1106-26-1604 **Fred Halpern*** (fredhalp@gmail.com). *From Discrete to Analytic Inequality.* Preliminary report.

Mathematical folklore suggests that many discrete inequalities have analytic analogs. We formalize this intuition with a methodology that systematically provides a large class of discrete inequalities with analytic analogs.

A key insight is we must start with a very general inequality valid for all n and all collections of n-sequences. The generality yields inequalities that can be manipulated to provide a uniform system of inequalities between Riemann sums. We state a theorem with the Holder (Cauchy–Schwarz) and Minkowski inequalities as special cases. It also yields an Analytic analogue to the Arithmetic-Geometric Mean inequality with specific interesting examples.

The collections of n-sequences can be restricted by conditions on the sequences (positive, monotone, convex) if the corresponding condition on functions yield Riemann sums.whose terms satisfy the condition. The corresponding theorem has Jensen's and Chebyshev's sum inequalities as corollaries.

The method also yields double integral of two variable functions inequalities corresponding to double sums of doubly indexed sequences inequalities. Minkowski's double sum inequality is an example. It also extends to convolution inequalities with Young's inquality as an example. (Received September 14, 2014)