Update

The cadet summer research opportunity program termed Individual Advanced Development-Academic, or IAD(A), offers our majors training in cutting edge techniques while tackling difficult problems in medicine, engineering, biological sciences, and chemistry at many civilian universities, government laboratories, hospitals, and private sector research centers.

Last summer cadets enjoyed research and training opportunities at the Australian Army Malaria Institute, the Army Research Laboratory Sensors and Electron Devices Directorate (ARL-SEDD), Carnegie Mellon University's Bone and Tissue Engineering Laboratory, Redstone Arsenal, the Walter Reed Army Institute of Research Bacterial and Rickettsial Disease Division, the Institute for Collaborative Biotechnologies (ICB) at The University of California Santa Barbara, Yale University, the US Army Medical Research Unit-Kenya (Nairobi), Aberdeen Proving Grounds, and

other great locations. The training and research experiences ranged from performing basic science and engineering experiments to shadowing physicians in military hospitals.

Cadets Diana Kim (2012) and Ian Jones (2013) while at the Orthopedics Research Group in the National Institute of Arthritis and Musculoskeletal and Skin Diseases at the National Institute of Health performed cell culture experiments to document Heterotopic Ossification (HO) - the unwanted growth of bone in soft tissues surrounding the point of blunt force trauma. They worked under the guidance of MAJ Leon Nesti, MD, PhD, USMA C&LS '98 who holds positions at the NIH and Walter Reed Hospital. Cadet Nathan Nguyen (2013) worked with LTC F. John Burpo, PhD, USMA '92 and incoming C&LS Academy Professor, using viruses to improve the performance of standard military issue Lithium batteries at MIT's Institute

of Soldier Nanotechnology. Cadets Kelley Cassidy, Chris Wallace (2013) and Calla Glavin (2014) conducted DNA sequencing of microbial genomes, computational modeling of biological systems, and bioengineering of algae to produce biofuels at the Bioscience Division of Los Alamos National Laboratory as Service Academy Research Associates.

Generous support came from major Army commands, the Defense Threat Reduction Agency, the Defense Advanced Research Projects Agency, and the West Point AOG. These broad, hands-on experiences round out the cadet academic program and afford our majors the chance to bring science back to West Point to conduct research in the amazing new Science Center. Our cadets are preparing to lead in our Army. Our IAD(A) program supports this effort by combining classroom and real-world experiences to give them the tools they need to be leaders in our nation.



Cadets Steven Burroughs (2013) and Rutger Gunther (2013) visited the MacArthur Museum in Brisbane Australia, this is the location where General MacArthur held his headquarters during the Southwest Pacific campaign of WWII.