

# Cybersecurity for Future Leaders

(EECS 498-005; also PubPol 750.006/475.005)

---

Instructors: Javed Ali, Visiting Faculty and Towsley Policymaker in Residence  
Dr. Carl Landwehr, Visiting Professor, ECE

Prerequisites: None

Credit hours: 3

Time/Room: Fall 2019: 4-7PM / 1010 Dow

---

## Summary

Future leaders will need to understand the science, technology, and human considerations behind cybersecurity well enough to make informed decisions when provided advice and options for action. Over the last decade cybersecurity issues have risen in prominence from a U.S. national security perspective, as well as from the perspective of individuals and organizations.

This class will examine the broad landscape of cybersecurity from both a technical and policy perspective. It will introduce fundamental concepts of computing and cyber security, including information theory, computability, cryptography, networking fundamentals, how vulnerabilities arise, and how attacks work. In addition, it will explore foundational ideas including definitions, cyber norms, and ethics; identify existing U.S. laws, authorities and governmental constructs; and frame classic security concepts like deterrence, attribution, offense, defense, and retaliation. The course will also involve guest speakers, short assessments and writing assignments designed to capture technical and policy insights, and a simulated meeting where students assume different governmental or private sector roles to examine potential courses of action regarding a cybersecurity crisis scenario.

## About the Instructors

Ali is a former Senior Director for Counterterrorism at the National Security Council (NSC) with over twenty years of professional experience in national security and intelligence issues in Washington, D.C. He has worked in the Defense Intelligence Agency, the Department of Homeland Security, the FBI, and the Office of the Director of National Intelligence. He holds a BA in political science from U-M, a JD from the University of Detroit School of Law, and a MA in international relations from American University.

Landwehr is Lead Research Scientist at the Cyber Security and Privacy Research Institute at George Washington University and a consultant to the NSA and NSF. He created and led research programs for NSF and IARPA that funded a wide range of groundbreaking university and industry research related to cybersecurity and privacy. He holds a BS degree in Engineering and Applied Science from Yale University and MS and PhD degrees from U-M.

---