1035-60-1182 **Elizabeth S. Allman*** (e.allman@uaf.edu), Department of Mathematics and Statistics, PO Box 756660, Fairbanks, AK 99775, and **John A. Rhodes** (j.rhodes@uaf.edu), Department of Mathematics and Statistics, PO Box 756660, Fairbanks, AK 99775. *Secant varieties and statistical models.*

Certain statistical models with unobserved variables naturally give rise to secant varieties. While algebraic geometers have often focused on understanding the dimensions of these varieties, more detailed algebraic questions are also of interest for statistical purposes. In particular, when the preimage of a point under the natural parameterization is zero dimensional, can we further characterize it? After briefly presenting the statistical issues, we discuss recent work which builds on ideas from the statistical literature to improve algebraic understanding. (Received September 19, 2007)