

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENT SEMINAR

4:15 p.m., Tuesday, August 13, 2002
Sequoia Hall Room 200
(Cookies at 3:45 in 1st Floor Lounge)

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Ill-Posed Problems in Probability and Statistics

Here we consider so called *ill-posed* problems in statistics and probability theory. Ill-posed problems are usually understood as certain results where small changes in the assumptions lead to arbitrary large changes in the conclusions. Such results are not very useful for practical applications, where the presumptions usually hold only approximately. Presumably, the ill-posedness of certain practical problems is due to the lack of their precise mathematical formulation. Consequently, we can deal with such problems by replacing a given ill-problem with another, well-posed problem, which in some sense is "close" to the original one.

Our goal is to show that ill-posed problems are not a curiosity in the contemporary theory of mathematical statistics and probability. On the contrary, such problems are quite common, and the majority of classical results fall into this class. Our objective is to identify problems of this type, and re-formulate them more correctly. Thus, we shall propose alternative (more precise in the above sense) versions of numerous classical theorems in the theory of probability and mathematical statistics. In addition, we shall consider some non-standard problems from this point of view.