Discrete Mathematics Seminar

Time: Friday, 9 October 2015, 2:00-3:00 PM
Room: 237 Derrick Hall
Title: Weak walk matrices, measuring balance, and oriented hypergraphs
Speaker: Dr. Lucas Rusnak, Department of Mathematics

Abstract:

We discuss oriented hypergraphic matrices and introduce weak walk matrices as a unifying combinatorial approach to study them. These results are then extended to incidence-complete families of matrices. We then examine the theory of balance and a generalization of the Abelson-Rosenberg model of attitudinal cognition, in which we introduce various new measures of imbalance as well as obtain a weak walk generalization of Harary's Theorem for balance equivalence for oriented hypergraphs. Finally, we examine the role balance plays in the classification of the circuits of rational matroids.