

**DISCRETE MATHEMATICS SEMINAR**  
CENTER FOR APPLIED MATHEMATICS AND SCIENCE  
DEPARTMENT OF MATHEMATICS  
UNIVERSITY OF WEST GEORGIA

**2:00 PM, FRIDAY, SEPTEMBER 11, 2015**

**BOYD 306**

Speaker: **David Robinson** (Department of Mathematics, UWG)

Title: **Magic Venn Diagrams**

Abstract:

Many classical ‘magic’ figures, such as magic squares, magic stars and (more recently) magic graphs, can be regarded as Venn diagrams in which the nonempty regions are weighted by consecutive natural numbers in such a way that all of the underlying sets have the same total weight - or ‘magic’ sum  $m$ . In this talk we shall develop and explore this generalization called a magic Venn diagram (MVD) by presenting a variety of examples of MVDs, both old and new. In particular I will illustrate how to construct a complete MVD of maximum (and hence also minimum) possible magic sum  $m$  for any number of sets. I will also report on progress my students and I have made on the enumeration of all MVDs (complete and incomplete) on 3 or 4 sets. I hope to indicate what a rich field of unexplored territory and tantalizing combinatorial problems are opened up by this topic.

