

# UCCS Mathematics Colloquium

Tuesday, January 19<sup>th</sup>  
12:30 pm – 1:30 pm  
(Refreshments at 12:15)  
UC Room 307

Brian Hopkins, St. Peter's College

## Sequential Selection and the Symmetric Group

**Abstract:** Sports drafts and divorce settlements are examples of situations where players take turn selecting indivisible goods. Like other topics in fair division, these procedures are interesting since people may value the goods in different ways, allowing the possibility of both players simultaneously getting their top choices. In this talk, we focus on the case of two players and use some algebraic combinatorics of the symmetric group. After determining ideal selection strategies based on what is known of the other player's preferences, we answer questions such as "For how many preference orders do both players enjoy their best possible outcome?" There is a nice connection to partial orders on the symmetric group (the left and right weak Bruhat orders) which allows us to describe some answers in terms of lattice ideals.