

# Allegheny Mountain



## Colloquium



**Speaker:** Dr. Rob Muth  
(Washington & Jefferson College)



**Date:** 15 November 2021, 4PM–5PM

**Zoom link:** <https://bit.ly/3DnwUBA>

**Title:** Art galleries and sleepy guards

**Abstract:** How many security guards does it take to protect an art gallery? In 1975, Chvátal showed that  $n/3$  stationary guards are capable of monitoring any art gallery that has a polygonal floor plan with  $n$  walls. I'll present Fisk's proof of this fact, which elegantly distills this geometric question into a discrete one about graphs and combinatorics. I'll discuss some applications connected to the art gallery problem, as well as some interesting modifications, such as: What if the guards have a restricted range of view? What if they're prone to sleeping on the job? What if both? This talk assumes no prior knowledge and should be accessible to first-year students. Portions of the talk will feature joint work with W&J students Daniel Florentino and Ethan Moy.

