



## Colloquium Series



**Dr. Ryan Alvarado**

Amherst College

### **The Game of Cycles: What we know and where we can go from here**

**Abstract:** The Game of Cycles is a new game introduced in Francis Su's 2020 book "Mathematics for Human Flourishing". The game can be played on any simple connected planar graph that divides a bounded region of the plane into cells. To play the game, players take turns marking edges with a direction while being careful to avoid creating any sinks or sources. The first player to either complete a directed cycle on the boundary of a single cell or make the last possible move is declared the winner. In this talk, we will give an overview of the game and survey some of the known results pertaining to winning strategies for various classes of graphs. We will also take time to discuss many accessible open questions and conjectures appropriate for any undergraduate student wanting to do research! This is joint work with Maia Averett, Benjamin Gaines, Christopher Jackson, Mary Leah Karker, Malgorzata Aneta Marciniak, Francis Edward Su, and Shanise Walker.

**Keywords:** combinatorial games, games on graphs, topological games.

**Monday, Nov. 20, 12:05 – 12:50 pm in 4-2-314**