1086-K1-1307   **David J Schmitz*** (`djschmitz@noctrl.edu`), 30 N. Brainard Street, Naperville, IL 60613.
Teaching "Mathematics in Square Dancing". Preliminary report.

Since 2006, I have taught a two week course called "The Mathematics of Square Dancing" at North Central College. Square dancing, which has been described as mathematics on the dance floor, consists of a vocabulary of calls, each of which provides dancers with a precise set of instructions on how to transform themselves between formations, or to permute themselves within a single formation. Many square dance movements involve rotations, reflections, or translations; moreover, these movements start and end in various geometric configurations such as matrices, triangles, circles, diamonds, parallelograms, etc. Higher level square dancing requires mathematical thinking and sharp puzzle-solving skills to execute the unrehearsed choreography accurately and quickly.

In my class, I demonstrate how square dancing provides a way to visualize abstract mathematical concepts such as permutations, set partitions, group theory, and modular arithmetic. One doesn't have to be a mathematician to be an accomplished square dancer; however, knowing the mathematical connections to square dancing can provide dancers a deeper level of understanding and appreciation for the activity. (Received September 21, 2012)