INEQUALITIES: THEORY OF MAJORIZATION
AND ITS APPLICATIONS

Ingram Olkin, PhD
Department of Statistics
Stanford University

ABSTRACT:

There are many theories of "equations": linear equations, differential equations, functional equations, and more. However, there is no central theory of "inequations". There are several general themes that lead to many inequalities. One such theme is convexity. Another theme is majorization, which is a particular partial order. What is important in this context is that the partial order have lots of examples, and that the order-preserving functions be a rich class. In this case majorization arises in many fields: in mathematics: geometry, numerical analysis, graph theory; in other fields: physics, chemistry, political science, economics. In this talk we describe the origins of majorization and many examples of majorization and its consequences.