NORTHERN ARIZONA UNIVERSITY

Department of Mathematics and Statistics

COLLOQUIUM
Tuesday, November 22nd, 2016
4:00 – 5:00 pm, Adel Mathematics Bldg., Room 164
(refreshments at 3:45)

Dr. Kathryn Bryant
Colorado College
(an NAU Math and Stat Alumni)

Pretzel Knots: Slices, Ribbons, and Mutations

Abstract: A long-standing conjecture in low-dimensional topology is the Slice-Ribbon Conjecture, which posits the equivalence of two types of knots: slice knots and ribbon knots. This conjecture lies at the intersection between knot theory, 3-manifold topology, and 4-manifold topology, making the study of slice/ribbon knots a very rich and active area of interest. This talk will focus on exploring the Slice-Ribbon Conjecture for an infinite family of knots called pretzel knots, for which the operation of `knot mutation' plays a mysterious yet significant role. Definitions will be given for the objects and concepts in question (slice/ribbon/pretzel knots, knot mutation), but basic knowledge of manifolds, covering spaces, and groups will be assumed. Such knowledge is not required, however, for a general appreciation for the topic as the speaker will emphasize the logical structure of her arguments rather than the topology-specific details. Ample amounts of figures will also be included.

Algebra Combinatorics Geometry and Topology (ACGT) Seminar meets every Tuesday, 12:45 – 1:45 pm, AMB 146.

Applied Math Seminar (AMS) meets on Thursdays, 12:45 – 1:45 pm, AMB 164.

Friday Afternoon Undergraduate Mathematics Seminar (FAMUS) meets Fridays, 3pm, AMB 164.