

1116-M1-2852      **Soma Roy\*** (soroy@calpoly.edu), 1 Grand Avenue, Statistics Department, California Polytechnic State University, San Luis Obispo, CA 93407. *Design of Experiments: Helping Students Understand the Importance of Identifying Sources of Variability.*

In our introductory statistics class at Cal Poly, we introduce students to the logic of inference by saying that in well-designed studies there are always two possible explanations for the study results - random chance and something other than random chance. In our upper-level design of experiments (DOE) class, I revisit this idea of possible explanations, and have students now focus on what makes an experiment ‘well-designed.’ When designing an experiment, as statisticians we focus on identifying as many sources of variability as possible that might affect the response variable. Then, we design the experiment in such a way so as to isolate some of these sources and minimize/control the effect of the other sources on the response variable. In this talk I will describe an activity I use in week 1 of this DOE course that motivates the importance of identifying sources of variability, requires students to brainstorm such sources in the context of different studies and use design tools, such as, direct-control and randomization, to account for the effects of these sources on the response. I will provide examples of how I use such activities to help students progress from simple design structures to more complicated ones, all while thinking about accounting for sources of variability. (Received September 22, 2015)