1172-55-270   **Kelly Pohland*** (`kpohland@uoregon.edu`), 1585 E 13th Avenue, University of Oregon, Department of Mathematics, Eugene, OR 97403. *The $RO(C_3)$-graded cohomology of C_3-surfaces in $\underline{\mathbb{Z}/3}$-coefficients.*

In this talk, we explore a recent family of computations in $RO(C_3)$-graded cohomology where C_3 denotes the cyclic group of order 3. In 2019, Hazel computed the $RO(C_2)$-graded cohomology of all C_2-surfaces in constant $\underline{\mathbb{Z}/2}$-coefficients based on a classification given by Dugger. We perform similar computations, instead classifying surfaces with an action of C_3 and then computing their $RO(C_3)$-graded cohomology in $\underline{\mathbb{Z}/3}$-coefficients. In this talk, we give an overview of the main result as well as demonstrate some of the techniques used through small examples. (Received August 30, 2021)