

1056-G1-2056 **K. Rohan Attele*** (katttele@csu.edu), Department of Mathematics, HWH 332, Chicago State University, 9501 South King Drive, Chicago, IL 60615, **Dan Hrozencik**, IL , and **Victor Akatsa** (katttele@csu.edu), IL. *Linear Algebra Done Right! Back to Grassmann.*

Linear algebra as enunciated by its founder Grassman, and Clifford is a powerful unifier of geometries and algebra. However, the way linear algebra is now taught do not fully make use of their ideas. Consequently, students are not provided with all the tools that they could have had to apply linear algebra more broadly and efficiently. They are stymied in their progress by having some key definitions such as linear independence appear to be artificial and unmotivating, and by not fully understanding fundamental concepts such as duality.

The challenge is to enhance the current course material by incorporating ideas of Grassmann and Clifford to bring about better understanding and wider applicability, but still stay within the normal parameters of a sophomore or junior course. Convincing others of its feasibility is a central goal of this presentation. It will be demonstrated the wedge product of vectors can be easily interpreted geometrically and all the basic properties of vector spaces such as the Steinitz Base Exchange theorem can be derived by using wedge products.

The computational foundation and algebraic manipulations that students gain will also prepare them to more easily acquire the culture of abstract algebra. (Received September 23, 2009)