NSSP-Supported Classes Spring 2019

1. LAIS 309 and POLS (TBD): Technology, Analysis, and Operations in Intelligence Agencies: This course seeks to develop an understanding of the role technology plays in the Intelligence Community, the structure/roles/missions of each of the agencies, how technology is applied to collect and analyze intelligence to provide a “decision advantage” to U.S. policy-makers. The course will begin with a broad overview and history of the U.S. Intelligence Community and its seventeen agencies with a focus on how technology has defined and contributed to their work since the passage of the National Security Act of 1947. The students will be exposed to the “INTs (e.g. HUMINT, SIGINT, IMINT) and the national-level management of intelligence analysis and operations. They will also develop an understanding of how the “INTs” (including cyber intelligence collection/analysis) and the agencies work together at all phases of the “intelligence cycle” to provide significant technical and operational intelligence capabilities for national leaders. The students will also learn about military intelligence and the role it plays as part of the national intelligence effort. Students will assess, by way of case studies, examples of successes and failures in technical operations and explore the elements that contributed to both. They will also learn about the moral and ethical dimensions of intelligence, and the legal framework which governs operations and analysis.

Douglas H. Wise retired as a CIA officer and member of the Senior Intelligence Service in 2016 after completing nearly three decades of service. He finished his career in a Joint Duty Assignment as the Deputy Director of the CIA and Defense Intelligence Agency. He currently serves on corporate boards and provides management and leadership coaching and mentoring at Los Alamos National Laboratory.

2. LAIS 309 and ECE (TBD): Introduction to Cyber and Data Security: This course is an introduction to concepts of Critical Technology (CT), as well as, cyber and data security including study of recent advanced threats and counter-methods. The readings cover such recent threats and countermeasures as Stuxnet, Wannacry, and Hatman, as well as exploring data breaches, such as recent election and corporate hacking events. The course will review technical reports examining both the overall strategy of the attackers and the specific tactics and technical techniques used.

Topics covered will include an overview of CT areas and security concerns. Background topics will include basics of networking; methods of cryptography and network security; operating systems, systems security and vulnerabilities; and digital forensics and privacy. Additionally, discussions and readings will focus on cyber and data security through securing networks, data, and systems, and protecting information services against threats and countermeasures commonly applied in view of a threat. Depending on interest, topics such as techniques of ensuring privacy and confidentiality of data, and detection of technical vulnerabilities and fraud will be covered. The course concludes with a student presentation on a relevant technical topic chosen by the student with the instructor’s approval. Knowledge of any programming language is recommended.

Christopher C. Lamb, PhD, is a Principal, Research & Development, Computer Science Division at Sandia National Laboratory and Research Professor of Electrical and Computer Engineering at UNM. His research interests include Autonomous cybersecurity and reverse engineering, Mobile cybersecurity, vulnerability detection, and proof of vulnerability development, Internet of Things (IoT) analysis and vulnerability detection, Firmware assurance.

3. NE and POLS (TBD): Weapons of Mass Destruction (WMD) Non-Proliferation Science and Policy: This course presents an interdisciplinary introduction to the nonproliferation regime, the US and international agencies responsible for development and implementation of nonproliferation policies, and the social and political dynamics underlying the development of weapons of mass destruction (WMD) in selected countries. The course will review the current nonproliferation treaties and discuss the
technological approaches available for verification and implementation of these policies and treaties. The concept of non-proliferation policy and its application extending from major powers such as the United States, Russia, to European countries and regional powers, including countries in South East Asia and Middle East, will be discussed.

Lectures and discussions will focus on various spheres: from international relations and domestic security concerns to the political economy at local, regional, and global levels. The course will take a comparative approach to specify technical, structural, and institutional configurations favorable and unfavorable to the adoption of nonproliferation policies by regional powers. The course will examine conceptual understandings of the relationship between technology and policy; measures of conflict prevention and management; and the question of terrorist use of WMD and related prevention strategies. This course is designed for upper-class and graduate students in engineering, global and national security, social sciences, and physical sciences who are interested in a strong background in WMD non-proliferation issues.

Faraj Ghanbari, PhD, is a retired Distinguished Member of the Technical Staff at Sandia National Laboratories and a nuclear engineer with extensive expertise in nuclear non-proliferation.

4. POLS 400/512 Global Trends, Domestic Institutions, and National Security Policy: Public policy, namely national security policies, are and increasingly will be affected by global geopolitical changes as well as national policymaking institutions. Many of these trends are changing our temporal assumptions, that is, the speed at which changes can occur. The purpose of this course is to examine some of these challenges and project their significance for the near future. Because policy decisions focus on human populations, a significant portion of the class will focus upon the interplay between demography and national security. As such, we examine the demographic divide between rich and poor nations, including youth bulges and aging populations; migration, including internally displaced persons, and urbanization, and how population affects climate change and food security. Students will use demographic and economic data from different countries and regions to assess differences in population composition and to consider their implications for security and stability.

Deborah McFarlane, DrPH, is a Professor and Regents Lecturer at the University of New Mexico. She holds a doctorate in public health from the University of Texas Health Science Center at Houston, an MPA from the Kennedy School of Government at Harvard University, and an MPH from the University of Michigan. Dr. McFarlane’s research interests encompass public policy and applied demography.

5. LAIS 409 Independent Research & Writing, 2 or 3 credits hours. Instructor and hours TBD. Students will select a specific topic, conduct independent research, and write a research paper under the direction of the instructor and/or other approved faculty. Students who are completing the capstone paper required to earn the NSSP Certificate must to enroll for at least 2 credits and will have additional requirements. For details on completing the capstone requirements, see the capstone project requirement description page. Instructor permission required to register.