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Seminar

Speaker: **Professor Deborah Mayo**
Virginia Tech

Title**:**   ***Probing with Severity: Beyond Bayesian Probabilism and Frequentist Performance***

Time: **3:20 – 4:20pm, *Wednesday*, December 3, 2014**

Place: **552 Hill Center**

Abstract

Getting beyond today's most pressing controversies revolving around statistical methods, I argue, requires scrutinizing their underlying statistical philosophies.Two main philosophies about the roles of probability in statistical inference are *probabilism* and *performance* (in the long-run). The first assumes that we need a method of assigning probabilities to hypotheses; the second assumes that the main function of statistical method is to control long-run performance. I offer a third goal: controlling and evaluating the *probativeness* of methods. An inductive inference, in this conception, takes the form of inferring hypotheses to the extent that they have been well or severely tested. A report of poorly tested claims must also be part of an adequate inference. I develop a statistical philosophy in which error probabilities of methods may be used to evaluate and control the stringency or severity of tests. I then show how the "severe testing" philosophy clarifies and avoids familiar criticisms and abuses of significance tests and cognate methods (e.g., confidence intervals). Severity may be threatened in three main ways: fallacies of statistical tests, unwarranted links between statistical and substantive claims, and violations of model assumptions.

Mini-bio:
Deborah G. Mayo is a professor in the Department of Philosophy at Virginia Tech. She is a visiting professor in the London School of Economics and Political Science: Center for the Philosophy of Natural and Social Science (CPNSS) (2007-present).
She is the author of *Error and the Growth of Experimental Knowledge*, which won the 1998 Lakatos Prize in philosophy of science. She was Director of a NEH Summer Seminar in 1999 on Philosophy of Experimental Inference: Induction, Reliability and Error. She originated a Fund for Experimental Reasoning, Reliability and the Objectivity and Rationality of Science (E.R.R.O.R) in 2005, which has co-organized and co-sponsored 10 conferences (2 international) and several distinguished lecture series. Her research specialties are philosophy of statistics, experiment, and interdisciplinary work in risk assessment and policy. She is immersed in joint efforts with statisticians, economists, and physicists on problems of evidence and inference.

** Refreshments will be served @2:50pm in Room 502 Hill Center **