

Inverse Methods in Geophysics
CERI 7260/8260
Homework 1
and for class discussion Monday February 5th

Please pass in a neatly formatted and typed document. (hint: This is writing practice! And, please use your own words. Any phrases or sentences pulled from these papers should be in quotes.)

1. Please read "The Unreasonable Effectiveness of Mathematics in the Natural Sciences" by E. P. Wigner and answer the following:
 - a. What are the two main points of the paper?
 - b. What is Mathematics?
 - c. What is Physics?
 - d. What is the relationship of Mathematics to Physics?
 - e. What is uniqueness?
 - f. Give an example and examine "regularity" and "initial conditions" for a geophysical problem not used by anyone else in the class.

2. Please read "Historical science, experimental science, and the scientific method" by C. E. Cleland and answer the following:
 - a. What is the problem being addressed in this paper?
 - b. What are the two ways to test a hypothesis and problems with each?
 - c. What do scientists actually do?
 - d. How is laboratory (experimental) science done?
 - e. How is historical science done?
 - f. Explain the "Asymmetry of Overdetermination". Give an example not in the paper and not used by anyone else in the class.