

# VCU Discrete Mathematics Seminar

## *Reachable pairs in digraphs and zero pattern matrix rings*

**Prof Eric Swartz,  
College of William and Mary**

Wednesday, Sept. 12  
1:00-1:50  
4145 Harris Hall



Given distinct vertices  $u$  and  $v$  in a directed graph (digraph)  $\Gamma$ , we say that the ordered pair  $(u, v)$  is a *reachable pair* if there exists a path of directed edges from  $u$  to  $v$ . If the digraph  $\Gamma$  has  $n$  vertices, what are the possibilities for the total number of reachable pairs in  $\Gamma$ ? This problem, along with its connection to zero pattern matrix rings, will be discussed. This is joint work with Nicholas Werner, and this talk should be accessible to undergraduates.

For the DM seminar schedule, see:

<http://www.people.vcu.edu/~dcranston/DM-seminar>