

# VCU Discrete Mathematics Seminar

## *Erdos-Gallai near-equalities and the graphs that exhibit them*

**Dr Michael Barrus**  
**University of Rhode Island**

Wednesday, Apr. 5  
1:00-1:50  
4119 Harris Hall (conference room)



The Erdos-Gallai inequalities form a classical criterion for determining whether a list of integers is the degree sequence of a graph. A number of graph families (eg., the split graphs) have characterizations based on one or more of the Erdos-Gallai inequalities holding with equality.

In this talk we show how equality in one of a graph's Erdos-Gallai inequalities leads to a vertex partition with nice properties, and how more generally the differences between the right- and left-hand sides of the inequalities encode structure present in any graph having a given degree sequence.

We also describe the weakly threshold graphs, which "almost" satisfy the first Erdos-Gallai inequalities with equality, showing that these graphs satisfy more general versions of many of the remarkable properties of threshold graphs.

For the DM seminar schedule, see:

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