CONCEPTUALIZING NATIONAL SECURITY RISK PROBLEMS, CALIBRATING EXPERTS FOR QUANTITATIVE RISK ANALYSIS

Goal: Understand basic concepts of risk as it relates to U.S. National Security; learn how to take typically fuzzy problems and move them towards quantitative risk evaluation. Understand common expert bias; learn how to calibrate national security experts for reliable risk judgments.

Description: Explore concepts including national security, risk, likelihood, probability, uncertainty, consequences, fear, human-control, and other concepts related to national security risk. Learn that risk is NOT a formula, but a double-blended concept that includes both uncertainty and damage. Learn how to represent risk as a "probability of exceedance" curve. Learn how to elicit and calibrate expert judgment to obtain an exceedance curve. Participate in some calibration activities.

Prerequisites: Basic exposure to some probability concepts (e.g., min, max, mode, median, mean, variance, cumulative distribution, density function, confidence intervals)

Suggested readings: Haimes et al. 2002 Risk Filtering, Ranking, and Management; Pate-Cornell 2016 on Black Swans and Perfect Storms; Tetlock 2016 on Super forecasting; O'Hagan et al on Uncertain Judgments; Garcia on Design and Evaluation of Security Systems;