Subject: Re: Doing chi square and/or lognormal fits to 1D data?
Posted by swingnut on Sun, 30 Jul 2006 05:05:51 GMT
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So, after enough reading, I've determined that my predecessor was less than accurate in describing his work. First, I misinterpreted what he meant in describing his chi square fits -- he calls it a "2 parameter" chi square distribution. After realizing this, I set off searching for this mystical beast I had never heard of, given that your standard chi square distribution has only one parameter, the degrees of freedom. There is indeed a two paramter chi square distribution, the noncentral chi square. This is generated by adding up squares of normal random variables that are not standard, i.e., the variances of each RV is 1, but the means are not required to be zero. (Info at http://en.wikipedia.org/wiki/Noncentral_chi-square_distribut ion.)

At this point, I stopped to review my predecessor's thesis again. The equation he provided is not the pdf or the probability function for the noncentral -- it has a scale parameter, not an offset -- so I went searching for generalizations and related distributions. Turns out the mystery distribution is the gamma distribution (http://en.wikipedia.org/wiki/Gamma_distribution), so I'll probably just use Matlab's library fuction to fit that chunk of data.

[Ed. note: Written for the sake of helping future google searchers.]