



EXPANDING NATIONAL SECURITY CAPABILITIES

SINCE its inception in 1952, Lawrence Livermore’s mission has been national security—ensuring the safety, security, and effectiveness of the nation’s nuclear stockpile. In recent years, the mission has broadened as dangers ranging from nuclear proliferation and terrorism to cyberattacks and climate change increasingly threaten national security and global stability. Livermore research is fundamental to national security and defense strategies, and the Laboratory bears a continuing responsibility to provide insights on policy as well. Livermore regularly informs the legislative and executive branches of the United States government and contributes to multiple national security policies, including the Nuclear Posture Review, the National Security Strategy, and National Defense Strategy, among others.

The Laboratory’s leadership empowers staff to further enhance skills and approaches to critical thinking and problem solving around national security policymaking. Since 2008, Lawrence Livermore has partnered with the Bush School of Government and Public Service’s National Security Affairs Program (NSAP) at Texas A&M University. Led by the program’s core instructors, Dr. Jasen Castillo and Colonel Mike Jackson, NSAP provides executive-level education informed by the strategic national security role of Department of Energy (DOE) national laboratories and offers a certificate

National Security Affairs Program (NSAP) fellows travel to Texas A&M University’s Bush School of Government and Public Service in the early stage of the program to attend courses. (Photo courtesy of Laura McKenzie, Texas A&M University Division of Marketing & Communications.)

in National Security Affairs. Livermore helps shape NSAP course curricula and enables personnel to attend through financial support and by creating an environment in which they can solely focus on the coursework.

Each summer, NSAP participants travel to College Station, Texas, to attend two courses focusing on fundamentals of nuclear deterrence theory, space, cybersecurity, counterterrorism, counterintelligence, and U.S. military power from professors with relevant, real-world experience. Participants then complete the remaining two courses remotely from Livermore during the fall and spring semesters.

Expanded Perspective

According to Eric Schwegler, director of Livermore’s Academic Engagement Office (AEO), the Laboratory’s motivation in establishing NSAP is an acknowledgment that even with all the Laboratory has to offer to the policymaking

world, the expansion of these contributions enables Livermore to play a more useful role within the broader national security environment. Participants in NSAP have an opportunity to study national security and policy issues beyond the normal course of their work. “NSAP gives participants an expanded perspective on the Laboratory’s mission focus areas, the ramifications of what we do, the importance of our work for the country, and how the research we do is connected to the national security decisions leaders in Washington, D.C., make,” says Schwegler. “The program puts their research and other responsibilities at the Laboratory in the context of what’s happening globally.”

Mildred Lambrecht, who administers AEO’s education programs, sees NSAP as a unique opportunity for Livermore staff to learn and develop leadership skills. She says, “Throughout the program, Fellows build skills, including communication, that reinforce leadership capabilities. I’m inspired by how a small group of staff from different directorates work together and support each other to complete such an intense and fast-paced program. They rely on each other, motivate one another, share different approaches to learning, and build overall team skills.”

Laboratory Director Kim Budil, who participated in the first NSAP cohort from Livermore, has continued to offer strong support for Livermore’s engagement. “Because of the nature of our mission, our leaders and future leaders must be aware of the context in which we work. The overlay of national security policy cannot be separated from our work, so when our staff feel more comfortable operating in the policy community, we can all be more effective in our roles,” she says.

Nuclear deterrence theory—the study and application of how threats or limited force by one party can convince another party to refrain from certain actions—is foundational to Livermore’s mission. Following from this theory, the probability of direct war between nuclear powers decreases,

Lawrence Livermore personnel participate in the NSAP through support from the Laboratory’s Academic Engagement Office. Pictured are some of the past participants and staff who help administer the NSAP fellowship at Livermore. From left to right: Mildred Lambrecht, Rebecca Nikolic, Kim Budil, Ashley Bahney, and Trevor Willey.





Kim Budil



Jack Kotovsky



Michael Pivovarov



Ashley Bahney



Rebecca Nikolic



Trevor Willey



Jennifer Matzel



Vincenzo Lordi

but the probability of minor or indirect conflicts increases. National security strategies and applied scientific research must account for both sets of circumstances. NSAP focuses on nuclear deterrence theory. Other courses on space, cybersecurity, counterterrorism, counterintelligence, and U.S. military power highlight how Livermore's research is critical to keeping the country safe and convey the dangerous consequences of national security information falling into the wrong hands. For example, the counterterrorism class during Budil's cohort enacted the scenario of a potential terrorist-induced chemical spill. Budil recalls, "Because our group had real-world experience of what was truly doable, not just possible, we created a very realistic scenario," she says.

Participants from later cohorts emphasize how NSAP strengthened their connection to Livermore's mission. Rebecca Nikolic, recently promoted to the role of Director of Science and Technology Institutional Assessments at Livermore, says, "NSAP deepened my understanding of the breadth of national security issues our work is connected to, whether economic, technical, or resource related. To lead national security research and development without this knowledge risks missing the big picture." Trevor Willey, a group leader in nanoscale, surface, and interface science, adds that the program helped him shift the focus of his work to real-world scenarios, saying, "When interacting with headquarters and other stakeholders involved in nonproliferation or stockpile stewardship, I now have a better understanding of how the role we play complements other government organizations."

Enhanced Skills

Although formal political science coursework was new to many participants, its relevance to their research at Livermore and how that research could be applied in realistic scenarios

was immediately clear. Jack Kotovsky, a mechanical engineer and section lead for micro-technologies, says, "I've always done very technically focused work and had never taken a political science course in my life. This program was new and different, but it made clear early on how political science related to the day-to-day work that I and others at the Laboratory are doing." Even for Livermore staff with a background in political science, such as Ashley Bahney, former acting chief of staff to Budil and current acting deputy chief of staff, the program proved valuable. "Although I had studied international relations, I gained so much from this program because the professors challenged us to think beyond our established ideas of how things work in the real world and to apply the nuclear deterrence and national security theories we were learning," she says. "We got down to the brass tacks of what the actual situations are and how they come together for us in our roles at Livermore."

NSAP also helped Livermore participants more effectively communicate what knowledge, results, and expertise Livermore has to offer to policymakers. Michael Pivovarov, associate deputy director for Science and Technology, has applied what he learned to evolving geopolitical circumstances. "I'm a 'space guy.' The program helped me think more about the rules of the road for competition in space and the related security needs. I don't think I would have had the confidence to learn from and talk with experts or to provide intelligence-informed assessments if I hadn't done this program," he says.

For Vincenzo Lordi, deputy division leader for Materials Science, the program improved how he presents information to policymakers. "Scientists often want to tell a story and keep the audience on the edge of their seats about the conclusion," says Lordi. "I learned to state my conclusions quickly, up front, and support them afterwards when presenting a white paper

to stakeholders." Lordi admits he was not expecting to gain this writing skill from the courses. Now, he uses it all the time. "Political papers are short and to the point. We were trained to use the most precise language and least number of words to get a message across," he says. The NSAP courses also led Lordi to new leadership and research paths at Livermore in which he uses his technical skills to provide assessments to policymakers.

Investment in the Future

Budil was an associate program leader in the Weapons Program at Livermore when she participated in NSAP. After completing the program, she served as senior advisor to the Under Secretary for Science in Washington, D.C., during the Obama Administration. "I put my new knowledge to work thinking about big national security problems and how to bring technical expertise into the discussions." Budil helped convene a panel of eminent national security experts and policymakers including the former Secretary of Defense Bill Perry, the Secretary of Energy, and the Presidential Science Advisor, and provided briefings from the national laboratories on technical considerations of protecting and maintaining the nuclear stockpile. After her Washington, D.C., detail, Budil returned to Lawrence Livermore and later assumed leadership of Strategic Deterrence and then her current role as Laboratory Director.

Like Budil, many Livermore professionals advanced their careers in fulfilling ways following NSAP participation. Because the program encourages a political science-based form of strategic thinking, it sets up participants for leadership roles and increased engagement with decision makers in the U.S. government. After the program, Jennifer Matzel, an associate program leader in nonproliferation research and development and arms control, participated in meetings

with National Nuclear Security Administration leadership. She credits the NSAP courses for her ability to engage with national security leaders. "Before I entered NSAP, I had a very strong science and technology background, but I didn't know much about nuclear policy," she says. "After, I was pulled into conversations and meetings on the topic of the New Strategic Arms Reduction Treaty negotiations. I don't think I would have been prepared for that without the NSAP courses."

In a similar vein, Pivovarov was part of a 2016 cohort to provide background papers on a range of security issues to the DOE administration. Working with Laboratory leadership as well as colleagues from Los Alamos and Sandia national laboratories, Pivovarov helped present different national security scenarios and their potential outcomes of interest to DOE leaders.

Even with Bahney's background in international relations and political science, the program still presented new opportunities. "I was an analyst in the foreign nuclear weapons program at Livermore, but after NSAP, I took on increased leadership roles at the Laboratory," she says. "Later, I was detailed to Washington, D.C., to work on the Nuclear Posture Review because of my participation in the program."

NSAP registration takes place each autumn, and Livermore staff are encouraged to nominate candidates for the program. Budil emphasizes the program's value to Livermore staff, saying, "NSAP is an investment in our staff, a chance to build their toolkit even if they cannot anticipate upfront how they will take advantage of it. As our staff move up in their career, the skills gained from this program will serve them in good stead."

— Sheridan Hyland

For further information contact Eric Schwegler (925) 424-3098 (schwegler1@llnl.gov).