# Adversarial Thinking

MODULE

Seth Hamman - November 19, 2021

## Description

This curriculum module provides a basic introduction to adversarial thinking, game theory, and behavioral game theory to help develop cybersecurity students' abilities to anticipate the strategic actions of cyber adversaries, including where, when, and how they might attack, and their tactics for evading detection. The basic premise of the module is that human adversaries are what differentiates cybersecurity from other technical disciplines such as computer science, and, therefore, the concept of adversarial thinking is central to cybersecurity. The goal of the module is to produce enduring strategic-mindedness in students who may otherwise tend to equate cybersecurity with technology-based best practices. This is a stand-alone, self-contained module, with no knowledge prerequisites. It contains three lessons of approximately one hour each.  The module can be incorporated into virtually any university-level course. This module has been experimentally validated and is the subject of two peer-reviewed journal articles (cited in the syllabus).

## Outcomes

### Apply & Analyze

Students will be able to analyze a strategic scenario from a game theoretical perspective.

### Remember & Understand

Students will be able to illustrate the three components of adversarial thinking for cybersecurity.

### Apply & Analyze

Students will be able to analyze a strategic scenario from the strategic perspective of cyber adversaries.

## Apply & Analyze

Students will be able to apply level-k reasoning to derive playing strategies in strategic contests.

# Content

## Links

**A video from the curriculum designer that introduces the module to instructors**

https://www.youtube.com/watch?v=uIK3Hubgq_g

## Notes

These materials were made possible by a grant from the NSA National Cybersecurity Curriculum Program, Round 1.  Please contact the author of this module to obtain the assessment materials and with any errata, suggestions, feedback, etc.

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