

1106-K1-2673 **Michael A. Karls*** (mkarls@bsu.edu), Department of Mathematical Sciences, Ball State University, Muncie, IN 47306. *An Applied Project-Driven Approach to Undergraduate Research Experiences.*

In 1999 I was approached by a Ball State student to be an Honors Thesis advisor. Having no clue what constituted an appropriate honors thesis project, I gave the student an open-ended problem to consider – modeling heat flow in a thermos. Not only did the student complete his honors thesis, but the resulting work led to a refereed journal article and opened the door to a very successful series of collaborative undergraduate research projects. All of the problems have the following in common – they are simple to state, open-ended, student driven, mathematically significant, rely on student insight, and require a substantial amount of work on both the student’s and my part. Several of these projects have led to a refereed publication that could be used to illustrate topics taught in the undergraduate curriculum. We will look at the process I have developed for this type of research, what works and what doesn’t work, and touch on some of the topics explored, namely heat flow, cryptography, and diving boards. (Received September 16, 2014)