NORTHERN ARIZONA UNIVERSITY

Department of Mathematics and Statistics

COLLOQUIUM
Tuesday, April 7th, 2015
4:00 – 5:00 pm, Adel Mathematics Bldg., Room 164
(refreshments at 3:45)

Dr. Dana Ernst
NAU

Impartial achievement and avoidance games for generating finite groups

Abstract: In this talk, we will explore two impartial games introduced by Anderson and Harary. Both games are played by two players who alternately select previously unselected elements of a finite group. The first player who builds a generating set from the jointly selected elements wins the first game (achievement). The first player who cannot select an element without building a generating set loses the second game (avoidance). After the development of some general results, we determine the nim-numbers of both games for abelian and dihedral groups. In addition, we present a criteria on the maximal subgroups that determines the nim-numbers of avoidance games. Lastly, we apply our criteria to compute the nim-numbers of avoidance games for several families of groups, including nilpotent, generalized dihedral, generalized quaternion, and Coxeter groups. This is joint work with Bret Benesh and Nandor Sieben.

Algebra Combinatorics Geometry and Topology (ACGT) Seminar will meet Tuesday April 7th, 12:45 – 2:00 pm, AMB 164.

Applied Math Seminar (AMS) will meet Thursday April 9th, 12:45 – 1:45pm, AMB 164.

Friday Afternoon Undergraduate Mathematics Seminar (FAMUS) will meet Friday April 10th, 3:00 – 4:00pm, AMB 164.