

1135-E1-1580 **Kristofer D Jorgenson*** (kjorgenson@sulross.edu), Box C-18, Sul Ross State University,
Alpine, TX 79832. *Teaching Modern Algebra Through Applications.*

I would like to discuss methods I've used and continue to modify and perfect for teaching an introductory course in rings, fields, and groups that ties these abstract concepts to real-life applications such as: (a) showing how every field axiom is used in solving a first degree equation in the real numbers. (b) showing how modular arithmetic in Z_n , vector spaces, or basic group properties are used to solve problems in linear codes, bar codes and error-correcting codes. (c) showing how field extensions are used to solve Ancient Greek compass-and-straightedge geometric construction problems. (d) showing how quotient rings are used in the mathematics of general finite fields and error-correcting codes. (Received September 26, 2017)