1106-L5-2730 **Jeff Randell Knisley*** (knisleyj@etsu.edu). *Complex Differentiation in Contexts.*

Complex analysis is elegant to the point of being ethereal, but often students fail to see either. A major contributor to this phenomenon is that the definition of the derivative tends to be motivated by its analogy to real differentiation rather than by a geometric problem or a physics context.

Fortunately, there are numerous fields of science, technology, engineering, and mathematics that continue to benefit richly from ideas in complex analysis, and these can be used to not only motivate complex analysis but also to provide "real world" interpretations of complex derivatives. For example, conformal mapping can be enlivened by something as simple as the fact the square of an ellipse centered at the origin results in an ellipse with one focus at the origin. This simple example can also be as a context for complex differentiation of conformal maps.

Likewise, in this presentation we introduce applications of complex analysis in population genetics, in numerical analysis, in quantum mechanics, and in several other fields. The focus, however, is on providing contexts for interpreting complex derivatives geometrically and otherwise, much like a calculus sequence uses multiple applications of tangent lines and rates of change. (Received September 16, 2014)